

**2025  
EDITION**

# **COMMERCIAL DUE DILIGENCE PLAYBOOK**



**UMBREX**

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# Chapter 1. Purpose and Scope of the Playbook

Commercial due diligence (CDD) is where investment conviction is built—or broken. This playbook is designed for busy practitioners who need crisp, field-tested guidance they can apply today. It gives you a pragmatic way to pressure-test an investment thesis, quantify upside and downside, and separate signals from noise under tight timelines.

What you'll find here is a working standard for excellence in CDD. We start by clarifying what CDD is (and is not), where it sits relative to other diligence streams, and how to apply it across buy-side, sell-side, and lender contexts. Throughout the playbook we favor reproducible analytics, transparent assumptions, and synthesized insights over data dumps. Our bar is simple: every material claim in a diligence report should be traceable, triangulated, and framed in terms of value at stake.

## 1.1 Definition of Commercial Due Diligence

Commercial due diligence is an outside-in evaluation of a target's ability to create and sustain profitable growth in its real market context. In plain terms: it tests whether the business's revenue engine is attractive, defensible, and aligned to the investment thesis. That requires examining four interconnected arenas—markets, customers, competitors, and the company's commercial capabilities—and translating the findings into value (growth, margins, and cash). Leading practitioners define CDD as a review of historical and forecast performance from these perspectives, offering an objective assessment of strategic risks, opportunities, and the achievability of projections.

CDD is distinct from, yet interdependent with, other diligence streams. Financial diligence verifies the integrity of past and present numbers; legal diligence surfaces contractual and regulatory liabilities; operational and technology diligence probe delivery capabilities and systems. CDD's job is to determine whether the external opportunity and the target's competitive position can support the revenue, price realization, and share-gain implied by the deal model—then to state, with evidence, what would have to be true for

the investment case to hold. Global advisors routinely present diligence as a multi-stream effort; CDD is the market-backbone of that effort.

You will encounter multiple labels for work that is substantially “commercial”: market due diligence, strategic due diligence, or business due diligence. The emphasis may vary—some firms stress industry structure and value pools; others focus on business-model resiliency, exit routes, or financiers’ perspectives—but the core aim is consistent: test market attractiveness and competitive position, quantify value creation paths, and de-risk the forecast.

CDD typically addresses a standard set of questions. What is the true market size today and the most plausible growth path? Which segments matter and why? How sticky is demand—what do acquisition, retention, and wallet-share patterns tell us about the durability of revenue? Where does pricing power come from, and how does it move under pressure? Which competitors matter, how are they likely to respond, and what would it take to change share? Are there structural headwinds (regulation, channel shifts, technology change) that could cap upside or accelerate downside? This outside-in focus—market demand, competitive dynamics, customer relationships, and the achievability of management’s projections—is the defining scope of CDD.

Buy-side, sell-side, and other variants. While most readers will use CDD for buy-side private equity or corporate acquisitions, the same logic applies to vendor-initiated CDD (commissioned by the seller ahead of a process), red-flag CDD (an expedited, risk-first review), and top-up CDD (narrow, buyer-driven follow-ups after a vendor report). These variants differ in timing, depth, and audience, but the analytical core is the same: independent testing of the growth and share story.

Why the definition matters. Clear scope prevents two common failure modes. The first is “spreadsheet diligence,” where teams re-cast the model without confronting external realities. The second is “narrative diligence,” where teams accept the growth story without forcing it through market math. A robust CDD definition anchors the work in externally verifiable facts, not preference or momentum. As major firms emphasize, diligence should link industry dynamics and competitive position to value creation opportunities—and be explicit about the risks and assumptions that really move the deal.

What CDD is not. It is not a substitute for regulatory analysis, technical code reviews, quality of earnings, or contract-by-contract legal review. Nor is it a marketing plan. It is the disciplined reconciliation of the investment thesis with

what the market will realistically allow, under multiple scenarios, within the deal timeline. Because most deals compress decision-making into weeks, CDD must be rigorous and fast—prioritizing the few insights that change valuation or terms. Sector sources commonly note diligence timeframes of several weeks; while your context may differ, assume scarcity of time and design your approach accordingly.

How this playbook operationalizes the definition. In the chapters that follow, we translate this definition into repeatable steps: dual-track market sizing (bottom-up and top-down), targeted primary research with customers and channel partners, competitor response modeling, price and mix decomposition, unit economics diagnostics, and driver-based scenario modeling. At each step we delineate the handoffs to other diligence streams—operational, technology, and ESG—so the combined picture supports an integrated investment recommendation. Industry leaders explicitly call for that integration; we codify it here so you can execute with speed and confidence.

## 1.2 Typical Use-Cases and Engagement Contexts

Commercial due diligence shows up at decisive moments—when capital is about to move, when narratives need proof, and when speed matters. The context you’re operating in dictates the scope, depth, and cadence of the work. This section maps the most common engagement types, what “good” looks like in each, and how to right-size the effort so you answer the question the deal is actually asking.

### **Buy-side platform acquisitions (private equity and corporate).**

This is the archetypal CDD: an outside-in assessment of market attractiveness and the target’s ability to win. The emphasis is on thesis-critical drivers—true market size and growth, price realization, customer stickiness, and competitor behavior—and on building a defensible, driver-based forecast. Expect parallel workstreams: dual-track sizing (bottom-up and top-down), targeted primary research, unit-economics diagnostics, and competitor response modeling. In corporate settings, put more weight on synergy plausibility, integration constraints, and regulatory headwinds.

## **Add-ons, bolt-ons, and roll-ups.**

The core question is “fit”: does the asset strengthen the platform’s right to win, or dilute it? You’ll examine adjacency logic (product, channel, geography), overlap and cannibalization risk, channel conflict, and the feasibility of cross-sell. The pacing is faster than a platform buy; prioritize compatibility with the parent’s pricing power, go-to-market model, and brand promise. Your output should quantify synergy ranges and specify the “gates” the asset must clear to be accretive.

## **Carve-outs and separations.**

Here the market can be attractive while the near-term revenue line is fragile. Focus on stranded revenue risk (customers tied to the parent’s brand, channels, or data), TSA and Day-1 commercial readiness, and any license, data, or distributor dependencies. The diligence should pressure-test whether the standalone entity can maintain price, win renewals, and rebuild the pipeline without parent assets—and what time and investment are truly required.

## **Growth equity and minority investments.**

These cases revolve around slope, not just level: Is growth durable, capital-efficient, and scalable? Work the unit economics (acquisition cost, payback, LTV/CAC), cohort retention and expansion, sales capacity ramp, and the operational choke points that can stall growth. Rather than a full synergy model, you’re validating the path to the next value inflection: category leadership, geographic expansion, or product extension.

## **Public-to-private (take-private) transactions.**

Information symmetry shifts: you’ll rely more on outside-in signals, channel checks, customer research, and competitor triangulation, with strict attention to MNPI controls. Priorities include testing whether public guidance lines up with market mechanics, quantifying the downside under multiple sentiment and price-compression scenarios, and mapping the value-creation levers that public markets under-reward (pricing, mix, focus).

## **Lenders' market studies and credit CDD.**

Debt providers need to understand resilience: downside volume, pricing under stress, customer concentration, and contract durability. The work is skewed to adverse scenarios—cyclical, regulatory breaks, substitution risk—and to the timing and severity of potential drawdowns. Deliverables lean into stress tests, early-warning indicators, and triggers for covenant discussions.

## **Sell-side (vendor) CDD and vendor assistance.**

A vendor report de-risks a process by answering the critical market questions once, with transparent sources and a level playing field for bidders. To be credible, it must read neutral, separate facts from sponsor narrative, and be explicit about uncertainties. Expect buyers to commission top-up work; minimize this by publishing your assumptions, interview guides, and sensitivity ranges in a well-organized data book.

## **Red-flag or screening CDD.**

When time or fees are tight, the job is triage: identify the “deal killers” early. Decide up front what qualifies as a red flag (e.g., structural decline masked by mix, non-replicable pricing power, regulatory cliffs, or a disruptive competitor with a cost curve advantage). The output is a short, evidence-backed go/no-go with a list of issues that either terminate the pursuit or warrant a full diligence.

## **Top-up and confirmatory CDD.**

Typical when a vendor study exists, or in late-stage bilateral negotiations. Scope is narrow and surgical: replicate the few analyses that really move value for your thesis, refresh aging data points, or resolve contradictions in the vendor report. Aim for independent corroboration (e.g., your own customer calls) rather than re-stating the same sources.

## **Joint ventures, alliances, and licensing.**

The thesis often hinges on complementary assets and route-to-market advantages. Diligence should focus on contribution economics, control points (who owns the customer and pricing), and failure modes if one party under-delivers. Model incentives carefully; many JV disappointments are misaligned economics in disguise.

## IPO readiness and equity story validation.

Issuers and banks commission market studies to anchor the growth narrative and comparables. CDD in this context must be meticulous on definitions (TAM vs. serviceable market), cohort math, and the link between market share, pricing, and margins. Precision and transparency matter—assume the audience will challenge every bridge and data source.

## Distressed, turnaround, and covenant-reset contexts.

The assignment is to separate structural from fixable. Test price vs. volume dynamics, customer willingness to pay vs. ability to pay, and the speed at which share can be reclaimed. Your scenarios should make explicit what must be true for stabilization and what investment is non-negotiable to protect the core.

## Cross-border and emerging-market deals.

Local market structure, regulation, and buyer behavior often differ meaningfully from the acquirer's home market. Lean into local primary research, channel and distributor mapping, and realistic ramp times. Address FX exposure, political risk, and compliance (e.g., anti-bribery) early, and plan for clean-team protocols if competitively sensitive data is involved.

## Sector-specific nuances.

While the playbook is sector-agnostic, context shifts emphasis:

- **Software/SaaS:** ARR/NRR, cohort retention, seat expansion, pricing architecture, and competitive moats (ecosystem, switching costs).
- **Industrial and B2B:** share maps down to micro-segments, installed base and replacement cycles, distributor power, and service pull-through.
- **Consumer and retail:** brand strength, retail media effectiveness, promo elasticity, private-label pressure, and omnichannel economics.
- **Healthcare and financial services:** reimbursement or regulatory regimes, credentialing or licensing bottlenecks, and compliance-driven switching costs.

## Auctions vs. bilaterals; access vs. no-access.

In auction processes, assume limited management time and heterogeneous data rooms. Your plan must be outside-in heavy, with an emphasis on rapid primary research and independent data. In bilateral settings, you may obtain deeper access—use it to test commercial capabilities, not just to collect more documents. When access is constrained (e.g., competitive deals), work through advisors, customers, and channel partners, and be explicit about residual uncertainty.

## Timing, pacing, and deliverable shape.

CDD is measured in weeks, not months. Red-flag sprints are shorter; confirmatory top-ups are tighter still. Regardless of timeline, insist on three gates: initial hypotheses and must-prove questions; mid-sprint validation of the few things that move value; pre-IC synthesis that ties insights to valuation, terms, and must-do diligence in other streams (financial, legal, operational, technology).

## Commissioning CDD: a quick checklist.

- Is there a clear investment thesis that the CDD can actually test?
- What single question—answered credibly—would most change price, structure, or go/no-go?
- What level of management access and data room quality should we assume?
- Which external sources and primary research cohorts will provide independent proof?
- What is the feasible time window, and what gates must the team hit?
- How will CDD hand off to other diligence streams, and who owns each dependency?

## Right-sizing scope: practical guardrails.

- If the deal is a tuck-in with well-known customers and channels, bias to a focused, confirmatory scope.
- If the thesis depends on behavior change (e.g., price increases, channel shifts), allocate more time to primary research and elasticity testing.

- If value hinges on a few large customers, treat concentration as a standalone workstream with direct outreach.
- If regulatory change is in flight, include explicit policy scenarios and timing risk.
- If a vendor report exists, invest in independent replication rather than re-analysis of the same data.

Across these contexts, the through-line is the same: start from the outside-in, test the few assumptions that move value, and be explicit about uncertainty and its impact on price and structure. Done well, CDD gives decision-makers a clear, defensible answer to the only question that ultimately matters: “What would have to be true for this investment to work—and how sure are we that those conditions will hold?”

### 1.3 Core Questions Answered by CDD

Commercial due diligence earns its keep by answering a short list of questions that directly change price, structure, or go/no-go. The job is to translate an investment thesis into testable statements, pressure-test them with outside-in evidence, and quantify the value at stake under multiple scenarios. In practice, that means interrogating markets, customers, competitors, and the target’s commercial engine with a simple lens: Is the growth real, repeatable, and defensible—and what would have to be true for it to hold?

The first cluster of questions targets market attractiveness and shape. What is the true market size today (TAM, serviceable market, and reachable share) and how will it evolve over the holding period? Which segments and geographies drive growth, and what mix shifts—product, channel, or customer—are embedded in the plan? How cyclical is demand, what shocks matter (technology, regulation, substitution), and how quickly do markets recover after downturns? The answers define not only the ceiling for revenue but also the headroom for price and mix.

From there, the focus shifts to demand quality and customer behavior. Who buys, why, and on what decision cycle? How concentrated is revenue, how durable are contracts, and where does churn really come from? Do cohorts expand over time or decay, and what does that say about product-market fit? In recurring businesses, we probe ARR/NRR, retention mechanics, and upsell paths; in transactional businesses, repeat purchase rates, basket mix, and

lifetime value. The core question is simple: how sticky is the revenue engine, and what must be true to keep it that way?

Competitive dynamics determine whether today's position can be defended—and at what cost. Who actually sets the pace in this market, and how is the share moving by micro-segment? What is the source of advantage (cost curve, brand, data, network effects, switching costs), and how easily can rivals copy it? How rational is pricing behavior, and what happens when a disruptor or scaled incumbent turns up the heat? We also ask how distributors, platforms, or marketplaces shape bargaining power and whether the target controls the customer relationship or rents it.

Value proposition, product, and pricing are where growth meets economics. What problem does the offer solve better than alternatives, and which features truly command willingness to pay? How does the price architecture work (list, discount, rebates, bundles), where is leakage occurring, and what is the path to better realization? Is the roadmap credible—funded, prioritized, and timed to influence the hold period—or does it rely on heroic execution? These answers anchor the sustainability of gross margin and the scope for price-led value creation.

Go-to-market effectiveness turns opportunity into orders. Is coverage matched to potential by segment and territory, and does the channel mix create or destroy margin? What is sales productivity by role, how healthy is the funnel by stage, and where do leads actually convert? Which partners matter, how are they incented, and is there channel conflict? If the thesis relies on faster growth, what capacity, capability, and enablement are required to make that growth show up in bookings and renewals?

Unit economics and profit drivers tell us whether growth is worth buying. What are the true contribution margins by segment or SKU after discounting and cost-to-serve? How do CAC, payback, and LTV/CAC look by cohort, and how sensitive are they to price, mix, and channel? Where are fixed vs. variable costs, and what operating leverage is realistic as scale increases? This is where many stories break—when attractive revenue masks poor unit economics or rising cost-to-serve.

Forecast achievability is the pivotal synthesis. How does history bridge to plan, driver by driver—category growth, share change, price, and mix—and what's the evidence behind each assumption? What do base, downside, and upside scenarios look like, and which two or three variables swing value the most?

How long do ramp times actually take for new products, channels, or territories, and what milestones signal that the plan is on track? The output is not just a number; it is a “would-have-to-be-true” map that informs valuation, terms, and post-close priorities.

External forces—regulation, ESG, macro, and geopolitics—can cap upside or accelerate downside. Which policies or standards are material to pricing, reimbursement, or market access? Are there environmental or social risks that could reshape demand or cost to serve? How exposed is the business to FX, commodity swings, or supply bottlenecks, and what hedges are feasible? These questions ensure the forecast sits in the real world, not a spreadsheet vacuum.

Operational enablers matter even in a commercial workstream. Can the company deliver the demand the model assumes—on lead times, service levels, quality, and capacity? Are there dependencies on single suppliers, key datasets, or platform APIs that introduce hidden fragility? What bottlenecks would appear at 1.5× volume, and what investment is required to avoid them? If the target sells more, can it reliably fulfill, service, and renew?

In deal contexts that contemplate integration, we surface synergy-critical questions. Which revenue synergies are real (cross-sell, channel lift, geographic expansion), how fast can they be realized, and what cannibalization should we expect? What commercial capabilities from the buyer unlock value (pricing, key account coverage, brand), and where will integration friction erode it? What one-time costs and timing risks should be baked into valuation or an earnout?

Finally, diligence must explicitly call out red flags and residual risk. Are we over-reliant on a single customer, a single channel partner, or a regulatory exemption? Is apparent growth a function of unsustainable discounting, temporary mix, or a one-off contract? What early-warning indicators should management and lenders monitor, and what mitigations (price architecture, contract terms, product hardening) are actually available?

### **Core question checklist (use to anchor your CDD scope):**

- How big is the market today, how is it defined, and what growth is most plausible by segment and geography?
- What mix shifts (product, channel, customer) explain recent and future growth?

- How concentrated is revenue, and how durable are contracts and relationships?
- What are true churn, retention, and expansion drivers by cohort?
- Who are the real competitors by micro-segment, and how is share moving
- What is the source of advantage, and how copyable is it?
- Where does pricing power come from, and what is realized after discounts and rebates?
- Which product features or bundles command willingness to pay, and what is the roadmap's credibility?
- Is the go-to-market model efficient—coverage, conversion, productivity, and channel economics?
- What are contribution margins and cost-to-serve by segment or SKU?
- What are CAC, payback, and LTV/CAC, and how sensitive are they?
- How does history bridge to plan; which two or three drivers swing value most?
- What downside scenarios are decision-relevant, and what triggers would we watch?
- Which external factors (regulatory, ESG, macro, supply) materially change the story?
- Can operations deliver the modeled demand without degrading service or margin?
- Which revenue synergies are real, how fast are they realizable, and what cannibalization risks exist?
- What red flags remain, what would invalidate the thesis, and how should price or structure reflect that?

If your CDD crisply answers these questions—with evidence, triangulation, and quantified sensitivities—you will give decision-makers what they need: a defensible view of achievability, risk, and value creation levers, expressed in terms that move investment decisions.

## 1.4 Limitations and Interfaces with Other Due Diligence Streams

Commercial due diligence is powerful—but it is not omniscient. It is designed to test whether a growth story holds up in the real world, using outside evidence and pragmatic analytics under tight timelines. By design, it does not certify historical accounts, validate code, interpret contracts, or sign off on regulatory compliance. Getting great outcomes means knowing where CDD stops, where other diligence streams start, and how to engineer clean handoffs so the whole deal picture is coherent.

The first limitation is scope. CDD focuses on markets, customers, competitors, and the target's commercial engine. We examine pricing power, share movement, retention mechanics, and the achievability of plan assumptions. We do not audit revenue recognition, account for every accrual, or determine whether a contract is enforceable. When we analyze unit economics, for example, we model average cost-to-serve and price realization patterns; we do not rebuild the general ledger. When we evaluate customer stickiness through cohort behavior, we are not ruling on the legality of auto-renew clauses or data-use rights. Those answers sit in other streams.

The second limitation is evidence quality under time compression. Most CDDs play out in weeks, not months. That forces sample sizes, proxy metrics, and triangulation over perfect information. Primary research may be constrained by access rules, an active auction, or customer sensitivity. Third-party datasets often have blind spots or lag. We mitigate with dual-method sizing (top-down and bottom-up), independent source triangulation, and explicit confidence ratings, but residual uncertainty remains. Treat point estimates as ranges and resist false precision.

A third limitation is causality versus correlation. We can show that price realized improved as the channel mix shifted, or that churn fell as product adoption rose. Proving causal mechanisms typically requires experiments, long time series, or access to instrumentation that diligence rarely affords. We therefore present “would-have-to-be-true” conditions and sensitivity bands rather than single-track predictions.

Finally, CDD is not an integration plan. We assess whether revenue synergies are plausible and what capabilities unlock them, but we do not design the post-close operating model, map Day-1 org charts, or negotiate Transitional

Service Agreements (TSAs). We mark the gates; integration leaders decide how to run through them.

With those boundaries clear, here is how CDD interfaces with the other diligence streams you'll rely on.

## **Financial diligence (Quality of Earnings)**

CDD surfaces where the commercial story and reported numbers need reconciliation. We test revenue bridges—category growth, share change, price, and mix—against outside-in evidence and customer work. When we flag anomalies (unusual quarter-end spikes, one-off deals, channel stuffing signals, extraordinary discounting, or deferred revenue shifts), financial diligence validates the mechanics through ledger-level testing, revenue recognition policies, AR aging, and reserves. Similarly, if ARR/NRR and cohort curves carry the thesis, CDD provides the analytical shape while FDD confirms definitions, data lineage, and consistency across systems. The interface is a two-way street: QoE findings on normalization, one-time items, and accounting policy changes feed back into our driver-based forecast.

## **Legal diligence**

CDD identifies the commercial implications; legal diligence determines enforceability and risk. When we highlight concentration in a few strategic accounts, legal reviews change-of-control clauses, termination rights, MFNs, exclusivities, assignment limits, and unusual indemnities. When we test the pricing model, legal diligence examines rebate structures, restrictive covenants, channel agreements, and any competition-law exposure. Where we assess data-driven moats or partnerships, legal diligence validates IP ownership, licenses, data-use rights, and any encumbrances.

## **Regulatory and compliance diligence**

CDD quantifies how policy regimes influence addressable market, pricing, or access (e.g., reimbursement, certifications, export controls, data residency). Regulatory specialists then confirm present compliance, pending changes, and exposure to enforcement or licensing risk. When the thesis leans on regulatory tailwinds (or skirts headwinds), we hand off scenario assumptions, timing sensitivities, and high-impact triggers for deeper review.

## Tax diligence

CDD may highlight growth geographies, channel shifts, or supply-chain reroutes that change tax nexus, indirect taxes, transfer pricing, or the feasibility of certain pricing constructs. Tax diligence validates the structure, identifies leakage, and tests whether the model's margin assumptions survive in a tax-compliant configuration. Items like digital services taxes, permanent establishment risk, or credits and incentives are owned by tax, with CDD providing the commercial context and scale.

## Operational diligence

Where CDD evaluates cost-to-serve, lead times, service levels, and scalability from a commercial lens, operational diligence validates the underlying capacity and process capability. If our upside case assumes faster shipping, tighter SLAs, or a 1.5x volume step, operations tests the physical and process constraints, incremental CapEx/OpEx, supplier fragility, and quality risks. Likewise, if we model mix shifts to higher-touch segments, operations confirm whether the service model and unit costs can hold.

## Technology and product diligence (including cybersecurity)

CDD tests whether the value proposition wins in the market and whether the roadmap matters in the hold period. Technology diligence probes feasibility: code quality, architectural scalability, roadmap resourcing, vendor lock-in, open-source license exposure, uptime posture, and performance bottlenecks. When our thesis relies on proprietary data or integration depth, cyber and privacy specialists validate data protection, access controls, incident history, certifications, and regulatory obligations. Our handoff packages the features that drive willingness to pay and the adoption milestones that move value; tech diligence confirms they are realistic and secure.

## ESG and EHS diligence

CDD quantifies how environmental or social dynamics influence demand and margin—carbon-linked cost pass-through, supply-chain instability, or reputational risk. ESG/EHS diligence validates disclosures, physical risk exposure, remediation obligations, product safety, and regulatory alignment. When we model pricing corridors affected by sustainability attributes, ESG diligence tests whether claims are substantiated and defensible.

## **Human capital and organization diligence**

CDD evaluates sales productivity, coverage, incentives, and customer-facing capability gaps. HR diligence takes on leadership bench strength, retention risk, labor relations, misclassification, compensation structures, and compliance. If the thesis depends on a sales-force ramp or new channel skills, HR diligence validates hiring pipelines, comp designs, and change-management feasibility.

## **Insurance and risk transfer**

CDD highlights the commercial exposures—customer SLAs, product liability vectors, cyber commitments—that drive tail risk. Insurance diligence tests whether policies and limits (including RWI) are adequate and how exclusions map to the identified risks.

## **Lender workstreams and credit diligence**

CDD builds downside scenarios for volume, price, and churn; credit diligence translates those into covenant tests, liquidity needs, and early-warning indicators. Where we see cliff risks or event-driven drawdowns, lenders calibrate structures, covenants, and reserves.

Because these interfaces are frequent and time-bound, run them deliberately. Define owners, questions, and artifacts at kick-off, and keep a shared “risk ledger” that traces each material assumption to the stream responsible for validation. The goal is not more work—it’s fewer surprises.

### **What CDD will not do (and who owns it instead):**

- Audit historical financials, revenue recognition, or working capital (Financial/Quality of Earnings).
- Interpret or negotiate contracts, IP assignments, or regulatory obligations (Legal/Regulatory).
- Architect the post-close operating model or Day-1/Day-100 plans (Integration/Operations/HR).
- Validate code quality, security posture, or data-protection compliance (Technology/Cyber/Privacy).
- Determine tax positions, transfer pricing, or nexus (Tax).

- Certify ESG claims, environmental liabilities, or worker-safety compliance (ESG/EHS).

## Clean team, competition law, and MNPI boundaries

In many processes—especially where buyer and target are competitors—CDD operates under clean-team protocols. Access to sensitive data is restricted to ring-fenced individuals; datasets are anonymized or aggregated; counsel oversees what can be viewed and what can be shared with “non-clean” team members. Pre-close coordination on pricing, customers, or market allocation is out of bounds. Primary research must avoid eliciting material nonpublic information and must never misrepresent identity or intent. Build these constraints into your workplan from day one; it avoids rework and regulatory risk.

## Primary research and third-party data limitations

Interviews and surveys are directional, not census. Non-response bias, incentive effects, and recall errors are real. Use screening questions, mix methods (qualitative calls plus structured surveys), and triangulate with transaction-level or behavioral data where possible. Treat vendor datasets as partial mirrors; verify coverage, definitions, and refresh cadence before leaning on trend lines. When evidence conflicts, document the divergence, quantify the valuation sensitivity, and propose a resolution path.

## Forecasting limits and model risk

A driver-based model is an analytical scaffold, not an oracle. It is sensitive to definition drift (what counts as “enterprise” versus “mid-market”), FX assumptions, seasonality, and the treatment of one-offs. Avoid false precision by presenting ranges, explicitly linking each step in the revenue bridge to evidence, and showing which two or three variables actually swing value. Reserve detailed financial statement integrity to QoE and the FP&A integration team.

## How to orchestrate interfaces in practice

Start with a single set of thesis-critical questions and assign each to a stream with a due date and artifact. For example: “Are reported renewal rates consistent with contract terms?” CDD defines the cohorts and commercial

importance; legal validates the clauses; QoE ties the math to invoices and GL; the integration team translates the finding into account-plan actions. Use weekly cross-stream checkpoints to clear dependencies and a shared issues log to prevent double work or blind spots.

### **Escalation triggers (use this checklist during the sprint):**

- Revenue concentration above threshold or top-customer churn signals → Legal to review termination rights and change-of-control; QoE to test billing consistency.
- Heavy rebate/discount usage or channel conflict → Legal to review agreements; QoE to quantify leakage; Ops to assess service impact.
- Thesis depends on roadmap items or integrations → Technology to validate feasibility, timelines, resources, and security/privacy implications.
- Material policy or licensing uncertainty → Regulatory specialists to run scenarios and advise on timing/conditions.
- Cross-border expansion central to value → Tax to assess structure; Legal to review data transfer, employment, and commercial law differences; Ops to check logistics capacity.
- Aggressive sales-force ramp or new GTM motion → HR to validate talent market, comp plans, enablement lead times.
- Sustainability claims central to pricing or access → ESG/EHS to verify substantiation and regulatory exposure.

### **Sign-off discipline**

Before final read-out, confirm three things: what CDD has proven with high confidence (and how), what remains uncertain (and why), and which stream owns each residual risk with a plan and a date. Where uncertainty is material, translate it into terms, structure, or conditions—price adjustments, earn-outs, reps and warranties, covenants, or closing conditions—so decision-makers can act deliberately rather than optimistically.

## Chapter 2. CDD Engagement Kick-Off

Every strong diligence starts the same way: with a sharp question and a disciplined plan to answer it fast. The kick-off phase sets the tone for everything that follows—what you believe, what you must prove, and how you'll get there within a compressed window. Done well, you establish a shared thesis, a prioritized learning agenda, clean-team boundaries, access protocols, and a governance cadence that keeps decisions moving. Done poorly, teams chase interesting data instead of value-critical proof and run out of time.

Use this chapter to engineer a rigorous start. We translate the investment thesis into testable hypotheses, define scope and boundaries, set roles and decision rights, and design the first wave of research and analysis. You'll leave the kick-off with a crisp issue tree, a ranked set of “would-have-to-be-true” statements, a data and access plan, and a calendar locked to the deal timeline. Above all, you'll know what you are trying to disprove first—because finding the break point early is the most reliable way to protect time, fees, and judgment.

### 2.1 Initial Hypotheses Development

The first job of a CDD is to turn an investment narrative into testable propositions. Hypotheses are not guesses; they are concise statements about how the market works, why the target wins, and what conditions must hold for the deal to create value. Strong hypotheses do three things: they focus the team on the few drivers that swing valuation, they dictate the evidence you need (and what you can safely ignore), and they create a common language for trade-offs as new facts arrive.

Start by extracting the thesis in plain English. Strip out marketing language and restate the logic as cause-and-effect: “Because X market is expanding and competitors are fragmented, the target can raise price Y% and grow share Z% while maintaining churn below A%.” If you can't express the thesis in that form, you don't have one yet. Next, decompose the statement into a small set of driver hypotheses—market size and growth, pricing power, customer retention and expansion, competitive response, sales capacity and productivity, unit economics, and (if relevant) revenue synergies. Each driver needs a target value, a rationale, and a path to independent verification.

Build an issue tree that mirrors those drivers. Under market size, specify definitional boundaries (what's in/out), reachable segments, and the mix shifts implied by the plan. Under pricing, define the architecture (list vs. realized, discounts, rebates), sources of power (differentiation, switching costs, channel leverage), and the pressure tests that matter (promo intensity, new entrants, procurement tactics). For retention, anchor on cohort behavior and the causes of churn—voluntary vs. involuntary, competitive vs. value-for-money—and specify what expansion must look like to hit net revenue retention targets. This tree is your backbone for day-to-day decisions and for the story you will eventually tell.

**Write each hypothesis as a “would-have-to-be-true” (WHTBT) statement. Make it binary and measurable so it can be proved or disproved. Examples:**

- “Serviceable market in core geographies is  $\geq \$1.2B$  today, growing  $\geq 7\%$  CAGR through 20XX, with  $>60\%$  of growth in segments where the target participates.”
- “Average realized price can increase 2–4% annually for three years without materially elevating churn in the top three segments.”
- “NRR stays  $\geq 110\%$  with gross churn  $\leq 8\%$  and upsell from feature bundle B delivering  $\geq 3$  points.”
- “Two largest competitors lack distribution coverage in Tier-2 channels and are unlikely to expand there within 24 months.”

For each WHTBT, document the minimum viable evidence you'll accept and the disconfirming tests you'll run. Minimum evidence might include triangulated market sizing (top-down using reputable industry series and bottom-up using buyer counts and replacement cycles), 12–20 targeted customer interviews with decision-makers and recent churned accounts, and transaction-level price-realization analysis if access allows. Disconfirming tests could include win/loss analysis with procurement, competitor mystery shopping, elasticity checks in comparable categories, and back-solving the plan to see if implied conversion or ramp times violate historical base rates.

Quantify stakes and set thresholds before you collect data. If a hypothesis failing would move enterprise value by more than your materiality threshold, label it “killer variable” and test it first. Don't bury killer variables in a long research plan—resolve them in week one. Use base-rate thinking to keep ambition honest: what is the historical distribution of growth, pricing, or NRR for companies with similar ACVs, sales cycles, and channel mix? If your target sits in the top decile of that distribution, you will need top-decile proof.

Treat hypotheses as living objects and require owners, dates, and decision points. Each hypothesis should have a named owner, a due date aligned to governance gates, a list of sources to be tapped, and a pre-commitment on how you will update beliefs as evidence arrives (Bayesian in spirit, practical in execution). When facts conflict, don't average; rate confidence explicitly and prefer revealed behavior (contracts, invoices, win/loss decisions) over stated preferences.

Bias is the enemy of good hypotheses. Counter it deliberately. Start every sprint with a short pre-mortem: "Six weeks from now this deal failed because..." Capture the three most plausible failure modes and ensure at least one hypothesis actively looks for each. Build a contrarian bundle—two or three hypotheses that, if true, would invalidate the deal or materially cut the price (e.g., "Price increases are driving silent churn; NRR is being propped up by temporary expansion" or "Distributor consolidation will compress gross-to-net by 300–500 bps"). Assign a senior reviewer to champion the contrarian view and safeguard it through synthesis.

Translate hypotheses into a ranked learning agenda. You are not trying to learn everything; you are trying to learn the few things that matter in time to act. A practical first-week agenda often includes: (1) dual-method market sizing to bracket headroom, (2) 8–12 expert calls to map channels and competitor moves, (3) 10–15 customer interviews split between loyalists and churned accounts, (4) price-architecture reconstruction from contracts, rate cards, and invoices if accessible, and (5) a funnel reality check using anonymized pipeline data or external proxies. In auctions with limited access, heavier weight shifts to outside-in sources, channel checks, and secondary datasets; in bilaterals, take advantage of access to test commercial capabilities, not just collect more documents.

**Document your hypotheses in a simple, reusable artifact—one page per hypothesis—so the team and sponsors stay aligned. A good “Hypothesis Card” includes:**

- Statement (the WHTBT in one sentence)
- Why it matters (value at stake and which decision it affects)
- Evidence to prove/disprove (exact sources and sample sizes)
- Disconfirming tests (the fastest way to break it)
- Current belief and confidence (high/medium/low, with date)
- Owner and due date (tied to governance gates)

Close the loop with stakeholders early. Share the hypothesis set within 24–48 hours of kick-off, insist on ranked priorities, and confirm what you will not do. Push sponsors to mark where they would change price, structure, or go/no-go if a hypothesis flips from true to false. That discipline prevents “decision drift” and forces useful escalation when access or data quality threatens to leave a killer variable untested.

Common pitfalls in hypothesis development are well known and avoidable. Teams overfit to management’s narrative, phrase hypotheses in ways that are unfalsifiable (“market is attractive”), skip base-rate comparisons, or design research that can only confirm. Others boil the ocean by turning hypotheses into wish lists. Keep your list short, measurable, and anchored in value at stake. When in doubt, ask: “If this were true or false, would we act differently?” If the answer is no, drop it.

### **Initial hypotheses checklist (use on Day 0–2):**

- Investment thesis restated as causal, testable statements.
- Issue tree covering market, customer, competition, pricing, GTM, unit economics, and (if relevant) synergies.
- 6–12 WHTBTs written as binary, measurable conditions with thresholds.
- Value-at-stake quantification and a short list of killer variables to test first.
- Minimum viable evidence and explicit disconfirming tests for each hypothesis.
- Base-rate benchmarks identified for growth, pricing, retention, and productivity.
- Owners, due dates, and governance gates assigned; confidence ratings initialized.
- Clean-team and MNPI constraints mapped to the learning agenda; access plan confirmed.
- Stakeholder alignment on priorities and on what will not be done within the timeline.

Start here, and you will give the rest of the diligence a clear edge: a small set of sharp questions, a practical plan to answer them, and a bias toward breaking bad news early—when it is still useful.

## 2.2 Stakeholder Alignment Workshop – Step-by-Step Guide

The alignment workshop is how you turn a fast-moving deal into a focused, disciplined sprint. In a single working session—90 to 120 minutes—you lock the thesis, the “would-have-to-be-true” statements, the not-doing list, clean-team boundaries, and the cadence that will govern the next few weeks. The point is not ceremony; it’s commitment. Everyone should leave the room knowing exactly what must be proved, by when, and what will happen if access is thinner than expected or facts break the thesis.

Before you gather people, set the pre-conditions. Circulate a pre-read 24 hours in advance that includes the one-page thesis, initial hypotheses (with owners), value at stake for the top three variables, the draft workplan, and the proposed governance calendar. If you expect clean-team constraints or limited access in an auction, include them up front so the research design is realistic. Ask invitees to mark the single assumption that, if false, would change price, structure, or go/no-go. That simple discipline forces sharper discussion when you convene.

**Who should attend.** Keep it lean enough to decide and broad enough to avoid re-litigation later. Typical attendees: deal lead and one investment professional, operating partner or corporate sponsor lead, CDD lead partner and manager, QoE lead, legal counsel, tech/ops diligence leads as needed, and a PMO or chief of staff to run governance. If a clean team is required, separate “clean” and “non-clean” attendees in the invite and agenda.

**What you must leave with.** A ranked list of hypotheses with thresholds, a not-doing list, a locked research plan and access protocol, a governance calendar with gates, and a 72-hour action plan with named owners. Anything less invites thrash.

### Step-by-step facilitation plan (90–120 minutes).

1. **Frame the decision and timeline.**

Open with the decision you must enable and by when: price, structure, and conditions for the Investment Committee. Put the IC date and key intermediary gates on a single slide. Anchor materiality: define what “moves value” in dollars, not adjectives. This sets the bar for what qualifies as a killer variable.

2. **Restate the thesis in causal terms.**  
Have the sponsor state the investment logic in one minute, then the CDD lead re-states it as cause-and-effect. Write it in “because/therefore” form. If you can’t say it crisply, pause. Ambiguity now becomes confusion later.
3. **Review and refine hypotheses (WHTBTs).**  
Walk through the 6–12 “would-have-to-be-true” statements prepared in 2.1. For each, confirm the threshold (e.g., “NRR  $\geq 110\%$ ”), why it matters (value at stake), and the minimum evidence you’ll accept. Assign an owner. Mark two or three as killer variables to be tested first. If attendees propose new hypotheses, ask the price-change test: “If true or false, will we act differently?” If not, park it.
4. **Confirm definitions and scope boundaries.**  
Agree on market definitions, product and segment taxonomies, and geographies. Decide where the line is for a serviceable market and reachable share. Clarify in/out items for analysis. This step prevents late-stage rework caused by definitional drift.
5. **Set the not-doing list.**  
Explicitly list the analyses you will not perform within the sprint. Common examples: long-tail micro-segment sizing, extensive competitor profiles with no value impact, or speculative synergy quantifications that cannot be validated pre-close. This saves days.
6. **Lock the access and clean-team protocol.**  
Confirm what management access, data room quality, and customer contact are realistically available. If operating under clean-team rules, specify who is “clean,” what datasets they can see, how anonymization will work, and what can be shared with non-clean members. Note MNPI and anti-trust boundaries for primary research and competitive information. If access is uncertain, set a date to escalate; don’t assume it will resolve itself.
7. **Design the research plan.**  
For each hypothesis, confirm the evidence path: secondary sources, expert calls, customer and channel interviews, surveys, and outside-in datasets. Agree on the cohorts you need (e.g., top accounts, churned customers, procurement leaders, distributors), the sample sizes, and the order in which you’ll contact them. Where access is thin, pre-authorize substitutes (e.g., channel partner checks instead of end customer).
8. **Agree on analytical methods and triangulation.**  
Commit to dual-method market sizing (top-down and bottom-up), price

architecture reconstruction, cohort retention analysis, and unit-economics diagnostics where relevant. Decide where you'll run sensitivity and scenario work, and what ranges are decisions-useful. Name the “second method” you'll use to cross-check each killer variable.

**9. Set governance and decision rights.**

Lock the cadence: daily stand-up or thrice-weekly, mid-sprint gate for killer variables, and pre-IC synthesis. Assign decision rights: who can change scope, who approves new data purchases, who escalates access issues, and who can call a stop or price change if a killer variable breaks.

**10. Define interfaces with other streams.**

Map the handoffs to QoE, legal, tech, ops, tax, and ESG. For each material assumption, mark who validates what and by when. Example: “Renewal rates—CDD shapes cohorts and drivers; QoE validates ledger consistency; legal reviews termination and assignment clauses.”

**11. Surface risks and pre-mortem.**

Run a five-minute pre-mortem: “It’s four weeks later, and we got the decision wrong because...” Capture the top three failure modes. Make sure each has a corresponding hypothesis or disconfirming test. Assign a senior “contrarian” to protect alternate explanations during synthesis.

**12. Confirm artifacts and the single source of truth.**

Agree on the templates and where they live: hypothesis cards, risk ledger, issues log, workstream charters, interview guides, source register, and compliance memo. Name the document owner and the file path. Version control matters under time pressure.

**13. Close with a 72-hour action plan.**

Leave with a punch-list, owners, and dates. The first 72 hours set the tone; make sure the killer variables are at the top.

## **Inputs to prepare before the workshop.**

- One-page thesis with a value bridge and hold-period logic.
- Draft list of WHTBT hypotheses with thresholds and value at stake.
- Proposed workplan, milestones, and governance calendar.
- Access assumptions and clean-team proposals.
- Initial data and research budget with pre-approved vendors.
- Risks and open questions you already know about.

## **Outputs you must have at the end.**

- Finalized and ranked hypothesis list, with killer variables flagged.
- Not-doing lists to protect speed and focus.
- Approved research plan with cohorts, sample sizes, and sequencing.
- Access and clean-team protocol documented and blessed by counsel.
- Governance cadence, decision rights, and escalation paths.
- Cross-stream handoffs with owners and due dates.
- 72-hour action plan with named owners and calendar holds.

## **Sample 90-minute agenda you can lift and run.**

- Minute 0–10: Decision, timeline, and materiality bar.
- Minute 10–25: Thesis restatement and value logic.
- Minute 25–50: Hypotheses review and killer variables.
- Minute 50–60: Definitions, scope, and not-doing list.
- Minute 60–70: Access plan and clean-team rules.
- Minute 70–80: Research and analytics plan.
- Minute 80–85: Governance, decision rights, and interfaces.
- Minute 85–90: Risks, pre-mortem, and 72-hour actions.

## **Facilitation tips that keep it sharp.**

- Start with the price-change question to focus on value, not trivia.
- Write thresholds as numbers, not adjectives (“ $\geq 7\%$  CAGR,” not “strong growth”).
- Time-box debate; when evidence is missing, capture the test, not opinions.
- Use a parking lot for interesting but non-critical topics; review only if time remains.
- Avoid consensus-by-averaging; record confidence levels and assign owners to resolve.
- Keep slides light; use a live tracker for hypotheses, owners, and dates.

## **Clean-team and compliance guardrails to state explicitly.**

- Who is on the clean team and what they can see or share.
- What constitutes MNPI in this process; how primary research will avoid it.

- What cannot be discussed pre-close (pricing coordination, customer allocation).
- How anonymization and aggregation will work for sensitive datasets.
- Who to call when in doubt, and the turnaround time for counsel sign-off.

## **72-hour action plan template (fill this before you adjourn).**

- Killer variable 1: owner, evidence path, sources, decision date.
- Killer variable 2: owner, evidence path, sources, decision date.
- Market sizing: owner, top-down series to pull, bottom-up build approach, date.
- Primary research: owner, cohorts, target counts, screener approved, start date.
- Price architecture: owner, artifacts to collect (contracts, invoices), outside-in proxies.
- Competitor response: owner, expert list, scenarios to test, date.
- Interfaces: owners in QoE/legal/tech, specific questions, hand-off date.
- Governance: calendar invites sent, stand-up cadence locked, issues log live.

## **Common failure modes and how to disarm them early.**

- Ambiguous thesis: rewrite it in cause-and-effect form and test for price impact.
- Kitchen-sink scope: enforce the not-doing list and the price-change test.
- Access optimism: set an escalation date and a plan B source list on day one.
- Definition drift: publish a glossary and lock market and segment definitions.
- Confirmation bias: assign a contrarian lead and require disconfirming tests.
- Tool sprawl: declare a single source of truth and a single owner for every artifact.

## Quick checklist to keep on the room's whiteboard.

- Decision and date are clear.
- Hypotheses ranked; killer variables first.
- Not-doing list agreed.
- Access and clean-team rules locked.
- Research plan and cohorts set.
- Governance and decision rights assigned.
- Interfaces and owners named.
- 72-hour actions committed.

Run this workshop with discipline and you'll compress weeks of drift into one decisive session. The payoff is a team aligned on the few things that truly move value, a plan grounded in reality, and the mechanisms to adapt quickly as facts arrive.

## 2.3 Scope Definition Checklist

Scope is strategy under time pressure. In a diligence sprint, you win by deciding what not to do just as decisively as what to do. A tight scope anchors everyone on the decision you must enable, the variables that truly move value, and the minimum evidence required to be credible. It also locks the boundaries—markets, segments, time horizons, access rules, and handoffs to other streams—so the team can move fast without re-litigating definitions.

Start with the decision, not the workplan. In one sentence, state the Investment Committee decision you must support and the date. Translate that decision into a handful of “would-have-to-be-true” statements (killer variables first), then design the scope to break or prove those statements quickly. If a task doesn’t change price, structure, or go/no-go, it probably doesn’t belong in scope.

Be explicit about market and product boundaries. The fastest way to waste days is to let definitions drift. Write down the market taxonomy (what’s in and out), the geographies that matter, the customer segments you’ll analyze, and the product or SKU families you’ll cover. Tie revenue types to those definitions (recurring vs. transactional, license vs. usage vs. services), and confirm the base year, currency, and hold-period horizon you’ll model. If adjacencies are part of

the thesis, treat them as options with their own evidence thresholds rather than default inclusions.

Calibrate scope to access. Auction processes with thin management time and tight data rooms push you toward outside-in sources, expert calls, channel checks, and clean-team protocols. Bilaterals often allow deeper access; use it to test commercial capabilities (price realization, funnel health, renewal mechanics), not to collect more documents. Decide up front what customer and channel outreach you will do, the minimum sample sizes, and the rules for avoiding material nonpublic information.

Guard against false precision. Commit to dual-method triangulation on the few things that matter (e.g., bottom-up and top-down market sizing; invoice-based and interview-based price realization). Identify a “second method” for each killer variable before work starts. Where evidence is thin, set explicit confidence levels and ranges; do not round a directional answer into a spurious point estimate.

Define interfaces and handoffs. CDD does not validate ledgers, interpret contracts, or certify compliance. For every material assumption—renewal rates, rebates, exclusivities, data-use rights, roadmap feasibility—assign a validation owner in QoE, legal, tax, tech, ops, or ESG, and put a date on it. Keep a shared risk ledger so no assumption dies in email.

**Below is a practical checklist you can copy into your kickoff and complete in 30–45 minutes. Use plain numbers, avoid nested sub-lists, and fill every line.**

- Decision to enable and date (price, structure, conditions).
- Materiality threshold in dollars; what “moves value” here.
- Ranked hypotheses with explicit thresholds; killer variables flagged.
- Market definition: taxonomy, inclusions and exclusions, competitive set.
- Geography and segment scope; which micro-segments you will actually size.
- Product and revenue scope: SKUs or modules, recurring vs. transactional, services.
- Time horizon: base year, seasonality treatment, hold period, exit year.
- Currency and FX policy; inflation and pricing index assumptions.
- TAM/SAM/SOM definitions and exact methodology you will use.

- Scenarios required: base, downside, upside; triggers and monitoring indicators.
- Primary research plan: cohorts, target counts, screening, and fieldwork start date.
- Secondary sources and datasets: named vendors, budget cap, and approvals.
- Access assumptions: management time, data room quality, customer contact rules.
- Clean-team, MNPI, and antitrust guardrails; who is “clean” and what they can view.
- Analytical methods: second-method cross-checks for each killer variable.
- Pricing scope: price architecture to reconstruct and evidence required for realization.
- Demand and retention scope: cohort definitions, NRR/GRR math, churn taxonomy.
- Go-to-market scope: funnel stages, productivity metrics, channel economics to test.
- Unit economics scope: contribution margins, cost-to-serve cuts, CAC/payback/LTV.
- Externalities: regulatory, reimbursement, platform dependencies, supply constraints.
- Interfaces to other streams: specific questions and owners in QoE, legal, tech, ops, tax, ESG.
- Deliverables: deck outline, data book contents, and appendix artifacts to produce.
- Governance: stand-up cadence, mid-sprint gate, pre-IC synthesis date.
- Not-doing list: analyses explicitly out of scope for this sprint.
- Risk ledger: open issues, owner, due date, confidence rating.
- Budget and staffing: hours by workstream, external spend cap, vendor PO process.
- Quality bar: triangulation standard, citation style, and replication requirement.
- Escalation triggers: what forces a price/structure change or a stop.
- Contingencies: plan B if access is thin; proxies you will use.
- Definition of done: what must be true to call the scope complete.

Use the not-doing list to protect speed. Write it as firmly as the in-scope list. Typical candidates include exhaustive competitor profiles that do not change the story, long-tail micro-segment sizing when the thesis rides on the top five segments, speculative synergy estimates without a path to validate pre-close, and deep operational diagnostics that belong with ops diligence. Review the not-doing list at every governance gate; add to it as new red herrings appear.

Make deliverables decision-ready. Define on day one what the Investment Committee will see: a one-page thesis and value bridge, a market sizing section with method and sources, customer insights with direct quotes (anonymized), a pricing and unit economics section that ties to realized margins, a competitive response section with explicit scenarios, and a driver-based model with sensitivities. Decide which exhibits must be replicable by a third party and how you will footnote every material claim. The “data book” should include source registers, interview guides, anonymized notes, and model documentation.

Lock the research footprint. For primary research, set quotas by cohort (top customers, churned accounts, procurement leaders, distributors). Name the first ten targets and the screener questions. For secondary, list the exact series you will pull and who will own each. If you plan to purchase datasets, pre-approve vendors and the ceiling spend to avoid delays. Where outreach is constrained, pre-authorize channel checks and expert calls as substitutes.

Treat risk and compliance as scope, not footnotes. If the target and buyer are competitors, write down the clean-team roster, the anonymization rules, and what can be shared with non-clean team members. State what you will not ask in interviews, how you’ll describe the study’s purpose, and the approval path for any sensitive requests. Include a short compliance memo in the data book.

Put guardrails on modeling. Declare the model’s structure (driver-based, transparent formulas, version-controlled), the naming conventions, and the sensitivity suite you will run. Fix the base-rate comparisons you will use to sanity-check plan assumptions (e.g., NRR distributions for peers with similar ACVs and sales cycles). Decide how you will handle seasonality, one-offs, and normalization. Require a model integrity check before any number hits a deck.

Define “done” before you start. A scope is complete when each killer variable has been tested with two methods or independent sources; the market is sized with both a bottom-up and top-down approach; NRR/GRR and pricing realization have been validated or bounded with clear ranges; downside

scenarios are quantified with triggers; and all critical handoffs to other streams have named owners and dates. Anything less is progress, not completion.

Finally, time-box the first 72 hours. By the end of day three you should have locked definitions, launched primary research, pulled top-down series, started the bottom-up build, collected initial contracts or invoices for pricing reconstruction (or confirmed proxies), and scheduled cross-stream handoffs. If a killer variable is blocked by access, escalate immediately and execute the contingency path you already scoped.

When you use this checklist with discipline, scoping stops being a kickoff ritual and becomes a force multiplier: fewer surprises, faster decisions, and a diligence product that holds up under scrutiny.

## 2.4 Workstream Charter Template

A workstream charter is your contract with time. It tells the team exactly what must be proved, how it will be proved, and when decisions get made. In a compressed diligence window, a clear charter prevents drift, stops scope creep, and accelerates the few analyses that actually move value. Treat it as both a planning document and a live control mechanism: you will use it to assign owners, lock definitions, track confidence, and trigger escalation when evidence is late or thin.

What “good” looks like is simple. The charter ties every activity back to a decision the Investment Committee must make. It sets measurable “would-have-to-be-true” thresholds, pre-commits to triangulation methods, and spells out the minimum viable evidence you will accept. It also draws firm boundaries: what is out of scope, which risks belong to other diligence streams, and which clean-team or compliance rules gate access. Finished charters read like checklists you can execute against, not essays.

Design each charter to be short, sharp, and replicable across workstreams—market sizing, pricing and unit economics, customer and retention, competitive dynamics, go-to-market, technology implications, and (where relevant) revenue synergies. Use consistent field names and keep one living version in your single source of truth. Update confidence ratings as evidence lands; do not bury changes in email threads.

Below is a copy-paste template you can drop into your project workspace and complete in under an hour. Use numbers, not adjectives. If a field does not change price, structure, or go/no-go, drop it.

## Workstream Charter Template (copy, fill, and publish)

1. Workstream name and owner
2. Objective in one sentence (decision this enables and by when)
3. Key hypotheses (WHTBT statements with numeric thresholds)
4. Value at stake (estimate in dollars if hypothesis passes vs. fails)
5. In-scope items (markets, segments, products, geographies, period)
6. Out-of-scope items (explicit not-doing list)
7. Methods and triangulation plan (first method and second method for each killer variable)
8. Minimum viable evidence (sources, sample sizes, artifacts you must obtain)
9. Primary research plan (cohorts, quotas, screeners, timing)
10. Secondary sources and datasets (named vendors, series, budget cap)
11. Access assumptions and constraints (management time, data room, customer contact rules)
12. Clean-team and compliance rules (who is “clean,” what can be viewed or shared, MNPI and antitrust guardrails)
13. Analytical steps (calculations and models you will run, with owner for each)
14. Model specification (driver definitions, version name, sensitivity suite, base-rate comparisons)
15. Interfaces and dependencies (QoE, legal, tech, ops, tax, ESG—what each must validate and by when)
16. Deliverables and acceptance criteria (exhibits, model outputs, data book artifacts; what makes them “done”)
17. Milestones and gates (dates for first read-out, mid-sprint gate, pre-IC synthesis; stop/price-change triggers)
18. Risks and assumptions (confidence rating, evidence gaps, contingency paths)
19. Staffing and hours (roles, time allocation, backup coverage)
20. External spend (approved vendors, PO status, ceiling)
21. Communications cadence (stand-ups, stakeholder updates, decision rights)

22. Version control and citations (location of source register, footnote standard, replication requirement)
23. Data security and retention (storage location, access controls, retention/destruction date)
24. Definition of done (binary checklist you will use to sign off)
25. Approvals (names and date stamps for owner, CDD lead, sponsor)

Use the charter to align language and lock definitions. For market work, write the taxonomy and inclusions in the charter, not in slide notes. For pricing work, specify which price you mean—list, net, realized—and exactly how you will compute it from available artifacts. For retention, define cohorts, GRR/NRR formulas, and the treatment of upgrades and downgrades. For go-to-market, define funnel stages and conversion math. Precision now prevents rework later.

Commit to your second method before you start. If your first method for market sizing is a top-down triangulation using industry series, your second method should be a bottom-up build from buyer counts, penetration, and replacement cycles. If your first method for pricing is contract analysis, your second is transaction-level netting or customer interviews with procurement. Writing this in the charter forces rigor and speed review.

Keep acceptance criteria crisp and binary. “Done” means the exhibit or model can be replicated by a third party, every material claim is footnoted to a verifiable source, and ranges are shown where confidence is less than high. A charter without acceptance criteria is an invitation to iterate indefinitely.

Escalation rules belong in the charter. Declare what triggers a scope change, a price change, or a stop: for example, failure to obtain customer access by a named date, discovery that the competitive set is misdefined, or evidence that a killer variable has broken (e.g., realized price is 300 bps lower than modeled). Name who can make the call.

Interfaces should be explicit, not implied. If the charter depends on QoE to validate ARR definitions or on legal interpretation of MFNs and termination rights, write the exact questions and the due dates. Create one shared risk ledger across streams and link it in the charter. The goal is to avoid unowned assumptions at synthesis.

Resource realistically. Use the charter to assign hours where impact is highest. If a killer variable sits in pricing power, put your strongest analyst there and pre-approve spend for invoice pulls or external datasets. If access is thin, shift

effort to expert calls and channel checks and record the confidence downgrade in the charter.

Below is a concise, fill-ready example of a “Definition of Done” you can insert at the end of any charter.

### **Definition of Done (insert at section 24 of every charter)**

- Each killer variable tested with two independent methods or sources.
- Market sized with both bottom-up and top-down methods, variance reconciled.
- Pricing realization reconstructed or bounded within a justified range.
- Retention math (GRR/NRR) verified against defined cohorts and formulas.
- Competitive share estimated with at least two triangulations.
- Driver-based model updated; sensitivity ranges shown and footnoted.
- Interfaces cleared; QoE/legal/tech/ops answers received or flagged with owner and date.
- All exhibits footnoted; data book updated with sources, interview guides, and model documentation.
- Clean-team and MNPI rules followed; compliance memo attached.
- Workstream owner and CDD lead have signed off.

Common pitfalls are predictable. Charters that read like to-do lists rather than decision tools, vague hypotheses that cannot be falsified, undefined second methods, or missing acceptance criteria all slow you down. Resist the urge to be comprehensive; be decisive. If a field does not help you prove or break the thesis, leave it out.

Finally, treat charters as living documents. Update confidence weekly, record what changed and why, and roll those updates into your synthesis. A strong charter turns a complex diligence into a sequence of clear promises kept: the right questions, answered the right way, at the right time.

## Chapter 3. Workplan Design and Governance

A commercial due diligence lives or dies by its calendar. The best teams don't "work hard and hope"; they architect the sprint so that the right answers arrive before the right decisions. Workplan design and governance give you that edge. This chapter shows how to translate an Investment Committee date into a day-by-day run plan, identify the few activities that sit on the critical path, and build the gates, cadences, and escalation rules that keep the program on track. The aim is pragmatic: compress time without compressing judgment. You will back-schedule from the decision date, lock resource commitments, protect long-lead items (primary research, clean-team approvals, data purchases), and install a governance rhythm that surfaces bad news early enough to act on it.

### 3.1 Critical Path and Timeline Mapping – Step-by-Step Guide

Critical path mapping turns a complex diligence into a sequence of promises: who will do what, by when, and in what order so that the decision is ready on time. The goal is not a pretty Gantt chart—it's a schedule that correctly anticipates dependencies and allocates scarce hours to the few items that move value. Use the steps below to build a resilient plan in under a day and keep it current throughout the sprint.

#### 1. Fix the decision and work backward

Start by writing the single decision the plan must enable (price, structure, and conditions) and the exact Investment Committee date and time. From that timestamp, back-schedule immovable activities: deck freeze, management Q&A, legal and QoE sign-offs, and internal sponsor read-outs. Place them on the calendar as "hard gates." Everything else will move around these.

#### 2. Define "done" in deliverable terms

List the deliverables required to make the decision credible: dual-method market sizing, pricing and unit economics exhibits, customer evidence with anonymized quotes, competitor response scenarios, and a driver-based model with sensitivities. For each, state acceptance criteria (replicable, footnoted, confidence level). If a

deliverable can't be described crisply in a sentence, it will be hard to land on time.

### **3. Enumerate activities and estimate durations**

Break the work into atomic activities that produce those deliverables: expert calls, customer interviews, dataset purchases, outside-in sizing builds, price architecture reconstruction, cohort analysis, model build, scenario runs, and synthesis. Give each a realistic duration in business days, not hours. Use base-rate heuristics: scheduling 12–15 targeted customer conversations often takes a week, expert calls can begin within 48–72 hours, and clean-team or counsel approvals may need 24–72 hours. Timebox analysis sprints (e.g., “bottom-up build—2 days,” “price realization—3 days”) so they can be governed.

### **4. Map dependencies explicitly**

For each activity, mark its predecessors (what must finish before it can start) and its potential to proceed in parallel. Examples: you can begin top-down sizing while the bottom-up build is still assembling inputs; you cannot compute realized price without either invoices/contracts or validated interview evidence. Note approvals that gate access—clean team, MNPI guidance, survey compliance—so you can start them Day 0.

### **5. Identify the critical path**

With durations and dependencies defined, trace the longest chain of dependent tasks from today to the IC gate: that is your critical path. Everything on it is intolerant to slippage. Label those activities in your tracker and assign your most reliable capacity to them. Non-critical tasks still matter, but they should flex first when trade-offs appear.

### **6. Front-load killer variables and long-lead items**

Anything that, if false, changes price or go/no-go belongs at the front of the plan. Launch dual-method market sizing and the first wave of customer work in the first 48 hours. Place purchase orders for external datasets immediately. Submit clean-team and counsel approvals on Day 0, not “after we see what's in the data room.” If access is uncertain, execute contingency paths (e.g., channel checks, distributor interviews) in parallel.

### **7. Build a T-minus schedule with freeze points**

Translate the path into a T-minus narrative that everyone can follow. A practical four-week pattern looks like this: T-20 to T-16—launch primary research, pull top-down series, start bottom-up build, and reconstruct price architecture from available artifacts; T-15 to T-11—land first customer evidence, reconcile top-down and bottom-up sizing, and run first pass on unit economics; T-10 to T-7—lock market definition, close

the first pricing and retention exhibits, and run competitor response scenarios; T-6 to T-4—update the driver-based model, run sensitivities, and begin storylining; T-3—deck freeze for internal dry-run; T-2—final integration of cross-stream answers; T-1—sponsor read-out and QA; T-0—IC. Adjust durations to your deal, but retain the concept of scheduled freeze points—you need them to finish.

#### **8. Insert buffers where risk is real**

Buffers are not laziness, they're insurance. Add explicit slack to activities with external dependencies (customer scheduling, legal reviews, data vendor delays). Use small, distributed buffers (0.5–1 day each) rather than one big cushion at the end. Protect the synthesis window—crowding it with unfinished analysis is the most common failure mode.

#### **9. Parallelize safely**

Run activities in parallel when they do not share a gating dependency. For example, launch expert calls, top-down sizing, and survey programming simultaneously. Pair analysts ("two-in-a-box") on critical exhibits to allow handoffs and QA without time loss. Parallelization without clear ownership creates rework; use the chartered owners to keep lines straight.

#### **10. Lock a daily cadence tied to the plan**

Install a short daily stand-up focused on the critical path: What slipped? What is blocked? What will clear the block today? Use a one-page tracker with RAG status on each critical activity, the next milestone date, and a single line on risk and ask. Longer working sessions are fine, but the daily checkpoint exists to protect the schedule.

#### **11. Tie governance gates to decisions, not dates**

Set three formal gates: early (Day 3–4) to call red flags on killer variables, mid-sprint (end of Week 1 or 2) to decide scope deepening or price changes, and pre-IC (T-3) to lock the story and exhibits. Each gate must end with a written decision: continue as planned, change price/structure, or stop. Gates without decisions are status meetings; don't hold them.

#### **12. Write escalation triggers into the plan**

Decide up front what forces a schedule change: failure to secure customer access by a named date, unresolvable data quality issues, or discovery that a critical assumption is breaking (e.g., realized price is materially below expectation). Name who can approve extra spend,

reallocate staff, or pivot scope, and specify the expected time-to-decision. Put these triggers next to the activities they govern.

#### **13. Reserve synthesis and QA time explicitly**

Block calendar time for exhibits to be peer-reviewed, footnoted, and replicated from the model and source register. Require a model integrity check (formula transparency, version control, sensitivity coverage) before exhibits leave the workbench. Protect at least one full day for storylining and one for final QA—even on short sprints.

#### **14. Publish the plan where people actually work**

Store the critical path, dependencies, owners, and dates in your single source of truth (the same workspace that holds your hypothesis cards, risk ledger, and charters). Version it. Every status update should reference the same artifact. Email screenshots if you must, but the plan lives in one place.

### **Inputs you should confirm before you map the path**

- Investment Committee date/time and any pre-reads or sign-off requirements.
- Clean-team and MNPI rules; counsel turnaround times.
- Access realities: management availability, data room quality, permissions for customer/channel outreach.
- External vendors: dataset availability, PO process, typical delivery times.
- Cross-stream interfaces: when QoE, legal, tech/ops need answers and when they will return theirs.

### **Sanity checks for your timeline**

- Can all killer variables be tested with two methods before the mid-sprint gate?
- Do long-lead items start on Day 0, not Day 5?
- Is there an explicit buffer before synthesis and QA?
- Are non-critical activities scheduled to flex first when trade-offs arise?
- Is every dependency visible, owned, and tied to a date?

### **Common pitfalls to avoid**

- Optimistic scheduling of primary research; treat recruiting and compliance as real work.
- “One big buffer at the end” that gets eaten by analysis creep.

- Gates that review but do not decide; make the outcome explicit.
- Hiding slippage inside the model or slide draft instead of re-baselining the plan.
- Parallel work without owners, leading to duplicated effort and version chaos.

When you run this play, the calendar stops being a source of stress and becomes a source of control. The plan shows where hours win value, what must happen next, and how you'll recover when the world behaves like the world. That is the practical definition of a critical path that works.

## 3.2 Role & Responsibility Matrix Template

Speed without clarity is chaos. A role and responsibility matrix is how you prevent it. In a compressed CDD sprint, decisions stack quickly: who owns hypotheses, who can change scope, who signs off on exhibits, who approves spend, who escalates access issues, and who is allowed to see what under clean-team rules. The matrix answers these questions once, in writing, and becomes the control surface for the entire program. Build it on day one, publish it where the team works, and enforce it daily.

Use a simple RACI with one twist: add V for verifier (quality assurance). Definitions are crisp. Responsible (R) does the work. Accountable (A) makes the decision and carries the can—exactly one A per decision. Consulted (C) provides input before the decision. Informed (I) is updated after. Verifier (V) independently checks accuracy and replication before anything leaves the workbench. If you keep these five tags consistent, the matrix will survive pressure and handoffs.

Start with a compact catalog of roles, then map each critical decision or deliverable to R, A, C, I, and V. Keep the matrix short enough to be used—20 to 30 lines that track real milestones, not every task. When trade-offs appear or access is thin, the matrix tells you who decides and how fast. When clean-team rules apply, the matrix also tells you who can—even legally—see the data.

### **Role catalog (assign names next to each):**

- Deal lead (sponsor side)
- CDD lead partner

- CDD engagement manager / PMO
- Market sizing lead
- Pricing & unit economics lead
- Customer & retention lead
- Competitive dynamics lead
- Go-to-market lead
- Primary research lead (surveys/interviews)
- Data & analytics lead (model owner)
- Storyline & quality lead (deck owner)
- Model QA verifier
- Legal counsel (including antitrust and MNPI)
- Quality of Earnings (QoE) lead
- Technology/ops diligence lead
- Tax diligence lead
- ESG/EHS diligence lead
- Clean-team coordinator / compliance
- Vendor management / procurement (data purchases)
- Knowledge manager (sources, citations, data book)

### **How to build the matrix in 20 minutes:**

- List the 12–15 decisions or deliverables that truly move value (killer variables first).
- For each, write one sentence that defines “done” and the date it is needed.
- Assign exactly one A; assign at least one R; add a V for QA; add C and I only where they change the outcome or reduce rework.
- Mark any clean-team restrictions for that line (e.g., “clean only” for invoice-level price analysis).
- Publish the matrix and pin it in your workspace; review it at the daily stand-up.

### **Template you can copy and fill (one line per milestone):**

- Milestone name — Due date — A: [name] — R: [name] — V: [name] — C: [names] — I: [names] — Clean-team notes: [rule].

## **Default RACI+V for common CDD milestones (edit to fit your deal):**

- Hypotheses locked — A: CDD lead partner — R: Engagement manager — V: Storyline & quality lead — C: Deal lead, workstream leads — I: All.
- Scope & not-doing list set — A: Deal lead — R: Engagement manager — V: Storyline & quality lead — C: Legal, QofE — I: All.
- Clean-team protocol approved — A: Legal counsel — R: Clean-team coordinator — V: CDD lead partner — C: Deal lead — I: All.
- Primary research launched — A: Engagement manager — R: Primary research lead — V: Storyline & quality lead — C: Legal (MNPI), workstream leads — I: All.
- Top-down market sizing (v1) — A: CDD lead partner — R: Market sizing lead — V: Model QA verifier — C: Deal lead — I: All.
- Bottom-up market sizing (v1) — A: CDD lead partner — R: Market sizing lead — V: Model QA verifier — C: Primary research lead — I: All.
- Price architecture reconstruction — A: Pricing lead — R: Pricing analyst — V: Model QA verifier — C: Legal (rebates/MFNs), QofE — I: All.
- Retention & cohort analysis — A: Customer & retention lead — R: Analyst — V: Model QA verifier — C: QofE — I: All.
- Unit economics by segment — A: Pricing & unit economics lead — R: Analyst — V: Model QA verifier — C: Ops/tech lead — I: All.
- Competitor response scenarios — A: Competitive dynamics lead — R: Analyst — V: Storyline & quality lead — C: Deal lead — I: All.
- Driver-based model (v1) — A: Data & analytics lead — R: Model owner — V: Model QA verifier — C: CDD lead partner — I: All.
- Mid-sprint gate decision — A: Deal lead — R: CDD lead partner — V: Storyline & quality lead — C: QofE, legal — I: All.
- Synthesis & storylining — A: Storyline & quality lead — R: Engagement manager — V: CDD lead partner — C: Deal lead — I: All.
- Cross-stream sign-offs (QofE/legal/ops/tech) — A: Deal lead — R: Respective stream leads — V: CDD lead partner — C: Engagement manager — I: All.
- Deck freeze — A: Storyline & quality lead — R: Engagement manager — V: CDD lead partner — C: Deal lead — I: All.
- Final model lock & sensitivity suite — A: Data & analytics lead — R: Model owner — V: Model QA verifier — C: CDD lead partner — I: All.
- IC read-out — A: Deal lead — R: CDD lead partner — V: Storyline & quality lead — C: Investment team — I: All.

- Post-mortem & archive — A: Engagement manager — R: Knowledge manager — V: CDD lead partner — C: Deal lead — I: All.

### **Access and clean-team overlay (apply line-by-line):**

- Mark “clean only” for any task that touches competitively sensitive, customer-level, or invoice-level data.
- Identify which named individuals are clean vs. non-clean; list what can be shared (aggregated, anonymized) and the path for counsel sign-off.
- For primary research, record the approved script, who can field interviews, and how raw notes are redacted before wider sharing.

### **Decision rights and spend controls:**

- Scope change authority — A: Deal lead; R: CDD lead partner; V: Engagement manager; C: Legal/QofE.
- External spend over threshold — A: Deal lead; R: Engagement manager; V: Procurement; C: CDD lead partner.
- Access escalation to management — A: Deal lead; R: Engagement manager; V: Legal; C: CDD lead partner.

### **Quality and verification rules (use V deliberately):**

- Every exhibit tagged V must be replicated from source registers and model outputs before circulation.
- The verifier cannot be the same person as R for that line.
- Any unverified exhibit must carry a visible “Draft—Not Verified” label in working sessions.

### **Coverage and continuity safeguards:**

- Name a deputy for each A and R; record out-of-office windows and time-zone coverage.
- If R is unavailable >24 hours, the deputy becomes R until the owner returns; PMO updates the matrix.
- Keep a single “owner map” with mobile/Slack/email for all A/R/V roles.

## **Signals your matrix needs a fix:**

- Two or more people think they are A for the same decision.
- QA is consistently late because V is assigned after work begins.
- Access is blocked because the clean team isn't named at the task level.
- Rework appears after gates; C was missing or added too late.

## **Quick audit checklist (run at the daily stand-up):**

- Every critical milestone has exactly one A.
- Every killer variable has an R and a V.
- Clean-team constraints are written next to the tasks they govern.
- C and I lists are short; no spectators with veto power.
- Deputies named for all A and R roles; availability confirmed.

When used rigorously, the matrix becomes your operating system. It reduces ambiguity, speeds decisions, protects compliance, and raises the quality bar—so your team can spend its scarce hours proving what moves value, not negotiating who does what.

## **3.3 Governance Cadence Checklist**

Governance is the heartbeat of a diligence sprint. It keeps the workplan honest, converts analysis into decisions, and prevents last-minute heroics from substituting for judgment. A strong cadence is light on ceremony and heavy on outcomes: short, frequent checkpoints that protect the critical path; time-boxed gates that force go/continue/stop calls; and a simple set of artifacts that make progress and risk visible. Treat governance as design, not hygiene—you’re engineering a flow that gets the few value-moving answers in front of decision-makers on time.

Start with principles. Meetings exist to move decisions, not to recite status. The cadence must reflect the deal timeline, not habit. Clean-team and MNPI rules are governance, not fine print. Every checkpoint should reference a single source of truth—the hypothesis tracker, critical path, risk ledger, and model version—so you never debate “which numbers.” Finally, governance is not just schedule control; it is also quality control. Exhibits that aren’t verified should

be labeled as such, and QA should be a step in the cadence, not an afterthought.

A practical cadence for most CDD sprints includes four layers: a daily stand-up to protect the critical path, a twice-weekly sponsor touchpoint to unlock decisions, a weekly cross-stream sync to clear dependencies with QoE/legal/ops/tech, and three formal gates (early, mid-sprint, pre-IC). In faster deals, you compress intervals but keep the structure. In longer ones, you add depth to QA and synthesis windows rather than more meetings.

Use the checklist below to design and run your cadence. Copy it into your workspace, fill each line with names and dates, and hold the team to it.

## Cadence design essentials

- Decision date fixed and back-scheduled; hard gates placed on the calendar.
- Single source of truth named and linked in every invite.
- Roles and decision rights mapped (R/A/C/I/V) for all governance events.
- Clean-team/MNPI rules embedded in invites and recapped at the start of sensitive sessions.
- Buffers inserted before synthesis and QA, not piled at the end.

## Daily stand-up (10–15 minutes)

- Objective: protect the critical path and clear blocks.
- Inputs: one-page tracker with RAG statuses, next milestone dates, risks, and asks.
- Prompts: what slipped, what's blocked, what clears today, what decision is needed.
- Output: updated plan, explicit owner for each unblock, and any re-baselining.

## Sponsor touchpoint (2x per week, 20–30 minutes)

- Objective: make decisions and approve trade-offs.
- Inputs: hypothesis confidence deltas, killer variable status, spend/access escalations.

- Output: price/structure guidance if a killer variable breaks; scope changes; PO approvals.

## Cross-stream sync (weekly, 30 minutes)

- Objective: clear dependencies with QoE, legal, ops/tech, tax, ESG.
- Inputs: issues log with owners and due dates, specific questions per stream.
- Output: confirmed handoffs, updated risk ledger, and integration of answers into the model.

## Gate reviews (time-boxed, outcome-driven)

- Early gate (Day 3–4): confirm or kill top killer variables; decide to continue/deepen/stop.
- Mid-sprint gate (end of Week 1 or 2): lock definitions, approve scope pivots, adjust price or structure if warranted, confirm dataset purchases.
- Pre-IC gate (T-3): deck/storyline freeze, model and sensitivity suite locked, cross-stream sign-offs complete, open risks translated into terms or conditions.

## Artifacts required for governance

- Hypothesis tracker with numeric thresholds, owners, and confidence ratings.
- Critical path with dependencies, buffers, and next milestone dates.
- Risk ledger capturing issue, exposure, owner, due date, confidence, and mitigation.
- Decision log noting what changed (price, structure, scope), when, and why.
- Source register and model version log so exhibits can be replicated.

## Quality assurance embedded in cadence

- Verifier sign-off required before exhibits move beyond the workbench.
- Model integrity check scheduled prior to each gate (formula transparency, inputs, sensitivities).

- Footnotes mandatory for all material claims; any unverified exhibit labeled “Draft—Not Verified.”
- Random spot-checks by the QA lead on source attribution and math.

## Compliance and clean-team controls

- Clean-team roster and permissions reiterated in the first minute of any session involving sensitive data.
- Primary research guardrails restated: who calls, what scripts, how raw notes are redacted.
- Counsel turnaround times built into the calendar for approvals and data sharing.
- Prohibited topics (pricing coordination, customer allocation) listed in invites to avoid drift.

## Health metrics to monitor

- On-time completion rate for critical path tasks (target  $\geq$  90%).
- Interview completion vs. target by cohort (target  $\geq$  80% by T-10).
- QA first-pass acceptance rate (target  $\geq$  85%).
- Variance between top-down and bottom-up market sizing (target  $\leq$  15% before reconciliation).
- Open red-flag count and days-open (target: no red flag older than 3 working days).

## Escalation triggers and SLAs

- Killer variable blocked >24 hours despite owner action → escalate to sponsor; decision within the next business day.
- Customer outreach below 50% of target by end of Week 1 → authorize substitutes (channel checks, expert calls) same day.
- Market sizing variance >25% after first reconciliation → add second method or new dataset within 48 hours.
- Legal/compliance approval pending beyond agreed SLA → engage counsel in the stand-up and re-route the plan within 24 hours.
- Model mismatch between exhibits and version log → freeze exhibits until model is re-baselined and verified.

## Asynchronous norms that reduce meeting load

- Written updates posted in the workspace before the stand-up; meetings start from written status, not oral recaps.
- Decisions recorded in the decision log within one hour; links dropped into the relevant channel.
- File-naming convention and versioning enforced; only links to the source of truth in emails and chats.
- Questions for sponsors batched into twice-weekly touchpoints unless they block the critical path.

## Synthesis prep built into cadence

- Storyline working session scheduled at T-6 to align on narrative and exhibits.
- Dry-run at T-3 with adversarial Q&A; assign owners to close gaps the same day.
- Final QA day blocked at T-2; no new analyses accepted unless a red flag demands it.

## Signals your cadence needs a reset

- Stand-ups drift past 15 minutes or become slide reviews.
- Gates end without a documented decision or owner.
- Confidence ratings change in decks but not in the tracker.
- “Who owns this?” or “Which number is right?” appears more than once.
- Sponsor questions repeatedly surprise the team; touchpoints aren’t absorbing decision demand.

## One-page governance pack (attach to your kick-off)

- Calendar with stand-ups, touchpoints, cross-stream syncs, and gates.
- Names and contact details for A/R/V roles.
- Links to hypothesis tracker, critical path, risk ledger, decision log, and source register.
- Clean-team memo and primary research compliance note.
- SLAs and escalation rules in five lines or less.

Run this checklist with discipline and your governance stops being a meeting habit and becomes a competitive advantage. The cadence will surface bad news early, protect synthesis time, and give sponsors the confidence to act—because every session ends with a decision, every artifact tells the same story, and every risk has an owner and a date.

## 3.4 Project-Level Risk Management Plan Template

In a CDD sprint, risk management is not a side document—it is the operating system that protects time, credibility, and compliance under pressure. A project-level risk plan makes threats visible early, assigns clear owners, and pre-authorizes the moves you will make when reality intervenes. The goal is to convert uncertainty into specific controls, triggers, and decisions that keep the program on track and the recommendation defensible. This template is designed for speed: complete it on Day 0–1, publish it in your single source of truth, and review it at every governance gate.

The strongest plans begin with a sharp view of materiality. Set dollar and schedule thresholds that define what “moves value” and what “breaks the timeline.” Then classify risks by cause rather than by symptom—access, evidence quality, compliance, modeling integrity, dependencies with other diligence streams, and stakeholder alignment. For each risk class, write early-warning indicators you can actually observe in week one, the preventive controls you will deploy, and the contingency play you will run within 24–72 hours if a trigger fires. Finally, quantify residual exposure so price, terms, or conditions can reflect what you could not remove.

Use the template below as a fill-ready scaffold. Keep the language crisp. Avoid vague labels like “monitor” or “mitigate.” Every line should lead to an action, an owner, and a date.

### Project-Level Risk Management Plan (copy, fill, publish)

#### 1. Objective and decision date

State the decision you must enable (price, structure, conditions) and the exact Investment Committee date and time.

#### 2. Risk leadership and roles

Name the risk owner, PMO coordinator, QA verifier, legal/compliance

lead, primary research lead, data/model owner, and sponsor for escalations.

### **3. Materiality thresholds**

Define EV impact that triggers action, acceptable schedule slip before re-baselining, and zero-tolerance items (antitrust, MNPI, data privacy).

### **4. Risk taxonomy for this engagement**

List the categories you will track: timeline and critical path, access and management availability, data quality and evidence sufficiency, primary research bias and non-response, clean-team and MNPI, antitrust and counsel approvals, cross-stream dependencies (QoE, legal, tech/ops, tax, ESG), modeling and version control, QA and citation rigor, scope creep and definition drift, vendor and dataset delivery, staffing and single-point-of-failure, budget and PO cycle, cybersecurity and data retention, reputational risk.

### **5. Identification methods**

Note how you will surface risks: Day-0 pre-mortem, hypothesis cards review, daily stand-ups, vendor SLAs, interview recruiting dashboards, and cross-stream syncs.

### **6. Scoring model**

Specify fields and scales: likelihood 1–5, impact as value at stake in dollars, velocity 1–5 (how fast harm arrives), detectability 1–5, confidence high/medium/low, and an overall priority score you will sort by.

### **7. Early-warning indicators**

Write observable signals for week-one detection: interview book rate below target, dataset vendor behind SLA, counsel approval pending past 48 hours, top-down vs. bottom-up sizing variance above threshold, exhibit without verifier sign-off, model-to-deck mismatch, management access slipping, clean-team roster incomplete, scope change requests increasing, burn rate exceeding budget.

### **8. Preventive controls**

Record the controls you will deploy immediately: not-doing list enforced, second-method analysis pre-committed, interview quotas and screeners approved, clean-team memo issued, source register live, model version log created, QA checklist attached to every exhibit, PO pre-approvals secured, deputies named for all A/R roles, encrypted workspace and restricted access enabled.

### **9. Contingency playbook**

Pre-authorize moves you will make within 24–72 hours: substitute channel checks for end-customer interviews, add a second dataset,

escalate to sponsor for access, narrow thesis scope, re-sequence work to protect synthesis, increase sample incentives, pivot to downside-first scenario, or call a price/structure change at the mid-sprint gate.

#### **10. Escalation path and SLAs**

Define who approves added spend, who can re-baseline the plan, who calls a stop, and the expected decision time once a trigger fires.

#### **11. Decision levers if residual risk persists**

List structural responses you will propose: price adjustment, earnout tied to NRR or price realization, reps and warranties, covenants, closing conditions, vendor top-up CDD, or a staged confirmatory workstream.

#### **12. Compliance guardrails**

Document clean-team roster and permissions, MNPI definitions, primary research scripts and disclosure, antitrust prohibitions, data handling and redaction rules, counsel turnaround SLAs.

#### **13. Data security and retention**

Specify storage location, access controls, encryption, retention period, and destruction date for raw notes, transcripts, datasets, and models.

#### **14. Vendor and dataset risk**

List critical vendors, expected delivery dates, backup providers, spend ceilings, and the process to switch if SLAs slip.

#### **15. Primary research risk**

Write quotas by cohort, recruiting channels, incentive levels, screeners, approval date, and fallback sources if direct access is blocked.

#### **16. Modeling risk controls**

Define the driver-based structure, naming conventions, sensitivity suite, single-model rule, versioning, peer review, and a model integrity check before any gate.

#### **17. QA and verification**

Assign a verifier for each critical exhibit, require footnotes for every material claim, and set a first-pass acceptance target and spot-check cadence.

#### **18. Cross-stream dependencies**

Record the questions owned by QoE, legal, tech/ops, tax, and ESG, the dates answers are due, and the IC decisions they influence.

#### **19. Governance integration**

Link the plan to cadence: daily stand-ups for EWI status, sponsor touchpoints for escalations, weekly cross-stream syncs for dependency clearance, and three gates with written decisions.

#### **20. Risk ledger fields**

Include ID, description, category, owner, date opened, due date,

likelihood, impact dollars, velocity, detectability, confidence, EWI observed, mitigation in place, next action and date, residual exposure dollars, and closure note.

#### **21. Heat-map view**

Commit to a one-page heat-map generated from the ledger that shows top risks by priority score and value at stake; refresh it before each gate.

#### **22. Residual risk quantification**

Translate what remains into price haircuts, wider ranges in scenarios, or explicit terms and conditions; link each to the exhibit or assumption it affects.

#### **23. Communications protocol**

State how updates are shared: risk ledger link in every stand-up, decision log entry within one hour of any escalation, and a single source of truth for files.

#### **24. Training and reminders**

Plan a five-minute refresher at the first three stand-ups on clean-team rules, primary research compliance, and QA expectations.

#### **25. Sign-offs**

Capture names and dates for owner, CDD lead, deal sponsor, legal/compliance, and QA.

### **Top risks in CDD and how to neutralize them fast**

- Access risk  
Mitigate with Day-0 sponsor asks, explicit escalation dates, and pre-approved substitutes such as distributor or channel partner interviews.
- Evidence quality risk  
Deploy dual-method triangulation from the start, keep a source register, and set a variance threshold that triggers a second dataset purchase.
- Primary research risk  
Protect recruiting with clear quotas, incentives, multiple channels, and a fieldwork SLA; if book rates lag, reallocate to expert calls the same day.
- Clean-team and MNPI risk  
Issue the clean-team memo at kickoff, label “clean only” tasks in your RACI, and route any deviations through counsel within a 24-hour SLA.

- Modeling and version control risk  
Enforce the single-model rule, keep a version log, and require a model integrity check before exhibits leave the workbench.
- Cross-stream dependency risk  
Name owners and due dates for QoE/legal/tech answers and put them in the risk ledger; escalate unresolved items at the sponsor touchpoint.
- Scope creep and definition drift  
Publish the not-doing list and market/segment taxonomy; any change request must pass the price-change test before work begins.
- Staffing and single-point-of-failure risk  
Pair analysts on critical exhibits, name deputies for A/R roles, and publish coverage windows to handle time-zones and PTO.

## Risk triggers you should codify now

- Interview completion falls below 50% of target by end of Week 1.
- Clean-team approval pending more than 48 hours beyond SLA.
- Top-down vs. bottom-up market sizing variance exceeds 25% after first reconciliation.
- Model-to-deck mismatch detected at any gate.
- Dataset vendor misses stated delivery by 72 hours.
- QA first-pass acceptance drops below 85%.
- QoE or legal answers past due on assumptions tied to killer variables.

## Residual risk translation guide

- Pricing power uncertainty  
Apply a realized price haircut in the model, widen sensitivity ranges, and propose an earnout tied to price realization.
- Retention uncertainty  
Lower NRR to base-rate median, increase churn sensitivity, and tie structure to renewal performance.
- Competitive response uncertainty  
Run a competitor push scenario, include a covenant on promo intensity if relevant, and set early-warning indicators to track deal discipline.
- Regulatory or policy timing uncertainty  
Add scenario timing bands and a closing condition or rep tied to the specific approval or rule change.

## One-minute audit before every gate

- Are top five risks owned, dated, and showing fresh updates in the ledger.
- Do early-warning indicators map to actions taken in the last 24–48 hours.
- Is residual exposure quantified in dollars and reflected in the model or terms.
- Are compliance and clean-team entries current, with no unapproved access.
- Has the decision log captured any price/structure changes prompted by risk.

Build this plan once, use it daily, and let it drive real decisions. The payoff is diligence that absorbs shocks without drama, preserves synthesis time, and communicates risk in the only currency that matters—its impact on value, timing, and terms.

## Chapter 4. Data Collection and Research Techniques

Great diligence teams don't start with a blank page; they start with a disciplined data spine. This chapter shows you how to assemble that spine quickly—what to pull first, which sources to trust, how to triangulate, and where compliance lines live. We focus on speed with rigor: a compact set of sources you can access in days, cross-checked by a second method, and documented so any claim in your report is traceable and replicable. Primary research will add color and conviction; secondary data gets you a defensible baseline fast.

### 4.1 Secondary Data Sources Landscape

Secondary sources are the fastest route to an outside-in view. Used well, they compress weeks of guesswork into days of proof. Used poorly, they create false precision and confirmation bias. The goal is not to collect everything; it is to build a layered picture—macro to micro, category to SKU, signal to story—anchored in sources with known coverage, latency, and bias.

Start with principles. Anchor each source to a specific question and a hypothesis you must prove or break. Prefer sources with transparent methodology, time-stamped series, and consistent definitions. Triangulate with a second method on any variable that moves value. Record coverage limits and refresh cadence in your source register so you don't over-interpret stale data. Never ignore licensing, privacy, or clean-team rules: speed without compliance is a false win.

#### A practical map of secondary sources (use what fits your deal):

- **Corporate filings and sell-side materials (baseline facts).**  
SEC EDGAR (10-K, 10-Q, 8-K, S-1/F-1), prospectuses, investor decks, earnings call transcripts, and supplementary metrics give you definitional truth, segment disclosures, and management's narrative. For non-US targets, use local registries (e.g., Companies House, SEDAR+,

Bundesanzeiger). Treat non-GAAP metrics with caution and reconcile definitions to your model before you quote them.

- **Market and industry intelligence (category structure, size, and trends).**  
Use analyst houses and market researchers for directional sizing and taxonomy discipline (e.g., Gartner/IDC/Forrester for tech; Euromonitor/IBISWorld for consumer and services). These are helpful for framing, not for precise shares. Always bracket with a bottom-up build and reconcile scope differences explicitly.
- **Private markets and deal flow (peer comps and precedent behavior).**  
PitchBook, Prequin, Refinitiv, CB Insights, and Crunchbase provide funding, M&A, and valuation context. Use them to understand peer growth/margin ranges, roll-up activity, and investor appetite. Coverage varies by region and company stage; check definitions of “revenue,” “ARR,” and deal categorization.
- **Macroeconomic, demographic, and policy data (context and cycles).**  
FRED/BEA/BLS/Census for the US; Eurostat/OECD/World Bank globally. Pull series for demand drivers (housing starts, PMI, disposable income), labor tightness (JOLTS), and regional demographics. For regulated sectors, pair with regulator datasets (e.g., FCC spectrum/licensing, FDA device/drug approvals, CMS reimbursement schedules).
- **Trade, supply chain, and logistics (flow of goods and bottlenecks).**  
UN Comtrade, USITC DataWeb, and customs data give import/export volumes and ASP proxies. Panjiva/ImportGenius/PIERS add shipment-level detail. Freightos Baltic Index, Drewry, and DAT show freight cost direction; use these to sanity-check margin narratives and lead-time claims.
- **Retail scanner and point-of-sale panels (consumer demand and price/mix).**  
Circana (NPD + IRI) and NielsenIQ data help quantify share, promo intensity, and price realization across retail channels. Coverage differences are material (mass vs. specialty, online vs. in-store), so document what's in and what's out before comparing brands.
- **Ecommerce and digital shelf (traffic, conversion, and price).**  
Similarweb for traffic and referrers; SEMrush/Ahrefs for search demand and competitive intensity; Google Trends for directional interest; marketplace signals (Amazon ASIN reviews/ratings, Buy Box dynamics, Keepa-style price histories) for price dispersion and elasticity clues. For app-centric models, use data.ai (App Annie) or Sensor Tower for downloads, revenue ranks, and retention proxies.

- **B2B firmographics and technographics (who the buyers are and what they run).**  
Dun & Bradstreet, ZoomInfo, Clearbit for firmographic coverage; BuiltWith/Wappalyzer for installed-tech signals; cloud marketplaces (AWS/Azure/GCP) for partner traction. Use these to size reachable segments, refine the bottom-up build, and target primary research cohorts.
- **Customer voice at scale (needs, friction, and willingness to pay proxies).**  
G2 and Capterra for software; Trustpilot/Yelp/Amazon reviews for consumer; Reddit and specialized forums for nuanced use cases; Glassdoor/Indeed for internal capability and culture signals. Reviews are biased—weight verified buyers, time-stamp trends, and read the “most helpful critical” feedback for recurring failure modes.
- **Advertising, attention, and share of voice (who is spending to grow).**  
Kantar/Nielsen Ad Intel for spend; Pathmatics for digital; Meta Ad Library and Google Ads Transparency for creative and targeting patterns. Use spend trends to infer acquisition economics and competitor aggression.
- **Labor markets and talent signals (capacity to execute).**  
BLS OES, JOLTS, local wage indices, and job postings (LinkedIn/Indeed) help test the feasibility and cost of sales-force ramps or specialized hiring. For deep tech, GitHub repo velocity and community activity provide weak-signal validation of ecosystem health.
- **IP, standards, and cybersecurity (defensibility and risk).**  
USPTO/EPO/WIPO for patent filings and families; NIST NVD (CVE) for disclosed vulnerabilities; open-source license registries for compliance risk. In software diligence, pair these with roadmap claims to test feasibility and moat.
- **Healthcare and life sciences (regulated demand and access).**  
ClinicalTrials.gov for pipeline visibility; FDA Orange Book and 510(k)/PMA databases for approval timing; CMS Physician/Supplier and Part D data for volumes and reimbursement; commercial sources like IQVIA/Symphony for prescription and claims panels.
- **Energy, commodities, and inputs (margin sensitivity).**  
EIA for energy production/price; CME/LME benchmarks for metals and ags; USDA for crop yields; chemical price indexes for specialty inputs. Use these to build sensitivity bands around COGS and to test “price-cost lag” narratives.
- **Real estate, construction, and local permits (ground truth for regional theses).**

CoStar/Realtor/Redfin for demand and pricing context; Dodge Data and US Census permits for construction starts; municipal planning portals for large projects in pipeline that could change local demand.

- **Geospatial and alternative data (when traditional sources are thin).**

Foot-traffic and mobility (e.g., Placer.ai, SafeGraph) for store visit trends; satellite imagery vendors for inventory, utilization, or construction progress; weather from NOAA for seasonality or disruption analysis. Treat these as directional; disclose methodology and consent/aggregation standards.

### **Five rules to keep secondary data honest:**

- Define the metric before you pull the series; do not retrofit definitions to a convenient chart.
- Triangulate with a second method on any killer variable (e.g., top-down analyst series vs. bottom-up buyer counts and replacement cycles).
- Time-align series before you compare (fiscal vs. calendar, weekly vs. monthly, rolling vs. point-in-time).
- Document coverage and bias: panel composition, geography, channel mix, and sample error.
- Footnote everything and store raw sources in a single register with date stamps and licenses.

### **Rapid pull list for the first 72 hours (copy this into your kickoff):**

- Last three years of filings and transcripts for target and top competitors.
- Two reputable industry series that match your market definition (scope noted).
- One traffic/interest signal (Similarweb or Google Trends) and one review corpus for customer voice.
- One pricing lens (scanner data, marketplace history, or contract/invoice proxies if accessible).
- One macro driver series that actually matters (e.g., housing starts for building products, reimbursement schedules for healthcare).

## Source vetting checklist (run before any exhibit goes into a deck):

- What exact question does this source answer? Is the thesis-critical?
- Definitions match your scope (product, channel, geo), differences disclosed.
- Latest refresh date and latency noted; series time-aligned to peers/plan.
- Coverage and bias described (panel composition, missing segments).
- Second method identified or completed; variance reconciled.
- Licensing, privacy, and clean-team rules reviewed; citations written; raw files archived.

## Compliance and ethics reminders you cannot skip:

- Respect terms of service and robots.txt; do not scrape behind log-ins or expose PII.
- Treat marketplace, review, and mobility data as directional unless license and consent are explicit.
- Under clean-team protocols, restrict sensitive analyses to named individuals and share only aggregated, anonymized outputs with non-clean members.
- Keep a short compliance memo in your data book that lists licenses, restrictions, and any special handling (e.g., client-provided datasets).

Secondary data will not answer every question, but it will frame the battlefield. When you combine a well-chosen set of sources with disciplined triangulation and clear documentation, you give the team a defensible starting point—and free your primary research to probe the few uncertainties that still move value.

## 4.2 Primary Research Design – Step-by-Step Guide

Primary research is how you move beyond “what’s on the internet” to what real buyers, users, partners, and competitors will actually do next. It should be fast, narrow, and hypothesis-driven—not a fishing expedition. The aim is to generate proprietary, decision-grade evidence that either proves the thesis or breaks it early enough to change price, structure, or go/no-go. What follows is a step-by-step guide you can lift and run in any diligence sprint.

Start with the investment decision and work backward. Each interview, survey, or channel check must tie to a specific “would-have-to-be-true” statement and a dollar value at stake. You are designing a test, not a conversation. Keep the footprint tight, bias toward revealed behavior (contracts, invoices, win/loss outcomes) over opinions, and use a second method to cross-check any killer variable.

### **Step 1: Translate hypotheses into research objectives**

Restate each top hypothesis as a research objective with a measurable endpoint. If your hypothesis is “realized price can rise 2–4% annually without elevating churn,” your objective might be “estimate willingness-to-pay corridors and procurement pushback thresholds in segments A/B/C; identify the three most credible value messages that justify increases.” Decide up front how this evidence would change the model or the term sheet. If it wouldn’t, drop it.

### **Step 2: Choose the right method for each objective**

Match the question to the instrument. In diligence, you rarely need every method; pick the shortest path to a credible answer.

- Customer depth interviews: Decision process, switching costs, perceived differentiation, drivers of churn/expansion, and how procurement actually negotiates.
- Win/loss calls: Why you won or lost in the last 6–12 months; competitor claims that landed; price vs. non-price drivers.
- Procurement interviews: Guardrails, MFNs, discount ladders, how increases flow through, and who signs off.
- Channel/distributor checks: Shelf, territory coverage, sell-in vs. sell-through, rebate pressure, and private-label risk.

- Expert calls: Market structure, competitor capabilities, and likely responses.
- Quantitative surveys: Directional sizing of behaviors, pricing experiments, feature trade-offs, and segmentation hypotheses.
- Mystery shopping/secret buyer: Price quotes, discounting rules-of-thumb, lead handling, and sales process friction (only where ethical and legal).
- Observational/usage shadowing: In field-service, industrial, or healthcare settings where workflow and ergonomics drive stickiness.

### **Step 3: Define cohorts and a sampling frame**

Design your sample to reflect where the revenue and risk truly sit—not a generic census. Typical diligence cohorts include: top accounts by revenue; churned accounts from the last 12–18 months; active prospects and recent losses; channel partners or distributors by tier; procurement leaders; and, where relevant, end users vs. economic buyers vs. technical approvers. Set quotas by segment, region, ACV band, tenure, and product bundle so you can cut results along the same axes you'll model.

#### **Rules of thumb for sample sizes (directional, not academic power studies):**

- Qualitative depth: 12–20 interviews per key cohort will surface 80% of recurring themes.
- Directional quant survey (single market): ~100–150 completes yields a 95% margin of error around ±8–10 percentage points; ~300–400 narrows to ~±5–6 points.
- Pricing tasks (Gabor-Granger/Van Westendorp): 150–300 completes per major segment for stable ranges.
- Discrete choice/conjoint: 200–400 completes per segment with 8–12 choice tasks can estimate main effects reliably; keep designs simple in a diligence sprint.

### **Step 4: Build a tight screener that protects quality**

Your screener is a filter, not a courtesy form. Confirm role (economic buyer, technical approver, user), decision authority, recent purchase/renewal event, and category familiarity. Exclude agency employees and competitors. Add quality controls: attention checks, time-in-survey minimums, red-herring questions, IP/device deduping, and open-end validation. For B2B, include

revenue band and industry codes to match your bottom-up sizing cuts. For churned or lost-deal cohorts, require recency and proof (e.g., PO or vendor name remembered).

## **Step 5: Draft instruments that test, not lead**

Interview guides should be semi-structured and written to disconfirm.

- Opening context: role, responsibilities, and what “good” looks like in their job.
- Decision journey: trigger, shortlist, evaluation criteria, proof points, buyer committee.
- Alternatives and trade-offs: who else they considered, perceived pros/cons, and where the target underperformed.
- Price and terms: how budgets are set, discount norms, rebates, price-increase history, triggers for re-bid.
- Stickiness: switching costs (data, integrations, retraining), lock-in clauses, and what would make them leave or expand.
- Future state: what would have to be true for them to pay more, buy more, or switch.
- Disconfirming prompts: “What are we missing?” “Under what conditions would the opposite of your last answer be true?”

Survey design should emphasize forced trade-offs and revealed preferences over generic satisfaction bars: short batteries ( $\leq 15$  minutes total), randomized item order, balanced scales with labeled anchors, and minimal open ends. Pick pricing modules with intent: Van Westendorp for quick corridor bracketing, Gabor-Granger for acceptance at discrete prices, discrete choice for attribute-price trade-offs when time allows. Use MaxDiff for feature importance; translate results into clear “keep/kill” product messages for the deck.

## **Step 6: Secure compliance and clean-team approvals**

Before fieldwork, lock a one-page compliance memo: who you will contact, what you will say, and what you will not ask. Confirm consent language, sponsor disclosure (blind or disclosed), compensation ranges, and data handling. If operating with a clean team, list who can see raw transcripts or PII, how notes will be redacted, and what aggregation rules apply before sharing

with non-clean members. Reiterate antitrust guardrails (no price coordination, no customer allocation) to anyone making outreach.

## **Step 7: Select recruiting channels and vendors**

Choose the shortest credible path to your quotas: existing customer lists via counsel-approved outreach; panel providers for broad B2B/B2C samples; expert networks for niche roles; targeted LinkedIn outreach for senior titles; distributor networks for channel checks. Pre-approve POs and incentives to avoid delays. For sensitive cohorts (C-suite procurement, clinicians), expect smaller yield and higher incentives—budget and timelines accordingly.

## **Step 8: Launch fieldwork and monitor in real time**

Stand up a daily dashboard with four numbers: invites sent, completed by cohort vs. quota, book rate, and drop-offs at key questions. Watch mix balance: if Segment B is under-represented by Day 2, shift effort and incentives. Tag each interview with segment metadata at booking so analysis can move as calls land. Record interviews (with consent) and transcribe within 24 hours. Keep a live log of notable quotes and contradictions linked to hypotheses.

## **Step 9: Enforce data-quality gates**

Reject suspicious completion immediately. Signals include implausible speed, straight-lining, inconsistent answers, nonsensical open-ends, duplicate IPs/devices, or geographic mismatch. For interviews, watch for vendor coaching, unusually polished talking points, or reluctance to discuss alternatives. Keep a “do not use” folder—never pad counts with weak data. Document acceptance/rejection rules in your data book.

## **Step 10: Code, quantify, and triangulate**

Convert qualitative notes into a small set of coded themes tied to your hypotheses: price drivers, defectors’ reasons, perceived differentiation, procurement veto points. Quantify frequency and strength by segment. For surveys, run simple but decision-relevant cuts: top-two box shares, corridor estimates, and differences between loyalists, switchers, and churned. Weight only when you have a defensible population frame (e.g., revenue by segment); otherwise report unweighted and state limits. Triangulate: reconcile stated willingness to pay with realized invoices or competitor quotes; reconcile churn

stories with cohort math; reconcile distributor assertions with sell-through where available.

## **Step 11: Translate findings into model-ready inputs**

Every research output should land in the model or the risk ledger within 24 hours. Examples: update realized price assumptions by segment and range; adjust NRR/GRR by cohort and confidence; change conversion rates or ramp times in the funnel; add downside triggers where procurement pushback or competitor aggression is likely. If evidence is thin, widen sensitivity ranges and lower confidence; do not round directional answers into false precision.

## **Step 12: Close the loop with synthesis and auditability**

Select three to five quotes (anonymized) that illustrate the core finding, footnote the cohort, and show the number of interviews/surveys that support it. Maintain a source register with date stamps, licenses, and storage locations for audio, transcripts, and raw survey data. Before any exhibit leaves the workbench, a verifier should replicate the numbers from raw files and sign off.

## **Practical blueprints you can copy**

- **72-hour launch plan**

Day 0: finalize hypotheses, cohorts, quotas, and compliance memo; approve vendors and incentives; publish interview guide and survey draft.

Day 1: program survey and schedule first 10–15 interviews; launch expert calls; begin outreach to churned/lost cohorts; counsel signs off on scripts.

Day 2: first interviews complete; survey soft-launch and quality check; adjust quotas, incentives, and screening logic; start coding early themes tied to hypotheses.

- **Interview guide skeleton (15–30 minutes)**

Context → Decision journey → Alternatives → Price/terms → Stickiness/switching → Future state → Disconfirming prompts → Close and permission to follow up.

- **Survey module menu (pick 3–5, keep ≤ 15 minutes)**

Awareness/consideration; short value messaging test; purchase criteria stack-ranking; pricing module (Van Westendorp or Gabor-Granger; DCE if

time allows); retention and expansion intent; competitor shortlist; open-end “what would make you switch/expand.”

## B2B vs. B2C nuances that matter

- B2B: The Decision-Making Unit (DMU) is real—separate the voice of the user, the technical approver, and the economic buyer. Procurement’s memory of discounts and clauses is usually better than end users’. Expect longer scheduling cycles and lower survey response rates; over-recruit and pre-book backups.
- B2C: Panels and digital intercepts can scale quickly; watch channel bias (marketplaces vs. DTC vs. retail) and over-representation of deal-seekers. Pair stated intent with digital-shelf and scanner data from secondary sources to keep stories honest.

## International and regulated contexts

Localize instruments; avoid idioms; test translations. Confirm data-privacy rules (e.g., cross-border transfer, consent), and be explicit about compensation norms by market. In healthcare, financial services, and public sector, clear scripts with counsel and avoid any questions that could elicit confidential or regulated information.

## Compliance and ethics you cannot skip

Always disclose who you are and the purpose of the research unless counsel approves a blinded approach. Obtain informed consent before recording. Do not solicit or store material nonpublic information. Never ask about competitor pricing intentions or future coordination. Store PII in encrypted locations with limited access and a defined destruction date.

## Common pitfalls—and how to avoid them

- Over-scoping: Too many questions with no path to a decision. Fix by aligning each question to a hypothesis and model input.
- Leading questions: “How valuable is our feature?” becomes “Which alternatives solved this better?”

- Survivorship bias: Talking only to happy customers. Force churned and lost-deal cohorts into the mix.
- Thin evidence: Relying on 12 interviews to make a market-wide claim. Use surveys or a second method to quantify.
- Slow fieldwork: Waiting for perfect scripts. Ship v1, monitor, and iterate by Day 2.
- Legal drag: Launching before clean-team and counsel approvals. Treat compliance as a gating dependency, not a parallel task.

### **Primary research checklist (paste into your workspace)**

- Hypotheses mapped to specific objectives and dollar value at stake.
- Cohorts and quotas defined; sampling frame matched to revenue mix.
- Screener with role filters and quality checks approved.
- Interview guide and survey instrument written to disconfirm.
- Compliance memo signed; clean-team rules and consent language locked.
- Vendors, incentives, and POs approved; booking links live.
- Daily dashboard tracking invites, completes, and cohort balance.
- QA gates enforced; rejects logged; transcripts stored securely.
- Triangulation complete for killer variables (second method identified or executed).
- Findings translated to model inputs, ranges, and confidence ratings; residual risk documented.

Run this play with discipline and your primary research will do what diligence needs most: deliver fast, defensible proof on the few questions that move value—without drowning the team in noise or creating compliance risk.

### **4.3 Survey and Interview Guide Template**

This template gives you a clean, copy-ready way to run primary research in a commercial due diligence sprint. It is designed to produce decision-grade evidence quickly, with instruments that map directly to hypotheses and model inputs. Use the interview guide when you need depth on decision journeys, switching costs, or pricing power. Use the survey when you need quantification across segments, geographies, or buyer types. Everything here assumes tight

timelines, clean-team or MNPI constraints, and the need to translate findings into the model within 24 hours.

How to use this template. Start by plugging in your top “would-have-to-be-true” statements, then select the cohort blocks and pricing inserts you need. Keep the footprint narrow—better to answer five decision-critical questions well than twenty loosely. Every question below is written to disconfirm and to yield an input you can drop into TAM/SAM/SOM, NRR/GRR, price realization, conversion, or unit-economics lines.

Non-negotiable guardrails. Disclose identity and purpose unless counsel has approved a blinded approach. Obtain consent to record. Do not solicit or store material nonpublic information. Avoid any discussion that could be construed as pre-close coordination on prices, customers, or markets. Follow clean-team rules on who can see raw notes, how they are redacted, and what can be shared beyond the clean team. Store PII in restricted locations and schedule deletion.

## **Interview Guide Template (copy-ready)**

Open with context and consent. “Thanks for speaking with us. We’re conducting an independent market study for an investor assessing [category]. This is confidential and anonymous; we will not attribute comments to you or your company. With your permission, we’ll record to ensure accuracy.”

Set the frame. “I’m interested in the last time you evaluated or renewed [product/service] and what you would do next time. I’ll ask about alternatives, pricing, contract terms, and what could make you switch or expand.”

## **Core spine for any cohort**

- Role and scope. “What is your role in selecting, renewing, or using [product]? What outcomes are you measured on?”
- Trigger and journey. “What triggered the evaluation? Who was on the buying team? What steps did you follow and in what order?”
- Criteria and proof. “What mattered most? What evidence or ROI case carried weight?”
- Alternatives. “Which vendors made the shortlist? Where did [target] outperform or lag?”

- Price and terms. “How are budgets set? What discounting or rebates are typical? How are increases approved? What’s your walk-away?”
- Stickiness. “What would you have to do to switch—data, integrations, retraining, regulatory approvals? What would make you leave?”
- Future state. “What would make you pay more or buy more? What features or outcomes would justify it?”
- Disconfirming prompt. “If I’ve missed something important—or if the opposite of what you just said could be true—what would that be?”

## **Question banks by cohort (pick only what your hypotheses require)**

### **Current customers**

- “Walk me through your last renewal. What almost derailed it?”
- “Has realized price changed in the last 12–24 months? What drove acceptance or pushback?”
- “Where are the gaps relative to alternatives, and how do you work around them?”

### **Churned customers (last 12–18 months)**

- “What event pushed you to leave? At what point was the decision irreversible?”
- “Rank the top reasons: price, product gaps, service quality, procurement mandate, integration issues, switching incentives.”
- “What would the prior vendor have had to do for you to stay?”

### **Lost deals / active prospects**

- “What tipped the decision against [target]? If tied, what broke the tie?”
- “How did the winning vendor frame value and risk differently?”
- “What concession or feature would have flipped the outcome?”

### **Procurement and finance approvers**

- “What are the non-negotiables in your playbook—MFNs, termination, audit rights, data-use clauses?”
- “What discounting ladders or approval thresholds apply at ACV bands of \$[X], \$[Y]?”

- “How do you react to inflation-linked increases, usage pricing, or bundling?”

### **Channel partners and distributors**

- “How does [target] compare on margin, rebates, co-op marketing, and ease of doing business?”
- “Where does channel conflict show up? What would increase your mindshare?”
- “How are sell-in vs. sell-through trending by segment?”

### **Competitor-savvy experts**

- “What is the real source of [competitor]’s advantage—cost, data, ecosystem, brand?”
- “If they attacked Segment [X], what would the playbook be and how fast could they ramp?”
- “Where have they failed to copy [target], and why?”

### **Operational buyers and end users**

- “Where does the product save time or reduce risk in your workflow?”
- “What friction is still costing you time or errors?”
- “If you had to replace it tomorrow, what steps would be hardest?”

## **Pricing module inserts (choose one that fits time and rigor)**

### **Willingness-to-pay corridor (Van Westendorp)**

- “At what price would you consider [product] too expensive to consider? Too cheap to trust? Getting expensive but still consider it? A good value?”

### **Acceptance at discrete prices (Gabor-Granger)**

- “If the annual price were \$[P1], would you buy/renew? And at \$[P2], \$[P3]... When does acceptance drop below 50%?”

### **Attribute-price trade-offs (simple DCE)**

- “Between Option A [\$ feature bundle] at \$[price] and Option B [\$ feature bundle] at \$[price], which would you choose?” Repeat with 8–12 tasks maximum.

### **Elasticity under pressure (qualitative stress test)**

- “If your budget were cut 10%, what would you drop first? If a competitor discounted 15%, would you switch?”

### **Interview wrap and permissions**

- “Can we follow up if we need clarification? Is there anyone else we should speak with to get a balanced view?”

## **Survey Template (copy-ready)**

### **Screener items S1–S8**

- S1: Role. “Which best describes you?” Economic buyer, technical approver, end user, procurement, other.
- S2: Authority. “In the last 12 months, did you select, renew, or recommend vendors in [category]?” Yes/No.
- S3: Recency. “When was your most recent purchase or renewal in this category?” 0–3, 4–6, 7–12, 13–18, 19+ months.
- S4: Company size. “Annual revenue or employees.” Bands that reflect your segmentation.
- S5: Geography. “Primary region/country.” List that matches your model.
- S6: Industry. “Which industry best fits?” Use your taxonomy.
- S7: Spend band or ACV. “Annual spend on [category].” Tiered bands.
- S8: Vendor familiarity. “Which vendors are you familiar with?” Multi-select; require at least one from your competitive set.

### **Survey flow and question bank Q1–Q18**

- Q1: Category involvement. “How many vendors do you use today in [category]?” Single select.
- Q2: Purchase cadence. “Typical renewal or replacement cycle.” Single select.
- Q3: Decision makers. “Which roles were involved in your last decision?” Multi-select.

- Q4: Shortlist. “Which vendors made your shortlist?” Multi-select from list with “Other.”
- Q5: Selection outcome. “Which vendor did you choose most recently?” Single select.
- Q6: Runner-up. “Who was second?” Single select.
- Q7: Attribute importance. “Rate the importance of each factor when selecting.” 5-point scale; list 8–10 factors.
- Q8: Vendor ratings. “Rate each vendor you know on [factors].” 5-point scale.
- Q9: Willingness to switch. “How likely are you to switch at the next renewal?” 5-point likelihood.
- Q10: Switching reasons. “Top reasons you would switch.” Multi-select; limit to three selections.
- Q11: Retention intent. “How likely are you to expand usage or seats in the next 12 months?” 5-point likelihood.
- Q12: Budget trend. “Expect your spending to increase, stay flat, or decrease next year?” 5-point trend scale.
- Q13: Pricing acceptance module. Insert Van Westendorp or Gabor-Granger as designed.
- Q14: Bundle preference module. Simple DCE with 6–8 tasks if time allows.
- Q15: Discounting reality check. “What discount off list did you receive on your last purchase?” Bands.
- Q16: Contract durability. “Contract length and termination terms.” Single select plus yes/no on change-of-control.
- Q17: Channel. “How did you buy it?” Direct, reseller, marketplace, distributor.
- Q18: Open end. “What would [target] need to do to win more of your spend?”

### **Scale and wording standards**

- Use balanced 5-point Likert scales with labeled anchors for every point.
- Keep surveys under 12–15 minutes and favor forced choices over long batteries.
- Randomize vendor and attribute orders; include “Don’t know/Not applicable” to avoid forced noise.

## **Quality and compliance controls**

- Include two attention checks and one red-herring item; reject fails.
- Gate completes below minimum time-on-task with a soft warning and hard rejection.
- Use device/IP deduplication and block VPNs where feasible.
- For blinded work, avoid naming the sponsor or the target; if disclosed, state the purpose neutrally.
- For clean-team processes, route raw transcripts and respondent PII only to named individuals; share aggregated results with non-clean team members.

## **Outreach and consent scripts (copy-ready)**

### **Email invite**

- Subject: Research interview on [category]—15–25 minutes, [\$ incentive]
- Body: “We’re conducting an independent market study on [category] for an investor evaluating the space. We’re seeking a 15–25 minute conversation about your recent experience selecting or renewing [product]. Your input is confidential and will be reported in aggregate only. If you’re willing, reply with times that work this week, or use this link to book. We offer [\$] as a thank-you.”

### **Opening consent**

- “We’ll record for accuracy if you’re comfortable; we’ll anonymize and store securely for [retention period]. You can skip any question and stop at any time. Do we have your consent to proceed and record?”

## **Primary research coding sheet (use after each call)**

- Cohort, segment, region, ACV band.
- Key quotes tied to hypotheses.
- Decision journey highlights and veto points.
- Price and terms details you can verify.
- Stickiness factors and quantified switching steps.
- Signals of competitor strengths or likely responses.
- Confidence rating and next action for triangulation.

## Localization and accessibility

- Translate instruments using native reviewers; avoid idioms and culture-bound terms.
- Localize currency, ACV bands, tax terms, and contract conventions.
- Provide alternatives to recording if forbidden by policy or law; take contemporaneous notes and confirm quotes live.

## From finding to model input—what to capture explicitly

- Pricing. Update realized price by segment and the corridor for increases; reflect discount ladders and rebate leakage.
- Retention. Adjust GRR/NRR by cohort and note drivers of upsell vs. churn.
- Demand. Shift segment growth rates or mix shares based on stated budget trends and category expansion.
- Competition. Model competitor response scenarios where share or promo intensity may change.
- Channel. Adjust cost-to-serve and gross-to-net if channel economics differ from prior assumptions.

## Common mistakes to avoid

- Leading questions that validate rather than test—replaced with neutral, specific prompts.
- Over-collecting with no path to a decision—tie each question to a model line item.
- Ignoring procurement—always include approvers when pricing power matters.
- Thin evidence turned into point estimates—use ranges and label confidence.
- Slow fieldwork—ship v1 instruments, monitor daily, and iterate by Day 2.

## Quick launch checklist

- Hypotheses mapped to interview and survey items.
- Cohorts and quotas set; screeners approved.
- Interview guide and survey programmed; pilots run.

- Compliance memo and clean-team rules signed; consent language in place.
- Vendors and incentives approved; booking live.
- Daily dashboard tracking invites, completes, and cohort balance.
- QA gates and rejection rules defined; transcripts and raw data stored securely.
- Triangulation plan identified for each killer variable; model update cadence set.

Use this template as a working standard. Keep it tight, keep it testable, and keep it tied to the model. Done well, your survey and interviews will deliver the few pieces of evidence that actually move valuation, terms, and go/no-go.

## 4.4 Data Quality Assurance Checklist

Data quality is the spine of credible diligence. Tight timelines make it tempting to “good-enough” your way through sources and spreadsheets; that’s exactly how errors propagate into valuation. The standard here is simple and unforgiving: every material claim must be traceable to a source, replicable by a second person, and framed with an explicit confidence rating. No orphan numbers, no silent assumptions, no exhibits that can’t be recreated.

Treat quality as a process, not a final sweep. You’ll set standards on Day 0, wire them into your workplan and governance cadence, and enforce them before any analysis leaves the workbench. The checklist below is the working standard I use across teams; copy it into your workspace, fill every line with names and dates, and enforce it at each gate.

### Data Quality Assurance Checklist (fill and enforce)

- State the quality bar. Define “replicable,” “traceable,” and “decision-grade” in writing; require two independent methods for killer variables and a visible confidence rating for all key findings.
- Stand up a source register. Log every dataset, filing, transcript, and panel with provider, coverage, refresh date, definitions, license terms, and where the raw files live.
- Enforce a single source of truth. Declare the model and source register as canonical; prohibit parallel models and shadow spreadsheets.

- Lock scope definitions. Publish market taxonomy, product and segment inclusions, geography, base year, units, and cohort definitions for GRR/NRR and funnel stages.
- Time-align everything. Reconcile fiscal vs. calendar years, weekly vs. monthly series, rolling vs. point-in-time metrics, and seasonality adjustments before comparison.
- Normalize currency and inflation. Fix currency, FX sources and dates, and whether you're modeling real or nominal figures; document any deflators or price indices used.
- Record lineage for transformations. For every derived field, capture input columns, formulas, filters, and any winsorization or imputation applied.
- Check ingest integrity. Verify row counts, headers, encodings, date formats, and units on arrival; hash large files and store checksums to detect accidental edits.
- Eliminate duplicates. Deduplicate transactions, companies, and respondents using deterministic keys; document fuzzy-match thresholds when exact keys don't exist.
- Handle missingness deliberately. Quantify missing rates; choose explicit treatments (exclude, impute, or flag) and state the impact on results.
- Protect sample quality. For surveys, enforce attention checks, minimum time-on-task, IP/device de-duping, and exclusion rules; for interviews, validate role, recency, and decision authority.
- Display sample math. Show n by cohort, response rates, and any weights applied; if you cannot justify weights, report unweighted and label limits.
- Vet vendor methodology. Capture panel composition, collection method, coverage gaps, and latency; never treat third-party data as a black box.
- Align price definitions. Distinguish list, net, and realized price; reflect rebates, chargebacks, credit notes, and returns; reconcile gross-to-net by channel.
- Validate unit economics. Recompute contribution margins from components; verify that price × volume bridges to revenue and that segment sums equal totals.
- Reconcile market sizing methods. Land both top-down and bottom-up estimates, compute variance, and explain differences in scope, method, or assumptions.

- Audit retention math. Define formulas explicitly: GRR = (Start – Churn – Contraction) ÷ Start; NRR = (Start – Churn – Contraction + Expansion + Reactivation) ÷ Start; tie to QoE definitions.
- Sanity-check funnel metrics. Confirm stage definitions, deduplicate opportunities, verify conversion math, and check stage-age distributions against base rates.
- Stress-test elasticities. Ensure price-demand relationships have the expected sign; flag cases where mix or promo intensity explains apparent elasticity.
- Bound outliers. Set rules for flagging and treatment (investigate, winsorize, or exclude); show sensitivity with and without flagged points.
- Label estimates as ranges. For any thesis-critical variable with incomplete evidence, present a defensible range and the drivers that would move it.
- Embed QA ownership. Assign a verifier for every critical exhibit; the verifier is not the author and signs off before circulation.
- Footnote aggressively. Put source, vintage, coverage, and any transformations directly on the exhibit; link to the source register entry.
- Match deck to model. Require a model-to-deck reconciliation step; every number in the deck must trace to a model cell and a raw source.
- Run model integrity checks. Test for broken links, circular references, inconsistent units, and scenario toggles that don't propagate; maintain a version log.
- Guard clean-team boundaries. Mark "clean-only" analyses, restrict access to raw PII or sensitive data, and share only aggregated, anonymized outputs with non-clean members.
- Secure storage and retention. Store raw files and transcripts in restricted locations, encrypt where appropriate, and set a destruction date for PII.
- Capture early-warning indicators. Track interview book rate, dataset delivery SLAs, top-down vs. bottom-up variance, QA failure counts, and model/deck mismatches.
- Maintain a decision log. When any quality issue changes a number or conclusion, record what changed, why, and how it's reflected in price, structure, or conditions.
- Publish acceptance criteria. Define "done" for each exhibit: verified, footnoted, replicable, and aligned to definitions; anything else carries a visible "Draft—Not Verified" label.

- Red-team the story. Assign a senior reviewer to challenge causality, inspect for confirmation bias, and test alternate explanations with the same data.
- Tie uncertainty to terms. Where residual risk remains, reflect it in valuation haircuts, earnouts, reps and warranties, covenants, or closing conditions.
- Run pre-gate audits. Before each governance gate, re-run the model-to-deck tie-out, refresh citations, and confirm that every killer variable has two methods or sources.
- Archive for auditability. Package the data book with the source register, interview guides, anonymized notes, raw survey files, model documentation, and the QA sign-off sheet.
- Declare “no late surprises.” Freeze new data inputs at T-3 unless a red flag demands it; any late addition requires verifier approval and an explicit impact note.

A few practical reminders keep teams honest under pressure. Never convert directional signals into point estimates to make charts cleaner. Never let definitions drift after the mid-sprint gate. Never reuse a chart from a vendor report without restating scope and vintage. And never let an unverified number into a management Q&A—label it or pull it.

If you wire this checklist into your daily cadence, quality stops being a heroic last step and becomes a quiet, reliable habit. That’s how you protect credibility, compress rework, and keep the recommendation defensible when it matters most.

# Chapter 5. Market Size and Growth Assessment

Market sizing is the backbone of commercial due diligence. It tells you how much revenue headroom exists, which segments are worth winning, and what growth is plausible over a hold period. When done well, sizing is not a single number; it is a set of ranges tied to explicit definitions, methods you can replicate, and drivers you can monitor post-close. When done poorly, it becomes an exercise in optimism—an inflated TAM, a hand-wavy growth rate, and a model that quietly assumes miracles.

## 5.1 TAM, SAM, SOM Framework

TAM, SAM, and SOM are simple ideas that most teams overcomplicate. Use them as decision tools, not marketing. Define each term, tie it to your thesis, then quantify with two methods and show your work.

### Definitions that hold up under scrutiny

- **TAM (Total Addressable Market):** The full annual revenue opportunity for the problem the target solves, within your defined category boundaries, before considering the target's current product limits or go-to-market reach. It is the economic envelope of demand you could serve if you had the right offer in the right channels at the right price.
- **SAM (Serviceable Available Market):** The slice of TAM that your current or near-term product and regulatory approvals can credibly serve in the geographies and segments you care about, at prices consistent with realized market norms. This is TAM filtered by product capability, compliance, and scope.
- **SOM (Serviceable Obtainable Market):** The realistic share of SAM the target can capture over the hold period given its current capabilities, sales capacity, channel access, brand, and likely competitor response. SOM is the bridge to your revenue plan; it is what you can win, not what exists.

## A few refinements make these definitions practical in diligence:

- Anchor on **revenue received by the vendor** (net of rebates/chargebacks where relevant), not end-buyer spend, unless your thesis depends on take rates or pass-throughs.
- Separate **today's TAM/SAM/SOM** from **forward TAM/SAM/SOM** (post-launch features, new geographies, post-approval indications). Treat future expansions as scenarios with gating assumptions and dates, not as certainties.
- When adjacencies are part of the thesis, present a **core TAM** (today) and **option TAM** (validated adjacencies) with explicit evidence thresholds to convert options into SAM.

## Step-by-step build (dual-method, decision-grade)

### 1. Lock the taxonomy and unit of analysis

Write the category definition in a sentence. List inclusions/exclusions (products, services, channels, geographies, buyer types). Choose the unit that maps to how demand forms: seats, active users, procedures, vehicles, endpoints, acres, meters, units, trips, kWh. Decide whether your sizing will be **volume × realized price** or **installed base × replacement/expansion**. Publish this one-pager—definitions drift is the #1 cause of rework.

### 2. Back-solve what must be true

From the investment model, infer the implied category size and growth. If the plan needs \$X revenue in Segment A at Y% share by Year 3, the SAM for Segment A must be  $\geq \$X / Y\%$ . This gives you an early “sanity box” to test before you start pulling data.

### 3. Top-down method (outside-in first pass)

Pull two independent industry series that match your scope (or can be trimmed to it). Normalize to your base year, currency, and channel (gross-to-net). Adjust for scope differences openly (e.g., remove adjacent subcategories, carve out services that the target does not address). This creates directional TAM and a taxonomy you can reconcile against your build.

### 4. Bottom-up method (evidence to the ground)

Construct SAM from first principles per segment:  
 Eligible buyers × adoption (penetration) × frequency/volume × realized price.

- **Eligible buyers:** Firmographic/household counts that pass your in/out rules (size, vertical, region, regulatory status).
  - **Adoption:** % of eligible buyers using a solution today; cut by segment.
  - **Frequency/volume:** Seats per buyer, procedures per year, units per site, throughput per asset, or usage per account.
  - **Realized price:** Net of discounts, rebates, and channel margins; capture ranges.  
Sum segments to SAM; add the gaps (unserved segments, geos, indications) to get TAM.
- 5. Reconcile top-down and bottom-up**
- Put both estimates side by side. Compute variance and build a bridge: scope trims, channel leakage, currency/deflator effects, untracked long tail, or double counts. Aim to land within a defensible band (often  $\pm 10\text{--}15\%$ ). If variance remains high, do not average—decide which method deserves more weight by segment and explain why.
- 6. Estimate SOM (reachable share)**
- Start from the current share by micro-segment. Layer on the capacity to add coverage (reps/partners), conversion rates, win-rates vs. named competitors, renewal math (GRR/NRR), and capacity-based constraints (manufacturing slots, onboarding throughput). Apply a competitor-response haircut if your plan assumes taking share from rational incumbents. SOM should land as a range with explicit gates (e.g., “SOM 14–18% in Segment B by Year 3 if we hire X reps and secure Y channel listings”).
- 7. Decompose growth into testable drivers**
- Express the revenue forecast as: **Category growth × share change × price × mix** by segment and geography. State driver values and confidence. Tie category growth to an external indicator you can track (e.g., housing starts, reimbursement schedules, device approvals), not a generic CAGR.
- 8. Codify scenarios**
- Build base, downside, and upside cases by toggling only the 2–3 variables that move value (e.g., adoption in Segment C, competitor pricing aggression, regulatory timing). Show what would have to be true for each, and the early-warning indicators you’ll monitor.
- 9. Document evidence and confidence**
- Footnote sources, show sample math, and assign confidence ratings by segment (high/medium/low). For low-confidence pockets, define the primary research or dataset that would upgrade confidence and the

term-sheet lever (price cut, earnout, condition) that protects value in the meantime.

#### 10. Publish the “range, not point” view

Present TAM/SAM/SOM as ranges with the assumptions that bound them. Point estimates invite false precision; ranges supported by clear drivers invite good decisions.

### Edge cases you must handle explicitly

- **Usage-based pricing:** Size in usage units first (GB, API calls, kWh, miles), then apply realistic rate cards and expected utilization. Show price-mix sensitivity; don’t assume linearity.
- **Two-sided platforms/marketplaces:** TAM is gross merchandise value; SAM is GMV in categories/geos you can serve; SOM is GMV you can clear times **take rate** net of incentives and fraud losses.
- **Capital equipment + aftermarket:** Separate the equipment cycle (shipments, installed base, replacement) from consumables/services (annuity). Many theses ride on the annuity.
- **Regulated markets:** Anchor SAM to reimbursable indications or licensed services; exclude “paper TAM” that lacks codes, approvals, or network access.
- **Channel leakage:** If distributors or marketplaces capture margin, model **gross-to-net** by channel to avoid overstating realized revenue.
- **Geographic expansions:** Treat new-country TAM as an option with gating items (registration, data residency, local partners) and realistic ramp times.
- **Bundle/unbundle dynamics:** If the category is being unbundled (or re-bundled), avoid double counting across subcategories; pick one organizing taxonomy and stick to it.

### Quality controls that separate good from great

- Dual-method rule: no thesis-critical number survives with a single method.
- Definition lock: market/segment taxonomy frozen by the mid-sprint gate.
- Price reality: report **realized** prices and corridors, not list.
- Time alignment: same base year and seasonality treatment across series.

- Sum check: segment totals tie to category totals, and channel gross-to-net is explicit.
- Confidence labels: each segment's TAM/SAM/SOM shows H/M/L confidence with why.
- Auditability: every exhibit footnoted; raw files archived in the source register.

## Common pitfalls and how to avoid them

- **TAM inflation via adjacencies:** Treat adjacencies as options with tests, not as baked-in dollars.
- **Double counting across overlapping taxonomies:** Pick one hierarchy; don't add subcategory TAMs that contain each other.
- **Confusing end-buyer spend with vendor revenue:** Model take rates and leakage explicitly.
- **Using list prices:** Apply gross-to-net by segment; rebates and chargebacks matter.
- **Ignoring replacement cycles:** For installed-base categories, growth is often replacement plus expansion; shipments alone mislead.
- **Overlooking capacity constraints:** SOM requires sales capacity, onboarding, manufacturing slots, and customer change bandwidth.
- **Assuming uniform adoption:** Penetration is lumpy; size by micro-segment to avoid averaging away truths.

## Deliverables and acceptance criteria (make these visible in your deck and data book)

- One-page **definition sheet:** market taxonomy, in/out, unit of analysis, base year, currency, real vs. nominal.
- **Top-down TAM** with scope trims and gross-to-net; two sources minimum.
- **Bottom-up SAM** with eligible buyers, adoption, frequency/volume, realized price; math shown for at least two representative segments.
- **Reconciliation bridge** explaining variance between methods.
- **SOM range** by segment with gates (capacity, channel, approvals) and expected timing.
- **Growth decomposition** (category × share × price × mix) and scenario bands.
- **Confidence ratings** and residual risks translated into valuation or terms (e.g., earnouts tied to price realization or NRR).

Use TAM, SAM, and SOM as a disciplined funnel from possibility to plausibility to plan. If each layer is defined clearly, built with two methods, and reconciled transparently, you will give decision-makers what they need: a market story that holds up, a growth path that is achievable, and a valuation that reflects reality rather than wishful thinking.

## 5.2 Bottom-Up Sizing – Step-by-Step Analytical Guide

Bottom-up sizing is where you turn the market from story to math. Instead of leaning on a single industry series, you construct demand from the ground up: eligible buyers × adoption × usage/volume × realized price, summed across defined segments. Done well, it produces a transparent, replicable estimate of serviceable market (SAM) and a clean bridge to revenue planning. Done poorly, it double-counts buyers, confuses list and realized pricing, and hides heroic assumptions inside averages. The aim of this guide is to give you a fast, disciplined build you can execute in days—and defend at the Investment Committee.

Start with a simple rule: if a variable could move valuation, you will estimate it two ways or validate it with a second source. And every number that appears in a slide must tie back to an input, a formula, and a footnote.

### 1) Freeze the taxonomy and the unit of analysis

Write a one-sentence market definition and a short list of inclusions and exclusions—products, services, channels, geographies, and buyer types. Choose the unit that mirrors how demand actually forms: seats, locations, devices, procedures, SKUs, miles, kWh, API calls. Declare real vs. nominal modeling, base year, and currency. Lock these choices by the mid-sprint gate to prevent rework.

### 2) Build the buyer universe (eligible counts)

Count entities that match your in-scope definition. For B2B, decide whether you are sizing at the legal-entity, site/location, or department level. For networks and chains, determine whether buying happens centrally or locally. For public sector and regulated categories, use registries and licensure lists; for private markets, rely on firmographic datasets, associations, and verified lists.

Deduplicate across sources with deterministic keys where possible; where not, use transparent rules and record expected error.

### **3) Segment where economics are different**

Do not average away truths. Create segments where adoption, usage intensity, or realized price is meaningfully different—by vertical, size band, region, channel, regulatory status, or SKU family. Limit yourself to the handful of cuts that explain 80–90% of variation. Every extra segment must pay for itself in better accuracy or a different decision.

### **4) Estimate adoption/penetration for each segment**

Adoption is the share of eligible buyers who use any solution in the category (or the specific solution class the target participates in). Pull adoption from two sources: outside-in signals (installed-base disclosures, equipment shipping data, job postings, integration directories, marketplace listings) and primary research (customer and channel interviews, expert calls, directional surveys). If adoption differs by sub-cohorts (e.g., compliance-driven vs. discretionary buyers), show both and weigh them by population.

### **5) Quantify usage/volume per adopting buyer**

Choose the measure that produces revenue: seats per account, units per site per year, procedures per facility, throughput per asset, impressions per campaign, API calls per active user. Separate recurring volume from episodic spikes. For capital equipment, split “shipments this year” from “installed base” and model replacement cycles explicitly. For usage pricing, model utilization bands rather than a single number; downstream, your price realization will depend on where buyers cluster across those bands.

### **6) Reconstruct realized price, not list**

Price is commonly where bottom-up models go wrong. Work from the price architecture back to realized revenue:

- List price → standard discounts → promotional discounts → rebates/chargebacks → returns/credits → channel margins → shipping/handling → taxes and fees.  
Use invoices and contracts when accessible; otherwise triangulate with

procurement interviews, distributor checks, scanner data, marketplace price histories, or expert calls. Build corridors (e.g., \$15–\$18k per unit; \$14–\$19 ARPU per seat per month) and tag where price varies by segment or volume tier. If channel margins differ (direct vs. reseller vs. marketplace), convert to **vendor-realized** revenue per unit before multiplying by volume.

## **7) Compute segment SAM with transparent math**

For each segment, calculate:

$\text{SAM}_{\text{segment}} = \text{Eligible buyers} \times \text{Adoption} \times \text{Usage/volume per buyer} \times \text{Realized price.}$

Sum segments to total SAM. Where the product or regulatory approvals allow addressing only part of the category, show the gap from TAM to SAM explicitly (what's excluded and why).

## **8) Account for replacement, expansion, and new adoption separately (where relevant)**

In installed-base categories, decompose volume into replacement (installed base  $\times$  replacement rate), expansion (installed base  $\times$  expansion factor), and new adoption (new adopters  $\times$  initial units). This separation shows where growth truly comes from and keeps you honest about cycles.

## **9) Incorporate attach rates and bundles**

If revenue depends on optional modules, consumables, or services, model attach rates per segment (share of customers who buy add-on B) and usage per attached buyer. For service revenue, anchor on billable hours or service events multiplied by realized rate; keep materials and pass-through separate from service margin to avoid double counting.

## **10) Convert to a defensible range**

Produce a base case and bounds that reflect uncertainty in adoption, usage, and realized price. Use narrow ranges for variables with hard evidence (e.g., invoice-based price) and wider ones for proxies (e.g., adoption inferred from job postings). Your range is not  $\pm 10\%$  by habit; it is variable-specific and evidence-based.

## 11) Cross-check with a second method

Reconcile your bottom-up SAM to at least one independent lens: a top-down industry series trimmed to your scope, competitor revenue plus share estimates, or capacity/throughput limits (e.g., number of licensed clinicians × slots per day × utilization). If the gap exceeds your variance threshold, explain it by scope, method, or a known blind spot—do not average without a reason.

## 12) Document artifacts and replicate

Keep a short “build sheet” in your data book: sources for eligible counts, adoption, usage, and price; formulas; sample math for two representative segments; and a footnote trail to contracts, invoices, or transcripts. Require an independent verifier to recreate your totals from raw files before any exhibit is used externally.

## Worked mini-examples (proportioned for a sprint)

- Capital equipment: 12,000 eligible clinics; 65% adoption; 2 devices per adopting clinic → 15,600 installed base. Replacement at 20% plus 5% expansion yields 3,900 units/year. Realized price \$18,000 per unit gives a SAM of ~\$70.2M.
- SaaS subscription: 8,000 firms in target segment; 45% adopt; average 120 seats per customer; realized ARPU \$18/seat/month (\$216/year) →  $8,000 \times 0.45 \times 120 \times 216 \approx \$93.3M$  SAM.  
In both cases, present ranges for adoption and price (e.g., adoption 40–50%; ARPU \$16–\$20) and show how those ranges bound SAM.

## Data inputs that usually matter most (and quick ways to get them)

- Eligible buyer counts: licensure or registry lists; firmographic datasets; association directories; regulator filings; marketplace seller counts filtered to your category.
- Adoption: installed-base disclosures; competitor references; integration directories; procurement or IT architecture interviews; expert calls; quick pulse surveys.
- Usage/volume: billing codes and throughput norms; scanner or telemetry panels; workflow interviews; shipment histories; replenishment intervals.

- Realized price: invoices, rate cards plus typical discounts, distributor margin norms, rebate structures, and gross-to-net waterfalls.

## Quality controls to enforce every time

- Show sample math on the page; do not bury formulas in the model.
- Reconcile entity vs. location counts; avoid counting a chain 1x when buying happens at 200 sites.
- Distinguish “any solution in category” from “this solution class”; many TAM inflations come from blending the two.
- Keep channel gross-to-net explicit; a reseller’s margin is not your revenue.
- Align periods (fiscal vs. calendar) and units (per month vs. per year) before multiplying.
- Tag confidence by segment (high/medium/low) and state how you would upgrade low confidence.

## Special builds you will encounter

- **Usage-based pricing:** Start with usage units (e.g., GB, API calls, kWh), multiply by a realized rate, and apply a collectability factor to reflect downgrades and promotional usage. Model tier thresholds where overage rates kick in.
- **Two-sided platforms/marketplaces:** Size GMV by category and geography, then apply take rate net of incentives, returns, and fraud losses to arrive at vendor-realized revenue.
- **Advertising-backed models:** Impressions × fill rate × viewability × CPM × take rate; segment by inventory type and channel.
- **Capital equipment + aftermarket:** Separate device shipments/replacements from consumables/services annuities. Many theses depend primarily on the aftermarket; make it a first-class line.
- **Healthcare and regulated:** Constrain SAM to reimbursable indications or licensed providers; if codes or approvals are pending, present them as gated options with dates.
- **International expansion:** Treat new-country revenue as an option with local registration, data residency, and channel agreements as gates; apply realistic ramp times and FX policy.

## Sensitivity and scenario discipline

After you compute the base case, run a short tornado to see which variables move value most—adoption, usage, or realized price. Those variables deserve more primary research or a second dataset now, not later. Build base, downside, and upside by toggling those few inputs, not by inventing whole new models. Tie downside triggers to observable indicators (e.g., distributor rebate pressure, policy timing, competitor promo intensity).

## Red flags to watch for (and what to do when you see them)

- Eligible counts exceed plausible upper bounds (e.g., more clinics than licensed professionals) → tighten dedupe and switch to location-level sizing.
- Adoption inexplicably above 100% in any segment → re-separate solution classes or fix double counting across multi-vendor stacks.
- Realized price higher than visible marketplace prices without a credible explanation → revisit discounts, rebates, and channel margins; add procurement interviews.
- SAM requires perfect attach rates or immediate wins in hard segments → move those dollars to “option TAM” with clear gates or shift them into upside only.
- Large unreconciled gap vs. top-down → identify scope mismatches; if unresolved, widen ranges and lower confidence, and translate residual risk into price or structure.

## Template you can copy into your model notes

- Market definition and unit of analysis (1–2 lines).
- Segments listed with rationale.
- For each segment: eligible buyer count; adoption sources (two); usage/volume measure and sources; realized price corridor and gross-to-net; SAM formula and sample math; confidence.
- Summed SAM and bridge to TAM (what’s excluded and why).
- Second method reconciliation (variance and explanation).
- Sensitivities (variables toggled and why).
- Open risks tied to price/structure (e.g., earnout on price realization, condition on regulatory approval).

A bottom-up build is not about producing the biggest number; it's about producing the clearest path from buyers to revenue with assumptions you can defend. If you follow this sequence—freeze definitions, count eligible buyers, estimate adoption and usage, reconstruct realized price, compute segment SAM, reconcile by a second method, and label uncertainty—you will have a market view that withstands scrutiny and directly informs valuation and terms.

## 5.3 Top-Down Sizing – Step-by-Step Analytical Guide

Top-down sizing starts with what the world already measures—industry series, regulator datasets, trade association reports—and shapes it to your exact scope. The objective is not to find a single “right” number. It’s to create a defensible band for category size and growth that matches your definitions, reconciles to a bottom-up build, and survives Investment Committee questions about sources, scope, and math.

Begin with a ruthless focus on fit-for-purpose. Every series you use must answer a named question, match your taxonomy (or be transparently trimmed to it), and be normalized for currency, inflation, channel margins, and timing. When a variable moves value, you will use at least two independent series or a second method to cross-check it. And you will show your work—on the page.

### **1) Lock the question and boundaries**

Write the one-sentence market definition, the in/out list (products, channels, geographies, buyer types), and the unit of measure. Decide whether you’re sizing end-buyer spend or vendor-realized revenue. If the former, you will explicitly convert it to the vendor-realized later.

### **2) Select two independent primary series**

Choose reputable sources that cover your scope with clear methods (analyst houses, statistical agencies, trade associations, regulator feeds). Check vintage, refresh cadence, and known blind spots. If no single series matches your taxonomy, pick the closest two and plan the trims before you pull numbers.

### **3) Normalize time, currency, and inflation**

Convert all series to the same base year and currency. Decide whether you’ll present nominal or real. If real, choose your deflator or price index and document it. Align fiscal to calendar years where needed, and avoid mixing monthly and annual data without a clear conversion.

**4) Trim to scope—no hand-waving**

Most top-down series are broader than your category. Remove out-of-scope products, channels, or geographies with explicit factors. State each trim as a percentage with a rationale (e.g., “exclude services sub-category = 18% of aggregate per Association X”). If you lack a precise cut, triangulate with two proxies and carry a wider confidence band.

**5) Convert end-buyer spend to vendor-realized revenue**

If your series reports consumer or enterprise spend, convert using a transparent gross-to-net bridge. Subtract indirect taxes, retailer/marketplace margins, promotional funding, rebates/chargebacks, and logistics where appropriate. Show the waterfall. Your goal is the money that lands as revenue for the vendor class you’re analyzing.

**6) Allocate the category to segments and geographies**

Split the total into the segments you will model (verticals, size bands, channels, geos) using observable shares: regulator tables, trade association splits, scanner panels, marketplace mix, or employment/capex proxies. Keep the rule simple and replicable. Avoid nested allocations that accumulate error; allocate once from the top and sanity-check the result.

**7) Derive SAM from TAM with real constraints**

SAM is TAM minus what your product can’t serve—today. Apply product capability limits, regulatory approvals, certification or reimbursement boundaries, and channel access constraints. Document each subtraction with a source or a clean assumption and carry it forward to your confidence labels.

**8) Establish the historical growth spine**

Compute 3–5 year CAGRs from normalized series, but don’t stop there. Decompose history into drivers: unit growth vs. price/mix, penetration vs. replacement, policy or cycle effects. Mark anomalies (stimulus years, supply shocks) and decide whether to smooth or scenario-ize them.

**9) Link growth to external indicators**

Choose one or two lead indicators that actually move your category (housing starts for building products, reimbursement schedules for healthcare, device approvals for med-tech, ad spend for martech). Quantify the historical relationship directionally. You’re not building an econometric model; you’re creating decision-grade logic that anchors scenarios.

**10) Build base/downside/upside with few toggles**

Construct scenarios by toggling the smallest set of variables that swing value—category growth rate, price/mix realization, adoption pace in one or two pivotal segments, and a competitor or policy shock if relevant. State what would have to be true for each and list early-warning indicators you'll monitor.

**11) Reconcile to bottom-up and explain variance**

Place your top-down SAM next to the bottom-up SAM. Quantify the gap. Build a short bridge that explains it in plain terms: scope differences, channel gross-to-net, long-tail coverage, replacement cycle treatment, or double-counting corrections. Decide which method carries more weight by segment—and why.

**12) Express SOM as an implication check**

Use top-down SAM and the deal model to back-solve the implied share. If the plan requires 12% share in Segment A by Year 3 but the best historical analogs top out at 7%, label the gap, lower confidence, and set a requirement (capacity, channel wins, pricing power) to close it—or move those dollars to upside only.

**13) Publish ranges and confidence—not point precision**

For each segment, present TAM/SAM as a range with high/medium/low confidence tags and the assumptions that bound the range. Point estimates invite false precision; ranges framed by explicit trims and drivers invite better debate.

**14) Document methods so a stranger can replicate**

For every exhibit, include the series names, vintages, scope trims, currency/deflator choices, gross-to-net factors, and the allocation rules used. Store raw files and a “build sheet” in the data book. Require verifier sign-off before anything leaves the workbench.

**Rapid pull kit for the first 72 hours**

- Two independent industry series that can be trimmed to your taxonomy.
- One regulator or association dataset to anchor shares or growth.
- One channel margin and rebate reference to convert to vendor-realized revenue.
- One macro or policy indicator that historically correlates with demand.
- A simple allocation rule to split by two or three decision-relevant segments.

## Quality controls you should never skip

- Same base year, currency, and real/nominal choice across all series.
- Explicit gross-to-net bridge when converting end-buyer spend.
- Scope trims written on the page with citation or proxy logic.
- Two-source rules for any thesis-critical number.
- Reconciliation to bottom-up with a quantitative variance bridge.
- Confidence labels and ranges by segment, with what upgrades confidence next.

## Edge cases and how to handle them

- Usage-based models: size usage units first (GB, API calls, kWh), then apply realistic realized rates and utilization bands; avoid linear price assumptions.
- Platforms/marketplaces: build category GMV top-down and multiply by take rate net of incentives, returns, and fraud to reach vendor revenue.
- Capital equipment with annuities: separate device shipments (often cyclical) from the aftermarket annuity line; do not blend them into a single CAGR.
- Advertising or auction-priced markets: track CPM/CPC indices and share of wallet shifts; scenario-ize demand elasticity under downturns.
- Regulated categories: constrain SAM to reimbursable indications, licensed providers, or approved codes; treat pending rules as explicitly timed options.
- International: apply country-level trims for channel structure, VAT, and FX; use local association data to avoid over-translating US assumptions.

## Common pitfalls that break credibility

- Adding overlapping sub-categories (double counting).
- Treating list prices as realized revenue.
- Ignoring channel margins and rebates.
- Smoothing away one-off shocks that will recur (policy resets, supply constraints).
- Allocating with a stack of opaque ratios that cannot be replicated.
- Presenting a single CAGR with no driver narrative.

## Acceptance criteria for a decision-grade top-down

- Two independent sources normalized to a single scope and year.
- Transparent gross-to-net conversion to vendor-realized revenue.
- Segment and geo allocations tied to observable shares.
- Base/downside/upside growth paths linked to external indicators.
- Quantitative reconciliation to bottom-up with residual gap explained.
- Ranges and confidence levels by segment, with evidence-based bounds and a clear path to upgrade confidence where it's low.

Top-down sizing is fast, but it isn't casual. When you normalize definitions, convert spend to vendor revenue, anchor growth in real drivers, and reconcile to a bottom-up build, you'll have a market view that is both quick to produce and strong enough to defend.

## 5.4 Growth Driver Decomposition Checklist

A growth story is persuasive only when you can show exactly where it comes from. Decomposition turns “up 12%” into a set of testable drivers—category growth, share change, price realization, and mix—plus the mechanics of customer expansion and churn where recurring revenue matters. The goal is twofold: build a transparent bridge from history to plan, and identify the smallest set of variables that swing enterprise value so you can test them first and track them post-close.

Start by fixing definitions, periods, and scope. Choose a base year and the first forecast year, lock the market taxonomy and segment cuts (product, customer, channel, geography), and decide whether you will present in real or nominal terms. Treat FX, acquisitions, and accounting changes as separate “non-operational” buckets; never let them hide inside operating drivers.

## Core anatomy of growth (the four primary drivers)

At the most basic level, revenue growth between t0 and t1 can be expressed as:

- **Category growth:** How the overall market expanded or contracted.
- **Share change:** How your share moved within that market.

- **Price realization:** Change in realized price at constant volume and mix.
- **Mix:** Shift in the composition of what you sell (product, customer, channel, region), holding total volume constant.

For recurring models, add a cohort lens (expansion, contraction, churn, new).

For usage-based or marketplace models, add activity/intensity and take rate.

Everything else—new products, geographic launches, regulatory approvals—should be labeled explicitly, timed, and tied to gates.

## Step-by-step build you can replicate in any model

### 1. Pin the baseline.

Freeze revenue at t0 by segment (product × customer × channel × region). This is your “constant structure” base. Store the exact segment list in your data book so you can reproduce results when you inevitably re-cut the market.

### 2. Estimate category growth by segment.

Use two independent sources to estimate market growth for each segment over t0 → t1. Apply those CAGRs to your t0 revenue at **constant share, constant price, constant mix** to compute the **category effect**.

### 3. Isolate share change.

Compute what revenue would be if your share in each segment moved from Share\_t0 to Share\_t1 while keeping price and mix constant. The difference from step 2 is the **share effect**. Where you lack direct share data, triangulate with competitor revenues, scanner panels, or channel sell-through.

### 4. Measure price realization.

Hold volume and mix constant at t0 and apply the change in **realized** price (after discounts, rebates, and channel margins). The resulting delta is the **price effect**. If you only have list prices, stop and reconstruct net/realized corridors first.

### 5. Quantify mix.

With total volume fixed, reweight segments from the t0 mix to the t1 mix using segment-specific realized prices. The difference is the **mix effect**. When you need precision, use a simple index approach: Laspeyres for price (t0 weights) and a constant-price volume index for mix so the math is auditable.

### 6. Add model-specific mechanics.

- **Recurring/Subscription (ARR/NRR):** Bridge ARR with GRR and expansion: Start ARR + Expansion - Contraction - Churn + New ARR. Map each to price, volume (seats), and mix where possible.
  - **Usage-based:** Revenue = Active customers × Activity rate × Intensity (units per active) × Realized rate × Collectability. Decompose deltas across these terms.
  - **Marketplace/Platforms:** Revenue = GMV × Take rate - Incentives - Fraud/returns. Attribute growth to GMV drivers (buyers, frequency, AOV) and to take-rate changes.
  - **Capital equipment + aftermarket:** Separate device cycles (shipments/replacement) from the annuity (consumables/services). Attribute growth accordingly.
7. **Ring-fence non-operational items.**  
Break out FX, acquisitions/divestitures, revenue recognition policy changes, and one-offs (e.g., stockouts, temporary surcharges). These should never be blended into the four core drivers.
8. **Tie out the bridge.**  
Confirm that Category + Share + Price + Mix + Model-specific mechanics + Non-operational items = Total revenue change. If it doesn't, you have a mapping error or a hidden assumption.

## Formulas that survive audit (write these into your model notes)

- **Category effect (per segment s):**  $\text{Rev}_{t0}(s) \times [\text{CatGrowth}_{t0 \rightarrow t1}(s)]$ .
- **Share effect (s):**  $[\text{CatSize}_{t1}(s) \times \text{Share}_{t1}(s) - \text{CatSize}_{t0}(s) \times \text{Share}_{t0}(s)]$  at constant realized price.
- **Price effect (s):**  $\text{Volume}_{t0}(s) \times [\text{Price}_{t1\_realized}(s) - \text{Price}_{t0\_realized}(s)]$ .
- **Mix effect:**  $\sum_s [\text{Volume}_{t0} \times \text{Price}_{t0\_realized}]$  reweighted to t1 segment mix -  $\sum_s [\text{Volume}_{t0} \times \text{Price}_{t0\_realized}]$  at t0 mix.
- **ARR bridge:**  $\text{NRR} = (\text{Start} - \text{Churn} - \text{Contraction} + \text{Expansion} + \text{Reactivation}) \div \text{Start}$ ; GRR excludes Expansion/React. Revenue growth =  $\Delta\text{ARR} \times \text{Realized rate}$  (if not already ARR-based).

## How to evidence each driver quickly

- **Category:** Two independent top-down series trimmed to your scope, or a bottom-up unit driver (sites × replacement cycles).

- **Share:** Competitor revenues and panel shares; channel/distributor sell-through; win/loss close rates by segment.
- **Price:** Invoices, rate cards with discount ladders, scanner/marketplace histories, procurement interviews.
- **Mix:** SKU/product, customer, channel, and regional splits; attach rates for add-ons; premium vs. entry tier mix.
- **Recurring mechanics:** Cohort tables (start, add, churn, expand), NRR/GRR definitions matched to QoE.
- **Usage intensity:** Telemetry or billing units; app analytics; API call logs; credible proxy (e.g., procedure volumes).

## Scenario design that changes decisions (not just charts)

- Build **base/downside/upside** by toggling only the two or three variables that actually swing value (often realized price, adoption/usage, and a single share move in a pivotal segment).
- Anchor each toggle to an external indicator you can monitor (e.g., distributor rebate pressure for price, policy timing for adoption, competitor capacity adds for share).
- Express “would-have-to-be-true” conditions for upside (e.g., “SOM in Mid-Market reaches 16–18% with X new partners on-boarded and net price +150 bps despite procurement pushback”).

## Early-warning indicators to wire into the PMO

- Category: lead indicator softening (housing starts, elective procedure volumes, ad spend indices).
- Share: win-rate vs. named competitor by segment, channel listings gained/lost, sales capacity in-seat vs. plan.
- Price: average discount depth, promotion intensity, rebate accruals, price-related churn mentions.
- Mix: premium-tier attach rates, regional/channel mix drift, new product adoption curves.
- Recurring: GRR/NRR trends, cohort decay vs. base-rate benchmarks, expansion contribution share.
- Usage: active rate, intensity per active, rate-plan downgrades.
- Marketplace: GMV per buyer, take-rate compression, return/fraud rate spikes.

## Quality controls that prevent bad bridges

- Freeze segment definitions by the mid-sprint gate; never change bins mid-bridge.
- Use **realized** prices and show gross-to-net waterfalls; no list price math.
- Keep FX, M&A, and policy/accounting changes outside operating drivers.
- Ensure add-up: each bridge step ties exactly to the model; verifier replicates from raw sources.
- Label ranges and confidence per driver; widen ranges when evidence is thin; never round directional signals into point estimates.
- Cite sources on the exhibit; store raw series and build logic in the data book.

## Common failure modes (and the quick fix)

- **Double counting share and mix.** Fix by sequencing: apply category first, then share at constant price/mix, then price at constant volume/mix, then mix.
- **Inflated price effect from promotional noise.** Use rolling averages and pair invoices with procurement interviews; exclude one-off deals.
- **NRR masking silent churn.** Split expansion vs. churn by cohort; check if price-led expansion coincides with elevated downgrades.
- **Usage math that assumes linearity.** Model intensity bands and rate-card thresholds; don't extrapolate heavy-user behavior to the base.
- **Marketplace take-rate optimism.** Net out incentives, returns, and fraud; check competitor moves that compress take rates.
- **Mix driven by supply constraints rather than demand.** Flag where premium share rose because entry SKUs were out of stock; treat as non-repeatable.

## Deliverables and acceptance criteria

- A one-page **growth bridge** from t0 to t1 showing Category, Share, Price, Mix, model-specific mechanics, and non-operational items; numbers tie to the model.
- Driver notes with sources, formulas, and confidence levels per segment.
- A **tornado** chart showing which two or three variables swing value most and how they map to hypotheses and research tasks
- Scenario definitions with “would-have-to-be-true” statements and early-warning indicators the sponsor can track post-close.

- A short memo translating residual uncertainty into valuation and terms (e.g., earnout on price realization, covenant on promo intensity, condition on regulatory timing).

### **Checklist (copy into your workspace and complete)**

- Base year and segment definitions frozen; FX and one-offs ring-fenced.
- Category growth sourced twice and applied first.
- Share change quantified at constant price/mix.
- Realized price effect computed with gross-to-net; invoices or proxies footnoted.
- Mix effect calculated with constant-price reweighting.
- Model-specific mechanics (NRR bridge, usage, take rate, aftermarket) added explicitly.
- Full tie-out to total change completed and verified.
- Scenarios built by toggling the top 2–3 value drivers; WHTBT statements written.
- Early-warning indicators defined for each driver; reporting cadence set.
- Confidence ratings assigned; residual risk translated to price/structure levers.

Run this decomposition every time you test a growth claim. It keeps the story honest, shows precisely where to invest diligence hours, and gives decision-makers a bridge they can interrogate, track, and—most importantly—act on.

# Chapter 6. Customer and Demand Dynamics

A growth story lives or dies in the behavior of customers. This chapter turns abstract markets into human decision patterns you can model, price against, and win. We focus on how to segment demand in a way that changes decisions, not just slide labels; how to measure demand quality through retention, expansion, and concentration; and how to convert what customers say and do into defensible model inputs. You will see a recurring theme: outside-in facts, not averages. Start from what different buyers actually need, how they buy, what they pay, and how they stay, then construct a revenue engine that reflects those differences—by segment, not in aggregate.

Done well, this work produces clarity that moves valuation and terms: which segments are large enough and growing fast enough to matter, where willingness to pay is real, where churn lurks, which channels create or destroy margin, and where competitor pressure will appear first. Done poorly, teams average across segments, confuse roles in the buying center, and design pricing or go-to-market moves that look smart in a spreadsheet and fail in the field. The methods here are designed for diligence timelines: fast, falsifiable, and auditable, with every claim tied to evidence and translated into the model within 24 hours.

## 6.1 Segmentation Framework

Segmentation is the art of refusing to average away truths. The objective is not a pretty typology; it is a set of mutually exclusive, collectively exhaustive groups that differ in economics or behavior enough to change what you should pay, how you should structure, and what you must do post-close. In diligence, “good” segments are those that let you answer five questions crisply: how big is each segment, how fast is it growing, what will it pay, how sticky is it, and what will it cost to win and serve?

Start by choosing segmentation axes that reflect how value is created in the category. In B2B, buyers with the same SIC code can behave very differently if their job-to-be-done, switching costs, or procurement rules diverge. In

consumer, demographics are often weak predictors; need state, occasion, and channel matter more. Your framework should therefore combine four lenses:

- Needs and use case: the job the buyer is hiring the product to do, including required outcomes, risk tolerance, and speed of value.
- Economic value: willingness to pay, realized price corridors, potential LTV, and cost-to-serve.
- Behavior and access: purchase cadence, channel preference, decision unit composition, and integration or workflow constraints.
- Structure and context: firmographics/demographics, regulatory regime, geography, and interoperability or ecosystem dependencies.

A practical diligence-grade framework follows a simple path: hypothesize segments that plausibly differ on willingness to pay and stickiness; design primary research to test those differences; assign crisp rules so any new account can be classified in seconds; then size, price, and model them separately.

## **What makes a segment “investment-grade”**

- Actionable: you can target it with specific offers, price corridors, messages, and channel routes.
- Economic: it exhibits distinct unit economics (CAC, payback, LTV/CAC, contribution margin, cost-to-serve).
- Measurable: you can size it and place accounts into it from observable traits or behaviors.
- Stable enough to plan: it won’t collapse if one feature ships late or one competitor changes a SKU name.
- Material: it is big enough, or profitable enough, to change valuation or post-close priorities.

## **A step-by-step build for a diligence timeline**

1. Frame the segmentation job to be done. Write, in one line, why you are segmenting: “to quantify willingness-to-pay and stickiness differences that move price and retention assumptions,” or “to identify high-growth micro-segments where the target’s right-to-win is strongest.” If the statement doesn’t affect price, structure, or go/no-go, simplify.
2. Draft hypothesis segments. Create 5–10 named segments that differ on at least two of the four lenses above. Keep labels plain:

“Compliance-driven hospitals ≥300 beds,” “Mid-market manufacturers with regulated QA,” “Price-sensitive SMBs buying through resellers,” “Enterprise early adopters with in-house integration.” Avoid poetic personas.

3. Define crisp assignment rules. For each segment, write 2–3 binary criteria using observable fields (industry codes, size bands, channel used, presence of integration X, regulatory exposure Y, decision cycle length Z). If a junior analyst can’t assign an account quickly, the rule is not crisp enough.
4. Choose the minimum data needed. Decide what you must collect to prove segments differ in size, growth, price power, and stickiness: realized price ranges, discount ladders, contract length and termination rights, purchase cadence, expansion propensity, channel economics, and switching steps. Map each field to a source (primary interviews, surveys, invoices, distributor checks, panels).
5. Test differences with primary research. Design interview and survey instruments to disconfirm: “Do compliance-driven buyers truly pay more for documented audit trails?” “Do price-sensitive SMBs churn at higher rates when price increases exceed 3%?” If differences vanish in data, collapse segments.
6. Size and price each segment independently. Use the Chapter 5 methods to create segment TAM/SAM and realized price corridors. Apply gross-to-net by channel. For recurring models, compute GRR/NRR by cohort and segment.
7. Quantify unit economics by segment. Estimate CAC, payback, and LTV/CAC using channel-specific conversion and discounting. Where access is thin, triangulate with proxy benchmarks and widen ranges with clear confidence labels.
8. Select target segments and implications. Rank segments by value at stake and achievability. Document “what would have to be true” to win each: capacity adds, partner listings, product hardening, or regulatory milestones. Translate residual uncertainty into terms (earnouts tied to NRR or price realization).
9. Freeze the taxonomy and publish the rules. Lock the segment list and assignment criteria by the mid-sprint gate. Put them in the data book so every exhibit, model input, and quote is segment-coded the same way.

## The Segmentation Canvas (copy and fill one per segment)

- Name and rule: label plus 2–3 binary assignment rules.

- Size and growth: segment SAM today; growth range with drivers.
- Buyers and DMU: economic buyer, technical approver, user; decision cycle length.
- Value drivers and risks: outcomes that matter; failure modes; compliance or ecosystem constraints.
- Price corridor: realized price range; discount drivers; elasticity notes.
- Stickiness: contract terms; switching steps; NRR/GRR with drivers of expansion and churn.
- Channel route and cost-to-serve: direct vs. partner; rebate/margin norms; service intensity.
- Competitors and likely responses: who shows up, where they win, and how they fight.
- “Would-have-to-be-true”: conditions to win value during the hold period.
- Confidence rating: high/medium/low and what would upgrade it.

## **Common segmentation axes that actually change decisions**

- Job-to-be-done: compliance audit vs. productivity boost vs. revenue generation.
- Switching cost profile: data lock-in, training burden, regulatory recertification.
- Procurement regime: centralized with MFNs vs. local buyer discretion.
- Channel path: marketplace, distributor, VAR, or direct; each implies different gross-to-net.
- Usage intensity: light vs. heavy users; ties to usage-based pricing and support loads.
- Risk posture: mission-critical vs. nice-to-have; determines price corridors and churn risk.
- Ecosystem dependency: needs integration with platform X or certification Y.
- Geography and regulation: reimbursement codes, data residency, or local content rules.

## **B2B, consumer, and platform nuances**

- B2B: Segment the decision-making unit. A product can be “user-loved” and “procurement-blocked.” Include procurement as its own cohort when pricing power is central to the thesis.

- Consumer: Segment by need state and channel, not just age or income. Occasion, frequency, and promo sensitivity are stronger predictors of realized price and repeat rates.
- Marketplaces/platforms: Segment both sides. On the supply side, sort sellers by GMV, return/fraud rates, and take-rate sensitivity. On the demand side, segment buyers by frequency, AOV, and category basket overlap.

## Rapid 72-hour segmentation build

- Day 0: Draft hypothesis segments, assignment rules, and a one-page purpose statement.
- Day 1: Tag early interviews and secondary sources by segment; pull two top-down series that can be split by your chosen axes; start bottom-up counts for two representative segments.
- Day 2: Land first price corridors and NRR/GRR differences for at least two segments; collapse or refine hypotheses based on evidence; publish the initial Segmentation Canvas set.
- Day 3: Re-size segments with refined rules; push segment-coded inputs into the model; run an initial tornado to see which segment variables swing value most.

## Quality checks that separate usable segments from slide art

- Measurability: can a stranger classify an account with the rule set in under a minute.
- Distinct economics: visible differences in realized price, CAC/payback, or GRR/NRR.
- Sizing tie-out: segment totals sum to category totals; no orphan demand.
- Channel realism: gross-to-net and cost-to-serve differ by segment and are modeled explicitly.
- Stability: segments don't flip labels with small changes in features or roadmap timing.
- Auditability: every segmented claim is footnoted and replicated by a verifier.

## Red flags—and what to do about them

- Vague segments (“innovators,” “traditionalists”) with no assignment rule. Replace with observable criteria.
- Over-segmentation that dilutes decision value. Collapse to the smallest set that explains price and stickiness differences.
- Segment labels that mirror org charts, not buyers. Rebuild around needs and behavior.
- Invisible channel effects. If realized price or CAC doesn’t change by segment, your segmentation is missing the channel lens.
- NRR averages hiding decay in one segment. Recompute cohorts by segment and re-cut growth assumptions.
- Geography ignored in regulated markets. Create regulatory segments; move unapproved indications to option TAM.

## How segmentation feeds the model and the term sheet

- Price: apply segment-specific realized price and increase corridors; tie earnouts to price realization where uncertainty remains.
- Retention: set GRR/NRR by segment with explicit drivers; translate low-confidence segments into wider ranges and covenant triggers.
- Share and SOM: concentrate share gains in segments where the right-to-win is evidenced; keep others in upside only.
- Channel: adjust gross-to-net and cost-to-serve by segment; reflect partner ramp times and rebates in timing.
- Post-close priorities: staff coverage, partner listings, and product hardening aligned to target segments; measure leading indicators (win rate vs. named competitors, premium attach, discount depth) by segment monthly.

When you segment this way—rules first, economics second, evidence always—you stop arguing narratives and start comparing choices. The output is not a persona wall; it is a small set of segments you can price, win, and serve differently, with clear value at stake and a plan to capture it.

## 6.2 Voice-of-Customer Research – Step-by-Step Guide

Voice-of-Customer (VoC) turns market abstraction into evidence you can price, forecast, and bank on. In diligence, the goal is not to collect anecdotes; it's to pressure-test the growth story by listening to the buyers and users who create—or destroy—revenue. The method here is fast and falsifiable: anchor on the few “would-have-to-be-true” statements that move value, design instruments that try to break them, and translate every finding into model inputs with explicit confidence.

Begin by tying VoC to segments, not to the “average customer.” You defined segments in 6.1 because economics differ by need, channel, and switching cost. Your VoC plan should mirror those differences: decision-makers vs. end users, loyalists vs. defectors, direct vs. channel buyers, heavy vs. light users, and procurement vs. budget owners. Aim to cover both sides of any contested story (e.g., “renewals are strong” and “pricing power is real”) with cohorts designed to refute as well as confirm.

### **Step 1: Translate hypotheses into interviewable questions**

Rewrite each hypothesis as a question about recent, specific behavior. “Realized price can rise 2–4% annually without elevating churn” becomes “What happened the last time price increased—who approved it, what pushback occurred, and did anyone reduce scope or leave?” VoC lives on concrete episodes—last evaluation, last renewal, last loss—not opinions about the future.

### **Step 2: Select cohorts that mirror revenue and risk**

Sample where dollars and exposure sit. For a two-to-three-week sprint, a high-yield mix looks like: current customers in top-value segments; churned customers from the last 12–18 months; active prospects and recent lost deals; procurement and finance approvers; and channel partners/distributors that shape gross-to-net. When value hinges on a few strategic accounts, treat them as their own cohort and include executive-level voices and front-line users separately.

## **Step 3: Define quotas and booking rules that protect validity**

Allocate quotas by segment, role, and region so your cuts match the model. Over-recruit churned/lost cohorts relative to their population—they are informationally dense. Balance “fans” and “frustrated.” Time-box recruiting with daily book-rate targets, and pre-authorize incentives and substitutes (e.g., channel checks when end-customers are inaccessible) so fieldwork never stalls.

## **Step 4: Craft instruments that test, not lead**

Use semi-structured guides focused on recent decisions. Ask respondents to replay the last evaluation: trigger, shortlist, decision criteria, and veto points. Ladder from features to outcomes: “What did that feature let you do that you couldn’t before?” Probe price with acceptance, not affection: “At last renewal, which concessions were requested and granted?” For stickiness, map the switching path step-by-step—data migration, retraining, re-certification, integration rework—and quantify effort in hours, dollars, and risk.

## **Step 5: Add targeted modules for pricing, retention, and competition**

Insert a quick willingness-to-pay task (Van Westendorp or Gabor-Granger) when you need corridors; keep it short and segment-specific. For retention, run a “cohort autopsy” with churned customers: reason hierarchy, tipping point, and counterfactual (“What would have kept you?”). For competition, run win/loss prompts that force rank the three claims that moved the decision and the price differential at which the outcome would have flipped.

## **Step 6: Secure compliance and reduce bias up front**

Operate under clean-team rules when required: restrict raw PII and sensitive notes to named individuals; share only anonymized, aggregated outputs beyond the clean team. Disclose purpose unless counsel approves a blinded approach. Avoid coaching or leading questions; ban future pricing coordination topics. Record with consent and state retention/deletion timing for notes and audio.

## **Step 7: Field fast and monitor mix continuously**

Launch within 24–48 hours. Track completes by cohort vs. quota, book rate, and segment balance daily. If a pivotal segment is under-represented by Day 2, shift outreach and incentives the same day. Tag each interview at booking with segment, role, ACV band, and region so analysis cuts are ready as calls land.

## **Step 8: Code rigorously—turn stories into structured evidence**

Create a simple codebook tied to your hypotheses: price pushback type, discount ladder step, reason for churn, competitor claim that resonated, switching steps required, and perceived differentiation. Code each transcript within 24 hours. Quantify frequency by segment and role, and log notable quotes with anonymized IDs that include segment, role, region, and revenue band so they can be traced during Q&A.

## **Step 9: Triangulate stated answers with observed behavior**

Elevate evidence that is closer to behavior: invoices and renewal letters over recollections; win/loss outcomes over brand affinity; discount ladders over list prices; deployment telemetry over claimed usage. Where you only have stated intent, carry wider ranges and lower confidence. Pair VoC with secondary signals (scanner data, marketplace prices, channel margins) to bound realism.

## **Step 10: Convert findings into model-ready inputs within 24 hours**

Every material VoC result should land in the model or risk ledger quickly: realized price corridors by segment; approval hurdles for price increases; contract terms that change churn risk; cohort-level expansion propensities; conversion rates and ramp times in the funnel; channel gross-to-net differences. When a claim remains uncertain, widen sensitivity ranges and state the “would-have-to-be-true” conditions explicitly.

## **Step 11: Surface early-warning indicators for post-close tracking**

Translate big VoC themes into leading signals: discount depth, rebate accruals, procurement escalations, competitor trial frequency, premium attach rates,

price-related churn mentions, and renewal-stage slippage. Tie each to a monitoring cadence so management can act before lagging KPIs move.

## **Step 12: Present VoC credibly—quotes with provenance and math with ranges**

Use a small number of high-signal quotes, each footnoted with an anonymous segment/role and month of interview. Summarize themes with counts (“11 of 16 procurement leaders require CFO sign-off above \$X ACV”) and show ranges where appropriate (“realized price in Segment B: \$14–\$19 per seat per month”). Keep opinions out; show what customers did and what they will likely do next.

## **Advanced moves that raise the signal-to-noise ratio**

Work from “critical incidents”—the last renewal, a painful outage, a pivotal pilot—rather than generic satisfaction. Ask “what almost broke the deal?” to surface silent churn risks. Use contrast questions to reveal elasticity: “If a rival offered 12% below your current rate, what would you change first—scope, service level, or vendor?” When buyers describe integration or compliance hurdles, map and cost each step to build a Switching Cost Index by segment. For usage-priced models, separate “active rate” (share of customers doing anything) from “intensity” (units per active) and “collectability” (what actually gets billed and paid).

## **Common failure modes—and the remedy**

Happy-talk bias appears when you speak only to champions; fix by oversampling churned/lost cohorts and procurement. Leading questions inflate willingness to pay; fix by anchoring in the last negotiation and by using acceptance questions at discrete prices. Thin evidence becomes false precision when ranges are collapsed into point estimates; fix by labeling confidence and showing corridors. Vendor-sourced lists skew results; fix with independent recruiting and channel checks. And beware NPS masquerading as loyalty—tie “advocacy” back to renewal behavior and price acceptance before you lean on it.

## **VoC sprint checklist (copy, fill, enforce)**

- Hypotheses rewritten as behavior-based questions tied to value at stake.

- Cohorts and quotas aligned to segments, roles, and regions; churned/lost oversampled.
- Semi-structured guides written to disconfirm; pricing and retention modules inserted only where needed.
- Clean-team and compliance memo approved; consent and data handling defined.
- Daily dashboard tracking completes, mix, and book rate; plan B substitutes pre-authorized.
- Codebook defined; transcripts coded within 24 hours; quotes logged with anonymized IDs.
- Triangulation rule applied: invoices/contracts and win/loss data prioritized over recollection.
- Findings translated into model lines (price, GRR/NRR, conversion, ramp times, gross-to-net) with ranges and confidence.
- Early-warning indicators documented for post-close monitoring.
- Exhibits verified, footnoted, and replicable; “Draft—Not Verified” labeled when QA is pending.

Run this play and your VoC will do the two things diligence needs most: break weak theses quickly and strengthen believable ones with evidence that ties cleanly to price, retention, and achievable growth—by segment, not in aggregate.

## 6.3 Cohort and Retention Analysis Template

Cohort and retention analysis is how you turn “sticky revenue” from a claim into math. In commercial due diligence, this work answers three valuation-critical questions: how durable is the revenue base, where does expansion really come from, and what would have to be true for net retention to hold (or improve) through the hold period. The template below is built for speed and scrutiny. It gives you standard definitions, a clean workbook structure, and step-by-step instructions to produce numbers an Investment Committee can trust—replicable, reconciled to the ledger, and cut by the segments that move value.

Start with definitions you will not change mid-sprint. Dollar-based **Gross Revenue Retention (GRR)** measures how much starting recurring revenue you kept, excluding any expansion. Dollar-based **Net Revenue Retention (NRR)**

measures how much you kept after adding expansion (and reactivation, if you include it). **Logo retention** is the count-based analog; it detects “silent churn” masked by expansion. Write the exact formulas into your workbook and align them with Quality of Earnings (QoE) on day one so no one argues definitions at T-3.

- GRR over period t:  

$$\text{GRR} = (\text{Start ARR} - \text{Churn ARR} - \text{Contraction ARR}) \div \text{Start ARR.}$$
- NRR over period t:  

$$\text{NRR} = (\text{Start ARR} - \text{Churn ARR} - \text{Contraction ARR} + \text{Expansion ARR} + \text{Reactivation ARR}) \div \text{Start ARR.}$$

Treat reactivation consistently: include it in NRR only if it meets your “new logo vs. resurrected logo” rule.

### **Data you need before you begin (minimum viable set)**

Customer-level recurring revenue ledger with monthly ARR/MRR by product/module, contract start/renewal/term dates, list vs. realized price or rate card, discounts/rebates/credits, channel (direct vs. partner), region, segment assignment (from 6.1), logo IDs (parent/child hierarchy), status flags (new, active, churned, reactivated), and reason codes for churn/contraction if available. Capture FX currency, invoice timing, one-off adjustments, and pass-through lines you will exclude from ARR. If usage-based, pull units and rate plan per period; if hardware + service, split device vs. annuity.

### **Cohort design—make three choices and freeze them**

1. **Cohort key.** Use acquisition or go-live month as default; for renewals analysis, also cut by initial term start. Document why.
2. **Time grain and horizon.** Monthly is standard for sprints; 24–36 months gives you decay shape. Quarterly is acceptable in low-volume B2B.
3. **Segmentation.** Apply the same segment rules you locked in 6.1 (vertical, size band, channel, region, product family, ACV band). If a segment can’t be assigned quickly with observable fields, refine the rule before you compute anything.

## Build the cohort matrix (the triangle) once, then reuse it everywhere

Create one sheet per segmentation view (e.g., “All,” “By Segment,” “By Channel”). Rows are cohorts by start month; columns are months-since-start (0, 1, 2 ... n). For each cell, store:

- Start Logos, Start ARR (at the beginning of the period)
- Expansion ARR, Contraction ARR, Churn ARR, Reactivation ARR (during the period)
- End Logos, End ARR (at period end)
- GRR and NRR for that cell and the cumulative GRR/NRR for the cohort at age n

Compute roll-ups at the top: weighted GRR, weighted NRR, logo retention, and the distribution of cohorts by age (to avoid averaging young and old cohorts indiscriminately).

## Decompose retention into what actually changed

Retention is not a monolith; split it so you can manage it.

- **Price vs. quantity (seats/units).** For any change in ARR, attribute the share due to realized price change (rate increase, discount rollback, rebate change) vs. quantity change (seats, modules, usage). This prevents “price-led expansion” from being mistaken for product-led growth.
- **Product mix.** Tag expansion and contraction to modules/SKUs so you can see whether the annuity (consumables/services) is carrying the day while the core product decays—or vice versa.
- **Channel effect.** Separate direct vs. partner. Gross-to-net and renewal mechanics differ; partner attrition can hide inside NRR if you don’t isolate it.
- **Contract mechanics.** Map term length, auto-renew clauses, termination/assignment rights, and notice windows to the month where churn can actually happen; long terms create retention optics that aren’t the same as customer love.

## Diagnostics you should run every time

- **Survival and hazard view.** Plot cohort survival (ARR and logos) and monthly hazard (churn probability) to find cliff months (e.g., Month 12 for annual, Month 3 post-implementation).
- **Retention heatmap.** Visualize GRR/NRR by cohort age and segment; hotspots usually align with a product gap, a price increase, or a channel change.
- **Renewal waterfall (next 4–8 quarters).** Build a schedule of ARR up for renewal, expected GRR, expected expansion, and “ARR at risk” by segment; this feeds both valuation and term-sheet protections.
- **Concentration overlay.** Compute GRR/NRR with and without the top 10 accounts; concentrated expansion can mask broad-based weakness.
- **Elasticity signals.** Cross-tab price increase events with churn/contraction in the following two cycles; look for rising hazards in price-sensitive segments.
- **Cohort mix shift.** If young cohorts retain worse than older ones, growth may be seeding future churn; treat as a red flag and widen downside ranges.

## Template—fields to copy into your workbook

- **Sheet A: Cohort Matrix**  
Cohort Month; Segment; Channel; Start Logos; Start ARR; Expansion ARR (price); Expansion ARR (quantity); Contraction ARR (price); Contraction ARR (quantity); Churn ARR; Reactivation ARR; End Logos; End ARR; Period GRR; Period NRR; Cumulative GRR (Age n); Cumulative NRR (Age n).
- **Sheet B: Drivers & Reasons**  
Cohort; Reason Code; Driver Type (Product gap, Service, Price, Competition, Procurement mandate, Budget); Notes; Dollar impact; Segment; Channel.
- **Sheet C: Renewal Waterfall**  
Quarter; ARR up for renewal; Expected GRR; Expected Expansion; ARR at Risk; Top Accounts; Contracts with adverse terms (MFN, termination, assignment).
- **Sheet D: Price/Quantity Bridge**  
Period; Segment; Seats/Units change; Realized rate change; Dollar effect from rate; Dollar effect from seats; Net effect; Elasticity notes.

- **Sheet E: Concentration & Outliers**

Account; ARR; % of ARR; Retention history; Notes; Treatment (winsorize, exclude, disclose).

## Usage-based, marketplace, and hardware+service nuances

- **Usage-based.** Track active-rate (% of logos generating any usage), intensity (units per active), realized rate, and collectability (what is actually billed and paid). NRR can look strong on a usage surge that won't persist; tie scenarios to observable drivers (seasonality, policy, incentives).
- **Marketplaces/platforms.** Retention is GMV-based for sellers and purchase-frequency-based for buyers; revenue retention adds **take-rate** stability. Watch return/fraud offsets that erode net take.
- **Hardware + service.** Separate device replacement (cyclical) from the annuity (consumables/services). Many narratives rely on the annuity; prove it with cohorted service revenue per installed base.

## Quality controls that keep the math honest

- Align ARR/MRR definitions with QoE; exclude one-offs, pass-throughs, and services that are not recurring.
- Reconcile cohort totals to the general ledger; your triangle must roll up to reported ARR.
- De-duplicate parent/child logos; decide once how you treat multi-site accounts and acquisitions.
- Lock FX policy and present retention in both reported and constant currency if FX volatility is material.
- Label the treatment of pauses, credits, and partial churn; don't hide them in contraction unless that is your standard.
- Verify that price and quantity bridges add to the observed delta; if they don't, you have a mapping error.
- Keep a verifier separate from the author; nothing leaves the workbench without replication and footnotes.

## Red flags (and immediate responses)

- **High logo churn with “healthy” NRR.** Expansion from a few large accounts is masking decay; split reporting with/without top accounts and cut price/mix by segment.

- **Step-function price increases precede churn.** Down-weight price-led expansion in the forecast, widen ranges, and propose an earnout tied to price realization.
- **Young cohorts underperform older ones.** Move growth into upside only until you see stabilization; prioritize product hardening or onboarding fixes in the post-close plan.
- **Channel-driven leakage.** If partner-sold cohorts renew worse or net less after rebates, adjust gross-to-net and cost-to-serve; push for channel terms or coverage changes.
- **Contract optics.** Three-year terms with weak end-user adoption will unwind later; treat GRR as artificially inflated and scenario-ize the cliff.

## How to push results into the model within 24 hours

- Replace single-line “retention” with segment-level GRR/NRR ranges and confidence labels.
- For subscriptions, forecast using a cohort roll-forward (Start ARR → churn/contraction → expansion) rather than a flat NRR scalar.
- For usage models, forecast active-rate, intensity, and realized rate separately; add collectability and an “incentive drag” where promos are material.
- Pull the renewal waterfall into the base/downside scenarios and tie ARR-at-risk to specific drivers (price, product gap, competitor).
- Translate residual uncertainty into terms: earnouts linked to NRR or price realization, covenants on promo intensity, closing conditions on key contract assignments.

## Acceptance criteria for a decision-grade retention analysis

- Definitions frozen and aligned with QoE; treatment of reactivation, pauses, and pass-throughs documented.
- Cohort triangle built, verified, and reconciled to ledger totals; segments and channels applied consistently.
- GRR/NRR presented as ranges by segment with drivers; price vs. quantity bridge validated.
- Survival/hazard views and renewal waterfall produced; concentration impact shown with/without top accounts.
- Findings translated to model lines and term-sheet levers; confidence and early-warning indicators stated on the page.

## Quick checklist you can copy into your workspace

- Cohort key, time grain, horizon frozen.
- Segment and channel tags applied consistently.
- Triangle computed with Start/End, Expansions, Contractions, Churn, Reactivations.
- GRR/NRR and logo retention calculated; survival and hazard charts reviewed.
- Price vs. quantity bridge completed for top segments.
- Renewal waterfall and ARR-at-risk built for next 4–8 quarters.
- Reconciliation to ledger done; verifier sign-off logged.
- Model updated; ranges and confidence labeled; residual risk tied to price/structure levers.

Use this template and you'll replace generic "strong retention" claims with a precise view of revenue durability—by segment, by channel, and by driver—so sponsors can price risk, shape terms, and prioritize post-close actions with confidence.

## 6.4 Demand Elasticity Stress-Test Checklist

Elasticity work tells you how much revenue and unit volume will move when price, promotion, or product mix changes. In diligence, it protects you from two costly mistakes: paying for price upside that customers won't accept, and overlooking price power that is hiding behind discounting habits or poorly framed increases. This stress-test converts opinions about "pricing headroom" into evidence by segment, SKU, and channel—and pushes those findings directly into the model, retention forecast, and term sheet.

Approach this as a short, disciplined experiment rather than an academic exercise. You will reconstruct realized prices, isolate promotion and mix effects, and estimate how demand reacts in the short run (1–3 months after a change) and long run (renewal cycles or replenishment windows). Then you will pressure-test a handful of decisions-relevant scenarios: permanent price increases, removal of promotions, competitor price aggression, macro slowdowns, and policy or reimbursement resets. Throughout, keep segmentation front and center; averages hide the truth.

## Step-by-step elasticity stress-test

1. Define the question and the materiality bar.  
Write the single statement you are trying to prove or break (e.g., “We can raise realized price 200–400 bps in Segment A without pushing churn above 8% or downgrades above 5%”). Quantify value at stake and set stop/go thresholds before analysis.
2. Select segments, SKUs, and channels that actually move value.  
Prioritize “key value items” and top revenue segments. Tag direct vs. partner routes separately; gross-to-net and pass-through differ by channel and can flip the answer.
3. Reconstruct realized price and volume at a transactional level.  
Start with the price waterfall: list → standard discounts → promo → rebates/chargebacks → returns/credits → channel margins → vendor-realized price. Align periods, deduplicate, and separate base from promo volume.
4. Build a clean baseline.  
Create a history of price, volume/units, and mix by segment and channel, controlling for seasonality, inventory constraints, outages, and one-off deals. If supply constraints or stockouts occurred, flag those months rather than letting them distort elasticity.
5. Estimate own-price elasticity two ways.  
Method A: event study around natural experiments (price changes, promo withdrawals, pack size shifts). Method B: multivariate controls using simple regression or matched-pair comparisons that strip out seasonality, promo, and mix. Report short-run and long-run effects. If the two methods disagree materially, widen ranges and lower confidence.
6. Separate price from promotion, mix, and quantity effects.  
Quantify how much of past “price” movement came from mix up-tiering, temporary discounts, or pack architecture rather than true net price. Do not claim price power when the math shows mix or promo doing the work.
7. Tie elasticity to retention and win rates.  
For subscriptions, test whether cohorts exposed to price increases show higher churn, downgrades, or delayed renewals. For transactional models, examine repeat-purchase frequency and basket size after price moves. Add the hazard to your retention model if you see a reliable pattern.

8. Add competitive and procurement lenses.  
Use VoC findings to identify procurement veto points and competitor undercut patterns. Convert these into response curves (e.g., “a 10% price gap vs. Competitor X cuts win rate by 12–18 points in Mid-Market”).
9. Run decision-relevant scenarios.  
Model permanent price increases, promo reduction, KVI price holds with tail monetization, competitor price war, macro slowdown, reimbursement change, and FX or input-cost shocks. Present ranges and confidence; tie each to early-warning indicators.
10. Translate to the model and term sheet within 24 hours.  
Update realized price by segment and channel, adjust demand and retention where elasticities bite, and push the new contribution margins through unit economics. Where uncertainty remains, encode it in sensitivities and deal structure (e.g., earnouts on price realization, covenants on promo intensity).

## **Data pack you should assemble before you start**

- Transaction-level sales with list price, net price, discounts, rebates, credits, returns, pack size, and channel tags.
- Units or usage counts by SKU and segment; attach rates for bundles and options.
- Promotion calendar with funding source and duration.
- Inventory, availability, and service-level data to detect stockouts or capacity caps.
- Competitor prices from panels, marketplaces, or distributor quotes.
- Contract terms for renewal cadence, MFNs, and termination rights.
- Macro or policy indicators that plausibly move demand in your category.

## **Analytical checks that keep you honest**

- Use realized price, not list.
- Control for promo and mix explicitly; do not attribute their effects to price.
- Estimate short-run and long-run elasticities; label the window used.
- Validate with two methods or sources for any thesis-critical estimate.
- Winsorize outliers and report with/without top customers to expose concentration.

- Ensure add-up: price × volume bridges to revenue after gross-to-net.
- Present ranges with confidence labels; avoid point “precision” where evidence is thin.

## Scenario menu you can lift directly into your model

- Permanent price increase of 2–4% in top segments; test with and without KVI exemptions.
- Removal of promotional funding by 30–50%; assume partial volume loss and partial mix shift.
- Competitor discounting of 10–15% in one pivotal segment; overlay win-rate impact.
- Recession shock with category contraction of 5–10% and increased price sensitivity.
- Reimbursement cut or policy delay; model an immediate step-down and slower recovery.
- FX or input-cost spike; test pass-through speed and demand loss from necessary increases.

## B2B, consumer, and platform nuances

- B2B: Elasticity is mediated by procurement policy and switching costs. Expect low short-run elasticity and step-changes at renewal. Model approval thresholds and MFNs explicitly.
- Consumer: KVI items anchor value perception; hold or limit increases there while monetizing the tail with pack architecture and premium tiers.
- Usage-based pricing: Break demand into active rate, intensity, and realized rate; elasticity often shows up as downgrades in intensity rather than logo churn.
- Marketplaces: Test GMV sensitivity on both buyer and seller sides and net it through take-rate compression and returns/fraud.

## Early-warning indicators to monitor during and after the test

- Discount depth and promo reliance by segment.
- Price-related churn or downgrade mentions in support and renewal notes.

- Win rate versus named competitors at comparable prices.
- Premium attach rates and up-tier conversion.
- Channel pushback, rebate accruals, and delistings.
- Renewal slippage and extended approval cycles in procurement.

## Compliance and guardrails

- Do not discuss future pricing or market allocation with competitors; pre-close coordination is prohibited.
- Operate under clean-team rules for invoice-level analyses and raw customer data; share only aggregated, anonymized outputs with non-clean members.
- For primary research, disclose purpose (unless counsel approves a blinded approach), obtain consent to record, and avoid eliciting material nonpublic information.

## Red flags—and immediate responses

- Strong NRR but rising price-related churn in a specific segment. Lower price uplift assumptions there; tighten ranges; consider an earnout tied to NRR.
- Elasticity estimates flip sign after controlling for promo or mix. Rebuild realized price and rerun; do not rely on list-price analytics.
- Channel leakage overwhelms vendor price moves. Adjust gross-to-net and cost-to-serve; revisit channel strategy in post-close planning.
- Capacity or service constraints drive volume loss after price increases. Treat as an operational bottleneck, not elasticity; coordinate with ops diligence.

## Acceptance criteria for a decision-grade stress-test

- Two independent estimation methods or sources for the elasticity of each thesis-critical segment.
- Realized price reconstructed with a visible waterfall; promo and mix accounted for.
- Short-run and long-run effects estimated and labeled.
- Scenarios built on the few variables that swing value and tied to early-warning indicators.

- Model updated with ranges and confidence; term-sheet levers proposed where uncertainty remains.

Run this checklist and you will replace generic “pricing headroom” claims with a quantified, segment-specific view of what customers will accept, what they will resist, and how that translates—directly—into revenue, retention, and enterprise value.

## Chapter 7. Competitive Landscape and Positioning

Competitive analysis in diligence is about two things: who you are really up against and how the market will react if you buy this asset and push your thesis. The aim is not a static “four-box”; it’s a segmented, evidence-based view of rivals today, the threat vectors that matter over the hold period, and the target’s practical right to win. Done well, you will leave with a micro-segment share map, a short list of decision-relevant competitors, clear pricing and channel contrasts, and a small set of competitor response scenarios tied to early-warning indicators. That enables sharper valuation, better terms, and a post-close plan that concentrates firepower where it counts.

Positioning is the second half of the job: translate the map into a narrative about relative advantage—cost curve, switching costs, data or ecosystem control, brand, speed of execution—and the plays that defend or extend it. In diligence, you do not rewrite the brand book; you prove where the target can credibly win, at what price, and against which rivals, over a defined time window.

### 7.1 Competitor Identification Checklist

Start by framing the decision you need this work to inform: “Can the target hold or grow share in Segments A and B while taking 150–250 bps of price?” or “Will platform bundling compress take rates in the next 24 months?” That focus keeps the universe tight and the evidence useful.

#### 1) Define what “competitor” means for this deal

Look beyond the obvious logo list. Use five lenses to avoid blind spots:

- Direct solutions:** Vendors selling near-substitutable products to the same buyers in the same use cases.
- Adjacent/substitutes:** Different approaches that solve the same job-to-be-done (outsourcing, manual processes, point tools vs. suites).

- Channel and platform power:** Distributors, marketplaces, hyperscalers, or OEMs that control access, terms, and gross-to-net.
- Upstream/downstream integrators:** System integrators, MSPs, or service firms that can steer deals or replace functionality.
- DIY/open-source/internal build:** Spreadsheets, in-house tools, open-source stacks that cap pricing and slow adoption.

## 2) Lock the segmentation you will use to map competitors

Your 6.1 segmentation rules should govern the competitive map. Tag each competitor by:

- Customer/vertical and size band** (enterprise, mid-market, SMB/public sector).
- Use case/job** (compliance, productivity, revenue lift, cost reduction).
- Channel route** (direct, VAR/distributor, marketplace, OEM/white-label).
- Geography/regulatory regime** (licenses, reimbursements, data residency).
- Product family/SKU** (modules, tiers, pack architecture).

## 3) Build the longlist quickly (72-hour pull)

For speed, mine sources that reveal real traction, not just marketing:

- Customer voice:** Shortlists from VoC, churned/lost-deal interviews, and RFP mentions.
- Public filings & investor decks:** Segment disclosures, customer logos, cohort claims.
- Digital signals:** Web traffic and search share, app-store ranks/reviews, marketplace seller ranks, pricing pages and change logs.
- Channel checks:** Distributor line cards, partner locator maps, marketplace categories, co-op marketing and rebate terms.
- Hiring and org signals:** Sales headcount growth, territory postings, partner/channel roles, solution architect hiring sprees.
- Ecosystem artifacts:** Integration directories, certified partner lists, GitHub activity for open-source alternatives, standards/interop certifications.

- Media and analyst notes:** Not for numbers, but to triangulate who credibly plays in each micro-segment.

## 4) Cull to a decision-relevant shortlist

Score each entry on four axes; keep the top 6–12:

- Overlap with target segments** (where dollars sit).
- Evidence of traction** (customers, renewal claims, distribution, rank/ratings).
- Ability to respond** (balance sheet, parent platform leverage, manufacturing capacity, channel control).
- Strategic intent** (M&A pattern, roadmap, pricing posture, hiring mix).

Drop good marketers with weak access; keep quiet operators with distribution power.

## 5) Tag the threat type and timing

Label each shortlist rival as one (or more) of:

- Price compressor:** Lower cost curve or bundle power; likely to trigger promo wars.
- Distribution gatekeeper:** Owns the shelf; can delist or raise take rates.
- Switching-cost hacker:** Tools that reduce migration pain or offer compatibility bridges.
- Category reshaper:** Platform/Suite that can absorb the job into a broader offer.
- Fast-follower specialist:** Replicates features quickly; relies on parity plus price.

Add **timing**: present, 6–12 months (announced), 12–24 months (speculative).

## 6) Create a “Competitor Card” for each shortlist player (copy this)

- Who they win with:** Segments, geos, channels.
- Offer and moat:** Features that matter, data/network effects, services layer, certifications.

- Pricing architecture:** List vs. realized clues, bundles, rebates, take-rate trends.
- Sales motion:** Direct vs. partner; coverage density; partner mindshare.
- Implementation burden:** Time-to-value, integrations, change-management load.
- Cost curve tells:** Supply chain, infrastructure leverage, gross margin hints.
- Recent moves:** Price changes, bundling, partner adds/drops, hiring spikes, acquisitions.
- Likely response to our moves:** Where they will fight (price, channel, product), how fast, and with what proof.
- Early-warning indicators:** What to watch weekly (discount depth, ad spend, pipeline mix, partner delistings).
- Confidence & sources:** High/medium/low plus footnotes to evidence.

## 7) Map competition at the micro-segment level

Build a simple narrative, not a pretty grid:

- Who shows up in which deals** (by segment/channel).
- Observed win rates vs. named rivals** (VoC + CRM extract if accessible).
- Share movement** in the last 12–24 months (outside-in proxies if needed).
- Price corridors by rival** (deal-level or procurement-recalled).
- Service and SLA posture** (where rivals trade margin for speed or support).

This is the basis for your “where to play/how to win” call.

## 8) Identify hidden and future competitors

Don't stop at loud brands:

- White-label/OEM providers** whose tech sits behind channel brands.
- Hyperscaler bundles** and platform pricing that can make standalone offers look expensive overnight.
- System integrators/MSPs** that package open-source or assemble substitutes.
- Internal build alternatives** when IT talent is abundant and switching costs are low.

- Regulatory shifts** that admit new classes of providers (e.g., new codes, licenses, or interoperability rules).

## 9) Evidence standards (what “good” looks like)

- Every material claim has **two sources** (e.g., pricing page + procurement interview; partner locator + distributor call).
- Realized price** over list; **sell-through** over sell-in where possible.
- Segment tags** applied consistently so comparisons are apples-to-apples.
- Footnotes on page**; raw artifacts saved to the data book.
- Clean-team rules** honored; sensitive analyses shared only in aggregated form.

## 10) Red flags—treat as valuation and term-sheet issues, not footnotes

- A rival with a **structural cost curve advantage** (scale manufacturing, shared infrastructure, or subsidized bundle).
- A **platform owner is able** to cut take rates or prefer its own SKU.
- Channel consolidation** that will compress gross-to-net by 200–500 bps.
- A competitor with **migration tooling** that neutralizes switching costs.
- Regulatory privilege** (exclusive licenses/approvals) that slows your entry or caps price.

## 11) Special contexts that need an explicit pass

- Government/public sector:** Contract vehicles, small-business set-asides, country-of-origin rules.
- Healthcare/financial services:** Codes, credentialing, network access, data residency.
- Cross-border:** Local champions with distribution and compliance; FX and import constraints.
- Open-source:** License terms, cloud-hosted forks, and enterprise wrappers.
- Hardware + service:** OEM vs. branded, after-sales service networks, spare parts control.

## 12) Quick 72-hour plan to get from blank page to insight

- Day 0:** Confirm segments and decision questions; draft longlist from VoC, channels, and public signals.
- Day 1:** Cull to shortlist; build Competitor Cards v1; start partner/distributor checks; pull pricing pages and change logs.
- Day 2:** Land customer quotes on win/loss vs. each shortlist rival; reconstruct price corridors by segment; tag early-warning indicators.
- Day 3:** Publish micro-segment map, threat types, and a one-page “competitor response scenarios” exhibit tied to model toggles.

## 13) Compliance and boundaries

- No outreach that could be construed as pre-close **price or customer coordination**.
- Operate under **clean-team** protocols for any customer- or invoice-level analysis.
- Respect **terms of service** on web data; avoid scraping behind log-ins; never store PII without consent.

## 14) Deliverables and acceptance criteria

- Competitor universe map:** longlist (collapsed), shortlist, and why they matter.
- Segmented share story:** who appears where, with observed win-rate and price corridor evidence.
- Competitor Cards** with sources and confidence.
- Response scenarios:** two or three moves rivals are likely to make, the revenue/price impact, and early-warning indicators to watch.
- Model hooks:** where competitor behavior changes price, conversion, or churn assumptions; residual risk translated into price haircuts or terms (e.g., promo-intensity covenant, earnout tied to price realization).

## 15) Common failure modes (and the fix)

- Over-indexing on glossy brands.** Fix: weight distribution control and realized price over marketing share-of-voice.

- Counting resellers as independent competitors.** Fix: resolve OEM/white-label relationships; follow the money.
- Ignoring DIY/open-source.** Fix: test switching costs and willingness-to-pay against credible free/cheap substitutes.
- Averages that hide segment realities.** Fix: map by micro-segment and channel; collapse only after differences are proven negligible.
- Confusing features for moat.** Fix: define moat in operational terms: cost, data, network, workflow lock-in, regulatory advantage, or ecosystem control.

Use this checklist to identify the competitors that actually move value in your deal, not a generic market cast. Once you know exactly who shows up in which segment, at what price, through which channel, and with what likely response, positioning becomes straightforward: concentrate resources where your right-to-win is provable, and price or structure the risks you cannot remove.

## 7.2 Market Share Estimation – Step-by-Step Guide

Market share tells you whether the target wins where it matters and how hard the road to growth will be. In diligence, the goal isn't a single heroic percentage; it's a segmented, decision-grade view of share that lines up with your market definitions, reconciles across methods, and explains movement over time. Share is always a ratio—your numerator must match your denominator in scope, timing, and “gross-to-net” treatment. The steps below give you a fast, auditable way to get there.

### 1) Define the share you are measuring—before you pull numbers

Write one sentence that fixes the unit, the scope, and the time window. Examples: “Dollar share (vendor-realized revenue) in US Mid-Market Manufacturing for compliance use cases, last 12 months,” or “Unit share (devices shipped) in Western Europe hospital segment, calendar YTD.” Choose the metric that maps to how value forms in the category:

- Dollar share (vendor-realized revenue net of rebates, chargebacks, channel margins).
- Unit share (devices, SKUs, procedures, trips).

- Installed-base share (assets or seats in service) when the annuity matters.
- Activity/usage share (API calls, kWh, GMV) for usage-priced or marketplace models.
- Wallet share within key accounts (when concentration is high and expansions drive value).

Lock the period (rolling 12 months is common), the segmentation axes (from 6.1), and whether figures are nominal or in constant currency. Document all three; they will anchor every comparison and QA step.

## **2) Build the denominator (category size) the same way you did in Chapter 5**

Use your TAM/SAM work to create the market denominator for the exact segment, channel, and geography you defined. If you're measuring dollar share, the denominator must be vendor-realized revenue for that scope (not end-buyer spend). If unit share is the right lens, your denominator is category units sold (or procedures performed) in that same scope. Present this denominator as a range with sources and a short bridge that shows trims (in/out products, channels, or geos) and gross-to-net.

## **3) Assemble numerators for each competitor using two independent methods**

You'll rarely get a clean, direct revenue line by competitor and segment. Triangulate. Use at least two of the following, prioritizing evidence closest to cash and customers:

- Public filings and investor materials: extract segment splits, regional disclosures, and product family lines; allocate cautiously and footnote assumptions.
- Scanner/POS and sell-through panels: for consumer and retail channels, dollar and unit share often live here; align coverage and channel mix.
- Distributor and marketplace data: line-card volumes, sell-through reports, and ranked seller data; convert ranks to shares only with care and proxies.
- Management and channel interviews: reconstruct realized price and unit volumes by segment; validate with invoices or stocking patterns.

- CRM extracts and win/loss: observed win rates by segment × funnel coverage yields an implied share (cross-check only).
- Installed-base or procedure datasets: in equipment and regulated categories, shipments + replacement cycles or claims/procedure counts bound share.
- App store and traffic signals: use as weak proxies for digital products; multiply share-of-traffic by value-per-visit only when better data is absent—and label it low confidence.

Normalize every numerator to vendor-realized revenue or to units in the same period, channel, and geo as the denominator. Reconcile currency, FX, and seasonality.

#### **4) Compute share by micro-segment and then roll up**

Calculate share at the smallest sensible level where economics differ (e.g., product tier × customer size × channel × region). Share = (Target vendor-realized revenue in segment) ÷ (Category vendor-realized revenue in same segment). For units, the same formula with units as both numerator and denominator. Only then roll up to the views you need for decisions (e.g., enterprise vs. mid-market; North America vs. Europe). Keep an “other/long tail” bucket explicit and bounded by evidence; do not hide residuals.

#### **5) Reconcile across methods and show the bridge**

Place method A (e.g., sell-through panel) next to method B (e.g., filing-derived allocations). Quantify variance and explain it in plain language: scope differences, channel leakage, timing (fiscal vs. calendar), untracked long tail, or double counting across bundles. Decide which method carries more weight for each segment and say why. Do not average blindly.

#### **6) Trend it—share is a movie, not a photo**

Compute shares for the last 8–12 quarters if possible. Plot the direction by segment and channel. Add **share of growth (SOG)**: of the category’s absolute dollar growth, what percent did the target capture? SOG is often more revealing than static shares in fast-moving markets. Mark exogenous shocks (supply constraints, one-off mega deals) so they don’t masquerade as structural share shifts.

## 7) Tie share to observable drivers and the model

Connect share changes to win rates, coverage, channel listings, product availability, and price corridors from Chapters 6 and 5.4. Then translate into model toggles: points of share gain/loss per year by segment, with the capacity and channel gates that must be met. Back-solve the **implied share** required to hit the plan in each segment and compare it to historical analogs; if the plan sits in the top decile of history without top-decile proof, lower confidence or move dollars to upside.

## 8) Add a concentration lens (optional but useful)

Compute the Herfindahl-Hirschman Index (HHI) to understand how concentrated each segment is and how rivals might respond.  $HHI = \sum(s_i^2)$ , with  $s_i$  in percentage points (e.g., 30% →  $30^2 = 900$ ). Rising HHI usually means fewer, stronger rivals; it can shape pricing power, promo intensity, and regulatory scrutiny.

## Specialized patterns and how to handle them without bias

- **SaaS/subscription.** Use ARR share by segment (not bookings), tie to logo and seat share where relevant, and adjust for channel margins on reseller-led deals. For products with meaningful free tiers, compute **active user share** as a leading indicator but base valuation on paid ARR share.
- **Usage-based models.** Share in **activity units** (API calls, compute hours) and in **realized revenue** can diverge; report both. Make take-rate and collectability explicit.
- **Marketplaces/platforms.** Establish GMV share on the buyer and seller sides separately, then net to revenue share via take rates, incentives, and returns/fraud. A rising GMV share with a falling take rate can leave revenue share flat.
- **Capital equipment with annuities.** Track **shipment share** and **installed-base share** separately; most value comes from the annuity (consumables/services). Model replacement cycles explicitly; don't extrapolate a shipment spike as durable share gain.
- **Consumer packaged goods/retail.** Dollar share vs. unit share can diverge with price/mix; compute both. Distinguish **sell-in** from **sell-through**; retailers care about the latter, and so should you. Adjust for promo intensity.

- **Regulated sectors (healthcare/finserv/public).** Anchor denominators in reimbursable indications or licensed providers. Use claims/procedure data, panel datasets, and contract vehicles. Count share only where the target is actually permitted to sell.

## Quality controls that keep share math defensible

- Numerator-denominator consistency: scope, period, currency/FX, channel gross-to-net.
- Two-method rules for any thesis-critical segment; label confidence high/medium/low.
- Sum check: competitor shares + “other”  $\approx$  100% (state the residual and why).
- Ratio-of-sums vs. sum-of-ratios: compute the former for roll-ups; the latter biases toward small segments.
- Sell-through over sell-in where possible; returns and chargebacks treated consistently.
- Bundles and OEM/white-label: follow the money to the economic vendor; avoid double counting.
- Seasonality and backlog: align periods; exclude one-off megadeals from trend claims or flag them.
- Clean-team protocols: invoice-level and partner-level details stay within the ring-fence; share only aggregated, anonymized outputs beyond it.

## Common failure modes (and the quick fix)

- Mixing list and realized prices in numerators or denominators. Fix: rebuild with gross-to-net waterfalls.
- Treating logos counts as market share. Fix: measure in dollars/units and weight by value.
- Overweighting digital proxies in offline-heavy categories. Fix: prioritize sell-through, distributor, or procedure data.
- Using installed-base share to imply shipment share (or vice versa). Fix: separate cycle and annuity.
- Assuming uniform share across channels. Fix: compute by route-to-market; channel leakage often flips the answer.
- Ignoring geography or regulation. Fix: split by regime (licenses, codes, data residency) and time gates for entry.
- Rolling up micro-segment shares with a simple average. Fix: weight by segment value.

## What to produce (and what makes it “done”)

- A segmented share view (dollar, unit, or activity) with numerator and denominator methods, sources, and ranges on the page.
- A reconciliation bridge between methods and a short note on which method you weigh where—and why.
- A 8–12 quarter share trend with share-of-growth, annotated for non-repeatable events.
- “Implied share to hit plan” by segment with gates (capacity, channel listings, approvals).
- Confidence labels and early-warning indicators (win rate vs. named rival, discount depth, delistings, procedure volumes) the sponsor can track post-close.

## Share Estimation Card (copy one per segment/rival pair)

- Scope & period: [definition].
- Denominator (method A/B): [value, range, sources].
- Numerator (method A/B): [value, range, sources].
- Share result (range) and confidence: [x%–y%, H/M/L].
- Trend (last 8–12 quarters): [ $\uparrow/\downarrow$ , SOG %].
- Driver notes: [win rates, channel access, price corridors].
- Risks & gates: [what must be true to hold/gain].
- QA & reconciliation: [sum check, residual “other,” bridge].
- Clean-team note: [what’s aggregated; where raw sits].

## A 72-hour plan that lands a defendable first view

Day 0: Freeze scope and metric; lift denominators from Chapter 5; list segments that move value.

Day 1: Pull two numerator methods per top segment (filings allocation + sell-through/panel or distributor checks); normalize to vendor-realized revenue or units.

Day 2: Compute share by micro-segment; reconcile methods; produce a first trend (4–8 quarters where possible); flag killer deltas for VoC validation.

Day 3: Publish Share Estimation Cards and “implied share to hit plan”; push toggles into the model and set early-warning indicators.

Do this with discipline and your “share” will stop being a slide of logos and become a lever in the deal: you’ll know exactly where the target wins today,

what it must do to win tomorrow, and how confident you should be in paying for that story.

## 7.3 Competitive Advantage Assessment Template

A competitive advantage is only real if it shows up in unit economics, win rates, and retention—and if it survives a capable rival’s counterpunch. This template turns big claims (“we have a moat”) into decision-grade evidence you can price into a deal. It is built for diligence speed: segment-by-segment, falsifiable tests, quantified yield, and a clear view of erosion risk and time-to-copy. Use it to decide where the target truly wins, what you should pay for, and what must go into post-close execution.

Start with three rules. First, advantage is **relative** and **segmented**—assess it where the dollars sit, not in the abstract. Second, advantage is **measurable**—it must appear as a price premium, cost advantage, CAC/payback edge, higher NRR, or faster cycle times. Third, advantage is **durable** only if it is hard or costly to copy, contractually or structurally protected, and aligned with how the organization actually sells and builds.

Common sources of advantage to consider (use the few that matter in your category): economies of scale and learning curves; switching costs and workflow lock-in; network effects (same-side and cross-side); proprietary or privileged data; counter-positioning (an incumbent is disincentivized to copy); brand and trust signals; regulatory or IP protections; channel power or shelf control; process/operational excellence; supply-chain or input advantages; ecosystem control (standards, integrations, distribution). Substitutes and DIY/open-source pressure are the inverse—treat them as active forces in the same template.

### How to run the assessment (fast and defensible)

1. **Fix scope and segmentation.**

Anchor on the segmentation from 6.1 (customer/job, size band, channel, region, product family). A claim is only true if it holds for a defined segment. Write one sentence per segment: “Advantage X matters in [Segment A] because it produces [metric deltas] and is [hard/costly] to copy.”

**2. Inventory claims and rewrite them as tests.**

Collect management assertions, sales lore, analyst takes. Rewrite each as a “would-have-to-be-true” statement with a numeric threshold: “In Mid-Market Healthcare, realized price is  $\geq$  6–8% above nearest peer at comparable discount depth,” or “Customers with Integration Y show NRR  $\geq$  115% due to workflow lock-in.” Mark “killer variables” that would change price or go/no-go.

**3. Design the proof path and disconfirming tests.**

For each claim, name the minimum evidence and the fastest way to break it. Examples: invoice-based price corridors; win/loss vs. named rivals; cohort NRR by integration count; discount ladder and approval flows; distributor margin/take-rate trends; capacity/yield data for cost claims. Disconfirmers might be procurement saying price is a wash, or a competitor tool that reduces migration pain.

**4. Quantify the advantage yield.**

Convert the claim into economic deltas you can drop into the model:

- **Price premium or discount resilience:**  $\Delta$ Realized price vs. peer at constant mix and channel.
- **Cost curve:**  $\Delta$ COGS or service cost per unit at comparable volume; learning rate for each doubling of cumulative output.
- **Demand quality:**  $\Delta$ NRR/GRR,  $\Delta$ churn hazard after price changes,  $\Delta$ expansion rate tied to feature or integration.
- **Go-to-market efficiency:**  $\Delta$ CAC,  $\Delta$ payback months,  $\Delta$ win rate at equal price.
- **Throughput and reliability:**  $\Delta$ lead time,  $\Delta$ fill rate,  $\Delta$ defect rate. For each delta, show how you measured it and the confidence level by segment.

**5. Assess durability (time-to-copy and erosion paths).**

Ask what it would cost, how long it would take, and what incentives or constraints would stop rivals from copying. Use hard gates: exclusive data rights or licenses; patent scope and remaining life; integration and certification density; channel exclusivity terms; capacity lead times; brand permission in regulated categories. Map five erosion “clocks”: technology change, cost convergence, regulation shifts, channel consolidation, and multi-homing/substitutes. Put an estimated half-life on each advantage by segment.

**6. Model competitor response and counter-moves.**

For the top two rivals in each key segment, sketch the most likely responses (price aggression, bundling, channel pressure, migration tools, roadmap acceleration) and your counter. Translate into

early-warning indicators: discount depth, partner delistings, pipeline mix shift, rebate accruals, share-of-growth. If an incumbent is disincentivized to copy (counter-positioning), state why in operational terms (cannibalization, gross-margin dilution, channel conflict, regulatory exposure).

**7. Score with evidence, not optimism.**

Use a simple, repeatable rubric (0–5 scale each): **Value** (moves unit economics), **Rarity** (few rivals can claim it), **Inimitability** (hard/costly to copy), **Organization** (company actually exploits it—coverage, incentives, ops), **Evidence** (hard proof vs. anecdotes), **Durability** (years to erosion). Weight the score by segment revenue and value at stake. The output is a heatmap you can defend.

**8. Push into the model and the term sheet.**

Advantages show up as price, cost, conversion, retention, and capital intensity. Encode deltas by segment and channel with confidence bands. Where residual risk is material, translate it into structure: earnouts tied to price realization or NRR, covenants on promo intensity or channel take-rates, closing conditions around key licenses, or holdbacks contingent on partner renewals.

**9. Set post-close plays to widen the moat.**

For each advantaged segment, list the one to three moves that deepen it: sign exclusives, lock data rights, productize migration tools, expand certified integrations, accelerate capacity that sits on the cost curve, or reshape discount ladders to protect realized price.

## Competitive Advantage Card (one page per advantage × segment—copy and fill)

- **Advantage name and type.** (e.g., “Workflow lock-in via Integration Suite,” “Scale cost curve in consumables.”)
- **Segment and scope.** (Product, customer/job, size band, channel, geography.)
- **WHTBT statement + threshold.** (“Realized price premium  $\geq 6\%$  with no churn lift within 2 cycles.”)
- **Economic yield (with sources).** ( $\Delta$ price,  $\Delta$ CAC/payback,  $\Delta$ NRR/GRR,  $\Delta$ gross margin,  $\Delta$ lead time; show numbers and confidence.)
- **Durability gates.** (Contracts, IP, certifications, data rights, capacity lead times; estimated time-to-copy.)
- **Erosion risks & clocks.** (Substitutes, policy, channel consolidation, multi-homing; half-life view.)

- **Competitor response & our counter.** (Likely moves, cost to neutralize; early-warning indicators.)
- **Dependencies and assumptions.** (Key partners, roadmap items, staffing, capex, compliance.)
- **Model hooks.** (Which lines move and by how much; base vs. downside ranges.)
- **Confidence & next proof.** (H/M/L; what would upgrade confidence fastest.)

## Measurement library—how to test specific advantage types

- **Economies of scale & learning curves**

Evidence: unit cost vs. volume, yield trends, scrap/rework rates, supplier volume rebates, freight leverage.  
 Metric: learning rate (progress ratio) from  $\text{cost} \sim a + b \times \text{volume}^b$ ;  $b < 0$  implies cost drops as volume doubles.  
 Stress test: what happens to cost at competitor scale; capex and time needed to catch up; input bottlenecks.  
 Model: lower COGS trajectory by segment; capacity capex and ramp times in timing plan.
- **Switching costs & workflow lock-in**

Evidence: number and depth of integrations, data portability, retraining burden, certification or compliance recert, contract terms (termination, assignment, MFNs), bespoke workflows.  
 Metric: Switching Cost Index—hours × wage + fees + risk penalties; multi-homing rate; churn hazard after price changes.  
 Stress test: competitor migration tooling; standard APIs; buyer budget seasonality.  
 Model: higher GRR/NRR, lower price elasticity in locked-in segments; longer payback tolerance.
- **Network effects (same-side and cross-side)**

Evidence: active users/suppliers, interactions per user, match or fill rates, marketplace liquidity, engagement retention curves, K-factor/referrals, multi-homing prevalence.  
 Metric: retention or conversion lift per percentile of network size; time-to-match; take-rate stability at scale.  
 Stress test: multi-homing incentives, platform policy risk, one-sided concentration.  
 Model: higher conversion, lower CAC, rising take-rate or stable take-rate with GMV growth; downside for compression.

- **Data advantage**

Evidence: exclusivity/rights, coverage/latency/accuracy, label cost, model performance deltas, feedback loops, privacy/regulatory constraints.

Metric: measurable model lift (AUC/precision/recall) or decision accuracy improvement; update frequency vs. peers.

Stress test: data portability mandates, privacy shifts, open models narrowing the gap.

Model: price premium or share lift in data-sensitive segments; ongoing opex/capex to sustain quality.

- **Brand and trust**

Evidence: price premium at equal service and channel; unaided awareness; “share of search”; trust-critical certifications; complaint/defect rates.

Metric:  $\Delta$ realized price and  $\Delta$ win rate controlling for discount and SLA; claim acceptance in enterprise committees.

Stress test: PR or quality shock; new-logo vs. installed-base sensitivity. Model: premium corridors, lower CAC, higher renewal approval rates.

- **Regulatory/IP**

Evidence: patent claims and remaining life; exclusivities; licenses or codes; safety/compliance track record; audit outcomes.

Metric: legal barrier strength; time and cost for a rival to clear approvals.

Stress test: policy changes, litigation risk, design-around ease.

Model: protected share/price; term-sheet conditions on key approvals and freedom-to-operate.

- **Channel power & shelf control**

Evidence: distribution coverage, tier-1 listings, take-rate/rebate terms, mindshare with partners, co-op budgets, delist risk.

Metric:  $\Delta$ gross-to-net vs. peers; sell-through velocity; partner pipeline mix.

Stress test: channel consolidation, take-rate hikes, private label expansion.

Model: gross-to-net assumptions by route; promo intensity and rebate accruals.

- **Process/operational excellence**

Evidence: cycle and takt times, first-pass yield, on-time delivery, SLA adherence, service cost per ticket, field utilization.

Metric: throughput and error deltas; cost-to-serve advantage.

Stress test: demand surge, supply disruption, labor constraints.  
 Model: margin durability and capex needed to preserve throughput.

## Adversarial probes you should always run

- If the price premium exists only at list, it isn't an advantage. Rebuild realized price and include rebates, chargebacks, and channel margins.
- If NRR is high but logo churn is rising, expansion concentration is masking decay. Split by segment and top accounts; test price-related churn.
- If a rival can copy by changing incentives rather than technology (e.g., matching discounts or bundling), durability is low—price it as such.
- If advantage depends on a single partner or license, treat it as a **condition**, not a permanent feature—mirror in terms and closing conditions.

## Scoring rubric (paste into your workspace)

- **Value (0–5):** Moves price, cost, CAC/payback, NRR, or throughput in this segment.
  - **Rarity (0–5):** Few rivals possess it for this segment.
  - **Inimitability (0–5):** Cost/time/cannibalization disincentives that block copying.
  - **Organization (0–5):** Coverage, incentives, product velocity to exploit it.
  - **Evidence (0–5):** Invoices, cohorts, partner data, audited metrics vs. anecdotes.
  - **Durability (0–5):** Estimated years to erosion; number of independent gates.
- Weight by segment revenue and value at stake; produce a heatmap and a ranked list of “pay-for” vs. “prove-post-close” advantages.

## Translate to the model and terms (what changes, exactly)

- **Price premium:** Increase realized price corridors by segment; reduce or widen elasticity ranges based on switching cost and procurement signals; propose earnouts tied to price realization if confidence is medium/low.
- **Cost curve:** Lower COGS/service cost trajectory; reflect capacity capex and ramp timing; show downside where input prices or scale slip.

- **Demand quality:** Raise/lower GRR/NRR; adjust churn hazard post-price-increase; encode expansion drivers (integration count, network density).
- **GTM efficiency:** Improve CAC/payback where win-rate and conversion deltas are evidenced; reflect partner take-rates and gross-to-net.
- **Regulatory/IP:** Keep protected segments in base; move unapproved indications to option cases with dates; insert reps/warranties and conditions.

## 72-hour sprint plan (from blank page to a defendable view)

- **Day 0:** Lock segments; list 6–10 advantage claims; write WHTBT thresholds; mark killer variables.
- **Day 1:** Launch proof work: invoice pulls or proxies for price; cohort NRR cuts by integration; distributor and partner checks; cost/throughput snapshots; IP/regulatory document review.
- **Day 2:** Land first deltas (price, NRR, CAC/payback, margin); draft Advantage Cards; score V-R-I-O-E-D; outline competitor responses and early-warning indicators.
- **Day 3:** Publish the heatmap and model hooks; propose term-sheet levers for residual risk; align on post-close moat-widening plays.

## Compliance guardrails

Operate under clean-team rules for invoice-level, customer-level, or partner-specific analyses; share only aggregated, anonymized outputs beyond the ring-fence. Do not solicit or exchange forward-looking pricing or customer allocation intentions in primary research. Where advantage assessment relies on partner data, confirm permission and redaction.

## Acceptance criteria for a decision-grade assessment

- Advantage claims rewritten as WHTBT statements with numeric thresholds and owners.
- For each advantaged segment, quantified economic yield with sources and confidence.
- Durability assessed with explicit gates and an estimated time-to-copy; erosion clocks identified.
- Competitor responses and counters articulated with early-warning indicators.

- Scoring rubric completed; heatmap and ranked list produced.
- Model updated with advantage-driven deltas and ranges; residual risk reflected in price or terms.
- One-page Advantage Cards completed and filed in the data book; QA/verification sign-off obtained.

## Common failure modes—and the fix

- **Averages that hide the truth.** Always cut by segment, channel, and product tier; collapse only after differences prove immaterial.
- **List-price myths.** Reconstruct realized price with the full gross-to-net waterfall.
- **Slide-only moats.** If it's not in the P&L or funnel, it isn't an advantage—drop it or move it to upside.
- **Durability hand-waving.** Put a year count and a cost-to-copy on every claim; if you can't, confidence is low by definition.
- **Unowned dependencies.** When advantage relies on partners, licenses, or roadmap items, create explicit conditions and owners—or discount the value.

Run this template and you move from slogans to math. You will know where the target truly has an edge, how much that edge is worth, how long it will last, and what to do—now and post-close—to keep it.

## 7.4 Disruptor Threat Scenario Checklist

Disruption rarely arrives as a press release. It shows up first as odd signals—a platform bundling your category into a suite, a low-cost entrant siphoning price-sensitive buyers, a channel tightening take rates, an open-source project gaining enterprise wrappers, or a regulatory change that opens the door to new models. In diligence, your job is not to predict the future in poetry; it is to pressure-test a small set of concrete “what if” scenarios that could bend revenue, price, or retention within the hold period—and to price, structure, or plan for those outcomes. Use this checklist to get from hunch to decision-grade scenarios quickly.

**Start with archetypes, not names. Label the kinds of threats that recur across markets and map them to your segments:**

- Platform bundler compresses standalone price or take rate by packaging your job-to-be-done into a broader suite.
- Channel owner raises tolls or preferences its own SKU (marketplace, distributor, hyperscaler, app store).
- Low-cost attackers exploit scale manufacturing, offshore delivery, or asset-light operations to reset price.
- Open-source/DIY plus services caps willingness to pay and speeds multi-homing.
- AI-native workflow automates labor-intensive steps and redefines value capture.
- Regulatory unlock introduces new reimbursable codes, licenses, or interoperability that lowers switching costs.
- Vertical integrator (upstream supplier or downstream service provider) forward-integrates with privileged access.
- Category-killer UX (mobile-first, embedded, or fintech/wallet) changes the buying locus and CAC math.

Then design scenarios that could actually move your deal. Keep the footprint small—three to five disruptor scenarios, each with clear triggers, ranges, and model hooks.

## **Step-by-step: build decision-grade disruptor scenarios**

1. Fix the decision and time window  
Write the single decision these scenarios inform (price, structure, post-close priorities) and the hold-period years you care about. If a scenario cannot change price, terms, or priorities, drop or simplify it.
2. Choose disruptor archetypes by segment  
For each top-value segment, pick at most two plausible archetypes. State why they fit that segment (e.g., “Bundling risk is high in Enterprise because Platform X already owns adjacent workflows and is adding feature Y”).
3. Translate each archetype into a falsifiable thesis  
Write a “would-have-to-be-true” statement with a numeric threshold and timing. Examples:
  - “Platform bundle drives a 300–500 bps realized price compression in Mid-Market within 12–18 months.”
  - “Marketplace take rate increases by 200 bps and introduces paid placement, cutting margin and share-of-voice.”

- “AI-native tool reduces onboarding effort by 40% and halves switching costs in SMB within 12 months.”
4. Parameterize the attack model
- Define a small set of variables you will change in the model for this scenario, with starting ranges and sources:
- Price or take-rate delta (bps).
  - Share-of-growth captured by disruptors (% of category growth they win).
  - Time-to-10% share in target segment (quarters).
  - Switching-cost reduction (% steps removed, hours saved, recertification avoided).
  - CAC/payback impact (months), win-rate delta (points), channel delistings (% coverage loss).
  - NRR/GRR drag (points) from downgrades or churn after price moves.
5. Quantify adoption using a simple S-curve
- Use a three-point S-curve (slow start, rapid middle, taper) rather than a straight line. Set inflection by observing analogs (past category reshapes, adjacent markets, or pilot velocity). Express outputs as ranges; avoid false precision.
6. Build the counterfactual response
- For each scenario, define one realistic incumbent counter (bundle your own, KVI price holds with tail monetization, partner exclusives, migration tooling, value-based pricing). Estimate residual compression after the counter (e.g., price compression 500 bps → 250–300 bps net).
7. Tie scenarios to early-warning indicators and triggers
- Select 5–7 leading signals you can monitor monthly and the trigger levels that activate a response:
- Platform: roadmap announcements, pricing page changes, attach rates of adjacent modules, partner API policy shifts.
  - Channel: take-rate notices, paid placement prevalence, delistings, rebate accrual spikes.
  - Low-cost: distributor quotes, BOM/COGS deltas, freight indices, quality/return rates.
  - Open-source/DIY: GitHub stars/contributors, enterprise wrappers, SI package launches.
  - AI-native: benchmark lift vs. incumbents, workflow time studies, procurement pilots.
  - Regulatory: code approvals, guidance memos, credentialing lead times, payer policy bulletins.

8. Convert scenario math into model toggles within 24 hours  
Push price/take-rate deltas, share changes, CAC/payback, and retention effects into the driver-based model by segment and channel. Label confidence and add sensitivity sweeps. If the downside is material, reflect it in valuation ranges and term-sheet levers.
9. Propose structural protections and post-close plays  
For each high-impact scenario, list concrete levers:
  - Valuation/terms: earnouts tied to price realization or NRR, covenants on promo/take-rate intensity, MAE language around key platform policy changes, closing conditions on partner renewals.
  - Post-close: KVI list with guarded pricing, tail monetization roadmap, partner exclusives or MFN parity, migration tooling, certification blitz, cost-curve moves (capacity, sourcing), data rights hardening.
10. Write the one-page Disruptor Scenario Card and file it  
Make each scenario auditable and easy to debate.

## **Disruptor Scenario Card (copy and fill one per scenario)**

- Scenario name and segment scope.
- WHTBT statement with numeric threshold and timing.
- Archetype and mechanism (bundle, channel, cost, open-source, AI, regulation, vertical integration).
- Parameter ranges: price/take-rate delta, S-curve adoption path, share-of-growth capture, switching-cost change, CAC/payback impact, NRR/GRR drag.
- Evidence to date (2 sources minimum), analogs, and confidence (H/M/L).
- Early-warning indicators and exact triggers.
- Incumbent countermeasures and residual impact after counter.
- Model hooks (lines changed and by how much).
- Term-sheet levers and post-close plays.
- Owner and next check-in date.

## **Archetype library—how to test quickly**

- **Platform bundling**

Evidence: pricing page diffs, attach-rate trends, partner policy changes,

enterprise bundle discounts, API throttling.

Model: price compression, reduced attach for premium modules, win-rate drop in enterprise; potential CAC drop if distribution improves.

Counter: bundle your own, price fences, premium differentiation, platform co-sell agreements.

- **Channel power shift**

Evidence: take-rate notices, paid placement prevalence, delistings, co-op budget changes.

Model: gross-to-net compression, CAC inflation, share-of-voice loss; retention risk in channel-dependent segments.

Counter: diversify channels, negotiate volume tiers, direct-to-customer motion in targeted segments.

- **Low-cost entrant**

Evidence: distributor quotes, teardown/BOM, freight indices, warranty/return rates, yield.

Model: price compression in price-sensitive segments, margin squeeze; possible unit lift from elasticity.

Counter: KVI holds, tail monetization, service SLAs, cost-curve moves, tiered packs.

- **Open-source/DIY**

Evidence: repo activity, SI packages, cloud-hosted forks, enterprise wrappers, TCO cases.

Model: cap on realized price, higher multi-homing, increased churn hazard at renewal.

Counter: proprietary data/features, managed service with strong SLAs, migration tooling.

- **AI-native workflow**

Evidence: measured cycle-time reductions, accuracy lift, pilot velocity, budget line creation.

Model: labor savings shift value perception, price-to-value reset, faster onboarding (lower CAC/payback), feature parity pressure.

Counter: embed AI in core flows, price on outcomes, protect data rights, expand integration moat.

- **Regulatory unlock**

Evidence: code/approval timelines, payer policy drafts, licensure rules, interoperability standards.

Model: faster adoption (new SAM), or price caps and new competition.

Counter: pre-certify, shape policy comments, align with payers, time product hardening to approval.

## **Monitoring pack (put on the PMO wall)**

- Monthly: share-of-growth vs. named rivals; discount depth; channel take-rate/tier migration; delistings/listings; attach rates for adjacent modules; NRR drag from price mentions; pipeline mix at platform-owned accounts; app-store rank/review velocity; open-source repo stats; SI package announcements.
- Quarterly: platform/partner policy changes; regulatory milestones; BOM/COGS trend; freight indices; capacity adds by low-cost entrants; competitor hiring in channel and solutions architecture.

## **Quant defaults to speed modeling (edit to fit)**

- Price compression test bands: 150–300 bps (low), 300–500 bps (medium), 500–800 bps (high).
- Take-rate shock: +100–300 bps with 50–70% pass-through to net revenue depending on mix.
- Time-to-10% segment share for a credible platform bundler: 4–8 quarters post-launch in Mid-Market; 6–12 quarters in Enterprise.
- Switching-cost reduction from migration tooling: 20–50% step reduction; churn hazard up 3–6 pts at next renewal if paired with discounting.
- CAC/payback impact from channel squeeze: CAC +10–25%; payback +3–6 months.
- Share-of-growth capture by disruptor in rapid phase: 25–40% in targeted segment.

## **Compliance guardrails**

- Do not coordinate pricing, discounts, or customer allocation in any outreach; avoid forward-looking competitor intent questions.
- Keep invoice-level, customer-level, or partner-specific evidence within clean-team boundaries; share only aggregated, anonymized outputs outside the ring-fence.
- Respect platform and marketplace terms of service when monitoring pricing pages or ranks; avoid scraping behind log-ins.

## Common failure modes—and the fix

- Over-indexing on brand names rather than mechanisms. Fix: use archetypes; model the mechanism (bundle, take-rate, cost, switching).
- Single-point precision. Fix: present ranges with confidence and the triggers that would move them.
- No counterfactual. Fix: include one realistic incumbent counter and model residual impact.
- Untethered to segments. Fix: build scenarios only where dollars and access sit; drop the rest.
- Forgetting to wire to the model. Fix: specify exactly which lines move (realized price, take rate, share, CAC/payback, NRR/GRR) and by how much.

## Acceptance criteria for a decision-ready disruptor pack

- Three to five scenarios with WHTBT thresholds, parameter ranges, confidence, and early-warning indicators.
- Evidence for each scenario from at least two sources; analogs noted; clean-team rules observed.
- Model updated with toggles by segment and channel; base/downside adjusted where impact is material.
- Term-sheet levers and post-close plays listed per scenario with owners and dates.
- A one-page Disruptor Scenario Card filed for each scenario; PMO tracking indicators live.

## 72-hour sprint plan

- Day 0: Lock segments and pick 3–5 archetypes; write WHTBT statements and value at stake.
- Day 1: Gather evidence (pricing page diffs, partner notices, quotes, repo stats, policy drafts), set parameter bands; draft first two Scenario Cards.
- Day 2: Push toggles into the model; run base vs. disruptor comparisons; define early-warning indicators and triggers; add term-sheet options.
- Day 3: Publish the disruptor pack, including model excerpts, indicators dashboard, and owner list; brief sponsors and align on counters.

When you run this checklist with discipline, “disruption” stops being a vague risk and becomes a set of explicit, priced possibilities—with triggers to watch, counters to execute, and terms that protect value if the world moves faster than you hoped.

# Chapter 8. Product, Pricing, and Value Proposition

Great businesses don't win on claims; they win because the product solves a real job better than alternatives, the price captures a fair share of that value, and the story makes the purchase obvious to the buyer. In diligence, those three threads—product, price, and value proposition—must be tested as a system. Your task is to prove whether demand is repeatable without heroics, whether realized price reflects true willingness to pay, and whether the messaging and proof points convert skeptical buyers to acceptable economics. This chapter gives you fast, falsifiable methods to assess product-market fit (PMF), price power, and the clarity of the offer—by segment, not in aggregate—and to translate findings directly into valuation, terms, and post-close priorities.

## 8.1 Product-Market Fit Assessment Guide

Product-market fit isn't a slogan. It's observed, durable behavior: target customers repeatedly buy, use, and renew the product at prices that yield attractive unit economics—without bespoke work or excessive discounts. In diligence, you don't have months to run experiments, so you assemble a tight evidence case from retention curves, usage and activation data, win/loss and procurement interviews, realized price corridors, and external signals. You then judge PMF segment by segment and show how that judgment changes price, structure, or post-close plans.

### What “good” PMF looks like (in plain economics)

- **Retention is durable:** Cohorts stabilize at healthy gross revenue retention (GRR) and net revenue retention (NRR) by segment; logo retention corroborates the dollars. See 6.3 for formulas and QA.
- **Usage is habitual:** A meaningful share of customers reach the “aha moment” quickly and repeat the core action at a frequency consistent with the job-to-be-done.
- **Price is realized, not imagined:** Discount depth and rebate leakage are controlled; renewal increases land without elevated churn or downgrade.

- **Growth is efficient:** CAC and payback are inside base-rate ranges for the category and segment; win rates vs. named rivals are stable or improving at comparable price.
- **Minimal heroics:** Low custom work per deal, short time-to-value, reliable implementations; support burden is not masking product gaps.
- **Concentration is manageable:** Expansion isn't overly reliant on a handful of accounts or a single channel.

## An evidence ladder: from strongest to weakest signal

1. **Cohort GRR/NRR by segment and channel** (with a price-vs-quantity bridge).
2. **Transactional price realization** (waterfall from list to net, renewal uplift outcomes).
3. **Usage/engagement telemetry** tied to the value moment (activation, frequency, breadth).
4. **Win/loss vs. named competitors** (including price gaps that flipped outcomes).
5. **Sales motion efficiency** (conversion at each funnel stage, cycle time, payback).
6. **External traction** (sell-through panels, marketplace ranks, integration density, review velocity).
7. **Attitudinal signals** (NPS or “would be very disappointed” scores)—useful only when tied back to renewal and price acceptance.

Weight your case heavily toward 1–4. Treat 6–7 as corroboration, not proof.

## Step-by-step PMF assessment (built for a 2–4-week sprint)

### Step 1 — Fix the scope: segments, jobs, and “what would have to be true.”

Anchor on the segmentation rules from 6.1. Write one sentence per top segment: “In [Segment], customers with job [X] adopt within [Y] weeks, reach [aha action]  $\geq$  [Z]/period, renew at GRR  $\geq$  [A]% with net uplift  $\geq$  [B] bps, and tolerate price increases of [C] bps without churn hazard rising.” These become your PMF thresholds.

### Step 2 — Build the cohort spine.

Compute GRR/NRR and logo retention by cohort, segment, and channel (6.3). Plot survival and hazard. Produce a 4–8-quarter renewal waterfall showing ARR

at risk by segment and the drivers (product gap, price, competition, procurement). This is the backbone of PMF.

#### **Step 3 — Reconstruct realized price.**

For top segments, build a price waterfall (list → standard discounts → promos → rebates/chargebacks → returns → channel margins → vendor-realized). Tag renewal uplift outcomes and any churn/downgrade associated with increases. PMF with price power shows controlled discount depth and acceptance of moderate uplifts.

#### **Step 4 — Map activation and usage.**

Define the “aha moment” (the first action reliably linked to long-term retention) and measure: time-to-aha, activation rate, and frequency of the core action (e.g., weekly active users completing task X, jobs scheduled per device, API calls per active account). Segment these by role, customer size, and channel. Look for a clear usage step-up in retained cohorts.

#### **Step 5 — Run focused Voice-of-Customer.**

Interview current, churned, and lost-deal cohorts (6.2). Reconstruct the last evaluation/renewal, pricing pushback, and switching steps. Disconfirm with procurement and channel partners. Extract the three claims that most often win or lose deals in each segment.

#### **Step 6 — Analyze win/loss and funnel conversion.**

If accessible, cut CRM by segment and rival: stage-to-stage conversion, win rate at comparable price, POC/pilot conversion, cycle time. Where CRM is unavailable, triangulate with seller interviews and partner checks; keep confidence labels visible.

#### **Step 7 — Pull external traction signals.**

Use sell-through/scan panels (where applicable), marketplace ranks, integration directory counts, app-store reviews, and search/traffic trends. Treat these as directional—helpful for momentum, not for PMF proof.

#### **Step 8 — Quantify unit economics where PMF is claimed.**

Compute CAC and payback by segment and channel. Cross-check with contribution margins and renewal outcomes; efficient growth should appear where PMF is strongest.

**Step 9 — Synthesize a segment-level verdict.**

For each segment, conclude **PMF: Yes / Emerging / No**, with 2–3 bullets of evidence, confidence level, and implications for valuation and terms.

**Step 10 — Translate to the model and term sheet within 24 hours.**

Raise/lower GRR/NRR, realized price, conversion, and payback by segment; widen ranges where confidence is medium/low. Where PMF is “Emerging,” push growth into upside or structure earnouts around NRR or price realization. Where PMF is “No,” either exclude from base or require explicit post-close plays and gates.

**A copy-ready PMF Scorecard (fill once per segment)**

- **Retention:** Cumulative GRR  $\geq$  \_\_\_\_% by month \_\_\_\_; NRR range \_\_\_\_%; logo retention trend \_\_\_\_.
- **Price realization:** Average discount depth \_\_\_\_%; renewal uplift acceptance \_\_\_\_ bps; price-related churn hazard  $\Delta$  \_\_\_\_.
- **Usage & activation:** Time-to-aha \_\_\_\_ days; activation rate \_\_\_\_%; frequency of core action \_\_\_\_/period; breadth (# features or modules used) \_\_\_\_.
- **Sales efficiency:** Win rate vs. top rival \_\_\_\_% at price parity; sales cycle \_\_\_\_ days; POC→close %; **CAC \$**; payback \_\_\_\_ months.
- **Implementation & support:** Median time-to-value \_\_\_\_ days; services % of revenue \_\_\_\_%; tickets per account per month \_\_\_\_; on-time delivery/SLA \_\_\_\_.
- **External traction:** Integration count \_\_\_\_; partner tier/listings \_\_\_\_; marketplace rank/review velocity \_\_\_\_.
- **Concentration:** Top-10 accounts % of ARR \_\_\_\_%; channel dependency note \_\_\_\_.
- **Confidence:** High / Medium / Low (and why).
- **Implications:** Model changes (lines & deltas), term-sheet levers, post-close actions and owners.

Store each completed scorecard in the data book with footnotes and source links.

## Base-rate guardrails (edit by category; use as ranges, not absolutes)

These are directional ranges to frame debate—tighten with your evidence by segment.

- **B2B SaaS (Mid-Market):** GRR 88–94%; NRR 105–120%; payback 9–18 months; win rate vs. top rival 25–45% at comparable price; renewal uplift 150–300 bps without hazard spike.
- **Enterprise software:** GRR 90–96%; NRR 110–125% (expansion-led); payback 12–24 months; longer cycles offset by higher stickiness.
- **Usage-based models:** Focus on active-rate and intensity bands; NRR can exceed 120% in true PMF but is volatile—separate promo-driven spikes from durable usage.
- **Marketplaces (two-sided):** Buyer repeat rates and seller churn are the signal; GMV growth with stable take rate is stronger than GMV growth with take-rate compression.
- **Hardware + service:** The annuity tells the truth—device shipment spikes don't equal PMF; target consumables/services retention and attachment.

## Anti-patterns that masquerade as PMF

- **NRR looks strong but logo churn rises.** Concentrated expansion is hiding decay—split cohorts by segment and remove top accounts to see the base.
- **Price “power” that lives only at list.** Realized prices tell a different story once rebates, chargebacks, and channel margins are included.
- **Heavy bespoke work to land every deal.** Services dependency signals poor product fit and fragile margins.
- **Promo-dependent repeats.** Re-purchase collapses when incentives stop—treat as unsustainable.
- **Young cohorts underperform older ones.** Growth is seeding future churn—move those dollars to upside only.

## Outside-in proxies when data access is thin

If telemetry or ledgers are unavailable, combine two or more of the following and carry lower confidence:

- Renewal letters or pricing addenda + procurement interviews.
- Distributor sell-through + partner delist/list events.
- Integration directory counts + expert/implementer interviews on time-to-value.
- Review velocity (not just averages) + win/loss calls within the last 6–12 months.
- Search/traffic trends + marketplace rank history tied to releases.

## A 72-hour PMF sprint plan (from blank page to decision)

- **Day 0:** Freeze segments and PMF thresholds; publish the scorecard shell.
- **Day 1:** Land cohort GRR/NRR for 2–3 top segments; build the first renewal waterfall; start price waterfall reconstruction.
- **Day 2:** Run 8–12 VoC calls across current/churned/lost; tag activation/usage metrics; pull external traction signals.
- **Day 3:** Fill segment scorecards; issue PMF verdicts with confidence; update the model (GRR/NRR, price, conversion, payback); propose term-sheet levers and post-close actions.

## Hooks into valuation, terms, and the post-close plan

- **Valuation:** PMF raises confidence in revenue durability and price realization; encodes narrower ranges on GRR/NRR, realized price, and conversion.
- **Terms:** Where PMF is “Emerging,” use earnouts tied to NRR or price realization, covenants on promo intensity or take-rates, and conditions on key channel listings or licenses.
- **Post-close:** Concentrate resources on segments with proven PMF: product hardening where activation lags, migration tooling where switching costs block upsell, partner certifications where shelf access unlocks growth.

## Acceptance criteria for a decision-grade PMF assessment

- Segment-level scorecards completed with sources and confidence labels; no averages that hide truths.
- Cohort retention, price waterfall, and usage/activation cuts produced for top segments and verified (see 4.4 for QA).

- Win/loss and procurement perspectives captured; disconfirming evidence addressed.
- Model updated within 24 hours; explicit note of which lines moved and why.
- Residual uncertainty translated into price ranges, earnouts, covenants, or conditions.
- All claims footnoted; raw artifacts stored in the data book; clean-team rules followed for sensitive data.

When you run this play, “product-market fit” stops being a vibe and becomes a verdict you can defend. You’ll know where the product truly resonates, what price the market will bear, and how to spend the next dollar—on the deal and after it closes.

## 8.2 Pricing Architecture Analysis – Step-by-Step Guide

Pricing architecture analysis answers three practical questions: what customers actually pay (not list), why it varies, and where you can lift realized price without breaking demand or channels. The work is part forensic accounting, part product design. You will reconstruct the price waterfall to the vendor-**realized** and **pocket price**, map packaging and value metrics, expose discount and rebate habits, and translate findings into model inputs and a post-close pricing roadmap. Keep it segmented—by customer, product tier, channel, and geography—or averages will lie.

### Ground rules before you start

- Fix scope: define segments, time window (e.g., LTM), and the metric you will report (vendor-realized revenue per unit/seat/order; pocket price where available).
- Lock compliance: operate under clean-team rules for invoice-level data; avoid any pre-close price coordination topics with competitors; observe MAP/RPM and marketplace terms.
- Tie to decisions: set explicit “would-have-to-be-true” thresholds (e.g., “+150–300 bps realized price in Mid-Market without GRR falling below 92%”). If analysis won’t change price, terms, or the post-close plan, simplify.

## Step 1 — Assemble the pricing evidence pack

Collect artifacts that show list, discounts, rebates, fees, and channel economics. Prioritize originals over summaries.

- Price books and CPQ exports (quotes, approvals, discount ladders, exceptions).
- Executed contracts, order forms, SOWs, addenda, renewal letters, MFN/price-parity clauses.
- Invoices/credit memos; rebate and co-op agreements; chargeback files; returns.
- Channel agreements (reseller, distributor, marketplace) with take-rates, MDF, and tiering.
- Promotion calendars and funding sources.
- Packaging/feature matrices; SKU catalogs; bill of materials (hardware); service rate cards.
- For SaaS/usage: rate cards, meters (value metrics), tier thresholds, overage rules, minimum commits.
- For healthcare/regulated: reimbursement schedules, codes, fee schedules, price caps.
- For consumer/retail: scanner/POS panels, KVI lists, promo depth/length history.

## Step 2 — Map packaging and value metrics

Packaging drives willingness to pay and discounting behavior. Document the structure that customers actually buy.

- Tiers/modules/add-ons; what's gated at each tier.
- Value metric(s): per user, per device, per location, per GB/API call/order; concurrency rules; minimums; overage pricing.
- Bundles and options; attach rates and cannibalization.
- Term structure: monthly/annual/multi-year; prepay vs. pay-as-you-go; price-protection and indexation.
- Price fences: segment, usage, channel, geography; who qualifies and how it's enforced.
- Services: implementation, training, managed service—rate cards and typical scope.

**Quick test:** Could a junior rep classify a deal's tier and meter in 30 seconds? If not, packaging is likely creating leakage.

## Step 3 – Reconstruct the price waterfall to pocket price

Your aim is the money that lands with the vendor per unit—and what remains after incentives.

### Definitions

- **Vendor-realized (net revenue per unit):** List – on-invoice discounts – promos – rebates/chargebacks – returns/credits – channel margin/take rate ± shipping/handling (as contracted). Exclude taxes and duties.
- **Pocket price:** Vendor-realized – off-invoice incentives (co-op, MDF, spiffs) – payment terms/cash discounts – warranty/guarantee reserves – free goods/extended trials.
- **Pocket margin:** Pocket price – COGS – service cost-to-serve.

**Do this, segmented by product × customer × channel × geo**

- Compute median and interquartile **realized price corridors** (e.g., \$14–\$19 per seat/month in Segment B).
- Quantify leakage by source: average discount depth, promo mix, rebate accrual %, chargebacks %, returns %, channel margin %.
- Produce one simple exhibit per segment: List → Vendor-realized → Pocket price → Pocket margin.

## Step 4 – Build discount ladders and approval maps

From CPQ and contracts, recover how discounts actually happen.

- Standard ladders (volume bands, term length).
- Discretionary discounts (frequency, depth, and who approves).
- Deal-desk/DOA thresholds: how often were they exceeded; approval latency; variance by region or rep.
- Price floors and guardrails in practice vs. policy; rogue discount patterns (rep or region outliers).

**Output:** a one-pager per segment showing typical discount path and the 80th/95th percentile depths.

## Step 5 — Analyze promotions, rebates, and co-op (promo ROI)

Separate promotion from price. Promotions can build trials but also train customers.

- Identify promo types: temporary price reductions, buy-downs, bundles, free months, coupons, financing.
- Funding: vendor vs. channel; accrual %; true-up mechanics.
- Measure lift and decay: volume during promo, post-promo retention/repurchase, and net margin after all incentives.
- Flag **promo dependency** segments where baseline demand collapses without incentives.

## Step 6 — Resolve channel gross-to-net

Route-to-market often decides realized price more than list.

- Direct vs. reseller vs. distributor vs. marketplace vs. OEM/white-label.
- Take-rates/margins by route and tier; MDF/co-op; paid placement and lead fees.
- Channel conflict and price parity/MAP obligations; delist risk.
- Build a **channel bridge**: list → channel economics → vendor-realized.

## Step 7 — Tie pricing to retention and win rates

Price power is only real if dollars stay.

- Overlay price increases with cohort GRR/NRR (see 6.3); compute churn/downgrade hazard post-increase.
- Cut win/loss by price gap vs. named rivals; note thresholds that flip outcomes.
- Use the 6.4 elasticity method to separate true price sensitivity from promo/mix noise.

## Step 8 — Benchmark competitor price architecture (outside-in)

You need parity and differentiation points, not a catalog.

- Packaging and value metrics: where rivals gate features; bundle plays; unlimited claims with fine print.
- Public price pages, quotes, distributor lists, marketplace ASINs/SKUs (respect TOS; no scraping behind log-ins).
- Typical realized corridors from procurement/channel interviews.
- Anticipate responses: bundling, KVI holds, take-rate changes, migration tools.

## Step 9 — Quantify pricing headroom and hazards by segment

Synthesize findings into actionable ranges and risks.

- **Headroom:** difference between willingness-to-pay (VoC pricing tasks, competitor corridors, value proof) and current realized price.
- **Hazards:** MFNs, price-parity, channel MAP, promo dependency, usage spikes masked by promos, price caps (regulated), and indexation gaps.
- **Uplift corridors:** e.g., “Segment A +150–300 bps; Segment B 0–100 bps (KVI, price image sensitive).”
- **Time-to-realize:** map to renewal cycles, channel notice periods, and CPQ/policy changes.

## Step 10 — Push into the model (24-hour rule)

Update the driver-based model with:

- Realized price per segment/channel (base and range).
- Gross-to-net (channel margins, rebates, promo drag).
- Pocket price and pocket margin (if service costs matter).
- Price-led churn/downgrade hazard where observed.
- Scenario toggles: price uplift, promo reduction, take-rate change, indexation adoption.

## Step 11 — Quick wins vs. structural moves

### Quick wins (next 90 days)

- Enforce price floors and DOA; remove orphan discounts; standardize term/volume ladders.
- Introduce CPI/indexation on new/renewed multi-year contracts.

- Localize price points and rounding; fix obvious currency mis-parities.
- Clarify meters and tier thresholds in CPQ; stop giving away high-value add-ons.
- KVI list in consumer/retail: hold or limit increases on price image items; monetize the tail.

### **Structural moves (6–18 months)**

- Redesign packaging (Good-Better-Best, modular add-ons); align value metric to customer outcomes.
- Migrate from unlimited to usage-based or hybrid; add minimum commits.
- Re-platform channel terms; renegotiate take-rate tiers and MDF.
- Introduce outcome-based pricing where proof exists; phase pilots.
- Rationalize services pricing; productize implementation.

## **Step 12 — Industry patterns to handle explicitly**

- **SaaS/usage:** Meter selection is the strategy—pick a value metric customers won't game; define overage rules, minimums, and true-up cadence.
- **Marketplaces/platforms:** Revenue = GMV × take rate – incentives – returns/fraud; take-rate compression is the default unless countered by unique value.
- **Hardware + service:** Price equipment cycles separately; most value sits in annuity (consumables/services).
- **Healthcare:** Constrained to reimbursable codes; model payer mix; price increases follow coverage and policy, not desire.
- **CPG/retail:** Distinguish sell-in vs. sell-through; promo depth/length drives realized price; KVIs anchor elasticity.
- **Industrial distribution:** Rebates, ship-from-stock vs. direct, freight terms, and payment terms dominate pocket price.

## **Step 13 — Risks, controls, and compliance**

- Document MFNs, price-parity, MAP/RPM, and channel clauses; model their constraints.
- Keep invoice-level analyses within a clean-team; share only aggregated, anonymized outputs.

- For primary research, disclose purpose (unless counsel approves blind) and avoid eliciting MNPI or future pricing intentions from competitors/customers.

## **Step 14 — Acceptance criteria (what “done” means)**

- Verified **price waterfall** to vendor-realized and pocket price by segment and channel, with corridors and leakage quantified.
- Discount ladders and approval maps reconstructed; outliers identified with owner and fix.
- Promo/REB/MDF ROI assessed; channel gross-to-net bridge produced.
- Uplift corridors and hazards defined, with renewal/channel timing to realize.
- Model updated (base/range) and linked to retention and elasticity evidence.
- Term-sheet levers proposed where uncertainty remains (earnouts tied to price realization, covenants on promo/take-rate intensity, conditions on key channel renewals).
- All exhibits footnoted; raw artifacts stored in the data book; verifier sign-off logged.

## **Step 15 — Common failure modes (and how to avoid them)**

- Using **list price** anywhere near a conclusion → rebuild realized/pocket price; show the waterfall.
- Averaging across channels/regions → compute per route and geo; roll up with value weights.
- Treating promo as price → separate and measure decay; don’t call promo-led volume “price power.”
- Ignoring MFNs/price-parity → you can’t raise one segment if clauses drag others.
- Underestimating implementation effort → tie uplifts to renewal cadence and CPQ/policy changes.
- No QA → require a model-to-deck tie-out; replicate numbers from source registers before circulation.

## Copy-ready templates

### Pricing Architecture Canvas (one per segment)

- Offer & meter: tier(s), modules, value metric, thresholds, minimums.
- Realized price corridor: median and IQR; pocket price if available.
- Waterfall shares: discounts, promos, rebates/chargebacks, returns, channel margin, off-invoice incentives.
- Discount ladder & DOA: bands, typical exceptions, 80th/95th percentile.
- Channel economics: take-rate tiers, MDF/co-op, paid placement.
- Terms: indexation, MFN/price-parity, price caps, warranty/SLAs, payment terms.
- Headroom & hazards: uplift corridor, promo dependency, elasticity notes, regulatory constraints.
- Confidence & sources: H/M/L, key artifacts (invoices, CPQ extract, contracts).

### Quote Sampling Plan (run in parallel)

- Pull 50–100 recent quotes/invoices stratified by segment × channel × geo.
- For each: tier/meter, list components, discounts, rebates, promo, take-rate, add-ons, term, approval path, realized price, outcome (won/lost/renewed).
- Tag anomalies for deal-desk follow-up.

### 72-hour sprint plan

- **Day 0:** Lock segments and “would-have-to-be-true” thresholds; publish artifact requests; confirm clean-team.
- **Day 1:** Land first waterfalls for two segments; reconstruct ladders and DOA from CPQ; start channel bridge.
- **Day 2:** Overlay retention and win/loss; measure promo drag; draft uplift corridors; flag MFN/price-parity constraints.
- **Day 3:** Update model (price, gross-to-net, hazard); publish canvases and a quick-win/structural roadmap; align term-sheet levers.

Run this play and your pricing story will move from list-price myths to hard numbers: what you keep after incentives, where headroom exists, how fast you can take it, and which guardrails and terms keep value intact.

## 8.3 Unit Economics Template

Unit economics is the speedometer of a deal. It tells you, per customer or per transaction, how much value you keep after the real costs of winning, serving, and retaining that revenue. In diligence, you don't need a glossy model; you need a clean, segmented build you can defend: a precise definition of the "unit," the revenue you actually realize, the cost stack required to deliver it, and the cash and P&L payback once you've spent to acquire the customer. Do this by segment and route-to-market, wire it into your bottom-up sizing and retention work, and translate the result into constraints for valuation, terms, and post-close priorities.

Start with two principles. First, **define the unit to match how demand forms and how pricing works** (seat, device, order, GMV dollar, procedure, API call, visit). Second, **model vendor-realized and pocket price, not list**; your waterfall from 8.2 is the revenue truth. Everything else—contribution margin, CAC, LTV, and payback—hangs from those anchors.

### Step 1 — Fix the unit and the segmentation

Write the unit in one sentence and freeze it: "Per paying seat per month in Mid-Market manufacturing, sold direct in North America," or "Per order in marketplace grocery, seller-funded promos included, platform take rate net." Apply the same segmentation you locked in Chapter 6 (customer/job, size band, channel, region, product family). If economics differ, it's a different unit or a different segment.

### Step 2 — Build the revenue engine (per unit and per customer)

Reconstruct the **vendor-realized price** per unit using the price waterfall from 8.2 (list → discounts → promos → rebates/chargebacks → returns/credits → channel margin/take rate). Where relevant, also compute **pocket price** (vendor-realized minus off-invoice incentives, payment terms/cash discounts, MDF, and guarantees). For subscription and usage models, translate to **ARPU** by segment:  $ARPU = \text{active rate} \times \text{intensity} (\text{units per active}) \times \text{realized rate}$ . For marketplaces,  $\text{revenue} = \text{GMV} \times \text{take rate} - \text{incentives} - \text{returns/fraud}$ . Present corridors (median and interquartile range), not single points.

## Step 3 – Build the cost stack (the part that really moves)

Separate cost into layers and keep fixed costs out of unit economics unless they vary meaningfully with volume.

- **COGS / fulfillment:** materials, manufacturing/hosting, logistics, third-party data, payment processing, fraud losses, returns handling, warranties.
- **Service cost-to-serve:** support tickets, onboarding/implementation labor, success/CSM time, field service, cloud usage directly tied to a customer or unit.
- **Channel economics:** reseller or marketplace take rate, rebates, co-op/MDF, paid placement, lead fees.
- **Other variable drags:** bad debt/chargebacks, trial/POC spend that scales with new customers, service credits/SLAs.

Compute **CM1 (gross margin)** = vendor-realized revenue – COGS.

Compute **CM2 (contribution margin)** = CM1 – variable service cost-to-serve – variable channel/incentive costs.

You can add **CM3** by subtracting semi-variable GTM costs that scale with increments (e.g., implementation teams when tied to bookings), but do not blend in corporate overhead.

## Step 4 – Compute CAC the right way (and label it)

CAC is slippery; define it so the CFO and CRO would agree.

- **Blended CAC:** fully loaded sales + marketing + partner fees + commissions + SDRs + promo spend that is acquisition-linked, divided by new paying customers in period.
- **New-logo CAC vs. expansion CAC:** separate if expansion is material; otherwise you'll overstate efficiency.
- **Channel CAC:** for partners/marketplaces, include rev share, co-op/MDF, paid placement, and sales coverage for partner enablement.
- **Time alignment:** shift CAC by average sales cycle so spend lines up with revenue start; otherwise payback “improves” on paper.
- **Cash CAC vs. P&L CAC:** cash includes spiffs, prepayments, and working-capital effects; label which you’re using.

## Step 5 — LTV from cohorts, not from folklore

Lifetime value should fall out of your cohort and retention analysis (6.3), not a back-of-the-napkin “ARPU divided by churn.”

- **Cohort LTV (preferred):**

$LTV = \sum_t [(ARPU_t \times \text{gross margin \%}) \times \text{survival}_t \times \text{discount\_factor}_t] - \text{variable service cost}_t.$

Where  $\text{survival}_t$  comes from observed GRR/logo curves by segment;  $ARPU_t$  reflects price increases and mix; the discount factor reflects the cost of capital (use an annual rate and convert to period).

- **Constant-churn approximation (sanity check only):**

If monthly churn = c and no price growth,  $LTV \approx ARPU \times GM / c$ . Use only as a bound; it hides cohort shape, price changes, and expansion.

- **Usage-based nuance:** model **active rate, intensity, and collectability** separately; a spike in intensity can inflate LTV if cloud or service costs scale faster.

- **Marketplaces:** compute LTV on the side that drives your CAC (buyer or seller), include **GMV per period × take rate net of incentives × retention**, and watch return/fraud leakage.

Choose a horizon that matches reality (often 36–60 months for B2B; shorter for SMB/consumer), then show both **undiscounted** and **discounted LTV** with confidence labels.

## Step 6 — Payback: P&L and cash, both matter

- **P&L payback (months):** months until cumulative CM2 covers P&L CAC.

- **Cash payback (months):** months until cumulative cash inflows (after working capital) exceed cash CAC.

Working-capital levers: annual prepay (SaaS often has negative working capital), DSO and refund/chargeback timing (consumer), inventory and payables (CPG/hardware), and claims payment lag (healthcare). In downturns, cash payback is the tripwire that matters.

## Step 7 — The Unit Economics Canvas (copy and fill one per segment)

- **Unit & scope:** definition, channel, region, product family.

- **Realized price (corridor):** median and IQR; pocket price if available; sources.
- **COGS / fulfillment:** per unit and as % of realized price; drivers.
- **Service cost-to-serve:** per unit; key drivers (tickets, onboarding hours, cloud step-ups).
- **Channel economics:** take rate/rebates/MDF; gross-to-net bridge.
- **CM1 / CM2:** values and %; notes on variability with scale.
- **ARPU model:** active rate × intensity × realized rate; attach rates for add-ons.
- **CAC:** definition used (new/blended/channel); dollars and primary drivers.
- **LTV:** method (cohort vs. approximation), horizon, discount rate; range and confidence.
- **Payback:** P&L and cash months; renewal or purchase cadence assumptions.
- **Sensitivity levers:** price +/- bps, churn/NRR shift, CAC ±, channel take-rate ±, COGS step-change.
- **Risks & gates:** MFNs, MAP/price-parity, promo dependency, policy caps, partner renewals.
- **QA & sources:** verifier, links to data book, date of last refresh.

## Step 8 – Sensitivity and scenario discipline

Run a short **tornado** to identify the 2–3 variables that swing LTV/CAC and payback: realized price, GRR/NRR and survival shape, CAC per channel, and a single cost driver (cloud or service labor). Toggle those in base/downside/upside and tie each to an early-warning indicator (discount depth, rebate accruals, hazard after price increases, partner take-rate notices, cloud unit-cost changes). Resist the urge to add knobs you won’t monitor.

## Step 9 – Business-model modules (pick what fits your deal)

- **B2B SaaS / subscription**  
 Unit: paying seat/account per month or ARR dollar.  
 Revenue: ARPU = seats × realized rate; expansion from seats/modules; indexation on renewals.  
 Cost: hosting, support, success, payment processing; implementation labor if not billed.  
 CAC: sales/SDR/marketing + partner fees; align to cycle.

Watch: GRR/NRR by segment, price-led churn hazard, annual prepay (cash payback often immediate), multi-year terms and MFNs.

- **Usage-based software / APIs**

Unit: active account/month or metered unit (API call, GB).

Revenue: active rate  $\times$  intensity  $\times$  realized rate; tier thresholds and overage.

Cost: cloud/compute per unit, support per heavy user, third-party data.

Watch: intensity cliffs at tier thresholds, collectability, rate-plan downgrades.

- **Marketplaces / platforms**

Unit: buyer order or seller month; GMV dollar.

Revenue: GMV  $\times$  take rate – incentives – returns/fraud; two-sided CAC if you recruit supply and demand.

Cost: payment processing, support, trust & safety, chargebacks, paid placement.

Watch: take-rate compression, return/fraud drag, liquidity thresholds, multi-homing.

- **Hardware + service (annuity)**

Unit: device shipment and service month.

Revenue: device price (cyclical) + annuity (consumables/services) with attach and usage.

Cost: BOM, freight, warranty; field service; spare parts.

Watch: installed-base retention, annuity ARPU, replacement cycles; avoid projecting a shipment spike into LTV.

- **CPG / retail**

Unit: consumer unit or store-week.

Revenue: scanner sell-through  $\times$  price net of trade (promo, rebates, slotting).

Cost: COGS, freight, shrink, returns.

CAC: trade spend, shopper marketing, merchandising; account-level acquisition (new distribution) vs. consumer pull.

Watch: KPI price constraints, promo dependency, retailer margin asks, delist risk.

- **Services / implementation**

Unit: billable hour or fixed-fee project.

Revenue: rate  $\times$  utilization  $\times$  realization.

Cost: labor comp, bench, travel, subcontractors.

Watch: utilization discipline, scope creep, collection lag.

## Step 10 — QA and guardrails you should enforce

- **Numerator/denominator match:** the revenue you use for margins must be the vendor-**realized** for that unit and segment.
- **No list-price math:** always show the waterfall to realize and pocket price.
- **CAC alignment:** shift CAC by cycle length; separate new vs. expansion; include channel incentives.
- **Cohort-based LTV:** prefer observed survival curves; label discount rate and horizon.
- **Cash vs. P&L:** compute both paybacks; include working-capital effects (DSO/DPO/inventory or deferred revenue).
- **Verifier sign-off:** a second person can reproduce all numbers from the data book; every exhibit footnoted.

## Step 11 — Red flags (and immediate responses)

- **Strong NRR with rising logo churn:** expansion concentration is masking decay. Cut LTV by segment and compute “with/without top 10 accounts.”
- **Pocket margin thinness at scale:** cloud or service costs scaling with usage faster than price; add cost step-ups to sensitivities; push for price-to-value or architecture work post-close.
- **Promo dependency:** CM2 collapses without incentives; move price uplift to upside only and model higher CAC.
- **Channel leakage:** take-rate hikes or paid placement erode gross-to-net; tighten ranges; consider covenants on take-rate intensity.
- **MFNs/price-parity traps:** uplifts in one segment trigger give-backs elsewhere; reflected in headroom and term sheet.
- **Invoice-to-model mismatches:** freeze exhibits until waterfall and model re-tie.

## Step 12 — Translate to valuation, terms, and the post-close plan

- **Valuation ranges:** bind base/downside with CM2, LTV/CAC, and cash payback by segment; widen where evidence is thin.
- **Terms:** when uncertainty is material, use earnouts tied to NRR or realized price, covenants on promo/take-rate intensity, and conditions on key channel renewals or price-indexation adoption.

- **Post-close actions:** price floors/DOA enforcement, KVI strategy, packaging/meter fixes, channel renegotiations, onboarding automation, cloud unit-cost reductions, success coverage where hazard spikes.

## Step 13 – 72-hour sprint plan (from blank page to decision-grade)

- **Day 0:** Freeze unit definitions and segments; publish the Unit Economics Canvas shell; confirm clean-team scope for invoice-level data.
- **Day 1:** Land realized price corridors and pocket price for two top segments; build CM1/CM2; assemble CAC by channel with cycle alignment.
- **Day 2:** Compute LTV from cohort survival; add P&L and cash payback; run a first tornado on price, GRR/NRR, CAC, and a key cost driver.
- **Day 3:** Fill canvases for all material segments; update the model with base/range; issue red-flag notes and term-sheet levers; assign post-close owners for the top three unit-economics moves.

### Acceptance criteria (use this as your “done” check)

- Unit and segment definitions frozen; vendor-realized and pocket price corridors verified.
- CM1/CM2 computed with a visible waterfall and cost stack; sources footnoted.
- CAC definition explicit; new vs. expansion/channel CAC separated where material; cycle-aligned.
- LTV from cohorts with horizon and discount rate stated; constant-churn version used only as a check.
- P&L and cash payback calculated; working-capital assumptions documented.
- Sensitivity results identify the top 2–3 drivers; early-warning indicators tied to each.
- Model updated within 24 hours; valuation ranges and term-sheet protections adjusted; post-close actions listed with owners and dates.
- Verifier sign-off recorded; data book contains invoices/contracts extracts, cohort sheets, price waterfalls, CAC build, and replication notes.

Build unit economics this way and you'll replace generalities with operating truth: what a customer is worth, what it costs to win and keep them, and how fast the cash returns—by segment, by channel, with levers you can pull. That is the level of clarity that moves a deal from “story” to “price, terms, and plan.”

## 8.4 Differentiation Scorecard Checklist

Differentiation is not a tagline. It is the repeatable reason customers choose you at a healthy price—and stay. In diligence, you need a way to judge that reason quickly, segment by segment, with evidence that ties to unit economics. The Differentiation Scorecard does exactly that. It translates claims into testable criteria, requires proof, assigns weights that reflect what matters in each segment, and yields a single, auditable score you can compare against named rivals and wire into valuation, terms, and the post-close plan.

Begin with two anchors. First, differentiation is **segmented**: what wins in Enterprise compliance may not matter in SMB self-serve. Second, differentiation is **economic**: it should show up as realized price premium or discount resilience, higher win rates at parity price, faster payback, better NRR/GRR, or structurally lower cost-to-serve. If you cannot see it in the P&L or the funnel, treat it as marketing until proven otherwise.

### What the scorecard measures

Use four buckets that together explain whether an edge exists, pays, and lasts:

- **Customer Resonance (Does it matter to buyers?)**  
Outcome superiority on the job-to-be-done, time-to-value, reliability, ease of use, integration depth, and proof that buyers care (win/loss reasons, VoC).
- **Economic Yield (Does it show up in numbers?)**  
Realized price premium or discount resilience at equal service, win-rate advantage at parity price, CAC/payback edge, contribution margin advantages tied to the edge, NRR/GRR lift.
- **Durability (Will it hold?)**  
Switching costs, data and network effects, IP/regulatory gates, channel exclusivity, learning-curve or cost-curve position, time-to-copy for rivals.

- **Operational Readiness (Can the company exploit it?)**

Coverage and enablement in the sales motion, partner mindshare, delivery capacity, release velocity, and the incentive systems that protect realized price.

### **Scoring scale (0–5 per criterion; calibrate once, then lock)**

- **0 – Parity or myth:** No observable advantage; claim not evidenced.
- **1 – Weak:** Minor preference in anecdote; no economic signal.
- **2 – Emerging:** Early signals in a sub-segment; thin or inconsistent economics.
- **3 – Meaningful:** Clear segment-level buyer preference and some economic yield.
- **4 – Strong:** Repeatable yield (price/win/NRR) with early durability proof.
- **5 – Category-leading:** Durable edge evidenced across multiple segments, with rivals disincentivized or unable to copy within the hold period.

### **Recommended default weights (adjust to segment realities; document changes)**

- Enterprise, regulated segments: Customer Resonance 25%, Economic Yield 30%, Durability 30%, Operational Readiness 15%.
- Mid-market B2B: 30%, 35%, 20%, 15%.
- SMB/self-serve or consumer: 35%, 30%, 15%, 20%.
- Marketplaces/platforms: 25%, 30%, 30% (durability heavier for network effects), 15%.

### **Step-by-step: build and use the scorecard in a diligence sprint**

1. **Fix scope and segments.**

List the two to five segments that move value (from 6.1). For each, write a one-line WHTBT statement: “In Mid-Market Manufacturing, the product’s workflow integration reduces cycle time by ≥25% and supports a 200–300 bps price uplift with no GRR deterioration.”

2. **Inventory differentiation claims and rewrite them as tests.**

Convert slogans into evidence-seeking prompts: “Price premium at equal SLA,” “NRR +5–10 points tied to feature X,” “Implementation hours 30–50% lower than peer,” “Distributor margin 200 bps better due to throughput.”

3. **Define criteria within the four buckets (keep it tight).**
  - Customer Resonance: outcome superiority, time-to-value, ease/integration.
  - Economic Yield: realized price premium/discount resilience, win-rate lift, CAC/payback, NRR/GRR.
  - Durability: switching costs, data/network effects, IP/regulatory, cost curve, channel exclusivity, time-to-copy.
  - Operational Readiness: sales coverage/enablement, partner shelf control, delivery capacity and SLAs, release velocity, pricing governance.
4. **Set weights and lock them by segment.**

Adjust the default weights to reflect buying physics. For instance, in the public sector, raise Durability (contracts, approvals) and Operational Readiness (contract vehicles).
5. **Define the proof required for each criterion (minimum two sources).**

Examples: invoices/contracts + procurement interview for price; cohort GRR/NRR + VoC for retention; CPQ/approval logs for discount governance; distributor sell-through + partner terms for channel; usage telemetry + implementation time studies for time-to-value; patent/approval documents for IP/regulatory; cost stack for cost curve.
6. **Score with anchors, not vibes.**

Use the 0–5 scale with written anchors per criterion. Example for “Realized price premium at equal service”:

  - 0–1: none; heavy discounting.
  - 2: corridor overlap; sporadic uplifts.
  - 3: 1–3% uplift sustained in a segment without churn hazard.
  - 4: 3–6% uplift sustained across two segments.
  - 5: >6% uplift plus MFN/parity managed; rivals disincentivized to match (bundle cannibalization or channel conflict).
7. **Calibrate against a named rival.**

Score the target and two top competitors on the same card using the same evidence rules. This prevents grade inflation and surfaces where the edge is relative, not absolute.
8. **Compute the Weighted Differentiation Score (WDS).**

$\text{WDS}_{\text{segment}} = \sum (\text{Criterion Score} \times \text{Criterion Weight})$ . Show the math and the confidence label (High/Medium/Low) tied to evidence quality.
9. **Tie the WDS to economic outcomes.**

Plot WDS against realized price corridor, win rate at parity price, GRR/NRR, and CM2 by segment. If high WDS doesn't correlate with yield, revisit assumptions—either the edge is unexploited (Operational Readiness gap) or it isn't real.

**10. Stress-test durability with response scenarios.**

For each top segment, test one rival response (bundling, take-rate change, migration tooling, price aggression). Re-score Durability and Operational Readiness with the counter in place; adjust confidence and ranges in the model.

**11. Push results into the model and term sheet within 24 hours.**

Raise/lower realized price, win-rate, CAC/payback, and GRR/NRR by segment in line with the scorecard. Where confidence is medium/low, reflect residual risk in valuation ranges and structure (earnouts tied to price realization or NRR; covenants on promo/take-rate intensity; conditions on key certifications, licenses, or partner renewals).

**12. Publish the scorecards and assign owners for gaps.**

Every gap with economic materiality gets an owner and a 90-day post-close action: harden integration X, enforce discount guardrails, secure partner tier, ship migration tooling, lock data rights.

## **Copy-ready Differentiation Scorecard (one per segment; fill and file)**

- **Segment and scope:** product family, customer/job, size band, channel, region.
- **Customer Resonance (weight \_\_%):**  
Outcome superiority (0–5; evidence); time-to-value (0–5; evidence); integration/workflow fit (0–5; evidence); operational reliability/SLA (0–5; evidence).
- **Economic Yield (weight \_\_%):**  
Realized price premium or discount resilience (0–5; evidence); win-rate at parity price (0–5; evidence); CAC/payback vs. peers (0–5; evidence); NRR/GRR delta (0–5; evidence); CM2 edge (0–5; evidence).
- **Durability (weight \_\_%):**  
Switching costs (0–5; evidence); data/network effects (0–5; evidence); IP/regulatory/approvals (0–5; evidence); cost-curve/learning (0–5; evidence); channel exclusivity/shelf control (0–5; evidence); time-to-copy estimate (0–5; rationale).
- **Operational Readiness (weight \_\_%):**  
Sales coverage & enablement (0–5); partner mindshare & certifications (0–5); delivery capacity/SLAs (0–5); release velocity & quality (0–5); pricing governance (0–5).
- **WDS and confidence:** calculated score, H/M/L with rationale.
- **Correlation to economics:** observed links to price, win, NRR, CM2.

- **Top 3 erosion risks & clocks:** what, why, estimated time-to-impact.
- **Countermeasures & owners:** post-close plan items with dates.
- **Sources & QA:** footnotes to invoices/CPQ/VoC/panels; verifier sign-off.

## Using the scorecard to drive pricing, roadmap, and GTM

- **Pricing:** Where WDS is high and Economic Yield anchors are substantiated, move realized price corridors up or reduce discount ladders; add CPI/indexation at renewal; protect KVs in price-image-sensitive channels; tie earnouts to realized price where confidence is medium.
- **Roadmap:** Fund features that reinforce the edge (e.g., deeper integration that raises switching costs) and kill parity chases that don't move economics in the scored segments.
- **GTM:** Point coverage and partners at advantaged segments; harden enablement and objection handling around the verified edge; negotiate channel tiers/exclusives where shelf drives gross-to-net.

## Parity-creep monitor (make it a habit)

- Watch competitor release notes and pricing page diffs, integration directory counts, partner tier changes, and discount depth trends by segment.
- Track time-to-parity for features that previously scored 4–5; if it compresses, shift emphasis to edges with longer clocks (data rights, workflow lock-in, cost curve).
- Add a quarterly “moat audit” in the PMO: re-score Durability on the top two edges per segment; update early-warning indicators (delistings, take-rate notices, migration tool launches, price-led win/loss swings).

## Quality controls that keep scores honest

- Two-source rule for each criterion; prioritize evidence close to cash (invoices, renewals, sell-through) over opinions.
- Same segmentation and period across all comparisons; numerator/denominator alignment for price and share.
- Independent verifier reproduces WDS and ties it to cited sources before any exhibit goes external.

- Red-team session to challenge causality: could discounting, promo, or channel explain the “edge”?
- Confidence labels visible on the card and in the deck; ranges widened where evidence is thin.

## Common failure modes—and quick fixes

- **Feature checklists masquerading as differentiation.** Fix: reframe around outcomes and economics; drop items that don’t move price, win, payback, or NRR.
- **Averages that hide truths.** Fix: score by micro-segment and route-to-market; roll up with value weights only after differences prove immaterial.
- **List-price mythology.** Fix: rebuild realized price and discount ladders; treat promos separately.
- **Over-weighting non-durable edges.** Fix: add time-to-copy and rival incentives; discount scores where copy is cheap or cannibalization is low.
- **Unexploited advantages.** Fix: if Operational Readiness scores lag, push post-close actions (enablement, pricing governance, partner upgrades) before paying for upside.

## 72-hour sprint plan (from blank page to a defendable score)

- Day 0:** Lock segments, weights, and WHTBT statements; publish the empty scorecard and evidence checklist.
- Day 1:** Land price waterfalls and win/loss/VoC for two top segments; start cohort GRR/NRR and CM2 cuts; draft first two cards with evidence links.
- Day 2:** Add durability proofs (integrations, data rights, IP/regulatory, channel tiers), and operational coverage/capacity; calibrate against two named rivals.
- Day 3:** Compute WDS, correlate it to economics, push into the model (price, win, NRR, CAC/payback), and propose term-sheet levers and post-close owners for gaps.

## Acceptance criteria for a decision-grade scorecard

- Segment-level cards completed for the top value pools; weights documented; scoring anchors written.
- Each criterion supported by at least two sources, with verifier sign-off; confidence labels present.
- WDS correlated to economic outcomes; where correlation is weak, causes identified and actions proposed.
- Model updated within 24 hours; residual risk reflected in valuation and structure.
- Early-warning indicators and parity-creep monitors defined; owners and check-in cadence set.

Run this checklist and the conversation shifts from claims to proof. You will know where the target is different in ways buyers pay for, how long that difference will last, and what to do—now and after close—to widen the gap.

## Chapter 9. Go-to-Market and Sales Effectiveness

A growth case stands or falls on whether the commercial engine creates qualified demand, converts it predictably, and does so at attractive unit economics. In diligence, you do not need a perfect CRM or a glossy enablement plan; you need evidence that the revenue machine works by segment and route-to-market, that capacity and coverage support the plan, and that forecast risk is understood and priced. This chapter provides a practical toolkit to interrogate the funnel, sales capacity, channels, and forecast hygiene. The outputs plug straight into your model: conversion rates by stage, cycle times, win rates against named competitors, required pipeline coverage, ramp assumptions, and discount impacts on realized price and retention.

Start from first principles. Define the buying journey your customers actually follow; map that journey to the target's funnel stages; and measure where volume, value, or time is lost. Keep the analysis segmented (customer size, vertical, product family, channel, geography), because averages hide truths. Then connect funnel math to unit economics (pricing, discount leakage, CAC/payback) and to capacity (ramped reps, territory coverage, partner mindshare). The aim is not to produce a museum-quality dashboard; it is to arrive at a short list of constraints to fix, levers to pull, and model inputs you can defend.

### 9.1 Sales Funnel Diagnostics – Step-by-Step Guide

Sales funnel diagnostics reveal whether growth is a capacity problem (not enough qualified pipe), a conversion problem (too much friction or weak differentiation), a velocity problem (deals age out), or a mix problem (wrong segments/channels). Follow this sequence. It assumes a two- to four-week diligence sprint with clean-team access to CRM and marketing systems; where access is limited, use the outside-in substitutions noted.

#### 1) Lock vocabulary, scope, and the “unit” of analysis

Before touching data, write and circulate a one-page glossary. Fix:

- What counts as **lead, MQL, SQL, opportunity, stage names, closed-won, closed-lost, expansion, renewal**.
- The **time window** (e.g., last 6–8 quarters) and **periodicity** (monthly/quarterly).
- The **unit** to analyze (opportunity, account, order) and **denominator** for conversion (e.g., stage advances ÷ records that entered the prior stage, not “records currently sitting in stage”).
- **Bookings vs. revenue** conventions, especially if hardware/services or channel pass-throughs exist.
- The **segmentation** from Chapter 6 (customer/job, size band, channel, region, product family). Freeze it for all cuts.

This step prevents definition drift—the fastest way to break credibility under time pressure.

## 2) Request the right data once (and only once)

Ask for raw, not just dashboards. Minimum viable export:

- **Opportunities/ops:** ID, account, product/SKU or family, segment tags, source (inbound/outbound/partner/product-led), created date, every **stage change** (from, to, timestamp), owner, amount, currency, probability at each stage, expected close date, actual close date, status (won/lost/open), loss reason, primary competitor, discount at close or list vs. net (if captured).
- **Leads/contacts:** ID, source, created date, MQL/SQL dates, campaign, account match, persona/role, time-to-first-touch, touches.
- **Activities:** emails/calls/meetings count by opp stage and by week; SLA metrics (time-to-first-touch, follow-up cadence).
- **Forecast snapshots:** weekly/biweekly commit/upside/best case by rep and region for the last 4–8 quarters.
- **Channel/partner:** sourced and influenced opps, partner type, tier, take rate, delist/list events.
- **Pricing/discount:** CPQ/quotes or deal-desk extract with list components, discounts, approvals.
- **Marketing automation/web:** sessions, sign-ups, form fills, PQL/MQL, campaign tags (to connect spend to pipe).
- **Rep roster & quotas:** ramp start dates, on-target earnings (OTE), quota, territory/segment, attainment, active coverage.

If CRM access is thin, substitute with: pipeline review packs, partner portal reports, distributor line cards, win/loss notes, and invoices to reconstruct realized ASP and discount.

### 3) Rebuild the canonical stage map and baseline math

Do not trust stage probabilities until they are calibrated. Compute from raw histories:

- **Stage-to-stage conversion:** % of opps that entered a stage and progressed to the next within the analysis window.
- **Win rate:** won ÷ (won + lost) for opps that **reached a stable decision stage** (avoid counting early disqualification as “loss” unless that is your standard).
- **Cycle time:** median **time in stage** and **time from create to close**, with the 25th/75th percentiles; averages hide skew.
- **Pipeline coverage:** pipeline value for period ÷ bookings target (by segment/channel).
- **Sales velocity** (sanity check): number of opps × win rate × ASP ÷ cycle length.
- **Forecast accuracy:** within-quarter MAPE and **slip rate** (share of commits that push out of the period).

Produce these for the whole funnel and for each segment/channel. This is your baseline.

### 4) Run hygiene and reality checks before interpreting results

A few simple screens save days of rework:

- **Stage definition drift:** did names or entry criteria change mid-period? Reconcile or split the window.
- **Duplicate or zombie opps:** multiple opps for one deal; opps with >2× median age; opps with no activity for >30/60 days.
- **Probability calibration:** compare stated probabilities to observed conversion by stage; many CRMs overstate likelihood.
- **Date games:** repeated close-date pushes; quarter-end creates; sandbagging (late-entered wins with minimal stage history).
- **Amount inflation:** amounts that drop ≥25% at late stages signal forecasting and governance issues.

- **Channel leakage:** partner-sourced opps mis-tagged as direct; reconcile with partner portal where possible.

Quarantine dirty records or recut metrics with and without them; disclose the treatment.

## 5) Build a cohort view—opps created in the same month/quarter

Cohorts let you see whether the engine is improving or decaying:

- For each **created month**, plot cumulative progression (to Stage 2, Stage 3, Close) and cycle times.
- Compare cohorts across segments/channels to spot deterioration (e.g., outbound Mid-Market cohorts stalling at evaluation).
- Overlay major events: pricing changes, channel policy shifts, product releases, territory reassessments.

Cohorts prevent the “pipeline is big, therefore we’re fine” fallacy.

## 6) Cut by the four lenses that usually move value

Not all funnels are created equal. Always cut by:

- **Route-to-market:** direct vs. reseller vs. marketplace vs. OEM. Expect different conversion, ASP, cycle, and discount patterns.
- **Deal archetype:** new logo vs. expansion/upsell/renewal; single-product vs. multi-module.
- **Customer size/vertical/geo:** enterprise vs. mid-market vs. SMB; regulated vs. unregulated; region-specific procurement.
- **Competitor at final round:** win rate and discount needed vs. named rival.

These cuts reveal where the right-to-win is real and where the plan is heroic.

## 7) Diagnose where the bottleneck lives—coverage, conversion, velocity, or mix

Use a simple decision tree:

- **Coverage problem:** pipeline coverage < 2x (SMB/transactional) or < 3x (enterprise/long cycle) and top-of-funnel (MQL→SQL or SQL→Opp) is weak. Remedy is to demand gen/partner listings, not price.
- **Conversion problem:** healthy coverage but low win rate at late stages; pair with win/loss and pricing analysis—often a differentiation or pricing governance issue.
- **Velocity problem:** median **time on stage** or **create-to-close** much higher than peers; look for procurement gates, security/compliance reviews, contract redlines, or overloaded implementation teams.
- **Mix problem:** pipe skewed to low-ASP or low-fit segments; even perfect execution won't hit the revenue plan—reset targeting.

Back every diagnosis with 2–3 quantitative exhibits and one qualitative proof point.

## 8) Overlay price and discount behavior on the funnel

Price often explains stalled deals or expensive wins:

- Plot **discount depth by stage** and its relationship with win rate and cycle time. Deep late-stage discounting that does not improve win rate is margin leakage.
- Compare **ASP vs. competitor** in won and lost deals; identify the price gap at which outcomes flipped (from VoC and quotes).
- For subscription, check **price-led churn hazard** in cohorts exposed to increases (Chapter 6.4). If hazard rises, curb aggressive uplift assumptions.

Translate findings into realized price corridors by segment and guardrails for the deal desk.

## 9) Add the capacity lens—can the org carry the plan?

A good funnel cannot overcome thin coverage or slow ramp:

- **Ramped reps:** count fully ramped AEs vs. plan; compute bookings per ramped AE and attainment distribution (watch the 80/20).
- **Ramp curve:** months to 50% and 100% productivity by segment; tie to hiring pipeline.
- **Manager span:** too wide often correlates with low coaching and poor forecast hygiene.
- **BDR/SDR throughput:** meetings set, accept rate, show rate, SQL creation by source.
- **Partner capacity:** active partners producing pipe, by tier; mindshare signals (co-op usage, certifications).
- **Coverage heatmap:** territories/segments with uncovered accounts or partner gaps.

Push these into model capacity constraints (headcount, ramp timing, partner activation).

## 10) Respect product-led and consumer variants of the funnel

Not every engine is sales-led:

- **PLG/usage-led:** traffic → sign-up → **activation/aha** → weekly active → PQL → sales-assist → paid → expansion. Track active rate, time-to-aha, and conversion of PQLs to opportunities.
- **E-commerce/consumer:** sessions → product views → add-to-cart → checkout → purchase; track CVR, AOV, cart abandonment, and channel ROAS.
- **Channel-heavy models:** partner registration → joint discovery → quote → sell-through; measure partner source vs. influence, pipeline velocity through partner steps, and delist risk.

Use the variant that matches how demand actually forms.

## 11) Tie findings to the model and to forecast risk within 24 hours

For each material segment/channel, update:

- **Stage conversion rates** and **cycle times** (base and downside).
- **Win rates vs. named competitors** and **realized ASP** (corridors).
- **Pipeline coverage** required to hit the plan and the capacity to generate it (reps, partners).
- **Price/discount guardrails** and the expected impact on win rate and margin.
- **Forecast accuracy/slippage** and its translation into scenario ranges.

If evidence is thin, widen ranges and lower confidence; never round directional signals into point precision.

## 12) Early-warning indicators to monitor monthly post-close

Pick a short list that predicts slippage:

- Coverage: pipeline/target by segment; partner listings and delistings; inbound vs. outbound ratio.
- Conversion: stage-by-stage conversion and win rate; loss reasons; competitor frequency.
- Velocity: time in stage vs. threshold; close-date push count; backlog at security/procurement/legal.
- Price & margin: discount depth distribution; promo reliance; realized ASP vs. corridor.
- Capacity: ramped reps vs. plan; attainment distribution; BDR throughput; partner-sourced pipe.

Wire this into the operating rhythm; act before quarter-end scramble.

### Funnel Diagnostics Checklist (copy, fill, enforce)

- Glossary and scope frozen; segmentation applied consistently.
- Full CRM export landed (opps, leads, activities, stage histories, forecast snapshots); channel and pricing data included.
- Baseline math built: stage conversions, win rate, cycle times (p25/median/p75), coverage, velocity, forecast accuracy.

- Hygiene filters applied; dirty records quarantined; probability calibration performed.
- Cohort view built; events overlaid; trends called.
- Segment/channel/competitor cuts produced; bottlenecks classified (coverage, conversion, velocity, mix).
- Pricing/discount overlay run; realized ASP corridors and guardrails defined.
- Capacity analysis completed: ramp, productivity, coverage, partner capacity.
- PLG/consumer/channel variants considered where relevant.
- Model updated (conversion, cycle, win rate, ASP, coverage/capacity) with ranges and confidence.
- Early-warning indicators defined; operating cadence agreed.
- Verifier sign-off logged; clean-team rules observed; exhibits footnoted.

## Key formulas you will actually use

- Stage Conversion ( $s \rightarrow s+1$ ) = # progressed from  $s$  to  $s+1$  ÷ # that **entered**  $s$ .
- Win Rate = # won ÷ (# won + # lost) for opps reaching the decision stage.
- Median Cycle = median(close date - create date); also median **time in stage**.
- Pipeline Coverage = Pipeline for period ÷ Bookings target (segment/channel).
- Sales Velocity  $\approx$  # opps × Win Rate × ASP ÷ Cycle length (use for direction only).
- Forecast MAPE = mean(|Forecast - Actual| ÷ Actual) within the period.
- Slip Rate = value in commit that moved to next period ÷ commit value.

## Outside-in substitutions when data access is limited

- **Pipeline:** partner and distributor line cards, marketplace ranks, channel listings; web traffic and demo requests as proxies for top-of-funnel.
- **Conversion/win:** structured win/loss calls with customers and partners; competitive quote comparisons.
- **Cycle:** procurement and legal interviews on approval gates and typical timing by segment.
- **Price/discount:** invoice samples; distributor quotes; procurement recalls; marketplace price histories.

- **Capacity:** rep roster, hiring postings, partner certifications and co-op usage.

## 72-hour sprint plan (from blank page to decision-grade)

- **Day 0:** Publish glossary and segmentation; issue data request; confirm clean-team scope.
- **Day 1:** Land raw exports; build baseline stage conversions, win rate, cycle times; run hygiene checks; draft cohort view.
- **Day 2:** Cut by segment/channel/competitor; overlay pricing/discount; assess capacity and coverage; calibrate probabilities; compute forecast accuracy/slip.
- **Day 3:** Synthesize bottlenecks and levers; update model with base/downside ranges; propose term-sheet protections (e.g., earnouts tied to price realization or NRR, covenants on promo/take-rate intensity); set early-warning indicators and owners.

## Acceptance criteria for a decision-grade funnel diagnostic

- Stage conversions, win rates, cycle times, and pipeline coverage produced by segment and channel; hygiene issues disclosed and controlled.
- Price/discount and competitor overlays complete; realized ASP corridors set.
- Capacity and coverage quantified; ramp and productivity linked to plan.
- Forecast accuracy and slip quantified with history.
- Model inputs updated with ranges and confidence; residual risk translated into valuation or terms.
- All exhibits footnoted; verifier replication complete; clean-team and privacy rules observed.

Run this play with discipline and your funnel analysis will do what diligence needs most: separate story from system, pinpoint the few constraints that actually govern growth, and convert those findings into numbers you can price, structure, and manage.

## 9.2 Channel Mix Evaluation Template

Channel mix is your route-to-market in numbers: who originates and closes demand, what they keep, what you keep, and how reliably the machine scales by segment and geography. A good evaluation replaces generic “partner strength” claims with a quantified view of gross-to-net, CAC, payback, and LTV by channel—plus the operational gates and policy risks that can compress margin overnight. Use this template to get a decision-grade answer in days, not weeks, and to push the findings directly into your model and post-close plan.

### What “good” looks like

You will end with (1) a segmented channel P&L (vendor-realized and pocket price), (2) conversion and cycle time by route-to-market, (3) partner productivity and coverage heatmaps, (4) a mix-shift bridge to revenue and CM2, (5) risk scenarios (take-rate hikes, delistings, policy changes), and (6) a 90-day playbook to re-weight the mix.

### Channels to evaluate (keep labels plain and mutually exclusive)

Direct (field/inside), Self-serve/PLG, Reseller/VAR, Distributors/Wholesalers, Marketplaces/App stores, OEM/White-label, System Integrators/MSPs, Referrals/Affiliates, Retail/e-commerce (1P/3P).

### Step-by-step evaluation (fast path for diligence)

#### 1) Freeze definitions, scope, and segmentation

Write one sentence per route: “Reseller/VAR in North America, Mid-Market manufacturing, multi-module deals, LTM.” Lock your segmentation from Chapter 6 (customer/job, size band, geo, channel, product family). Decide whether you will report in **vendor-realized** or **pocket price** (8.2) and in nominal or constant currency.

#### 2) Assemble the channel evidence pack

Request once; analyze many times.

- Contracts and program guides: take-rates, rebate ladders, co-op/MDF accruals, paid placement/search, price-parity/MAP, deal-registration rules, tier requirements, termination, and audit clauses.
- Partner portal and marketplace exports: sourced/influenced pipeline, listings/delisting, category rank, seller tiers, certification counts, joint pipeline, and close rates.
- Distributor/POS sell-through: by SKU and region; returns/chargebacks; inventory and buy-backs.
- CRM + CPQ: opp source, registration dates, stage histories, win/loss by partner and competitor, discount/approval trails, ASP vs. list.
- Marketing systems: spend, UTMs, MQL→SQL→opp conversion; for paid media—channel, campaign, ROAS, and any holdout tests.
- Finance: rebate accruals, MDF utilization, co-op true-ups, DSO/DPO by route, warranty/returns.
- For OEM/white-label: revenue recognition mechanics, branding constraints, and exclusivity.

### **3) Rebuild channel gross-to-net and pocket margin**

For each route, compute the waterfall:

List → standard discounts → promos → rebates/chargebacks → returns → **channel margin/take-rate** → off-invoice incentives (MDF, co-op, paid placement) → **vendor-realized** → **pocket price** → COGS/service cost → **CM1/CM2**.

Report **corridors** (median, interquartile) by segment—not single points. Tie to 8.2.

### **4) Connect channel to funnel performance**

Cut the core funnel metrics (9.1) by route:

- Stage-to-stage conversion, win rate vs. named rivals, cycle times (p25/median/p75).
- ASP and discount depth distribution; price governance exceptions by channel.
- Pipeline coverage and velocity by route (Sales Velocity  $\approx$  # opps  $\times$  win rate  $\times$  ASP  $\div$  cycle).
- Forecast accuracy/slip rate by channel owner.

### **5) Build acquisition economics and payback by route**

Define CAC consistently.

- **Direct CAC:** sales + marketing + SDRs + deal-desk + promos used to acquire the customer (cycle-aligned).
- **Partner CAC:** channel manager FTEs, partner incentives (MDF, SPIFFs), partner enablement/training, paid placement/search on marketplaces; include rev share if used to acquire.
- **Paid media CAC:** use incrementality (holdouts/switchbacks) where available; otherwise triangulate with geo or time-based contrasts.

Compute payback two ways: **P&L** (CM2 covers P&L CAC) and **cash** (after working capital: prepayments/deferred revenue, DSO, inventory/returns).

## 6) Attribute fairly—avoid double counting

Pick a defensible attribution approach, state it, and hold it constant.

- Simple rule for diligence: **originating source owns the opp** unless a registered partner meets program rules; show an “influence” overlay but don’t double count.
- When paid media is material, favor **incrementality** evidence (geo holdouts, rotation tests) over last-touch myths. Label confidence accordingly.

## 7) Quantify partner health and coverage

Partners follow their own funnel: recruited → onboarded → enabled → active → productive.

- **Activation/productivity:** % partners closing  $\geq 1$  opp/quarter; bookings per active partner; attainment distribution (watch the 80/20).
- **Mindshare:** co-op drawdown rates, certifications, pipeline updates frequency, participation in QBRs.
- **Coverage:** heatmap of target accounts/geos with **no** tier-1 partner; account mapping overlaps; white-space.
- **Quality:** win rate and ASP by partner; discount escalation frequency; compliance with deal-reg SLAs.

## 8) Map shelf and discoverability

In marketplaces/retail, shelf equals demand.

- Listings/delisting; category rank; paid placement share; review velocity/ratings; search share for key terms.

- Retail: distribution points, planogram placement, KVI exposure, promo depth/length; sell-through vs. sell-in gap.

### 9) Stress-test risks and response levers

Turn channel myths into scenarios with toggles in the model:

- **Take-rate increase** (+100–300 bps) and introduction of paid placement; net impact to vendor-realized and CAC/payback.
- **Delisting or tier downgrade** at a top partner; velocity and coverage loss; time-to-replace.
- **Policy changes** (MAP/RPM enforcement, platform bundle, API/terms changes).
- **Partner consolidation** (fewer, larger distributors; rebate cliffs).
- **Direct expansion** (self-serve/PLG lift) and potential channel conflict; set price fences and deal-reg protections.

### 10) Mix-shift bridge—show how route changes move revenue and CM2

Decompose revenue change into **volume × price × mix** with channel as the mix axis.

- **Channel mix effect (CMX)** in dollars:  

$$\text{CMX} \approx \sum_s [\text{Rev}_{t0}(s) \times (\text{Mix}_{t1}(s) - \text{Mix}_{t0}(s)) \times \text{CM2\%}(s)]$$
, where s indexes channels.
- Tie to **LTV/CAC** and **cash payback** by route; a mix that lifts CM2 but slows cash return may still be wrong for the hold period.

### 11) Concentration and resilience

Compute **HHI** for revenue by partner and by channel ( $\text{HHI} = \sum \text{share}^2$ ). High HHI flags counterparty risk and bargaining power. Add time-to-replace estimates for the top three partners.

### 12) Industry nuances you must handle explicitly

- **SaaS/PLG:** Self-serve drives low CAC and fast cash payback; channel partners often add enterprise access but raise gross-to-net. Protect price fences and land-and-expand rules.
- **Marketplaces/platforms:** Revenue = GMV × take rate – incentives – returns/fraud. Discoverability and paid placement dominate; treat take-rate compression as the base case unless countered by unique value.

- **Hardware + distribution:** Distinguish **sell-in** from **sell-through**; returns and inventory buy-backs drive pocket price. Warranty and field service costs belong in CM2 by route.
- **Healthcare/regulated:** Contract vehicles, credentialing, and reimbursement codes are “channel gates.” Model approval timing and payer mix by route.
- **Retail/CPG:** KVs set price image; monetize the tail. Trade spend (promo, co-op, slotting) is CAC and gross-to-net—separate it from price.
- **OEM/White-label:** Revenue recognition, branding constraints, and geographic exclusivities can cap future direct expansion; treat as structural, not temporary.

### 13) Compliance and governance

Operate under clean-team rules for invoice-level or partner-specific analysis; share only aggregated, anonymized outputs beyond the ring-fence. Respect MAP/RPM and platform terms; no pre-close pricing coordination. Note MFNs, price-parity, and audit rights that create unintended cross-channel linkages.

## Copy-ready templates (paste into your workspace)

### A) Channel Mix Canvas (one per route × segment)

- Scope & unit (e.g., Mid-Market NA; reseller; ARR dollar).
- Vendor-realized corridor; pocket price; sources.
- Waterfall shares: discounts, rebates, returns/chargebacks, take-rate, off-invoice incentives.
- CM1/CM2 and key cost drivers (COGS, service cost-to-serve).
- Funnel metrics: conversion, win rate, cycle; ASP/discount patterns; forecast slip.
- CAC (definition and inclusions); payback (P&L and cash).
- Coverage & shelf: active partners, activation rate, listings/ranks, review velocity.
- Risks & gates: take-rate policy, delist risk, MAP/MFN, exclusivities, regulatory approvals.
- Headroom & hazards: price corridors by route, elasticity notes, promo dependency.
- Confidence & sources; verifier sign-off.

**B) Partner Scorecard (one page per top partner)**

- Tier, certifications, regions served, product scope.
- Bookings and win rate trend; ASP vs. direct; discount exceptions.
- Pipeline sourced/influenced; deal-reg SLA adherence; data hygiene.
- Co-op/MDF usage; QBR participation; enablement completed.
- Delist/list events; shelf rank (if marketplace/retail).
- Risks: financial stability, contract cliffs, exclusivity traps, conflict.
- Actions: keep/grow/fix/exit; owner and next QBR date.

**C) Marketplace/Retail Diagnostic (per platform/retailer)**

- Category size; share and rank; paid placement share; review velocity.
- Take-rate tiers; hidden fees (fulfillment, payments, ads); returns/fraud rates.
- Policy watchlist (parity, bundling, API changes).
- Scenario: +200 bps take-rate; delisting risk; residual impact after counter.

**D) Paid Media Diagnostic (where spend is material)**

- Channel/campaign spend; CAC and ROAS; incrementality evidence (holdouts/geo tests).
- Saturation/scale curves; diminishing returns point.
- Cannibalization with direct/brand; post-click vs. post-view bias.
- Actions: budget reweighting; creative/landing improvements; attribution upgrade.

**Early-warning indicators (add to the PMO dashboard)**

- Partner listings/delisting; certification count; co-op drawdown rates; deal-reg SLA compliance.
- Take-rate and policy change notices; rebate accrual % drift; paid placement share.
- Shelf rank and review velocity; sell-through vs. sell-in gap; return/chargeback rate.
- Discount depth by route; ASP vs. corridor; promo reliance.
- Pipeline coverage by channel; ramped partners/AEs vs. plan; attainment distribution.
- DSO/DPO by route; warranty and service cost per unit by channel.

## 72-hour sprint plan (from blank page to a defendable view)

- **Day 0:** Freeze segments and route definitions; issue the channel data request; confirm clean-team and compliance boundaries.
- **Day 1:** Build gross-to-net waterfalls and CM2 for two top routes; land funnel cuts and basic capacity/coverage; draft first Channel Mix Canvases.
- **Day 2:** Complete partner scorecards; compute CAC/payback; assemble shelf/discoverability metrics; run two risk scenarios (take-rate hike, delist).
- **Day 3:** Publish mix-shift bridge, LTV/CAC by route, and concentration (HHI); update model; propose term-sheet levers and a 90-day post-close channel plan.

## Acceptance criteria (use this as your “done” check)

- Channel definitions and segments frozen; clean attribution rule stated and applied consistently.
- Verified gross-to-net and pocket price by route; CM1/CM2 computed with sources and a second-person tie-out.
- Funnel performance, ASP/discount behavior, and forecast hygiene cut by route; capacity/coverage quantified.
- CAC/payback (P&L and cash) by channel; LTV by route derived from cohorts where applicable.
- Mix-shift bridge produced; two or more risk scenarios quantified with toggles in the model.
- Partner scorecards for top contributors; marketplace/retail diagnostics where relevant.
- Early-warning indicators defined; owners and cadence set; compliance notes documented.
- Model updated within 24 hours; residual risk translated into valuation ranges and terms (earnouts on price realization/NRR, covenants on promo/take-rate intensity, conditions on key partner renewals/tier maintenance).

## Common failure modes—and the quick fix

- **Counting influenced and sourced as separate revenue.** Fix: freeze an attribution rule; present “influence” only as an overlay.

- **Treating trade spend as price.** Fix: separate promos, co-op, MDF from list/discounts; show promo decay and ROI.
- **Averages that hide route realities.** Fix: compute by route and segment; only roll up with value weights.
- **Underestimating policy risk.** Fix: add take-rate and MAP/parity scenarios to base/downside with trigger-based counters.
- **Ignoring working capital.** Fix: report cash payback by route; include DSO, inventory, returns, and deferred revenue.
- **Channel conflict hand-waving.** Fix: codify deal-reg SLAs, price fences, and lead routing; quantify cannibalization and protect KVs.

Use this template and you will turn “strong channels” into a quantified route-to-market plan: which channels to grow, which to prune, how mix affects realized price and payback, and how to protect margin if partners or platforms change the rules.

## 9.3 Marketing ROI Benchmark Checklist

Marketing ROI is not a single number. It is a set of linked measures—incremental revenue and contribution margin per dollar spent, payback speed, and scalability—cut by segment and route-to-market. In diligence, your goal is to separate what truly moves demand from what platforms or last-click attribution claim, then benchmark performance against decision-grade guardrails so you can reweight budgets, price risk, and size upside credibly. The checklist below gives you a fast, auditable path: define the financial ground rules, assemble a clean data pack, estimate incrementality with two methods, benchmark against base-rates by business model, and wire results into unit economics and the forecast.

### Ground rules (set these before touching data)

- **Objective function:** Optimize for **incremental CM2** (contribution margin after variable costs and channel incentives), not top-line only.
- **Granularity:** Report at two levels—**blended** (business-wide MER) and **channel/campaign** cohorts—always by the segments from Chapter 6.
- **Time windows:** Use weekly for MMM/experiments and monthly for financial roll-ups; keep a 24-month history if possible to capture seasonality.

- **Attribution policy:** “Incrementality first.” Platform-reported conversions are inputs, not answers.
- **Numerators/denominators:** Revenue is **vendor-realized** (8.2). Profit is **CM2** (8.3). Spend includes media, fees, and **off-invoice incentives** tied to acquisition (MDF/co-op, paid placement).
- **Compliance:** Respect clean-team rules for invoice-level data; no pre-close coordination with competitors or partners.

## Step-by-step ROI build (fast, defensible)

### 1) Assemble the data pack (once, with clear owners)

- **Spend & meta:** Daily/weekly spend, channel, campaign/ad set, creative, geo, device, audience, platform fees.
- **Traffic & conversion:** Sessions, sign-ups, PQL/MQL, SQL, opportunities, orders; return/cancel flags; UTM standards; tag health.
- **Revenue & margin:** Orders and realized revenue; discounts, rebates, refunds/chargebacks; COGS; fulfillment/shipping; payment fees; warranty/service.
- **Customer outcomes:** Cohort GRR/NRR, ARPU, LTV; first-purchase vs. repeat; retention curves by source.
- **Context:** Promotions, pricing changes, stockouts, site outages, channel delistings, seasonality markers, external shocks.
- **Governance:** A single **source register** with field definitions, coverage notes, and known gaps.

### 2) Normalize and reconcile (the accounting pass)

- Align calendars and currencies; choose nominal vs. real and stick to it.
- Map revenue to **vendor-realized** and to **CM2** by order.
- Reconcile pass-through promotions (trade/co-op/MDF) as **spend**, not price.
- Deduplicate UTMs and collapse vanity campaigns; repair obvious tagging breaks (direct/none floods).
- Produce a “data health” memo; quarantine outliers and document treatment.

### 3) Compute baseline metrics (blended and by channel/segment)

- **MER (Media Efficiency Ratio):** Revenue ÷ Spend (blended).
- **ROAS (attributed):** Platform revenue ÷ Spend (diagnostic only).

- **iROAS (incremental): Incremental** revenue (or CM2) from tests or MMM ÷ Spend.
- **CPA / CAC:** Spend ÷ conversions (order or paying customer); **cycle-align** CAC to first revenue.
- **Payback (P&L and cash):** Months for cumulative **CM2** (and cash inflows) to cover CAC.
- **LTV:CAC:** From cohort LTV (6.3, 8.3) divided by CAC; show range and confidence.
- **Saturation curve:** Plot weekly spend vs. incremental revenue; mark diminishing returns point.

#### 4) Estimate incrementality with two lenses (always two)

- **Experiments (preferred):**
  - **Geo splits/market tests:** Rotate on/off by DMA/city; 6–12 week windows; ensure balance on seasonality and retail calendars.
  - **Audience holdouts/ghost ads:** Suppress a statistically valid control; measure lift in orders/GMV and CM2.
  - **Switchbacks:** On/off by region or channel over time; fit a simple pre/post model with controls.
- **MMM (pragmatic):**
  - Weekly data  $\geq$  24 months, with **adstock/carryover** and **saturation** terms; include promos, price, distribution/shelf variables, holidays, and exogenous shocks.
  - Use MMM to get **channel-level iROAS** and a **budget response curve**; validate against at least one real-world test.
- **Guardrail:** If experiments and MMM disagree materially, widen ranges, lower confidence, and prioritize the experiment's direction for near-term decisions.

#### 5) Connect ROI to unit economics and retention

- Translate **allowable CAC:** Allowable CAC = LTV ÷ target (LTV:CAC).
- Or **allowable CPA** per order: Allowable CPA = Target **CM2 per order** × Target marketing cost-to-sales ratio.
- If price increases or promo cuts are in plan, re-run elasticity (6.4) and refill CM2; re-test iROAS—many “wins” disappear once promo is removed.

- For subscription/usage models, compute **iROAS on ARR/NRR**, not just on first-order revenue.

## 6) Benchmark by business model (base-rate guardrails; tighten with your data)

Use these to frame debate, not as absolutes; refine by segment and margin structure.

- **B2B SaaS (Mid-Market, direct):** LTV:CAC 3–5×; payback 9–18 months; iROAS focus on **pipeline-to-ARR** with sourced vs. influenced split; ABM/mid-funnel content rarely shows same-quarter ROI—judge on **opportunity quality** and **cycle compression**.
- **PLG/self-serve:** CAC materially lower; payback often < 6–9 months; watch **activation rate** and **PQL→paid** conversion; attribute uplift from lifecycle/email/product prompts separately from paid media.
- **E-commerce (mid/high gross margin):** Blended MER 2–4×; allowable CPA tied to CM2; returns and promo depth can cut true iROAS in half—always net them out.
- **Marketplaces:** Measure on **GMV and take-rate net**; buyer vs. seller acquisition ROI differ; subsidies (free shipping, incentives) are **spend**, not price.
- **Mobile apps (IAP/subscription):** CPI/CPE is a vanity metric without **day-n retention** and **paid conversion**; treat SKAN/platform-reported ROAS as directional; rely on cohorts and geo tests.
- **Retail trade/media:** Treat trade spend as acquisition cost; ROI rides on **sell-through**, not sell-in. KVs cap price—monetize tail with mix.

## 7) Diagnose scale vs. waste (saturation and spillovers)

- Fit a simple saturating response (e.g., “each +\$X adds less than the last”) per channel/segment; mark the **efficient frontier**.
- Quantify **spillovers**: brand search, direct, and email often ride on upper-funnel display/TV—give them credit only if lift appears in tests/MMM.
- Identify **crowding**: if paid search cannibalizes organic/brand beyond a threshold, cap bids on branded terms (protect KVs if needed) and re-deploy to true incremental spend.

## 8) Fraud, leakage, and hygiene checks (never skip)

- **Invalid traffic/bot checks**, click flooding/time-to-install anomalies, duplicate UTMs, inorganic “direct” spikes after tag loss.

- **Coupon/promo leakage** and affiliate hijacking; **view-through** inflation; audience overlap across platforms.
- **Stockouts/outages** masking demand; **creative wear-out**; geo mismatch between spend and conversion.
- **Channel policy risks:** take-rate hikes, parity/MAP rules, paid placement creep (9.2).

### 9) Budget decision rules (write them down)

- Maintain **two-tier targets**: (a) **marginal iROAS**  $\geq$  threshold on CM2 (by channel), and (b) **portfolio MER** that hits EBIT goals.
- Reallocate weekly using the response curves; move \$ from channels past their diminishing-returns knee to channels with headroom and proven lift.
- Tie experiments to budget unlocks: “If geo test shows iROAS  $\geq 2.5\times$  on CM2, increase by +20% until the next knee.”

### 10) Push into the model and term sheet (24-hour rule)

- Update **price realization, CM2, CAC/payback, and channel mix** lines with base/range by segment.
- Where uncertainty is material, reflect it in valuation ranges and **structure** (earnouts tied to revenue or NRR from paid cohorts; covenants on promo/take-rate intensity; conditions on key platform/partner renewals).

## Copy-ready checklists and templates

### A) Marketing ROI Benchmark Checklist (tick each box)

- Objective function and financial ground rules written (CM2 focus; time windows; attribution policy).
- Data pack landed and reconciled (spend, traffic, revenue, CM2, cohorts; source register complete).
- Baseline MER/ROAS/CAC/payback/LTV:CAC computed (blended + by channel/segment).
- Incrementality estimated with **two methods** (experiments + MMM), with ranges and confidence.
- Response curves and diminishing-returns knees identified; spillovers measured.

- Benchmarks applied by business model; deviations explained with segment economics.
- Fraud/leakage/hygiene checks run; anomalies documented and adjusted.
- Budget decision rules and test-to-invest criteria written; owners assigned.
- Model updated (price, CM2, CAC/payback, channel mix); term-sheet levers proposed.
- Early-warning indicators defined; reporting cadence set; verifier sign-off logged.

#### B) Allowable Spend & Target Setting Card (one per segment/channel)

- Target **LTV:CAC** (range) and **payback** (P&L/cash).
- Current **iROAS** (CM2-based) with confidence.
- **Allowable CAC/CPA** today; **headroom** to knee of curve (\$ and %).
- Key risks (policy, tracking, seasonality); planned experiments and unlock criteria.
- Owner, next review date, and budget change triggers.

#### C) Experiment Design Mini-Template

- Hypothesis and **value at stake**.
- Unit of randomization (geo/audience/time), sample size, duration, and power.
- Success metric(s): incremental **CM2** per \$; secondaries (new-to-file %, activation, repeat rate).
- Pre-reg'd analysis plan; guardrails (brand/KVI constraints); dependencies (inventory, promo).
- Decision rule and next action (scale/prune/re-test).

#### Early-warning indicators (add to the operating dashboard)

- MER and **iROAS** vs. thresholds, weekly.
- **Marginal** iROAS drift at last +10–20% spend increment.
- **Payback** by cohort/source; LTV forecast error vs. actual at 30/60/90 days.
- **Promo depth/length** and return/chargeback rate trend.
- **Shelf/discoverability** metrics (rank, paid placement share, reviews) when marketplaces/retail matter.

- **Tracking health:** tag loss, spike in “direct/none,” platform reporting deltas.
- **Policy/partner** changes: take-rate notices, parity/MAP enforcement, delistings.

## 72-hour sprint plan (from blank page to decision-grade view)

- **Day 0:** Lock ground rules; issue the data request; publish attribution policy and experiment shortlist.
- **Day 1:** Build baseline metrics (MER/ROAS/CAC/payback/LTV:CAC) blended and by channel/segment; run hygiene checks; start response curves.
- **Day 2:** Land at least one live test (geo/audience) and a first-pass MMM; compute **iROAS** ranges; draft Allowable Spend Cards; identify quick budget reweights.
- **Day 3:** Update the model and unit economics; set early-warning indicators and test-to-invest gates; circulate a two-page decision memo (what to scale, what to cap, what to test next).

## Acceptance criteria (what “done” looks like)

- Results presented in **CM2** and **incremental** terms, with ranges and confidence.
- Two independent incrementality lenses (experiment + MMM) reconciled; conflicts and implications stated.
- Benchmarks applied by business model and segment; outliers explained with evidence.
- Budget and mix recommendations tied to response curves and **allowable CAC/CPA**.
- Model updated within 24 hours; residual risk translated into valuation and terms.
- QA completed: verifier can reproduce metrics from the source register; clean-team and compliance notes on file.

## Common failure modes—and quick fixes

- Chasing platform ROAS:** Treat as diagnostic; decide on **iROAS (CM2)** from tests/MMM.
- Ignoring returns/promo:** Net them out before computing ROI.

- Counting influenced and sourced twice:** Freeze an attribution rule; show influence as an overlay only.
- Last-click cannibalization:** Cap brand bids where cannibalization exceeds a set threshold; reinvest in channels with proven lift.
- No cycle alignment:** Shift CAC to revenue start; otherwise payback is fiction.
- Averages that hide truths:** Segment by route-to-market, geo, margin band, and customer type; roll up only with value weights.

Use this checklist and you will turn marketing ROI from dashboard noise into decisions: which dollars to keep, which to cut, and where to place the next incremental \$1 so revenue, margin, and payback improve—by segment, with evidence, and on a clock.

## 9.4 Customer Acquisition Cost Calculator Template

Customer Acquisition Cost (CAC) is only useful when it is **well-defined, segmented, cycle-aligned, and tied to cash**. In diligence, your calculator must produce numbers that a CFO and CRO would both sign off on—by route-to-market and segment—and that plug straight into unit economics (8.3), pricing (8.2), and the funnel (9.1). This template gives you the exact inputs, formulas, attribution rules, and QA steps to build a defendable CAC view in days, not weeks.

Start by fixing the **unit of analysis** (“per new paying customer,” “per first order,” or “per activated account”) and the **scope** (segment, channel, geography, time window). Then decide which CAC flavors you will report. For diligence, report at least two:

- **Blended CAC (fully loaded):** All acquisition-related Sales & Marketing cash costs divided by new paying customers acquired in the period, cycle-aligned.
- **Channel CAC:** CAC by route-to-market (direct, reseller, marketplace, self-serve/PLG, paid media cohort), using channel-specific costs and attribution rules.

You may also compute **CPA (cost per order)** for transactional businesses; translate CPA to CAC by applying the **new-to-file share** and retention.

## What your CAC calculator must include

- A clear **glossary** of included/excluded costs (cash basis vs. P&L, handled consistently).
- **Cycle alignment:** spend shifted by the average lag from first touch to revenue, by channel.
- **Attribution rules:** who “owns” a customer when multiple touches or partners are involved.
- **Segmentation:** customer job/vertical, size band, product family, region, and route-to-market.
- **Outputs:** CAC (blended and by channel), P&L and cash **payback**, and **LTV:CAC** by segment.
- **QA pack:** source register, reconciliations to GL, and a verifier tie-out.

## Inputs to collect (one-time request; reuse everywhere)

- **Sales & Marketing spend (cash view preferred):** payroll (base + variable comp), benefits, contractors, agencies, paid media, events, creative, tools, data, partner enablement, spiffs, referral bounties, trial incentives, samples, and **off-invoice** incentives that are acquisition-linked (co-op/MDF, paid placement). If capitalized commissions are present (ASC 606), add back amortization to reflect cash.
- **Channel economics:** marketplace or reseller take rates, rebates, co-op accruals, paid search/placement fees, and any acquisition-specific partner incentives.
- **Funnel and cohort outputs:** new paying customers, first orders, new logos, expansion vs. new breakdown, stage-by-stage volumes, and time-to-close by segment/channel.
- **Revenue and margin:** vendor-realized revenue, CM2 (contribution margin after variable service and channel costs) for first period(s), returns and chargebacks.
- **Timing and context:** pricing changes, promotions, stockouts, tracking/tagging gaps, policy changes.

## Build sequence and formulas (copy into your model notes)

### 1) Freeze the unit and segmentation

Write one sentence per view, for example: “CAC per new paying **Mid-Market** customer in **North America, direct field route, last 4 quarters** (cycle-aligned).”

## 2) Decide the accounting basis (and keep it consistent)

- **Cash CAC** (preferred for payback): cash outflow for acquisition activities.
- **P&L CAC** (secondary): GAAP Sales & Marketing expense; add back non-cash items you don't want in payback (e.g., stock comp) if you use this view.

## 3) Cycle-align spend to revenue start

For each channel ccc, compute the median lag LcL\_cLc from first touch (or opp create) to first revenue. Then shift spend backward:

- **Cycle-aligned spend** in month ttt, channel ccc  
 $S_{c,t\text{aligned}} = S_{c,t} - L_{c,\text{booked}} \cdot S^{\{\text{aligned}\}}_{c,t} = S^{\{\text{booked}\}}_{c,t-L_c} \cdot S_{c,t\text{aligned}} = S_{c,t} - L_{c,\text{booked}}$

Use weeks for high-velocity consumers; months or quarters for enterprise. If cycle length is a distribution, weight is spent across the lag histogram (acceptable in diligence to use the median).

## 4) Define who “owns” the customer (attribution)

- **Sourcing rule (default for diligence):** the originating source or registered partner that created the opportunity owns the acquisition. Track **influence** as a separate overlay—do not double count.
- **Paid media incrementality:** where spend is material, prefer geo/audience **experiments** or MMM to adjust platform-reported conversions (see 9.3). Use the **incremental** conversions when available.

## 5) Compute CAC (blended and by channel)

- **New customers (cohorted):**  
 $N_c = N_{\{c\}} = N_c = \text{number of new paying customers in period attributable to channel } c \text{ (per the sourcing rule).}$
- **Channel CAC:**  
 $CAC_c = \frac{S^{\{\text{aligned}\}}_{c,t} \cdot N_c}{N_{\{c\}}} = \frac{S^{\{\text{aligned}\}}_{c,t} \cdot N_c}{N_{\{c\}}} \cdot CAC_c = N_c \cdot S^{\{\text{aligned}\}}_{c,t}$   
 where  $S^{\{\text{aligned}\}}_{c,t}$  includes channel-specific

acquisition costs:

- Paid media + agency fees + platform/marketplace ads
- Partner incentives (MDF, co-op, bounties), paid placement/search
- Channel manager FTEs and enablement directly tied to partner acquisition
- Sales comp and deal-desk tied to channel ccc (for direct, include AE/SDR payroll and variable comp)
- Trial incentives and samples; referral rewards

- **Blended CAC (fully loaded):**

$$\text{CACblended} = \frac{\sum_c S^{\text{aligned}}_c + S^{\text{shared}}}{\sum_c N_c}$$

$$\text{CACblended} = \frac{\sum_c S^{\text{aligned}}_c + S^{\text{shared}}}{N}$$

where  $S^{\text{shared}}$  is the shared spend you allocate by your chosen driver (see below).

## 6) Allocate shared spend transparently

Pick one rule and stick to it; show a sensitivity if it matters.

- **By sourced new customers:** proportionally to  $N_c / \sum_c N_c$  (simple; fair when channels are similar).
- **By influencing pipeline dollars:** when upper-funnel or brand spend is significant.
- **By sales effort:** allocate AE/SE payroll by time tracking or opp counts per channel.

Document the rule in the calculator and keep a version without shared spend for sanity checks.

## 7) Compute payback (P&L and cash)

- **P&L payback (months):** months until cumulative **CM2** per customer covers **P&L CAC**.
- **Cash payback (months):** months until cumulative **cash inflows** (after working capital effects) exceed **cash CAC**.

Working-capital notes: annual prepay (SaaS) shortens cash payback; inventory and returns (retail) lengthen it; DSO and chargebacks matter in marketplaces.

## 8) Connect CAC to LTV

Use cohort-based LTV (6.3, 8.3). Report both:

- **LTV:CAC** ratio and range by segment/channel.
- **Allowable CAC:**  $CAC_{allow} = LTV_{Target} \cdot LTV:CAC_{allow}$  =  $\frac{LTV}{Target} \cdot CAC$  (e.g., 3:1 mid-market SaaS baseline, edited to your evidence).

## 9) CAC bridges you should always produce

- **Spend → CAC bridge:** total aligned spend → minus non-acquisition items → minus expansion spend → allocated shared spend → channel spend → CAC by channel.
- **CPA → CAC bridge (consumer/e-com):** CPA ÷ **new-to-file %** → CAC; then overlay repeat behavior to get LTV:CAC.

## What counts as “acquisition cost” (include vs. exclude)

### Include (if it exists to get new customers):

- Paid media and agency fees, sponsorships, events
- AE/SDR/BDR payroll, benefits, variable comp, spiffs; sales engineering tied to pre-sale
- Partner manager FTEs; partner incentives (MDF, co-op, bounties), paid placement/search
- Referral rewards; trial incentives; samples/free goods intended for acquisition
- Tools and data subscriptions used primarily for acquisition (intent data, enrichment)
- Creative production for acquisition campaigns
- Capitalized commissions (use **cash** picture—add back amortization to CAC)

### Exclude (or treat consistently elsewhere):

- Customer success and account management for **post-sale** retention/expansion (belongs in service cost-to-serve or expansion CAC)
- General brand or corp comms if not primarily acquisition (unless you allocate)

- Product R&D and growth/experimentation **engineering** (disclose separately; do not bury in CAC)
- Fulfillment, onboarding labor billed as services (belongs in CM2 unless used purely as an acquisition incentive)
- Free-tier infrastructure for non-converting users (account as COGS/opex; disclose if treated as CAC in PLG tests)

## Calculator structure (tabs you can replicate)

- **Inputs:** time window, segments, channels, accounting basis (cash/P&L), allocation rule, cycle lags.
- **Spend Register:** detailed lines by channel and shared buckets with GL references.
- **Funnel & Timing:** new customers, first orders, lags by channel; cohort keys.
- **Channel CAC:** per-channel aligned spend, customers, CAC, confidence.
- **Blended CAC:** with/without shared spend; sensitivity to allocation rule.
- **Payback & LTV:** CM2 per period, working capital assumptions, payback (P&L/cash), LTV:CAC.
- **Bridges:** Spend→CAC, CPA→CAC, and CAC→Payback.
- **QA & Notes:** reconciliations to GL, exclusions, data health checks, verifier sign-off.

## Worked mini-examples (proportioned for slides)

- **Mid-Market SaaS (direct field):**  
Aligned quarterly S&M cash spend = \$6.0M; new paying logos = 750 → **Blended CAC ≈ \$8,000.**  
CM2 per customer in Months 1–12 averages \$1,200/month with 10% annual prepay. **P&L payback ≈ 7–8 months; cash payback ≈ immediate to 3 months** (prepay effect).  
LTV (36-month horizon, GRR 92%, NRR 112%, GM 80%) ≈ \$24k → **LTV:CAC ≈ 3.0x.**
- **E-commerce (high-margin DTC):**  
CPA on first order = \$28; **new-to-file share** = 60% → **CAC ≈ \$47.**  
CM2 per order = \$22; repeat rate yields 2.1 orders in 90 days. **Cash payback ≈ 2 orders;** watch returns (8%)—if returns rise to 12%, payback slips beyond 90 days.

- **Marketplace (buyer acquisition):**

Spend + incentives (shipping subsidies, coupons) = \$1.2M; net new buyers = 30k → **CAC ≈ \$40.**

GMV per buyer in 6 months = \$220; take rate net of returns/fraud = 12% → revenue \$26.40; variable platform costs \$6.40 → CM2 \$20. **Payback > 6 months** → tighten subsidies or lift take rate on the tail.

## QA steps that prevent bad CAC math

- **Cycle alignment** applied and documented; show the lag histogram per channel.
- **Numerator/denominator match:** only **new paying** customers in the period; exclude expansions unless you compute **expansion CAC** separately.
- **Attribution rule** frozen; no sourced + influenced double counting.
- **Trade spend vs. price:** off-invoice incentives are either **spend** (CAC) or **gross-to-net**—never both.
- **GL tie-out:** sum of spend lines reconciled to the general ledger; variances explained.
- **Data health:** remove zombie opps, fix tagging gaps (9.1, 9.3); label low-confidence segments.
- **Verifier sign-off:** a second person can reproduce CAC from the register and assumptions.

## Red flags (and immediate responses)

- **Rising CAC with flat CM2 and stagnant win rates:** shift budget to channels with demonstrable incrementality; kill vanity spend; enforce deal-desk guardrails (8.2).
- **Great CAC, terrible retention:** LTV:CAC < 2x in core segments—reweight toward cohorts with stronger GRR/NRR; fix onboarding before scaling spend.
- **Channel dependency:** HHI high; one marketplace controls >50% of sourced customers—run a **take-rate hike** and **delist** scenario (9.2) and reflect in payback ranges.
- **Capitalized commissions hide economics:** move to cash CAC view; reveal payback sensitivity.

- “**Free” PLG leads that aren’t free:** include growth engineering emails/push and promo credits used to convert; treat as acquisition spend or disclose separately.

## **Copy-ready CAC Calculator Canvas (one per segment × channel)**

- **Scope & unit:** [Segment, region, route, period].
- **Accounting basis:** Cash / P&L; cycle lag LcL\_cLc and alignment policy.
- **Attribution:** Sourcing rule; incrementality adjustment (Y/N).
- **Aligned spend:** media/fees, partner incentives, sales payroll/comp, enablement, off-invoice incentives, shared spend allocation rule.
- **New paying customers (N):** count, data source, confidence.
- **CAC:** Saligned/NS<sup>{aligned}</sup>/NSaligned/N (range and point).
- **CM2 (first period[s]):** value and variability drivers.
- **Payback:** P&L and cash months; working-capital assumptions.
- **LTV:CAC:** method, horizon, discount rate, range.
- **Risks & gates:** policy (MAP/parity), take-rate, promo dependency, tracking gaps.
- **QA & sources:** GL tie-out ref, funnel export ref, verifier initials, date.

## **72-hour sprint plan (from blank sheet to decision-grade CAC)**

- **Day 0:** Freeze units, segments, and attribution; set accounting basis and cycle alignment policy; issue a single data request with a source register.
- **Day 1:** Land spend register and funnel outputs; compute lags; build channel CAC and blended CAC; reconcile to GL; label low-confidence cuts.
- **Day 2:** Add P&L/cash payback and LTV:CAC; produce Spend→CAC and CPA→CAC bridges; run at least one risk scenario (take-rate hike, promo withdrawal).
- **Day 3:** Update the model (CAC, payback, LTV:CAC by segment/channel); set allowable CAC targets; propose budget reweights and term-sheet levers where uncertainty remains (earnouts tied to NRR or price realization; covenants on promo/take-rate intensity).

## Acceptance criteria (use this as your “done” check)

- Units, segments, attribution, and accounting basis **frozen and documented**.
- Cycle-aligned **channel CAC** and **blended CAC** computed with sources; GL tie-out complete.
- P&L and cash **payback** calculated; **LTV:CAC** shown with ranges and confidence.
- Spend→CAC and CPA→CAC **bridges** produced; shared-spend allocation rule disclosed.
- Model updated within 24 hours; residual risk reflected in valuation/terms; early-warning indicators defined (CAC drift, payback slippage, take-rate notices).
- Verifier sign-off logged; clean-team and data-handling rules observed.

Use this template and your CAC won’t be a vanity number. It will be a decision tool that aligns Sales and Finance, exposes true payback by route-to-market, and shows exactly where the next dollar of acquisition should go—and where it should not.

## Chapter 10. Operational Capability Review (Commercial Lens)

A growth story only converts to cash if the company can make, move, and service what it sells—reliably, at the promised quality, and at a cost that sustains margin. The operational capability review is your bridge between the commercial thesis and the realities of supply, fulfillment, and service. It asks three pragmatic questions. First, can the business meet planned demand by segment and channel at target service levels (on-time, in-full, damage-free)? Second, can it do so at a cost structure and working-capital profile that preserves contribution margin and payback? Third, what shocks—supplier failures, logistics disruptions, quality issues, regulation—could bend revenue or compress margin inside the hold period?

This chapter is not an engineering audit; it is a commercial lens on operations. You will map how operational constraints show up in revenue, retention, realized price, and CM2. You will quantify revenue-at-risk and margin-at-risk for critical SKUs and services, and you will translate those risks into model ranges, terms (e.g., indexation, inventory covenants), and a 90-day post-close plan. The goal is a short list of must-fix constraints and must-protect advantages, each with an owner, a timeline, and a measurable impact on the P&L.

### 10.1 Supply Chain Resilience Checklist

Resilience is the ability to continue selling at planned service levels and margin despite shocks. In diligence, you need to (i) locate single points of failure, (ii) measure how fast the system fails when stressed, and (iii) specify the few actions that materially raise time-to-survive and reduce time-to-recover. The checklist below is designed for a two- to four-week sprint. It yields three outputs the deal team can use immediately: a **Revenue-at-Risk map**, a **Margin-at-Risk map**, and a **Readiness plan** with costed actions and owners.

#### Define the unit of analysis and freeze segmentation

Keep the lens commercial. Analyze resilience where dollars sit: by product family/SKU class, customer segment, channel, and geography. For each view,

write one sentence that fixes scope and time window (e.g., “OTIF and CM2 for Key Value Items (KVI) sold via big-box retail in North America, last 12 months”).

## Assemble the minimum viable data pack

Request once; analyze many times. You are looking for artifacts that tie supply mechanics to revenue and margin:

- Customer service: OTIF/OTD (on-time delivery), fill rate, backorders, perfect order rate, chargebacks/compliance fines, returns and warranty rates, damage claims, NPS/CSAT tied to delivery issues.
- Inventory & planning: on-hand by SKU and location; safety stock policies and parameters; days of supply/cover (DOH/DOS); reorder points and lead times; shortage codes; expedite frequency and spend; forecast accuracy (MAPE) and bias.
- Supply base: approved vendor list (AVL) with tier-1 and critical tier-2; dual-source status; geographic concentration; MOQs; contractual terms (lead-time commitments, liability caps, indexation, take-or-pay, exclusivity, step-down pricing); supplier OTIF/quality scorecards.
- Cost stack: BOM and route sheets; commodity exposure; freight/parcel mix; surcharges and accessorial; 3PL/forwarder contracts; hedging policies; scrap/yield.
- Capacity & flow: demonstrated vs. rated capacity; OEE for in-house operations; changeover times; constraint/bottleneck steps; subcontracting and alternate routings.
- Compliance & quality: certifications (e.g., ISO, UL, CE; for med-tech, QMS/ISO 13485, UDI/DMR/DHR), inspection/FAI, CAPA counts and cycle time, supplier non-conformances (DPPM), recalls or field actions.
- Logistics: lane-level transit times; carrier performance; port/airport reliance; cross-border steps (broker, bond, duties); 3PL SLAs; parcel audit data.
- Governance: S&OP cadence and artifact quality; EDI/WMS/TMS integrations; business continuity and disaster recovery plans (BCP/DR); cyber posture for connected plants and 3PLs (high level).

## Work from the customer backward: service first

Before you score suppliers, quantify what service looks like to customers and how deviations hit revenue and retention.

- Define and compute core metrics by segment and channel:
  - **OTIF** = Orders delivered on time and in full ÷ Total orders.
  - **Fill rate** = Shipped quantity ÷ Ordered quantity (line and order level).
  - **Perfect order rate** = On-time × In-full × Error-free × Damage-free.
  - **Backorder rate** = Backordered lines ÷ Total lines; **age of backorder**.
  - **Chargebacks/compliance fines** (retail): frequency, \$ per incident, root causes.
- Tie service misses to outcomes: lost sales (cancellations), markdowns/promo to clear late product, churn/NRR drag in B2B subscriptions tied to SLAs, delistings in retail/marketplaces.

## Identify “critical-to-revenue” SKUs and components

Not all items are equal. Create a shortlist that drives value and risk:

- **KVIs and high-runner SKUs:** items that anchor price image or a large share of sales.
- **Regulated/approval-bound SKUs:** where alternate sourcing requires requalification.
- **Long-lead/unique components:** custom ASICs, specialty resins, firmware-bound modules.
- **Service enablers:** spares and consumables that protect annuity revenue.

For each, fill a **Critical Item Card**: revenue share; current on-hand and days of cover; suppliers and geos; lead time and MOQ; dual-source status; quality/defect trend; logistics path; recovery options and time-to-recover.

## Compute Revenue-at-Risk (RaR) and Time-to-Survive/Recover

Make risk quantifiable and comparable.

- **Time-to-survive (TTS):** how long demand can be met after a disruption before stockout, given current inventory, in-transit, and confirmed supply.
- **Time-to-recover (TTR):** time needed to restore supply to ≥90% of demand after the disruption.

- **Immediate RaR (monthly)**  $\approx \sum (\text{SKU revenue} \times \text{Indicator}[TTS < TTR] \times (TTR - TTS)/30)$ .
- Model at least three shocks: loss of top tier-1 supplier; port closure on a critical lane; demand surge of +20–30% on KVs. Where data is thin, bracket with ranges and state assumptions.

## Quantify Margin-at-Risk (MaR)

Inflation, surcharges, and expedites can erase price gains. Build a margin bridge from BOM to deliver cost:

- **Commodity and index exposure:** which inputs float (resin, steel, energy) and are any contracts indexed?
- **Freight/parcel and accessorial:** fuel surcharges, peak season fees, residential and oversized charges; detention/demurrage exposure in ocean.
- **Expedite/spot premium:** last-quarter expedite spend as % of COGS and its trend.
- **Yield/scrap:** first-pass yield and scrap costs at constraint steps.
- **Quality cost of poor quality (COPQ):** rework, returns, warranty, and chargebacks.
- **MaR (quarterly)**  $\approx \Delta\text{COGS}$  from price/volume variance + freight/accessorial drift + expedite premiums – price indexation pass-through. Tie directly to CM2.

## Score the supply base and remove single points of failure

Use a simple, auditable rubric for tier-1 (and critical tier-2):

- **Concentration:** supplier share of spend for critical items; compute HHI and flag when  $>1,800$ .
- **Alternate source status:** dual-source qualified (Y/N); time/cost to qualify new source.
- **Geographic clustering:** common shock exposure (same city/port/EPZ) for “dual” sources.
- **Financial and operational health:** backlog, lead-time trend, capacity headroom, capex plan, labor stability.
- **Contractual protections:** lead-time commitments, allocation priority, indexation, safety-stock/VMI, audit rights, right of first allocation.
- **Quality & compliance:** DPPM trend, CAPA responsiveness, certifications.

## Inspect planning maturity and inventory policy

Forecast error is often the root cause of expedites and stockouts.

- Compute **MAPE** and **forecast bias** by family and channel; compared to service levels.
- Review **safety stock math** (service-level targets, variability inputs, lead-time assumptions); spot “frozen” parameters.
- Check **S&OP cadence**: monthly cycle with cross-functional agreement, or spreadsheet tennis?
- Confirm **planning horizons**: lock windows and firm zones; supplier collaboration (PO acknowledgments, ASN usage).
- Assess **systems**: WMS/TMS/ERP integration, EDI health, and data latency to carriers/3PLs.

## Probe logistics and cross-border risks

Freight can quietly dominate both service and margin.

- Lane-level transit time and reliability; carrier performance and capacity commitments.
- Port and gateway reliance; free-trade zone usage; broker performance and holds.
- Cross-border compliance: classification discipline, valuation, origin, sanctions/forced-labor checks; error rates driving penalties or seizures.
- 3PL performance: SLA adherence, cut-off compliance, pick/pack accuracy, inventory accuracy, cycle counts, shrink.

## Check quality, warranty, and regulatory posture

Quality issues are revenue shocks wearing a different hat.

- Incoming and in-process defect rates; final test escape rates; field failure rates and MTBF.
- Warranty reserve adequacy; root-cause cycle time; CAPA effectiveness.
- Regulated categories: evidence of compliant QMS; audit outcomes; change-control discipline; documentation (DMR/DHR) completeness.
- For consumer/retail: test reports for mandated standards; packaging compliance and transit tests.

## Turn findings into scenarios that change decisions

Convert your evidence into two or three decision-relevant scenarios with modeled impact and clear triggers:

- **Tier-1 supplier outage (6–12 weeks):** revenue lost by segment, expedite cost, and recovery path; post-close action—qualify dual source and build buffer stock.
- **Port/lanes disruption (2–4 weeks):** reroute feasibility, transit time delta, cost delta, and OTIF impact.
- **Commodity/fuel spike (+15–25%):** margin compression vs. indexation pass-through and timing; price/elasticity overlay from Chapter 6.4.
- **Retail compliance enforcement:** OTIF fines increase; delist risk on KVs; remedial logistics actions.
- **Demand surge (+20–30% on a KVI):** capacity headroom and time to flex; price/mix levers.

## Write the 90-day Readiness Plan (post-close)

List only actions that move TTS/TTR, OTIF, or CM2 in the hold period:

- Qualify a named second source for the top three critical items; preload safety stock to span TTR.
- Implement CPI/commodity/fuel **indexation** in new contracts; add allocation priority and minimum notice clauses.
- Lock **KVI service levels** with specific buffers (days of cover) and lane diversifications.
- Reduce expedite dependency: demand-planning parameter refresh; MOQ/lead-time renegotiation; alternate routings.
- Logistics fix: secondary gateway and carrier adds; 3PL SLA reset; late cut-off capacity.
- Compliance hygiene: forced-labor screening, classification audit, broker SLAs; QMS gaps closed where regulated.
- S&OP hardening: monthly cadence with a single set of numbers; forecast and inventory KPIs on the PMO dashboard.

## Early-warning indicators to monitor monthly

Wire the leading signals into the operating rhythm:

- OTIF, fill rate, perfect order rate; backorder age and trend.

- Expedite spend as % of COGS; spot freight mix; accessorial \$/order.
- Supplier lead-time trend; PO acknowledge lag; supplier OTD/quality score.
- Inventory health: days of cover by KVI; safety-stock breaches; slow-/no-move.
- Forecast MAPE and bias; S&OP adherence.
- 3PL metrics: pick accuracy, on-time ship, inventory accuracy, shrink.
- Compliance/chargebacks: frequency and \$; root causes closed.
- Sanctions/forced-labor and regulatory alerts on critical geos or materials.

## Red flags—and how to respond

Treat these as valuation and term-sheet items, not footnotes:

- **Single-sourced KVI** with TTR > 8 weeks and days of cover < 3 → haircut base revenue for that segment; require buffer stock covenant or escrowed capex for dual-source.
- **Expedite dependence** (>2% of COGS) to hit OTIF → reflect in CM2 downside and enforce planning parameter reset post-close.
- **Retail OTIF fines and delisting warnings** → widen price/mix ranges; add covenant on OTIF threshold and a 3PL remediation plan.
- **Commodity/fuel exposure without indexation** → push price power to upside only; insert indexation clauses as a closing condition where feasible.
- **Weak QMS/compliance in regulated lines** → move those revenues to upside pending remediation; require specific certifications or audit clears as conditions precedent.
- **3PL concentration** (>60% of outbound volume) without alternate capacity → model a lane-specific shock; negotiate secondary capacity.

## Acceptance criteria for a decision-grade resilience review

- Critical Item Cards complete for top revenue drivers; TTS/TTR and Rar/MaR calculated with assumptions and confidence labels.
- Supply-base score with concentration, dual-source status, geo clustering, and contract protections—per critical item.
- Logistics, planning, and quality metrics produced by segment/channel with ties to revenue and CM2; hygiene issues disclosed.

- Two to three shock scenarios modeled with toggles in the driver-based model; early-warning indicators and triggers defined.
- A 90-day Readiness Plan with owners, costs, and measurable targets (OTIF, days of cover, expedite spend, CM2).
- Clean-team protocols followed; supplier identities and commercial terms shared only in aggregated form outside the ring fence; all exhibits footnoted and replicable.

## **Copy-ready templates (use as you work)**

- **Critical Item Card**

- Item/SKU, revenue share, KVI (Y/N), regulated (Y/N).
- Suppliers (tier-1, critical tier-2), geos, dual-source status.
- Lead time (ordered/actual), MOQ, contract terms (indexation, allocation priority).
- Inventory on hand, in transit, days of cover; safety stock; backorder.
- Quality trend (DPPM/returns), warranty signals.
- Logistics path (lanes, carriers, gateways); alternate routings.
- TTS/TTR estimate; RaR/MaR; action and owner.

- **Supplier Risk Card**

- Spend share and HHI contribution; financial/operational health cues.
- Lead-time and OTD trend; capacity headroom.
- Quality (DPPM, CAPA responsiveness); certifications.
- Contract terms (indexation, allocation, penalties, VMI/consignment, audit rights).
- Geo/climate/political exposure; common-mode failures with other suppliers.
- Risk rating (H/M/L), mitigation (dual-source, safety stock, qualification plan), owner.

- **Logistics Lane Card**

- Origin/destination, mode, carrier(s), 3PL/DC, average transit and p90, reliability.
- Volume share, peak constraints, cut-off adherence.

- Cost per unit and accessorial mix; spot vs. contract share.
- Alternate lanes/carriers; activation time and cost.

## 72-hour sprint plan (from blank page to decision-grade view)

- Day 0:** Freeze scope and segments; issue the data request; confirm clean-team boundaries.
- Day 1:** Build the service view (OTIF, fill, backorder, chargebacks) and inventory health by KVI; draft the first five Critical Item Cards.
- Day 2:** Score top suppliers; compute TTS/TTR and first-pass RaR/MaR; map two logistics lanes with performance and cost.
- Day 3:** Model two disruption scenarios and one inflation/fuel scenario; publish early-warning indicators and the 90-day Readiness Plan; push RaR/MaR toggles into the financial model and propose term-sheet levers (indexation, inventory covenants, dual-source milestones).

Run this checklist with discipline and you will replace vague comfort about “strong operations” with a quantified resilience view: what threatens service and margin, how big the exposure really is, and the handful of actions that raise confidence in the growth and price story—before you close and while you still have leverage to protect value.

## 10.2 Capacity and Scalability Analysis – Step-by-Step Guide

Capacity and scalability analysis connects the commercial plan to the real world of plants, partners, people, and platforms. The core question is simple: can the company meet the volumes, mix, service levels, and geographies in the plan—at the promised margin—without relying on heroics? The answer requires a disciplined walk from demand to the bottleneck, translating engineering and staffing metrics into revenue-at-risk and CM2 impact. Treat capacity as a system: physical assets (make/move), human capacity (implement, service, support), and digital capacity (cloud, data, integration limits). Then size headroom, time-to-add, and cost-to-add by segment and route-to-market.

## Principles to anchor the work

- Capacity is **effective**, not nameplate. Adjust for uptime, changeovers, learning curves, quality yield, staffing, and supplier reliability.
- Bottlenecks drive throughput. Non-constraints don't set output; measure and manage the constraint first.
- Utilization beyond ~80–85% at the constraint causes non-linear wait times; backlog and cycle times balloon before output does.
- Step-fixed costs and lead times matter. Most capacity comes in steps (new shift, tooling set, cluster, or partner) with real commissioning time.
- Commercial consequences come first: when capacity is short, service levels drop, realized price slips (discounts, chargebacks), and retention suffers.

## Step 1 — Freeze demand scenarios and service levels

Start with the plan the deal depends on. Translate growth into concrete “demand objects” by segment: units per SKU family, installs per month, implementation hours, tickets per active customer, API calls per second, orders per lane. Fix the service promise (OTIF, lead-time quote, SLA/uptime). Define three demand cases—base, surge (+20–30% on key value items or peak weeks), and mix shift (toward the products/segments with the highest observed growth). These scenarios will “drive” your model through the capacity stack.

## Step 2 — Map value streams and name the constraint

Create a fast, visual map from order to cash for each major product/service family. Mark process steps, resources, and queues: sourcing → fabrication/assembly → test/pack → ship, or sign-up → implementation → go-live → support. Identify candidates for the constraint (machine center, testing cell, skilled role, specific partner tier, database or third-party rate limit). If you cannot state “the constraint is X in stream Y,” you are not ready to do math.

## Step 3 — Assemble the capacity data pack (minimum viable but decision-grade)

- **Physical operations:** rated speeds, shift patterns, planned maintenance, changeover times, scrap/rework, first-pass yield, OEE history, labor

rosters and cross-training, overtime history and policy, subcontract options, test cell throughput, pack/ship cut-offs, and 3PL wave capacity.

- **Supply inputs:** critical component lead times and MOQs, supplier OTIF, dual-source status, and time-to-qualify alternates (tie to 10.1).
- **People-based services:** implementation/project templates with hours by role, active pipeline of projects, FTE counts by skill, utilization and shrinkage (vacation, training, admin), attrition, time-to-hire and time-to-productivity by role, partner bench capacity.
- **Digital platform:** current and p95 CPU/memory/IO utilization, request concurrency and RPS, database QPS and locks, cache hit rates, autoscaling policies and warm-up times, third-party API limits (payments, messaging, data), multi-tenant “noisy neighbor” controls, and SLO breach rates.
- **Cost and timing:** capex for adds (tooling, lines, environments), install/commission lead times, contract terms with partners/cloud (reserved vs. on-demand), and any regulatory or certification gates.

## Step 4 — Compute effective capacity where it really lives

Convert raw capability into continuous, comparable units for each stream.

- **Manufacturing/fulfillment:** Effective hourly capacity = rated speed × availability × performance × quality yield (OEE). Adjust for changeovers by using an **effective cycle time** at the planned mix. Convert to weekly/monthly capacity by multiplying by staffed hours and planned shifts; show headroom at 80–85% utilization.
- **Service/implementation:** Effective monthly capacity (by role) = FTE × available hours × utilization × productivity factor. Deduct shrinkage (holidays, training, meetings). For multi-skill tasks, compute capacity in “standard hours” and reflect the critical role as the constraint.
- **Support/tickets:** Effective capacity = FTE × available hours × productivity; cross-check with historical tickets per active account and seasonality.
- **Digital/cloud:** Effective capacity is defined by the first SLO-limiting resource at p95 (database, message broker, backend). Use current p95 loads and autoscaling policies to estimate **safe headroom** without violating latency/uptime targets. Compute cost per incremental request or tenant at that headroom.

## Step 5 — Compare demand to capacity with simple, defensible math

- **Takt time vs. cycle time:** Takt = available production time ÷ demand. If the bottleneck cycle time > takt, you will miss.
- **Little's Law (sanity check):** WIP/Queue = Throughput × Flow time. If flow time or WIP explodes at current throughput, the constraint is saturated.
- **Headroom:** Headroom% = (Effective capacity – Required demand) ÷ Effective capacity. Keep a cushion at the constraint; running >85% invites reliability issues.
- **Mix sensitivity:** Recompute effective capacity at the “surge” and “mix shift” cases; many lines break at pack/test or at the one role the staffing model undercounts.

## Step 6 — Build a capacity ladder (what you can add, how fast, and at what cost)

Separate the “no-regrets” operational levers from step-changes, and tie each rung to time-to-impact and \$.

- **Zero-to-low cost (0-12 weeks):** schedule smoothing, sequence optimization to reduce changeovers, cross-training, modest overtime caps, preventive maintenance catch-up, debottleneck test or pack, second carrier/gateway activation, enable autoscaling with pre-warm pools, raise API concurrency with caching.
- **Step-fixed (1-2 quarters):** add a shift, buy duplicate tooling/fixtures, hire and ramp 3-10 key roles, qualify a subcontractor for a specific step, add DB read replicas, shard a hot dataset, add edge cache/CDN, extend 3PL wave windows.
- **Strategic (2-6 quarters):** new line or cell, major automation, new facility or 3PL, full second-source qualification for critical components, replatform or multi-region cloud, partner program overhaul.

For each rung, complete a **Capacity Add Card**: bottleneck addressed, capacity delta, time-to-benefit (calendar), one-time and run-rate cost, quality or SLA risk, and dependencies (e.g., supplier tooling, regulatory validation, security review).

## Step 7 — Price capacity realistically: ramp curves and learning

Capacity is not a light switch. Apply conservative ramps:

- **Hiring ramp:** time-to-productive by role (e.g., 60–120 days for implementation consultants; 30–60 days for L1 support). Include attrition backfill.
- **Equipment ramp:** delivery → install → qualification → yield stabilization (often 8–16 weeks even for “simple” adds).
- **Learning curve:** unit time or scrap improves with cumulative output; use a progress ratio (e.g., 85–95%) if historicals support it.
- **Cloud ramp:** scaling features ship fast but stabilize slower; allocate sprints for load testing, failure injection, and rollback plans.

## Step 8 — Translate constraints into commercial impacts within 24 hours

Push three numbers into the deal model by segment/channel:

- **Revenue-at-risk (capacity-limited):** units that cannot be shipped/installed × realized price; add the retention or delist risk if the item is a KVI or SLA-anchored.
- **Margin-at-risk:** expedite premiums, overtime, yield loss, spot freight, cloud overages; show CM2 impact at required volumes.
- **Lead-time and SLA changes:** service penalties, OTIF fines, and price concessions needed to sustain orders when lead times extend.

Where uncertainty remains, widen ranges and propose structure (e.g., inventory or dual-source covenants, capex escrows, earnouts keyed to activation capacity or NRR in capacity-constrained segments).

## Step 9 — Run three stress tests that actually change decisions

- **Demand surge on KVs (+20–30%) for two months:** does the constraint hold without SLA breaches or ruinous expedites?
- **Up-mix to complex variants or premium tiers:** do changeovers and test time collapse headroom?
- **Partner/platform shock:** marketplace or 3PL cuts capacity; cloud region outage or third-party API throttling; what’s the time-to-recover and the revenue at stake?

## Step 10 — Service and implementation capacity (often the hidden constraint)

For subscription and enterprise businesses, the gating factor is frequently people and calendar slots, not machines.

- **Implementation:** build a role-by-role hours model from the last ten projects; compute throughput (projects/month) at current staffing and utilization; check backlog age and slippage. Add partners as a parallel path with realistic productivity and quality multipliers.
- **Customer success and support:** ensure coverage ratios (accounts per CSM, tickets per agent), queue time, and resolution SLOs do not degrade with planned cohort adds; rising ticket backlog is an early churn signal.
- **Training and certification:** count certified personnel for regulated installs; quantify how many are needed to hit the plan by geography.

## Step 11 — Digital scalability (how software really breaks)

- **Throughput and latency:** runbooks should define safe p95 limits for core services; assess headroom at those limits.
- **Stateful bottlenecks:** databases and queues throttle more than stateless computers; if QPS at the primary nears limits, sharding/partitioning work belongs in the capacity ladder.
- **Third-party limits:** payment gateways, messaging providers, and data vendors impose RPS caps and rate limiting; treat these as external bottlenecks with their own add cards and SLAs.
- **Cost curves:** autoscaling hides limits but raises unit cost; model the step from on-demand to reserved commitments and the savings ramp.

## Step 12 — Governance and cadence (so capacity doesn't become a quarterly surprise)

Establish a lightweight operating rhythm that your sponsor can keep post-close:

- Monthly **S&OP** with one set of numbers: demand, supply, capacity, and inventory or backlog.
- A constraint dashboard for each value stream: utilization at the constraint, queue length, cycle time, yield/defects, and service/SLA hits.

- A change-control gate: any promotion, pricing move, or big deal that changes mix/volume must pass a capacity check before launch.

## Early-warning indicators to put on the PMO wall

- Constraint utilization >85% three weeks running; rising queue length or WIP; expedite spend trending up.
- Rising changeover hours per week; climbing scrap/rework at the constraint; test/inspection backlog.
- Implementation backlog age >45–60 days; certified headcount below plan; partner activation slippage.
- Ticket backlog and first-response times drifting; SLA credits issued; p95 latency creeping toward SLO.
- Supplier lead times stretching; 3PL wave cut-off misses; cloud bill spikes without matching revenue.

## Red flags—and immediate responses

- **Single-point constraint with no ladder:** pay for upside only in that stream; require a funded capacity add as a closing condition.
- **Plan counts on overtime as strategy:** cap at sustainable levels; price in quality and attrition costs; move capacity adds forward.
- **Implementation capacity underestimates ramp:** push bookings to upside or phase roll-outs; add partner capacity with guardrails.
- **Digital limits ignored:** database hot shards or third-party API caps threaten SLOs; add sharding, caches, or provider tiers to Day-1 priorities.
- **Changeover-heavy mix:** if premium variants explode changeover time, shift pricing/pack architecture or sequence rules; otherwise margin will erode.

## Acceptance criteria for a decision-grade capacity analysis

- Named constraints by value stream with **effective capacity** calculated (not nameplate) and headroom shown at the constraint.
- Three demand scenarios run through the stack, with revenue- and margin-at-risk quantified by segment/channel.
- A capacity ladder with time-to-impact and cost-to-add for the top two constraints; owners and dependencies clear.

- Implementation/support and digital capacity assessed alongside physical operations; partner and third-party limits included.
- Model updated within 24 hours with capacity-gated revenue, CM2 effects, and lead-time/SLA implications; residual uncertainty translated into terms or covenants.
- Early-warning indicators and S&OP cadence defined; exhibits footnoted and replicable under clean-team rules.

## Copy-ready templates you can lift into your workbench

- **Constraint Card**  
Constraint resource; value stream; current effective capacity and utilization; headroom; quality/yield; cost to run at surge; revenue/CM2 at risk; next rung on ladder; owner.
- **Capacity Add Card**  
Bottleneck addressed; capacity delta (units/hour or projects/month); one-time cost; run-rate cost; time-to-benefit; enabling actions (tooling, hires, qualification); risks; decision gate.
- **Implementation Capacity Sheet**  
Standard hours per project by role; active FTEs, utilization, productivity; pipeline of projects by start month; throughput; backlog age; partner contribution; ramp plan.
- **Digital Capacity Sheet**  
p95 load vs. limit for compute, DB, messaging, search, and third-party APIs; autoscale policies; SLOs; safe headroom; cost per incremental request; mitigation items with effort.

## 72-hour sprint plan (from blank page to a defendable view)

- **Day 0:** Lock demand scenarios and service/SLA targets; draw value-stream maps; nominate likely constraints.
- **Day 1:** Land the capacity data pack; compute effective capacity and headroom at each candidate constraint; validate with leads on the floor and platform runbooks.
- **Day 2:** Run base/surge/mix scenarios; quantify revenue- and margin-at-risk; draft Constraint and Capacity Add Cards; cost and time the top two rungs.
- **Day 3:** Update the financial model; publish the capacity ladder and early-warning dashboard; propose term-sheet protections (e.g.,

indexation, dual-source milestones, capex escrow) and the 90-day post-close plan.

Run this guide and you will convert “we can handle the growth” into a precise, time-phased view of what can ship, what could break, what it costs to prevent, and how quickly you can add headroom—by stream, by segment, and with numbers that hold up in Investment Committee.

## 10.3 Service-Level Performance Template

Service levels are where promises meet cash. Miss them and you pay—in chargebacks, service credits, price concessions, delistings, churn, or reputational drag that raises CAC. Hit them reliably and you unlock price power, distribution, and expansion. This template gives you a fast, defensible way to measure service performance the way buyers do, link it to unit economics, and set a short list of fixes you can execute inside the hold period. Keep it segmented by product family, customer tier, channel, and geography; averages hide the truth.

Start by separating three ideas that often get conflated. **Service Level Indicators (SLIs)** are the measurements (e.g., “p95 API latency,” “OTIF by order line,” “First Response Time”). **Service Level Objectives (SLOs)** are the internal targets (e.g., “p95 latency  $\leq$  300 ms, monthly”). **Service Level Agreements (SLAs)** are the contractual promises, with penalties, credits, or delisting risk if breached. In diligence, you will compute SLIs, compare them to SLOs, and price the SLA exposure.

### Define your vocabulary and freeze the scope

Choose the buyer-visible metrics that actually decide renewals, shelf space, or deal wins. Write one sentence per view—for example: “OTIF, perfect order rate, and chargebacks for big-box retail in North America, LTM,” or “Availability, p95 latency, and case response/resolution SLAs for enterprise SaaS in EMEA, last 8 quarters.” Lock the measurement window (rolling 12–24 months), period (weekly/monthly), and the segmentation you established in Chapter 6.

## Assemble a minimum viable data pack (once, use everywhere)

- **Contracts and policies:** SLAs, service credit schedules, OTIF and compliance guides (retail/marketplace), SOWs for implementations, support plans by tier, penalty ladders, delisting rules.
- **Operational systems:**
  - Fulfillment: WMS/TMS/ERP order lines with commit date, ship date, delivered date, quantity ordered/shipped, damage/return codes, chargebacks.
  - Support/Success: ticketing (created/first touch/resolve timestamps, severity, channel), case ownership, backlog age, CSAT.
  - SaaS/platform: telemetry (availability by region, p95/p99 latency, error rates), incident logs, deployment calendar, third-party API rate-limit and outage records.
  - Field/service/implementation: work orders, arrival windows, time-to-repair, first-visit fix flags, project plans vs. actual, milestone acceptance.
  - Finance: credits/waivers, SLA penalties, OTIF fines, markdowns tied to late deliveries.
- **Context:** promotions, price changes, peak calendars, inventory constraints, carrier/3PL SLAs, change freezes, product releases.

## Metric taxonomy that buyers recognize (with formulas)

Select the subset that fits your model; do not boil the ocean.

- **Fulfillment & logistics (retail, hardware, CPG, marketplaces)**
  - **On-Time In-Full (OTIF)** = (# orders delivered by promised date AND in full) ÷ (total orders).
  - **Fill rate** (line-level) = shipped qty ÷ ordered qty.
  - **Perfect order rate** = on-time × in-full × error-free × damage-free.
  - **Backorder rate** = backordered lines ÷ total lines; track **backorder age**.
  - **Chargeback rate** = chargeback count ÷ shipments; \$/order for fines.
  - **Return rate and damage rate** by reason code (defect vs. carrier).
- **SaaS / platforms / APIs**
  - **Availability** = 1 - (total downtime ÷ total time) over the SLA window. Report by region/AZ if relevant.

- **Latency:** p95 and p99 request latency by endpoint and region.
- **Error rate:** 5xx/4xx shared by endpoint; SLOs typically exclude user errors (4xx) but include 5xx.
- **Change failure rate** and **MTTR** (mean time to recover) from incidents.
- **Third-party dependency health:** % time under partner API rate-limit or outage.
- **Support / Customer success**
  - **First Response Time (FRT)** and **Time to Resolution (TTR)** by severity.
  - **SLA attainment** = (# cases meeting SLA ÷ # cases with SLA).
  - **First Contact Resolution (FCR)** and **ticket backlog** (open > X days).
  - **Contact rate** = tickets ÷ active customers; a leading indicator of churn.
- **Field service / Implementation / Professional services**
  - **Appointment on-time rate, First-visit fix rate, Mean Time To Repair (MTTR).**
  - **Time to go-live** vs. statement of work; **schedule variance** and **rework hours.**
  - **Billable utilization** where it constrains throughput (connect to 10.2).

## Measurement rules that keep numbers defensible

- **Clock start/stop:** define “on-time” explicitly (carrier scan vs. customer delivery, order commit vs. requested date). For support, define first response (bot vs. human) and resolution (workaround vs. permanent fix).
- **Partial shipments and split orders:** choose to count as “in-full” only if all lines meet promised dates; otherwise tag partials separately.
- **Percentiles, not averages:** report p50/p95 for latency and response times; averages hide tail pain.
- **Severe vs. non-severe:** weight breaches by severity (P1 vs. P3) when pricing credits or churn risk.
- **Attribution discipline:** tie chargebacks and credits to root cause (your warehouse, carrier, customer ASN errors) to avoid over-correcting.

## Build the baseline and link it to money

1. Compute monthly SLIs for the last 8–12 quarters by segment and channel; show mean and dispersion.
2. Compare SLIs to **SLOs** (internal) and **SLAs** (contractual). Quantify breach frequency and duration.
3. Translate breaches to dollars:
  - **Service credits / penalties:** sum actuals; model exposure from breach bands (“if availability falls to 99.5–99.8%, credits = 5% of MRR for affected tenants”).
  - **Chargebacks/compliance fines:** \$ per breach × incidents; include delisting risk in marketplaces/retail.
  - **Margin drag:** expedites, overtime, dual-ship, extra inventory handling.
  - **Revenue & retention:** cancellations, lost orders, downgrade rates, and observed churn hazard deltas after breaches (use 6.3 hazard methods).
4. Produce a **Service-to-Economics Bridge** for each top segment showing how a 1-point change in OTIF, availability, or response time moves CM2 and NRR.

## Tiering and promises—match the offer to the engine

If the target sells Gold/Platinum tiers with different SLAs, verify that capacity and process actually support them (10.2). Confirm price fences, eligibility, and enforcement (8.2). For marketplaces, confirm that seller tier benefits (search rank, paid placement, fees) are earned and at risk if SLIs slip.

## Design a simple, auditable scorecard

Use this one-pager per segment or customer tier.

- **Service-Level Performance Card (copy and fill)**
  - **Scope:** [segment, channel, geo, period].
  - **Contracted SLAs:** [metrics, thresholds, credit ladder].
  - **Observed SLIs (LTM):** Availability \_\_%, p95 latency \_\_ ms; OTIF \_\_%; perfect order \_\_%; FRT/TTR by severity; appointment on-time \_\_%; first-visit fix \_\_%.
  - **Breach summary:** [count, duration, severity mix]; **credit/penalty \$;** delisting warnings Y/N.

- **Root-cause mix:** [inventory, capacity, carrier, third-party API, change failure, customer EDI].
- **Economic link:** CM2 drag \$; **NRR/GRR impact (hazard + pts)** with evidence; price concessions \$\_\_.
- **Risk scenarios:** [e.g., peak weeks, carrier change, API throttle].
- **Remediations & owners:** [top 3, time-to-impact, cost].
- **Confidence & sources:** H/M/L; system logs, WMS/TMS extracts, ticketing IDs, APM traces.

## Governance and cadence

- Introduce a monthly **SLO review** that pairs product/ops with sales/CS and finance.
- Use an **error-budget** concept for SaaS: if availability or latency burns the monthly budget, freeze high-risk changes and prioritize reliability work.
- For retail/marketplaces, run a weekly **OTIF/chargeback clinic** with 3PLs, carriers, and top accounts; close root causes within a defined SLA.
- Tie incentives: managers own SLOs; deal desks honor price floors only when SLOs stay green.

## Early-warning indicators (watch weekly)

- OTIF < target by ≥2 pts, or backorder age rising.
- p95 latency drifting toward SLO; rising 5xx error rate; incident MTTR lengthening.
- Case backlog age > threshold; FRT/TTR slips on P1; rising contact rate per account.
- Appointment on-time slippage; first-visit fix rate downtrend.
- Chargeback frequency, SLA credit accruals, or waiver requests trending up.

## Red flags—and what to do now

- **Chronic SLA credits with no roadmap item:** move price power to upside only; require a reliability plan as a closing condition.
- **OTIF fines on KVs or delisting warnings:** widen revenue ranges; add inventory/3PL covenants and a lane-diversification action.
- **Availability claims without third-party monitoring:** lower confidence; require independent uptime verification post-close.

- **Support “green” while churn rises:** compute contact rate and backlog age; many dashboards hide tail pain—cut by severity and p95.
- **Implementation overruns burning capacity:** tie bookings to implementation slots; add partner capacity with guardrails (10.2).

## Push results into the model within 24 hours

- Add **SLA credit** and **chargeback** lines to CM2 by segment/channel.
- Adjust **price realization** corridors where service misses force concessions (8.2).
- Introduce **NRR/GRR drag** in segments with proven hazard after breaches (6.3).
- For SaaS, reduce **new ARR recognition** in periods with change freezes or backlog; for retail, reduce **sell-through** where delist risk is flagged.
- Encode **scenario toggles**: peak-week OTIF -3 pts, availability -0.2 pts, or carrier switch; show CM2/NRR sensitivity.

## Quality controls you must enforce

- Two-source rules: pair system logs or scans with finance credits/chargebacks for each breach band.
- Time-zone and clock alignment across WMS/TMS/APM/ticketing.
- Partial shipment and severity rules stated and applied consistently.
- Incident and ticket deduplication; suppress bot auto-responses as “first touch” unless contracted.
- Verifier re-computation from raw extracts before any exhibit leaves the workbench; clean-team protocols for customer-specific data.

## Industry nuances to handle explicitly

- **Healthcare and regulated:** TAT (turnaround time) for specimens or prior auths, adverse-event reporting timeliness, and QMS audit trails are service levels with regulatory teeth—treat breaches as valuation and closing-condition issues.
- **Marketplaces:** buyer cancel rate, late shipment rate, refund/return rate, and seller response time determine search rank and fee tiers; delisting risk is a step-function, not a slope.
- **Usage-based SaaS:** measure active-rate and intensity alongside latency/availability; a reliability dip often shows up as intensity decay before logo churn.

- **Hardware + service:** protect the **annuity**; spares fill rate and MTTR drive consumable/service ARPU more than new device OTIF.

## **Copy-ready checklists and mini-templates**

### **Service Data Hygiene Checklist**

- Clock definitions documented (on-time, first response, resolution).
- Partial shipment policy applied consistently.
- Percentiles (p95/p99) used for latency/response; averages flagged as supplemental.
- Root-cause taxonomy implemented; carrier vs. warehouse vs. customer EDI separated.
- Ticket deduplication and bot filters applied; severity mapping aligned to contracts.
- Finance tie-out for penalties/credits complete; verifier sign-off logged.

### **SLA Credit Exposure Card (per contract/tier)**

- SLA metric and threshold; credit ladder.
- Observed breaches (count, duration, severity).
- Credits taken (LTM) and modeled exposure (+/- bands).
- Root cause; mitigation; owner; due date.

### **Peak Readiness Checklist (retail/marketplaces)**

- KPI safety stock days; secondary carrier/gateway activated; late cutoff capacity.
- ASN accuracy and label compliance checks complete.
- OTIF dashboard on hourly cadence; chargeback dispute playbook ready.

### **Reliability Sprint Template (SaaS/platform)**

- Top 3 incident patterns; error budget burn; rollback coverage; load test schedule.
- Dependency SLAs (payments, messaging, data) verified; rate-limit alarms added.

- Release freeze criteria; on-call staffing; comms templates.

## 72-hour sprint plan (from blank page to decision-grade)

- **Day 0:** Freeze scope and segmentation; issue data request (contracts, operations, finance logs); document measurement rules (clock starts, partials, severity).
- **Day 1:** Compute SLIs for top segments; compare to SLOs/SLAs; quantify credits/fines and margin drag; build first two Service-Level Performance Cards.
- **Day 2:** Link breaches to revenue and retention (hazard deltas); run one peak and one dependency scenario; draft remediation actions with time-to-impact and cost.
- **Day 3:** Update the financial model (SLA credits, chargebacks, CM2 drag, NRR/GRR); publish early-warning indicators and a 90-day go-to-green plan; propose term-sheet levers (indexation, inventory/3PL covenants, uptime verification, milestone-based earnouts).

## Acceptance criteria for a decision-grade service review

- Contracted SLAs, internal SLOs, and observed SLIs reconciled by segment/channel with definitions on the page.
- Breach frequency and financial impact (credits, fines, concessions) quantified and tied to CM2 and NRR/GRR.
- Root-cause mix established; at least two decision-relevant scenarios modeled with toggles in the plan.
- A 90-day remediation plan with owners, time-to-impact, and cost; capacity dependencies aligned with 10.2.
- Early-warning indicators defined and wired into the operating cadence.
- Verifier tie-out to raw extracts complete; clean-team protocols observed.

Use this template and “great service” stops being a slogan. You’ll have a buyer-true picture of performance, the dollar impact of misses, and a practical path to raise reliability where it moves price, shelf space, win rate, and retention—inside the horizon that matters for the deal.

## 10.4 Cost-to-Serve Benchmark Checklist

Cost-to-serve (CTS) is the money you spend after you win the order to fulfill, implement, support, and retain that revenue—by segment and route-to-market. In diligence, CTS is the hinge between a beautiful gross margin and the CM2 that actually lands. Done right, a CTS view explains price corridors (8.2), clarifies unit economics (8.3), exposes channel realities (9.2), and quantifies how service promises (10.3) translate into cash. The objective in a sprint is not an academic activity-based costing time; it is a defendable, segmented CTS build you can plug into the model and use to set immediate margin and policy moves post-close.

### What CTS covers (anchor this definition up front)

Think “everything variable or semi-variable required to fulfill, deliver, and keep the customer productive,” excluding product COGS already in CM1. Typical CTS buckets:

- **Fulfillment & logistics:** pick/pack labor, carton/dunnage, labels, parcel/line-haul/last-mile, accessoriels (fuel, oversized, residential), sortation, cross-dock, brokerage, duties, storage for fast turns, outbound 3PL fees.
- **Returns & reverse logistics:** return shipping, inspection/screening, refurbish/scrap, re-stock, refund/chargeback handling, re-pack, secondary market markdowns.
- **Payments & risk:** processor/assessment fees, chargebacks/disputes, fraud losses, KYC/AML checks where applicable.
- **Customer care & success:** contact center minutes, tiers/queues, success/CSM time, onboarding aids and training consumables.
- **Field/implementation/service:** travel time & miles, on-site labor, spares, test instruments, third-party contractors, project management and cut-over nights.
- **Platform/compute & third-party APIs (for digital):** cloud usage (compute/storage/network/DB), observability, CDN, per-message/per-transaction fees to providers (payments, SMS, data).
- **Compliance & penalties:** OTIF/chargebacks (retail), SLA credits (SaaS), warranty claims processing.

- **Channel programs:** co-op/MDF you treat as post-sale support, paid placement tied to service, marketplace support fees.

Everything here is **below** your price waterfall's vendor-realized revenue (8.2) and **above** corporate overhead. Put overhead in a separate analysis; do not bury it in CTS.

## Step-by-step: build a defendable CTS in a diligence sprint

### 1) Freeze your scope and segmentation

Write a one-line definition per view: "CTS per order for DTC US, AOV \$80–\$120, LTM," "CTS per enterprise tenant per month, EMEA hosted, Gold support," or "CTS per reseller order in NA distribution." Apply the segmentation from Chapter 6 (customer/job, size band, channel, region, product family). Use the **same period and currency** as your pricing and CM2 work.

### 2) Assemble the minimum viable data pack (request once)

- **Operations systems:** WMS/TMS pick/pack timestamps and units handled; parcel and LTL invoices with accessorial; 3PL bills; returns reasons and routes; ACD/call center minutes; ticketing/CS workflow timestamps; field service/PS time logs; cloud provider invoices by service; third-party API usage and caps.
- **Finance:** GL/ledger extracts for shipping, payment fees, fraud/chargebacks, warranty, SLA credits, OTIF fines, refunds; accrual vs. cash timing.
- **Contracts:** 3PL/carrier rate cards, rebate ladders and surcharges, marketplace take-rate and paid placement terms, payment processor schedules, warranty policies, SLA credit ladders.
- **Drivers:** order lines per order, items per carton, DIM weight mix, distance/zones, service levels, return rates by reason, contact rate per account, implementation standard hours by role, active user intensity, API calls per tenant.

### 3) Choose a method—and keep it simple and auditable

Use **time-driven ABC (TDABC)** for people/process steps and **invoice-based actuals** for bought services.

- TDABC rate: **Cost per minute** = fully loaded hourly labor cost ÷ (paid minutes × utilization). CTS for an activity = minutes per transaction × cost per minute × volume.

- Invoice-anchored cost: use carrier, processor, cloud, and 3PL invoices as the source of truth; reconcile to GL. Avoid model-only rates where actuals exist.

#### **4) Define the cost equation per segment (write it down explicitly)**

For a transactional order:

$\text{CTS}_{\text{per\_order}} = \text{PickPack} + \text{Materials} + \text{Outbound Freight} + \text{Accessorial} + \text{Payment Fees} + \text{Fraud/Chargebacks} + \text{Customer Care Minutes} \times \text{Rate} + \text{Returns} (\text{probability} \times \text{cost}) + \text{SLA/Compliance Penalties} (\text{probability} \times \text{cost}).$

For subscription/usage:

$\text{CTS}_{\text{per\_account\_month}} = \text{Hosting/Cloud} + \text{Support Minutes} \times \text{Rate} + \text{Success Hours} \times \text{Rate} + \text{Third-Party API Fees} + \text{Payment Fees} + \text{SLA Credits (expected)} + \text{Trust \& Safety}.$

For enterprise project work:

$\text{CTS}_{\text{per\_project}} = \text{Implementation Hours} \times \text{Role Rates} + \text{Travel \& Expenses} + \text{Cut-over Overtime} + \text{Spares/Tools Consumed} + \text{Rework (expected)}.$

#### **5) Compute corridors, not single points**

Produce medians and interquartile ranges for **CTS per order/account/project** and as **% of vendor-realized revenue** (8.2), by segment and channel. Corridors reveal mix and routing noise; single numbers get weaponized.

#### **6) Tie CTS to service and price—make the economics visible**

Overlay OTIF/latency/FRT from 10.3 to show where higher CTS actually protects revenue (e.g., premium shipping on KVs) versus where it is pure waste (expedites caused by planning errors). Map **returns and contact rate** to churn hazard for recurring models (6.3). Then connect to price ladders: if Gold support includes 24/7 and a 1-hour SLA, price fences must reflect its CTS delta.

#### **7) Reconcile to CM2 and GL (the credibility pass)**

- Ensure **numerator/denominator alignment**: CTS per order must divide total CTS dollars by the correct order count for that segment and period.
- Run a **GL tie-out**: the sum of CTS buckets equals the shipping/handling, support, warranty, SLA credit, payment fee, fraud, and cloud lines in the ledger (after pulling COGS out). Explain variances (timing, accruals).
- Apply **ratio-of-sums vs. sum-of-ratios discipline**: roll-ups should be ratio-of-sums to avoid small-order bias.

## 8) Benchmark with guardrails—directional ranges to frame debate

Use these corridors to sanity-check your build. Tighten them with your data by segment; do not treat them as absolutes.

- **DTC e-commerce (mid-weight, AOV \$50–\$150):** outbound freight and accessorials typically **6–12% of revenue**; pick/pack/materials **2–5%**; payment processing **2–4%**; returns and reverse logistics **3–8%** (can spike well higher in apparel); customer care **0.5–2%** depending on contact rate.
- **B2B distribution:** outbound freight **3–6%**; warehouse handling **2–5%**; order entry and care **\$2–\$6 per line**; returns **1–3% of revenue**.
- **SaaS (mid-market):** hosting/third-party APIs **5–12% of revenue**; support & success **5–10%** for standard tiers; implementation is **non-recurring** and should be treated outside run-rate CTS (but include for payback).
- **Usage/API platforms:** cloud and third-party fees move with intensity; total platform CTS often **10–25% of revenue** with sharp step-downs when reserved capacity replaces on-demand.
- **Marketplaces:** payment fees **2–3% GMV**; trust & safety **0.5–1.5% GMV**; customer support **1–3% GMV**; returns/refunds net **2–6% GMV** in physical goods categories.
- **Hardware + service:** field service CTS **8–20% of service revenue** (travel is the swing factor); spares logistics **3–6%**; warranty claims **1–3% of product revenue** for stable lines—outliers demand root-cause action.

If your computed CTS sits well outside these bands, either you've found a lever—or a data issue.

## 9) Translate CTS into levers with dated, costed actions

- **Policy & pricing:** set free-shipping thresholds by AOV and DIM weight; add return fees for buyer's remorse in low-margin categories; monetize premium SLAs; install CPI/fuel indexation where allowed.
- **Network & routing:** second DC or carrier to reduce zones and accessorials; zone-skip; consolidation rules; late cut-off capacity in peak.
- **Process & tech:** slim packaging to reduce DIM; auto-deflect contacts with self-serve flows; triage to asynchronous channels; returns triage and refurbishment playbooks; trust & safety automation; reserve cloud capacity to cap unit cost.

- **Partner terms:** tighten 3PL SLAs, paid placement caps, and audit rights; payment processor schedule optimization; marketplace fee tiering quid-pro-quo (rank vs. returns).

#### **10) Wire CTS into valuation, terms, and the model within 24 hours**

- Update **CM2** lines with CTS corridors by segment and channel.
- Add **scenario toggles:** +200 bps fuel surcharge, return rate +300 bps, payment fee +50 bps, call minutes +20%, cloud coverage at on-demand.
- Where uncertainty is material, reflect it in **structure:** covenants on promo/take-rate intensity, indexation clauses, caps on expedite spend, 3PL remediation milestones, earnouts tied to NRR or gross margin after shipping.

#### **Activity driver library (pick a small set that actually explains 80% of CTS)**

- **Order complexity:** lines per order, items per carton, hazardous/temperature control, custom pack.
- **Distance & speed:** zones/miles, premium service share, delivery window precision.
- **DIM & weight:** billed weight vs. physical; oversize/long-length penalties.
- **Customer behavior:** return probability by reason; contact rate per 100 orders; abuse/fraud propensity.
- **Digital intensity:** API calls per tenant, data processed per session, concurrent users.
- **Implementation difficulty:** sites/users per project, integrations count, required certifications.
- **Channel:** marketplace vs. direct vs. distributor (policy/fee differences); retail compliance.

#### **Quick worked mini-examples (for calibration)**

- **DTC apparel, AOV \$90:** outbound freight \$7.80 (8.7%); pick/pack/materials \$2.70 (3.0%); payment fees \$2.43 (2.7%); returns 22% with \$5.00 handling average → \$11.00 expected reverse cost per **sold** order (12.2%); care \$0.60 (0.7%). **CTS ≈ 27.3% of revenue** before SLA/chargebacks. Free-shipping threshold increase and fit tools reduce returns by 400 bps → ~4 pts CM2 recovery.

- **Mid-market SaaS, Gold tier:** cloud and APIs \$2.50 per \$25 ARPU (10%); support 15 minutes/month at \$1.20 per minute fully loaded (\$18.00) → 7.2% of revenue; success 0.25 hours/month at \$60/hour (\$15.00) → 6.0%. **CTS ≈ 23% of revenue.** Without a Gold premium or price fence, price power is being left on the table.
- **Enterprise implementation:** 180 standard hours @ blended \$110, travel \$2,400, spares \$600, rework expected \$1,000. **Project CTS \$23,400;** if billed services are discounted or “thrown in,” payback stretches—move to productized packages or minimum commits.

### Data hygiene and QA checklist (use this verbatim)

- CTS scope and segmentation **written** on page; period and currency aligned with price and CM2.
- GL tie-out performed; timing differences explained; accruals vs. cash labeled.
- Carrier/processor/cloud **invoices** used where available; not modeled rates.
- Labor rates built from **fully loaded costs** and realistic utilization; shrinkage included.
- Partial shipments, split orders, and reships **counted once** with clear rules.
- Returns reason taxonomy applied; “buyer’s remorse” separated from defects.
- Fraud/chargebacks reconciled to processor statements; disputes resolved lag handled.
- Percentiles (p50/p75/p90) reported where tails matter (contact time, latency).
- Ratio-of-sums used for roll-ups; sum-of-ratios shown only for diagnostics.
- Verifier replication complete; clean-team and privacy rules observed for order/customer-level data.

### Early-warning indicators (put these on the monthly dashboard)

- Outbound freight + accessoriels **as % of revenue** drifting upward by >100 bps; spike in fuel/oversize fees.

- **Return rate** or “no fault found” fraction rising; refurbish capacity backlog.
- **Payment fee** schedule changes; chargeback rate > threshold for card network programs.
- **Contact rate per 100 orders/accounts** increasing; backlog age > SLA.
- **Cloud unit cost** (per API call/account) spiking; on-demand share rising.
- **3PL/marketplace policy** changes: paid placement creep, storage fees, compliance fines.
- **Expedite spend** > target; OTIF fines or SLA credits escalating.

## Red flags—and how to respond now

- **CTS > 30% of revenue** in core DTC segments with no premium price lever → reset free-shipping thresholds, introduce return fees for remorse, and redesign packaging; reweight mix to replenishment SKUs.
- **Gold/Platinum support tiers priced like Standard** while CTS is 2–3× higher → enforce price fences or de-scope entitlements.
- **Carrier/3PL concentration >60% with rising accessoriials** → run a lane/zone rebid and activate a secondary gateway.
- **Cloud coverage dependence** → move to reserved or savings plans; prioritize the two highest-burn endpoints for caching and query optimization.
- **Chargeback or fraud spikes** → tighten SCA/3DS, address item-not-received root causes (scan chain), and recalibrate cancellation windows.

## Copy-ready templates

- **Cost-to-Serve Canvas (one per segment × channel)**
  - Scope & period; revenue metric (vendor-realized).
  - CTS equation with buckets; drivers selected.
  - Corridors: CTS per unit and CTS as % of revenue (median/IQR).
  - Service overlay: OTIF/latency/FRT; return/contact rates.
  - Levers & scenarios: top three with \$/timelines; owners.
  - GL tie-out notes; confidence label; verifier initials.
- **Driver & Rate Sheet (time-driven ABC)**
  - Roles, loaded hourly cost, utilization assumptions, cost/minute.
  - Standard minutes per activity (pick, pack, care tier, success task, field visit step).
  - Evidence source (time study, WMS timestamps, ACD logs).

- **Invoice Reconciliation Log**

- Carrier/3PL/processor/cloud invoices matched to GL lines; variance reasons; accruals reversed.

## 72-hour sprint plan (from blank page to decision-grade CTS)

- Day 0:** Freeze segments and CTS scope; issue a single data request (ops, finance, contracts); publish measurement rules (what counts where).
- Day 1:** Build first CTS equations and invoice-anchored buckets for two top segments; compute corridors; start GL tie-out; draft Canvas pages.
- Day 2:** Add TDABC for people steps; overlay service metrics; run one cost-shock scenario (fuel/returns/chargebacks) and one service-policy scenario (free-shipping threshold, support tiering).
- Day 3:** Push CTS into CM2 by segment; set early-warning indicators; publish a 90-day margin plan (3–5 levers with owners and dates); propose term-sheet protections (indexation, expedite caps, 3PL remediation milestones, earnouts tied to gross margin after shipping).

## Acceptance criteria for a decision-grade CTS benchmark

- Clear CTS definition and segmentation; corridors computed per segment/channel; **no averages that hide truth.**
- Invoice-anchored buckets reconciled to GL; TDABC rates documented; verifier tie-out complete.
- Service overlay and return/contact rates linked to CTS and to price/retention.
- Two or more decision-relevant scenarios modeled with toggles in the plan; early-warning indicators set.
- Model updated within 24 hours; residual uncertainty translated into valuation ranges and terms; 90-day action plan issued with owners and timelines.

Work through this checklist and cost-to-serve will stop being a vague “shipping and support line.” It will become a segmented, lever-ready map of where margin is lost or protected—and exactly what to do, at what cost and speed, to move CM2 in the direction your deal requires.

# Chapter 11. Regulatory, ESG, and External Factors

Markets do not exist in a vacuum. Licenses, approvals, data rules, tariffs, reimbursement schedules, climate policy, labor law, and platform policies can accelerate or derail a value-creation plan—sometimes overnight. A commercially focused diligence must therefore translate the external rulebook into numbers: what you are allowed to sell, to whom, at what price, under what conditions, with what penalties for failure, and how those constraints evolve over the hold period. This chapter gives you a practical toolkit to (i) map regulatory exposure and timing gates, (ii) assess ESG posture where it affects access, cost, and brand, and (iii) frame macro and policy scenarios that move revenue, margin, and cash. The outputs should slot directly into valuation ranges, term-sheet protections, and a 90-day post-close plan.

## 11.1 Regulatory Mapping Template

Regulatory mapping converts a thicket of rules into a short, auditable list of approvals, obligations, and risks that matter for the deal. The target state is simple: for each material segment and route-to-market, you can point to (a) the licenses and certifications required to operate, (b) the constraints that shape price, product, promotion, and data, (c) the penalties and probabilities of enforcement, and (d) the time and cost to close gaps. Done right, this work eliminates “unknown unknowns,” de-risks closing, and prevents heroics in the plan.

### Scope and materiality—set the guardrails first

Write one sentence that freezes scope, period, and segmentation: “Regulatory exposures for US hospital segment, EMEA enterprise SaaS, and NA retail channel; last 24 months plus 18-month forward watchlist.” Apply the same segmentation used across the diligence (customer/job, size band, channel, region, product family). Define materiality thresholds up front (e.g.,  $\geq 2\%$  revenue impact,  $\geq 100$  bps CM2 swing,  $\geq 8$ -week timing gate, or non-insurable penalties).

## A pragmatic taxonomy (cover these domains and drop what doesn't apply)

- **Sector approvals & product regulation:** Licenses, device/drug approvals, product standards and labeling, equipment certifications, professional accreditations.
- **Competition/antitrust & transaction control:** Pre-closing filings and gun-jumping limits; exclusivity/MFN clauses; platform gatekeeper rules.
- **Privacy, data, AI & cybersecurity:** Personal data handling, cross-border transfers, security obligations, algorithmic accountability and model transparency where applicable.
- **Trade, sanctions & export controls:** Denied-party screening, tariff/FTA eligibility, export classifications and license needs, country-of-origin claims.
- **Environment, health & safety (EHS):** Permits, hazardous materials, producer responsibility (packaging/WEEE/battery), climate and emissions disclosures.
- **Payments & financial conduct:** Money transmission, KYC/AML, consumer credit/BNPL, interchange and surcharge rules.
- **Employment & labor:** Worker classification, wage & hour, collective bargaining, workplace safety; staffing and subcontracting limits for the public sector.
- **Tax & marketplace obligations:** Sales/use tax nexus, VAT/GST registrations, marketplace facilitator rules, digital services taxes.
- **Public sector procurement:** Contract vehicles, set-aside eligibility, security clearances, debarment, gift/ethics rules.
- **Advertising & claims:** Health/financial/green claims, testimonials, endorsements, UGC moderation, sweepstakes.
- **Healthcare/insurance specific (if applicable):** Reimbursement codes and coverage, provider credentialing, prior authorization timeliness.
- **Platform & channel policies (quasi-regulatory):** Marketplace/app-store rules, take-rate clauses, data access, parity/MAP, product safety compliance.

## Evidence pack—request once, reuse everywhere

- Licenses, permits, certifications, filings, and correspondence with authorities; approval letters and scope.
- Contracts and ToS: customer, channel, marketplace, data processors, cloud/service providers, payment processors.

- Policies and controls: privacy notices, DPAs, ISMS/SOC2/ISO certifications, risk registers, change-control, incident logs, complaint registers, CAPA logs.
- Product & labeling dossiers; test reports; clinical or performance evidence (where applicable).
- Screening logs (sanctions/export), tariff classifications, broker entries, certificates of origin, bills of material for regulated content.
- Employment and contractor policies; timekeeping/overtime reports (aggregated); safety incident records.
- Tax registrations and returns (summary); marketplace facilitator status confirmations.
- Board and S&OP packs that mention regulation, approvals, product withdrawals, or policy changes.

## **Step-by-step mapping (built for a two- to four-week diligence sprint)**

1. **Fix applicability by segment.** For each domain in the taxonomy, state “applicable / not applicable / uncertain” by segment and channel. Where uncertain, run a single clarifying call with counsel or a subject-matter advisor; do not over-engineer.
2. **Inventory current approvals and obligations.** Build a register of what exists today—licenses, certifications, filings, tariffs/FTAs utilized, privacy program artifacts, DPAs, controls, and channel/platform policy acceptances. Include owner and renewal dates.
3. **Identify triggers and timing gates.** Flag change-of-control clauses, anti-assignment provisions, pre-market approvals, clinical or validation requirements, prior authorization SLAs, HSR or other transaction notifications, and public-sector innovations. Attach a conservative lead time to each gate.
4. **Quantify economic constraints.** Where rules shape economics, turn them into toggles: price caps, take-rate limits, reimbursement fee schedules, cross-border data limits (latency or regionalization costs), packaging EPR fees, duty rates, or marketplace penalties.
5. **Score enforcement exposure.** For each obligation, compute a simple **Risk = Impact × Likelihood** score with written anchors:
  - *Impact* (1–5): immaterial → existential (license loss, debarment).
  - *Likelihood* (1–5): remote → frequent (based on history, audits, complaint volume, inspection cadence).

Express the top items as **Revenue-at-Risk** and **Margin-at-Risk** ranges with assumptions.

6. **Locate gaps and remediation paths.** For each high-risk item, state the corrective action, time, cost, owner, and dependencies (e.g., supplier certification, system changes, product reformulation). Distinguish **close-before-close** vs. **post-close** actions.
7. **Translate to the model and term sheet.** Turn the map into numbers (timing gates, CM2 drag, price caps) and protections (conditions precedent, special indemnities, escrows, covenants, earnouts). Keep the linkage on the page.
8. **Set the watchlist.** Capture pending or proposed changes likely to land inside the hold period (e.g., tariff resets, privacy/AI obligations, retailer policy shifts, EPR expansions). Record expected timing and probability and wire to early-warning indicators.

## Regulatory Mapping Canvas (copy one per segment × domain)

- **Scope & owner:** segment, channel, region, product family; internal owner; counsel SME.
- **Requirement:** the obligation or approval in plain English.
- **Authority / source:** regulator or platform; reference to the controlling rule or policy.
- **Applicability & triggers:** when it applies (thresholds, activities, change-of-control).
- **Evidence on file:** license numbers, certificates, contracts, policies, audit reports.
- **Status & timing:** compliant / gap / pending; renewal dates; lead time to remedy or obtain.
- **Economic effect:** price cap, fee, duty, surcharge, take-rate, SLA/credit ladder; CM2 impact.
- **Enforcement history:** inspections, penalties, complaints; probability band.
- **Risk rating & range:** Impact 1–5 × Likelihood 1–5; revenue/margin-at-risk range.
- **Mitigations & dependencies:** specific actions, costs, critical path items.
- **Model hooks & terms:** toggles you changed (price, CM2, timing); proposed CPs/indemnities/escrows.
- **Confidence & sources:** H/M/L; link to artifacts; verifier initials.

## Clean-team and gun-jumping guardrails (do not skip)

- Keep customer-specific pricing, pipeline, or strategic plans behind clean-team walls.
- No pre-close coordination on market allocation, pricing, discounts, or future bids.
- Share only aggregated compliance statistics outside the ring-fence; avoid competitively sensitive cross-company benchmarking without counsel's sign-off.

## What to produce (decision-grade pack, not a binder)

- A **one-page heatmap** of the top 10 regulatory exposures by segment with Impact × Likelihood scores and \$ ranges.
- A **Closing Conditions sheet** listing filings/approvals, responsible party, dates, and critical path.
- A **Regulatory Economics bridge** converting rules into price caps, fees, and CM2 effects.
- A **Special Terms memo**: indemnities, escrows, RWI carve-outs, covenants (e.g., indexation, inventory or service SLAs, privacy program milestones).
- A **90-day Remediation plan** with owners, costs, and outcome metrics.

## Common exposure patterns—and how to quantify them without drama

- **Data & AI obligations:** Treat privacy/AI rules as cost and latency toggles (data residency, logging, explainability, human-in-the-loop). Model: incremental hosting/compliance cost per account, longer implementation time, feature flag constraints in regulated segments.
- **Trade/sanctions/export:** Convert classification and routing to landed cost; add denied-party screening coverage and false-positive handling time to CTS; scenario a tariff/take-rate shock.
- **Healthcare reimbursement:** Price is a function of code coverage and payer policy. Model scenario bands tied to coverage decisions and authorization SLAs; include credentialing lead times as timing gates.
- **EPR/packaging/product content:** Translate per-unit fees and redesign costs into CM2 drag; include labeling lag as a timing gate for new SKUs.
- **Marketplace/app-store policy:** Treat take-rate and paid placement as quasi-regulatory. Model penalty ladders for policy breaches (e.g., late shipment rate) and delist risk.

- **Employment/labor:** Reclassifying contractors or missed overtime creates retroactive liabilities; model accruals and forward-cost step-ups by geography; track unionization thresholds in the public sector.

## Term-sheet levers linked to the map

- **Conditions precedent (CPs):** required filings/clearances, license transfers, consents/novations, approval letters for SKUs or indications, data-transfer mechanism in place.
- **Special indemnities/escrows:** unresolved investigations, back taxes, labor misclassification, privacy/security incidents, export or sanctions violations.
- **Covenants:** implement indexation, maintain inventory/OTIF on regulated/KVI lines, sustain program certifications (SOC 2/ISO), complete remediation milestones by set dates.
- **Earnouts:** tie to approvals (launch/coverage milestones), NRR in segments gated by remediation, or realized price under price-cap risk.

## Early-warning indicators to monitor monthly post-close

- Renewal/expiry calendar for licenses and certifications; % in 90-day danger zone.
- Regulator or marketplace policy bulletins; tariff and fuel surcharge notices; audit/inspection cadence.
- SLA/credit accruals, chargebacks, and complaint rates; incident log for privacy/security.
- Denied-party screening hits and export error rates; broker entry rejections.
- Labeling/EPR submission status by SKU; pack claims or greenwashing challenges.
- Worker classification disputes, wage & hour claims, safety incidents.

## 72-hour sprint plan (from blank page to decision-grade)

- **Day 0:** Freeze scope and materiality thresholds; issue a single evidence request; agree on clean-team boundaries.
- **Day 1:** Populate the Regulatory Mapping Canvas for two top segments; compile approvals/obligations register and closing-conditions list; mark timing gates and confidence.

- **Day 2:** Quantify \$ impact for the top 10 exposures (price caps, CM2 drag, fees, penalties); run two scenarios (policy shock and timing delay); draft Special Terms memo.
- **Day 3:** Update the operating model (price, CM2, cash/timing); publish the heatmap, watchlist, and 90-day remediation plan; align term-sheet levers and owners.

## Acceptance criteria for a decision-grade regulatory map

- Scope, segmentation, and materiality thresholds written on page; clean-team rules enforced.
- Approvals/obligations register complete for material segments; timing gates and owners assigned.
- Top exposures scored with Impact × Likelihood, expressed as revenue- and margin-at-risk ranges with sources and confidence labels.
- Model updated within 24 hours to reflect regulatory economics and timing; residual risk translated into CPs, indemnities, covenants, or earnouts.
- Watchlist of pending changes with timing, probability, and early-warning indicators; 90-day remediation plan with owners, costs, and outcomes.
- Verifier tie-out to artifacts complete; all exhibits footnoted; no reliance on unverifiable claims.

Run this template and “regulatory” stops being a mysterious footnote. It becomes a quantified, time-phased set of approvals and constraints you can underwrite, protect in the term sheet, and manage post-close—so the plan you buy is the plan you can legally and sustainably execute.

## 11.2 ESG Risk Assessment Checklist

Environmental, Social, and Governance (ESG) factors are now commercial gatekeepers as much as ethical commitments. Large customers embed ESG screens in RFPs; retailers and marketplaces impose sustainability and safety codes; lenders and insurers price risk into rates and covenants; regulators translate environmental and labor expectations into obligations; and consumers reward or punish brands based on perceived integrity. In diligence, treat ESG as an earnings and access issue: which requirements are already binding, what will tighten in the hold period, and how exposures translate into revenue, margin, cash, and strategic option value. Your aim is a defendable

map of material ESG risks and opportunities—by segment and route-to-market—with quantified ranges you can wire into pricing (8.2), unit economics (8.3), channel plans (9.2), and operational resilience (10.x).

Begin with materiality and segmentation, not slogans. The same metric can be trivial in one line and existential in another. A marketplace seller with high return rates faces waste and policy penalties; a med-tech firm with weak quality systems faces license risk; a SaaS vendor with poor security governance invites churn and credits; a manufacturer with concentrated, coal-heavy suppliers faces margin compression when energy costs spike or carbon costs rise. Lock the segments that move dollars (Chapter 6) and evaluate ESG where money and access sit: by product family, customer tier, channel, and geography.

## **Scope and materiality—freeze the rules of the road**

Write one sentence per view that fixes scope, period, and threshold: “ESG exposures for Enterprise healthcare in North America (last 24 months actuals; 24-month forward watchlist; material if  $\geq 2\%$  revenue impact,  $\geq 100$  bps CM2 swing,  $\geq 8$ -week timing gate, or non-insurable penalties).” Apply the same segmentation and time windows across all ESG cuts. State explicitly that you will assess both **downside risk** (revenue-at-risk, margin-at-risk, cash drag) and **credible upside** (win-rate lift, realized price premium, lower CAC, lower cost of capital).

## **Assemble a compact, decision-grade evidence pack**

Request artifacts once; reuse everywhere. Prioritize originals and external attestations over slideware.

- Customer and channel requirements: buyer codes of conduct, RFP ESG questionnaires, retailer/marketplace policies, audit findings, supplier scorecards, and any third-party ratings customers ask for.
- Policies and controls: environmental policy, supplier code, human rights policy, safety standards, DEI commitments, whistleblower and anti-bribery programs, data security and privacy controls, internal audit results.
- Operational and footprint data: energy use by site, renewable share, fuel mix, water use and discharge, waste and diversion, hazardous

materials, packaging specs, returns and scrap, incident logs (safety, quality, ethics), training completion.

- Supply-chain transparency: tier-1 and critical tier-2 suppliers, countries of origin, audit coverage and findings, corrective action plans, product content where regulated, traceability status.
- Governance: board composition, independence and committees, executive incentive design, related-party disclosures, escalation and CAPA cycle times, compliance investigations.
- Financial linkages: fines/chargebacks/credits, insurance premiums and exclusions, energy and freight surcharges, EPR and recycling fees, carbon/energy hedges, capex for compliance.
- Claims and marketing: environmental or social claims and substantiation, customer complaints, takedown/delist notices.

## A fast, falsifiable materiality triage

Avoid boiling the ocean. Use a six-theme screen to rank what matters in each segment, then drop the rest.

1. **Climate & energy:** energy intensity, carbon exposure (own operations and suppliers), price and reliability risk, and potential carbon-cost pass-through.
2. **Materials, waste & product stewardship:** packaging and EPR fees, hazardous content, returns/refurbish waste, end-of-life responsibilities, circularity potential.
3. **Water, land & biodiversity:** water stress at key sites, discharge compliance, deforestation-linked inputs, land-use constraints.
4. **Labor, human rights & safety:** supplier labor practices, forced/child labor risk, worker classification, wage & hour, DEI and pay equity, TRIR/LTIFR, field safety.
5. **Data ethics & customer trust:** privacy and security governance beyond legal minimums; AI model governance where relevant; incident history; uptime and fairness commitments.
6. **Governance & conduct:** board oversight, whistleblower health, anti-bribery/third-party due diligence, related-party hygiene, tax transparency.

For each theme, state a plain-English “would-have-to-be-true” (WHTBT) risk and an upside thesis (e.g., “Win-rate lift in public sector if independent security

attestation is achieved,” or “≥300 bps CM2 drag if return rate remains above policy threshold in marketplaces”).

## Quantify what's quantifiable—use simple equations and ranges

ESG in diligence is about bounds, not false precision. Use corridors that bracket exposure and plug into the model within 24 hours.

- **Carbon & energy exposure (downside):**  
Carbon cost exposure (annual)  $\approx$  **Scope 1+2 tCO<sub>2</sub>e × assumed carbon price band** (low/med/high) + **electricity price sensitivity** × kWh. Show pass-through ability and elasticity implications (6.4).  
Energy cost volatility exposure (quarterly)  $\approx$  kWh or fuel units × price variance band; include data-center or cloud energy where billed.
- **Packaging & EPR (downside):**  
EPR cost (annual)  $\approx$  units sold × fee per unit (by material) + one-time redesign cost ÷ payback horizon.
- **Waste & returns (both):**  
Waste drag (quarterly)  $\approx$  return rate × average reverse-logistics cost - recovered value; link to 10.4 CTS and 9.3 ROI (promo-induced returns).
- **Labor & safety (both):**  
Attrition drag  $\approx$  (turnover - peer median) × replacement cost per FTE × time-to-productivity; safety drag  $\approx$  incident rate × avg. cost per recordable × lost-time hours × wage rate. Upside from improvement drops CAC (employer brand) and raises productivity.
- **Supplier ethics & country risk (downside):**  
Revenue-at-risk (RaR)  $\approx$  revenue on SKUs tied to high-risk suppliers × probability of disruption or delisting (from retailer/platform policies) × duration band.
- **Governance & conduct (downside):**  
Penalty exposure  $\approx$  historical fine/settlement band × likelihood class; add sales exclusions (public sector debarment risk) as a binary RaR for segments.
- **Commercial upside:**  
Price premium potential  $\approx$  willingness-to-pay uplift (from VoC) × eligible mix × realization factor; win-rate lift  $\approx$  (delta win-rate in ESG-gated RFPs) × pipeline share; CAC benefit  $\approx$  lower cost per hire/sale where brand and rating thresholds unlock channels.

## Step-by-step ESG diligence (2–4 weeks, decision-grade)

1. **Map buyer gates and channel policies.** Read the last 12–18 months of RFPs and retailer/marketplace policies for top segments. Extract the hard gates (e.g., audit pass required, specific safety or environmental thresholds, diversity commitments) and the scoring levers (e.g., energy-efficient product certifications, inclusive procurement). Tie each gate to revenue share at risk and to the workstreams in 9.2 and 10.3.
2. **Baseline the metrics that move economics.** Produce a compact dashboard per segment: energy and carbon intensity; return and defect rates; waste and diversion; water use where material; TRIR/LTIFR; contact rate and SLA credits (trust and service) from 10.3; supplier audit coverage and findings; whistleblower activity and resolution time. Use medians and interquartile ranges—averages hide spikes.
3. **Score the supply base—complement 10.1 with ethics.** For critical SKUs, rate tier-1 and key tier-2 on labor practices, audit outcomes, country risk, and corrective action status. Flag common-mode risks (same region, same raw input) and any reliance on suppliers with recurrent findings. State dual-source status and time-to-qualify alternates.
4. **Stress-test three scenarios.**
  - **Carbon/energy shock:** apply low/medium/high carbon price and a ± band on electricity or fuel; show CM2 effect, pass-through feasibility, and pricing response.
  - **Policy or platform enforcement:** raise EPR fees or return-rate penalties within realistic bands; test marketplace policy tightening (late shipment/return thresholds) and retailer compliance fines (10.3).
  - **Labor or ethics incident:** remove a high-risk supplier for 8–12 weeks; quantify revenue at risk, expedite cost, and delist probability; include remediation path.
5. **Translate into model toggles and terms.** For each material segment, change price realization corridors, CTS buckets (10.4), and capacity ladders (10.2) as dictated by scenarios. Where uncertainty is material, propose term-sheet levers: indexation clauses, inventory and service covenants on KPIs, supplier qualification milestones, special indemnities for known investigations, or earnouts tied to NRR/price realization in ESG-gated segments.
6. **Identify the two to three credible upsides.** Only include upsides with clear evidence and owners: premium packaging that cuts returns and raises price, energy efficiency that repays in <18 months, a security or

sustainability attestation that unlocks public sector or marketplace tiers, or a product redesign that removes a restricted component and lifts shelf access.

## ESG Diligence Canvas (copy one per segment and fill)

- **Scope & materiality:** segment, channel, region, product family; thresholds (revenue %, CM2 bps, timing gate).
- **Top exposures (E/S/G):** 3–5 items with WHTBT statements and confidence labels.
- **Buyer gates & channel policies:** hard requirements and scoring levers; revenue share affected.
- **Baseline metrics:** energy/carbon intensity, returns/waste, water (if material), TRIR/LTIFR, SLA credits/contact rate, supplier audit coverage and findings, governance incidents.
- **Economic bridges:** carbon/energy, EPR/waste, labor/safety, returns/contact costs; show formulas and bands.
- **Scenarios:** carbon/energy shock, policy/platform enforcement, supplier ethics incident; RaR/MaR outputs.
- **Upsides:** price premium, win-rate lift, CAC reduction; proof and enabling actions.
- **Model hooks & terms:** lines changed (price, CTS, CM2, NRR), proposed covenants/earnouts/indemnities.
- **Owners & 90-day plan:** two to three actions with cost, impact, and deadlines.
- **Confidence & sources:** evidence list and verifier initials.

## Mini-cards you'll reuse across the deal

- **Carbon & Energy Exposure Card**—site or product: baseline kWh and fuel, renewable share, carbon intensity, price sensitivity, carbon-cost bands, pass-through notes, and quick wins (procurement, metering, efficiency).
- **Supply-Chain Ethics Risk Card**—supplier or cluster: audit outcomes, corrective actions, country risk, critical content, dual-source status, time-to-replace, and commercial exposure.
- **RFP/Channel ESG Gate Card**—buyer or platform: requirement text, pass/fail or score weighting, current status, revenue affected, remediation path and timing.

- **Returns & Waste Card**—SKU family: return rate and reasons, refurbish and scrap pathways, policy thresholds, marketplace penalties, and margin bridge.

## Governance, assurance, and clean-team rules

Keep customer- and supplier-identifiable audits behind clean-team walls; share only aggregated, anonymized outputs outside the ring-fence. If management relies on third-party ratings, record the underlying evidence and the ways buyers use those ratings (gate vs. nice-to-have). For claims in marketing, require substantiation and legal sign-off; green claims without proof become pricing and delisting risk (9.3, 10.3).

## Common failure modes—and the fix

- **ESG as PR, not P&L.** Remedy: convert each risk to revenue- and margin-at-risk with simple equations; drop items without economic linkage.
- **Averages that hide trouble.** Remedy: segment by product/channel/geo; show medians and dispersion; highlight tail risk (p90 returns, p95 latency credits, site-level energy spikes).
- **Supplier ethics scored once, never updated.** Remedy: couple the 10.1 resilience cadence with ethics metrics and corrective-action tracking; re-score quarterly.
- **Upside hand-waving.** Remedy: include upsides only with VoC proof, buyer gate documentation, or observed win-rate/price lift; otherwise park in narrative.
- **Greenwashing risk.** Remedy: pair each external claim with evidence and approval; add a pre-close claim audit; treat gaps as term-sheet items.

## Early-warning indicators (monitor monthly post-close)

- Return rates and “no fault found” shared by SKU; marketplace penalty/late shipment thresholds approached.
- Energy intensity and spend per unit; renewable share; carbon-cost proxy; site-level anomalies.
- Supplier audit closures on time; repeat findings; geo or input concentration rising.
- Safety: TRIR/LTIFR trend; severe incidents; CAPA closure time.

- Trust: SLA credits, privacy/security incidents, contact rate per account, backlog age.
- Governance: hotline volume and closure time; related-party disclosures; internal audit findings.
- Channel: retailer policy changes, delist warnings, ESG certification expiries.

## 90-day post-close plan (only what moves economics fast)

- **Buyer gates:** close the two biggest RFP gaps (e.g., security/sustainability attestations, product certification).
- **Returns & waste:** fix the top two root causes (fit/quality, packaging, claims), reset policies to align with marketplace thresholds, and implement refurbishment at scale where margin-positive.
- **Energy & carbon:** install metering where missing; negotiate energy supply and cloud commitments; fund the fastest payback efficiency wins; set a simple carbon-cost shadow price for capex.
- **Supply-chain ethics:** roll out supplier code and audit plan for critical tier-1 (plus key tier-2); qualify a second source where ethics and resilience overlap.
- **Governance hygiene:** tighten incentives and approvals (discount guardrails, claim substantiation), refresh whistleblower and anti-bribery training in sales and channel teams.

## 72-hour sprint plan (from blank page to decision-grade)

- Day 0:** Freeze scope and materiality thresholds; issue a single evidence request; align clean-team boundaries.
- Day 1:** Map buyer gates and channel policies for the top two segments; build baseline metric cards; draft Carbon & Energy and Returns & Waste cards.
- Day 2:** Score top suppliers on ethics (coverage and findings); run three scenarios (carbon/energy shock, policy/platform enforcement, supplier incident); quantify RaR/MaR ranges; identify one credible upside.
- Day 3:** Push toggles into the model (price, CTS/CM2, NRR); publish the ESG Diligence Canvas, early-warning indicators, and a 90-day plan; propose term-sheet protections (indexation, inventory/service covenants, supplier qualification milestones, special indemnities, earnouts tied to NRR or price realization in ESG-gated segments).

## Acceptance criteria for a decision-grade ESG assessment

- Scope, segmentation, and materiality thresholds written on page; clean-team protocols observed.
- Buyer gates and channel policies documented with revenue share affected; supplier ethics coverage and findings summarized for critical SKUs.
- Baseline ESG metrics that tie to economics built by segment; formulas and corridors for carbon/energy, returns/waste, labor/safety, and trust costs shown with sources.
- Three scenarios modeled with revenue- and margin-at-risk ranges; model updated within 24 hours; residual risk translated into terms (covenants, milestones, indemnities, earnouts).
- Two to three credible upsides identified with proof and named owners; a 90-day plan issued with costs, impact, and deadlines.
- Verifier tie-out complete; every exhibit footnoted and replicable.

Run this checklist and ESG stops being a soft narrative. It becomes a quantified set of gates, costs, and advantages you can underwrite—an explicit part of price, terms, and the first 90 days of creating value.

## 11.3 Macroeconomic Scenario Guide

Macroeconomics is the weather in which your target sells, prices, and collects. A robust diligence does not try to **predict** the weather; it **prices** a small set of plausible climates and shows, by segment and route-to-market, how revenue, CM2, cash, and covenant headroom move in each. This guide gives you a practical, fast path: pick three to five externally anchored scenarios, translate each into micro-level drivers (volumes, price realization, input costs, financing costs, FX, working capital), and wire the outputs into your model and term sheet within 24 hours. Keep it segmented. A downturn that hurts enterprise capex may benefit low-ticket consumer categories; an energy shock may compress European CM2 but leave North America stable. Averages hide truths.

Begin with anchors you can cite. Use a well-recognized **baseline** (for example, the IMF's World Economic Outlook) and two to four **alternatives** that bracket the hold period (recession, stagflation, rate-cut whipsaw, energy/FX shock). Supervisors routinely publish macro stress scenarios with specific paths for

unemployment, GDP, home prices, and credit spreads; borrow their discipline and vocabulary for your cases instead of inventing bespoke nomenclature.

## What to decide up front (freeze these before you model)

- **Horizon and cadence:** monthly for the next 6–12 quarters; annual thereafter if needed.
- **Materiality thresholds:** change a scenario only if it moves  $\geq 2\%$  revenue,  $\geq 100$  bps CM2,  $\geq 50$  bps covenant headroom, or  $\geq 50$  bps WACC.
- **Segmentation lens:** customer/job-to-be-done, size band, route-to-market, region, and product family (consistent with Chapter 6).
- **Disclosure policy:** note whether you will use published anchors (IMF baseline; central-bank stress scenarios) and maintain a short bibliography in the appendix for the Investment Committee.

## Scenario taxonomy you can lift and tailor

Use three “always on” cases plus two optional ones if they are material for your target:

1. **Soft-landing / benign disinflation:** modest real GDP growth, inflation easing toward target, gradual rate cuts, flat credit spreads; consumer real incomes stabilize, capex improves late in horizon.
2. **Recession:** negative real GDP for 2–3 quarters, unemployment up materially, falling inflation, wider credit spreads, rate cuts and steeper curve; volumes fall most in cyclical segments, pricing power weakens.
3. **Stagflation:** low/negative growth with sticky inflation; central banks slow to ease; real incomes and margins compress; discounting fails to stimulate volumes.
4. **Rate-shock / funding squeeze (optional):** policy rates or credit spreads stay elevated; refinancing and floating-rate debt hit I&E; B2B customers delay deals.
5. **Energy/FX shock (optional):** input/freight and utility costs spike and FX moves sharply; regional CM2 diverges; compliance and indexation clauses become decisive.

## Choose external anchors for the macro paths (keep it simple, cite them)

- **Baseline path:** IMF WEO growth and inflation for your geographies; adapt only where the target's end-markets run structurally hotter/colder than GDP.
- **Downside/stress paths:** borrow elements from supervisory stress scenarios (paths for unemployment, home prices, CRE prices, credit spreads) to avoid wishful thinking.
- **Leading indicators to time turning points:** Purchasing Managers' Indexes (PMIs) for manufacturing/services and the orders-to-inventories ratio are widely used early signals; use them to phase demand before lagging data prints.
- **Financial conditions:** treat the yield curve (10-year minus 3-month) as one check on recession risk; pull its history or the New York Fed's probability model only to **time** your recession case, not to claim certainty.

## From macro to micro: the transmission channels you must quantify

Map each scenario into the handful of levers that actually move your P&L and cash. Do this by segment and route-to-market.

- **Demand volume:** tie to end-market proxies (e.g., PMI new orders for industrial, housing starts for building products, IT investment indexes for software). Use short elasticities derived from your time series or nearest-neighbor comps.
- **Price realization and mix:** combine price-cost gap logic with the differentiation score (Chapter 8.4) and demand elasticity tests (Chapter 6.4).
- **Input costs and logistics:** energy, freight, and key commodities; for SaaS/usage businesses, cloud and third-party API unit costs.
- **Labor and service delivery:** wage inflation and staffing availability in implementation/support; capacity ladders from Chapter 10.2.
- **Financing costs:** floating-rate debt, refinancing walls, revolver usage; translate policy-rate and spread paths into quarterly interest expense and covenant headroom.

- **FX:** translation (consolidation) and transaction (sourcing, pricing) effects; set price fences or indexation rules by currency where feasible.
- **Working capital:** DSO/late-payment drift in downturns; inventory days for KPIs; payables terms tightening in stress.

## Simple, auditable equations (use ranges, not point precision)

- **Revenue sensitivity (by segment s):**  

$$\Delta\text{Rev}_s \approx \beta_{\text{gdp},s} \times \Delta\text{GDP}_{\text{region}} + \beta_{\text{pmi},s} \times \Delta\text{PMI} + \beta_{\text{fx},s} \times \Delta\text{FX} + \beta_{\text{promo\_lift},s} - \beta_{\text{price\_elasticity},s} \times \Delta\text{Price}_s.$$

(Estimate  $\beta$ 's from your history or nearest comps; show ranges.)
- **Price-cost gap:**  $\Delta\text{CM2\%}_s \approx \Delta\text{RealizedPrice}_s - [\text{w\_input},s \times \Delta\text{InputInflation} + \text{w\_freight},s \times \Delta\text{Freight} + \text{w\_labor},s \times \Delta\text{Wage} + \text{w\_cloud},s \times \Delta\text{Compute}]$ .
- **Interest expense:**  $\Delta\text{IE} \approx \Delta(\text{PolicyRate} + \text{Spread}) \times \text{Avg floating debt} - \text{hedge\_effect}$ .
- **FX translation:**  $\Delta\text{Revenue\_USD} \approx \text{Rev\_local} \times \Delta\text{FX}$  (weighted by local share); keep transaction impacts separate.
- **Working capital cash drag:**  $\Delta\text{Cash} \approx \Delta\text{DSO} \times \text{DailyRevenue} + \Delta\text{DIO} \times \text{DailyCOGS} - \Delta\text{DPO} \times \text{DailyCOGS}$ .

## Step-by-step build (five half-day passes, reusable across deals)

1. **Exposure map (Half-Day 1):** For each top segment, list the 5–7 exposure levers that move ≥80% of outcomes (volume proxy, price power, two biggest input costs, wage- or capacity-sensitive delivery steps, funding, FX, working capital). Assign a “direction of pain” note for each scenario.
2. **Scenario parameter sheet (Half-Day 1):** Paste baseline and alternative paths for GDP, CPI/PCE, unemployment, policy rate, credit spread, FX, energy/freight; document the source and timestamp for each path.
3. **Elasticities and pass-through (Half-Day 2):** Estimate  $\beta$ 's from 3–5 years of monthly/quarterly data (or proxy cohorts). Where data are thin, triangulate with PMIs and peer disclosures; label confidence.
4. **Driver-based P&L and cash (Half-Day 3):** Wire the parameter sheet into revenue, CM2, opex, interest, FX translation, and working capital. Build toggles for promo depth, indexation, and mix shifts.

5. **Covenant and liquidity view (Half-Day 4):** Add DSCR/interest coverage, net leverage, and minimum liquidity; test “two bad quarters” in each scenario.
6. **Decision deck (Half-Day 5):** Publish a one-page per segment: scenario deltas to revenue, CM2, cash, and headroom; top three levers; owner and 90-day actions.

#### **How many scenarios are “enough”?**

Three is usually sufficient if they are **externally anchored** and **structurally different** (e.g., soft-landing vs. recession vs. stagflation). Add **rate-shock** or **energy/FX shock** only if your exposure map says they materially move outcomes. Resist “scenario bloat” that confuses rather than clarifies.

#### **Leading indicators and early-warning dashboard (update monthly)**

- **Demand:** PMI headline and new orders; orders-to-inventories ratio; retail sales by category where relevant.
  - **Labor:** initial unemployment claims; vacancy-to-unemployment ratio where available.
  - **Financial conditions:** 10Y-3M term spread; BBB/IG credit spreads; small-business credit surveys where relevant.
  - **Costs:** energy benchmarks, parcel/freight spot indexes, cloud unit cost; wage trackers.
  - **FX:** DXY or specific currency pairs tied to sourcing/pricing.
  - **Customer health:** days sales outstanding, disputes, down-sell/seat-shrink rate; marketplace delist/penalty warnings (Chapter 9.2).
- Treat “two indicators red for two months” as a trigger to shift from baseline to downside execution mode.

#### **Borrow discipline from supervisors—without copying their portfolio**

Regulators publish macro stress **paths** and methodology each year (for example, the Federal Reserve’s supervisory scenarios and stress-test methodology). You are not a bank, but you can adopt their clarity about variables, timing, and severity to avoid wishful thinking. When in doubt, use their unemployment and home-price paths as the spine of your downside case.

## Translating scenarios into actions (the commercial lens)

- **Pricing & indexation:** If stagflation is plausible, hard-wire CPI/commodity/fuel indexation into new and renewal contracts (8.2) and set promo guardrails; simulate price/elasticity from 6.4 before assuming pass-through.
- **Mix & channel:** Pivot coverage and spend (9.2, 9.3) to segments with structural demand (compliance-driven, efficiency ROI, non-discretionary).
- **Capacity & cost:** Adjust capacity ladders (10.2) and CTS levers (10.4) for the downside; pre-position low-cost lanes or reserved cloud capacity if energy/freight shocks are material.
- **Credit and cash:** Tighten terms, auto-dunning, and dispute workflows; price late-pay risk; expand credit insurance or collateral where practical.
- **FX & rates:** Pre-define hedging bands and counterparties; reflect hedge costs in CM2. (No pre-close execution.)
- **M&A and partnership posture:** In a sustained downturn scenario, prepare for tuck-ins at lower multiples; in a benign disinflation, fund product-led/partner-led routes that compound.

## Quality controls that keep scenarios honest

- External **anchors** documented with date/time; changes tracked.
- **Two-source rules** for each leading indicator you rely on (e.g., PMI + company order intake).
- **Ratio-of-sums** (not sum-of-ratios) for rollups; currency and inflation consistency stated.
- **Backtests:** apply last two macro bumps to your driver model to see if it would have “predicted” the direction and approximate magnitude.
- **Verifier pass:** a second person can reproduce each scenario result from the parameter sheet.

## Common traps—and quick fixes

- **Copy-pasting GDP into revenue.** Fix: use segment-specific proxies (PMI, housing starts, IT spend) and estimate β's; show ranges, not points.
- **Assuming cost relief equals price relief.** Fix: model price-cost gap explicitly with indexation and elasticity.
- **Ignoring funding costs.** Fix: tie policy-rate and spread paths to quarterly interest expense and covenant headroom.

- **Treating the yield curve as fate.** Fix: use it to **time** the recession case, not to assert certainty; keep management options (price/mix/cost) front and center.
- **Scenario bloat.** Fix: three clear cases beat seven fuzzy ones.
- **No owner, no clock.** Fix: every lever in a case must have an owner, cost, and start date.

## 72-hour sprint plan (from blank page to decision-grade)

- Day 0:** Freeze scope, segments, horizon, and materiality; import baseline and two alternates from external anchors; timestamp sources.
- Day 1:** Build the exposure map by segment; estimate quick  $\beta$ 's from internal time series or proxy cohorts; set initial price/elasticity ranges (6.4).
- Day 2:** Wire parameter paths into a driver-based P&L/cash model; add financing, FX, working-capital, and covenant views; run soft-landing, recession, and stagflation.
- Day 3:** Publish a one-pager per segment with deltas and top levers; update valuation ranges and structure (indexation covenants, earnouts tied to NRR/price realization in ESG-gated segments; closing conditions for critical approvals in 11.1); set early-warning indicators and owners.

## Acceptance criteria (use this as your “done” check)

- Scenarios are **externally anchored**, dated, and cited; macro paths are translated into micro drivers by segment (revenue, CM2, cash, headroom).
- Elasticities and pass-through assumptions shown as ranges with confidence labels; at least one backtest performed.
- Early-warning dashboard defined (PMI, term spread, credit spreads, energy/freight, FX, DSO); trigger rules written.
- Model updated within 24 hours; residual uncertainty translated into valuation ranges and term-sheet protections.
- Owners and 90-day actions assigned for each material lever; clean-team protocols observed.

Use this guide and your macro view will stop being a hand-wavy appendix. It will become a decision tool with clear anchors, explicit micro-economics, and

named actions—so the Investment Committee can underwrite outcomes, not narratives.

## 11.4 Policy Change Watchlist Template

Policy shifts—whether from governments, regulators, standards bodies, platforms, or payment networks—can change your unit economics faster than competitive moves. A robust watchlist turns vague “regulatory risk” into an operational feed: what may change, when, who it hits, how it flows through price and CM2, and what you will do about it before it bites. Build this once, keep it live, and wire every entry to a model toggle, an owner, and a clock.

Start by defining what counts as “policy.” For commercial diligence, include any non-contractual rule that constrains what you can sell, how you price or promote, how you handle data, how you ship, how you get paid, how you hire, or how you disclose. Treat platform and marketplace rules as quasi-regulatory; they can be stricter and move faster than law.

### **Scope and taxonomy (freeze these at the outset)**

Group items so nothing important falls between the cracks. Use the same segmentation as the rest of the diligence (customer/job, size band, channel, region, product family).

- Legislative and rulemaking: new laws, delegated regulations, agency rules and guidance, consultations, technical standards that become de facto rules.
- Competition and platform governance: gatekeeper rules, self-preferencing limits, MFN/price-parity restrictions, app store/marketplace policy changes, ad policy shifts.
- Privacy, data, AI, and cybersecurity: personal data requirements, cross-border transfer limits, algorithmic transparency/impact assessments, security baselines and attestations.
- Trade and customs: tariffs, quotas, sanctions, export controls, certificates of origin, valuation and classification changes
- Tax: sales/use/VAT nexus, digital services taxes, marketplace facilitator obligations, withholding, e-invoicing mandates.

- Payments and finance: interchange/surcharge rules, money transmission, BNPL/credit guidelines, chargeback programs.
- Labor and public procurement: wage & hour, worker classification, unionization thresholds, contract-vehicle and set-aside rules.
- Environmental and product stewardship: EPR (packaging/WEEE/batteries), labeling, hazardous substances, carbon pricing and reporting.
- Healthcare and reimbursement (if relevant): coverage decisions, codes, prior authorization timing, credentialing.
- Advertising and claims: health/green/financial claim standards, endorsements, UGC moderation and disclosure.

## **Signals and sources worth monitoring (set once, then automate)**

- Official registers and dockets (national and sub-national), consultation portals, and agency bulletins.
- Standards bodies and security frameworks (ISO, SOC, NIST, PCI), industry consortia, trade associations.
- Platform and marketplace policy centers, developer portals, seller newsfeeds, and partner newsletters.
- Payment networks/processors, parcel carriers and 3PL notices, customs brokers.
- Retailer compliance portals, chargeback/OTIF policy updates, category-specific rulebooks.
- Court decisions, enforcement actions, warning letters, and consent decrees (signal how rules will be applied).
- Analysts and counsel alerts—useful for interpretation, but always anchor to primary sources.

## **A simple triage framework that keeps the list short and sharp**

Score every item on four axes; focus only on the ones that clear your materiality thresholds (e.g.,  $\geq 2\%$  revenue,  $\geq 100$  bps CM2,  $\geq 8$ -week timing gate, or non-insurable penalties).

- **Impact (I, 1–5):** potential revenue hit or CM2 swing if adopted/enforced.
- **Likelihood (L, 1–5):** probability of adoption/enforcement in the hold period (based on stage, political momentum, recent enforcement).

- **Immediacy (M, 1–5):** time to effect from today (reverse-scored: sooner = higher).
- **Controllability (C, 1–5):** your ability to mitigate through pricing, mix, routing, or process (reverse-scored: less control = higher).
- **Policy Priority Score (PPS):**  $PPS = I \times L \times (M + C)$ . Sort by PPS; work the top 10.

## Policy Change Card (copy-ready; fill one per item)

- **ID & title:** short handle (e.g., “EU marketplace late-shipment threshold ↓”).
- **Domain & jurisdiction:** [taxonomy bucket], [region/country/state/platform].
- **Source & link:** official register/policy page; last checked date.
- **Stage:** Emerging | Proposal/Draft | Adopted | Effective | Enforced; **key dates** (comment deadline, adoption, grace period end, enforcement start).
- **Affected scope:** segments, channels, SKUs, geographies; % of revenue/CM2 exposed.
- **Obligations & constraints:** what must change in product, price, promo, data, fulfillment, or support.
- **Economic bridge:** formula for effect (e.g., *Landed cost = FOB + duty% × value + brokerage; realized price corridor -200–400 bps if parity clause enforced*).
- **PPS & ranges:** Impact, Likelihood, Immediacy, Controllability; revenue-at-risk (RaR) and margin-at-risk (MaR) corridors with assumptions.
- **Mitigations & levers:** indexation, price fences, channel mix, packaging redesign, second source, alternate lanes, consent language, attestation timeline.
- **Dependencies:** supplier certifications, system changes, partner consent, counsel review.
- **Owner & cadence:** accountable exec, policy SME, next review date; RAG status.
- **Communications:** customers, partners, internal (FAQ, scripts, timing).
- **Model hooks:** which toggles you changed (price, CTS/CM2, CAC, working capital, timing).
- **Artifacts:** docket ID, guidance PDF, platform bulletin, enforcement examples.

## How to convert policy text into numbers (fast, falsifiable moves)

- **Tariff or duty change** →  $\Delta \text{LandedCost\_per\_unit} = \Delta \text{Duty\%} \times \text{customs value}$ ; **CM2 impact** = volume × price realization –  $\Delta \text{LandedCost} - \text{freight/accessorial spillovers}$ .
- **Marketplace/app-store take-rate +X bps** → net revenue drop = GMV ×  $\Delta \text{take-rate}$ ; **CAC/payback** elongation if paid placement also rises.
- **Return/late-shipment policy tightening** → expected penalty drag = incident probability × new penalty \$; **revenue at risk** from delist thresholds.
- **Privacy/data residency** →  $\Delta \text{CTS} = \text{added hosting} + \text{logging/compliance burden per account}$ ; **cycle time** shift for implementation.
- **Interchange/processor fee shift** →  $\Delta \text{CTS} = \Delta \text{bps} \times \text{realized revenue collected over card rails}$ ; consider mix by payment type.
- **Minimum wage or labor rule change** →  $\Delta \text{CTS} = \text{affected roles' hours} \times \Delta \text{wage} + \text{overtime/benefits knock-ons}$ ; reflected in implementation/support capacity.
- **EPR/packaging** →  $\Delta \text{CTS} = \text{units} \times \text{fee table by material} + \text{redesign amortization} \div \text{horizon}$ ; shelf access upside if compliance unlocks listings.

## Governance and cadence (keep it light, relentless, and linked to cash)

- **Weekly 20-minute “policy stand-up”**: top 10 cards; changes since last week; decisions due; one-slide model deltas.
- **Monthly risk committee**: re-score PPS, approve mitigations, escalate term-sheet asks (indemnities, covenants, CPs), set or clear red flags.
- **Ownership**: business line owns execution; legal/compliance interpret; finance models; channel managers handle platform items; supply chain executes routing and inventory changes.
- **Change log**: snapshot policy text, date, and diff; tie to card and model version; store in the data book.

## Automation that saves hours (no new software required)

- Turn on **RSS/email alerts** for registers, agencies, platforms, payment networks, carriers, and retailers you care about.

- Add **document diff watchers** on policy pages (where terms change silently).
- Keep a **single spreadsheet** or tracker (or your PMO tool) with Policy Cards, RAG status, dates, owners, and model hooks; version it weekly.
- Integrate with your **risk register** (Chapter 3.4) so capacity, service, and policy items live in one cadence.

## **Early-warning indicators (watch monthly; trigger work the moment two go red)**

- New **drafts or bulletins** on official portals; consultation deadlines within 60 days.
- **Platform policy diffs** that touch take-rates, search rank, or shipping/returns thresholds.
- **Chargebacks/OTIF penalties** trend up; delist warnings.
- **Processor/carrier notices** of fee schedule changes or surcharges.
- **Broker entry rejections** or export screening hit rate uptick.
- **Customer RFP gates** adding new attestations or sustainability/security requirements.
- **Enforcement tone shift**: warning letters, fines, or case law aligning against current practices.

## **Red flags—and immediate responses**

- **Effective date <90 days** with high PPS → move revenue/CM2 ranges to downside; launch a war-room; freeze features/promo that worsen exposure.
- **Platform take-rate or ranking policy change** on a channel  $\geq 20\%$  of revenue → run a mix-shift bridge; prep paid placement or diversify channels; consider term-sheet covenants.
- **New privacy/AI obligations** without an attestation path → cap growth in gated segments to upside only; fund certification as Day-1 priority.
- **Tariff/sanctions action** on a critical input with no alternate → haircut revenue in exposed lines; require dual-source milestones; build buffer stock.
- **Labor rule step-up** in a location with key fulfillment or support hubs → adjust CTS and capacity ladders (10.2); push indexation or price fences at renewal.

## Wire the watchlist into price, terms, and the model within 24 hours

For any high-PPS item, immediately:

- Update **realized price corridors, CM2/CTS, CAC/payback**, and **timing** in the driver-based model (add base and downside toggles).
- Translate residual risk into **structure**: conditions precedent (approvals, certifications), covenants (indexation, inventory/OTIF floors, platform tier maintenance), special indemnities/escrows (known investigations), and earnouts tied to **NRR** or **price realization** in gated segments.
- Publish a one-page **Decision Memo**: what changed, impact range, levers, owner, and next review date.

## 90-day implementation plan (prioritize moves that change cash within the hold period)

- **Indexation and price fences** in new/renewed contracts; add CPI/commodity/fuel clauses where legal.
- **Channel diversification** and shelf protection (secondary marketplaces/retailers; paid placement caps; KVI management).
- **Packaging and routing** tweaks to cut EPR/freight penalties; qualify alternates for sanctioned/tariffed inputs.
- **Attestations** needed for RFP gates (security, sustainability, accessibility); schedule audits and publish timelines.
- **Policy-ready service design** (SLA ladders, returns thresholds, data-location toggles) so you can adapt without re-platforming.

## Copy-ready templates (paste directly into your workspace)

### A) Policy Change Watchlist (tracker fields)

- ID | Title | Domain | Jurisdiction | Source/Link | Stage | Key Dates (consultation/adoption/effective/enforcement) | Affected Segments/Channels/Regions | Revenue % exposed | CM2 % exposed | Obligations Summary | Economic Bridge (formula + inputs) | PPS (I,L,M,C) | RaR \$ | MaR \$ | Mitigations | Dependencies | Owner (Exec/SME) | RAG | Next Review | Model Hooks | Artifacts

### B) Economic Bridge Library (snippets to reuse)

- **Tariff +5% on component X** →  $\Delta\text{COGS} = 0.05 \times \text{customs value}$ ; CM2\_sens =  $-\Delta\text{COGS} \times \text{units}$ ; pass-through = [0/50/100%] at renewal.
- **Marketplace take-rate +200 bps** →  $\Delta\text{NetRev} = -0.02 \times \text{GMV}$ ; CAC\_sens =  $+\Delta\text{paid placement if rank falls}$ .
- **Return penalty threshold from 12% to 8%** → expected penalty =  $\max(0, \text{return rate} - 8\%) \times \text{penalty\$/order} \times \text{orders}$ ; delist hazard when >2 months.
- **Interchange +10 bps** →  $\Delta\text{CTS} = 0.001 \times \text{card-processed revenue}$ ; check alternative rails mix.
- **EPR fee +\$0.03/unit** →  $\Delta\text{CTS} = 0.03 \times \text{units}$ ; redesign amortization added if pursued.
- **Data residency mandate** →  $\Delta\text{CTS} = \text{hosting uplift/account} + \text{implementation delay} \times \text{hazard on NRR}$ .

### C) Communication Plan Card

- Audience (customers/partners/internal) | Message (what/why/when) | Policy basis | Customer impact | Entitlements/price changes | Effective date | Support scripts & FAQ | Escalations | Owner | Send date

### D) Platform Policy Radar (per marketplace/app store/retailer)

- Policy page monitored | Last diff date | Take-rate | Paid placement rules | Returns/late-ship thresholds | Search rank levers | Evidence of enforcement | Listings/delisting trend | Owner

## 72-hour sprint plan (from blank page to a live watchlist)

- Day 0:** Freeze scope, segmentation, and materiality thresholds; build the tracker shell; subscribe to core sources; assign owners for top five domains.
- Day 1:** Populate ten candidate cards; score PPS; compute first-pass RaR/MaR for the top five using the Economic Bridge Library; draft model toggles.
- Day 2:** Validate sources with counsel/SME; run two policy scenarios (e.g., platform take-rate hike; tariff +5–10%); draft communication plan and term-sheet asks.

- Day 3:** Publish the watchlist, updated model, and a 90-day action plan; embed the weekly stand-up and monthly risk review; log evidence and version the tracker.

### Acceptance criteria for a decision-grade watchlist

- Scope and materiality thresholds written; segmentation consistent with the deal model.
- Top 10 Policy Cards completed with sources, dates, PPS, and quantified RaR/MaR ranges; model toggles updated within 24 hours.
- Clear owners, RAG status, and next review dates; change log and artifacts stored.
- Weekly and monthly cadences set; early-warning indicators defined; communication plans drafted for the top three items.
- Term-sheet translations proposed where uncertainty is material (CPs, covenants, indemnities, earnouts).
- Verifier pass complete; numbers reproduce from the tracker and cited artifacts.

Use this template and “policy risk” stops being a hand-wavy caveat. It becomes a living, prioritized queue of changes tied to dollars, owners, and dates—so you can price the risk, protect the downside, and move first when rules create a new right-to-win.

# Chapter 12. Technology and Digital Maturity

Technology is the scaffolding that holds your growth story up—or the hairline crack that gives way under load. In commercial due diligence, we are not grading code elegance or debating microservices doctrine; we are answering a practical question: can the company's digital capabilities **reliably** create, convert, fulfill, and retain demand at the velocity and cost implied by the plan? This chapter brings a commercial lens to technology. We focus on how architecture, data, security, operations, and go-to-market tooling translate into price power, conversion, NRR, CM2, cash payback, and resilience. We also make the technology risks underwritable: identifiable, quantifiable, and—where possible—tied to specific mitigations within the hold period.

Expect outputs you can plug straight into the model and term sheet: a weighted digital maturity score by segment and route-to-market; capacity and reliability headroom at stated SLOs; cloud and third-party unit-cost curves; dependency and rate-limit risks; GTM-stack hygiene and attribution confidence; and a dated, costed 90-day plan to lift the two or three bottlenecks that move economics fastest.

## 12.1 Digital Capability Framework

### Purpose and how to use it

The Digital Capability Framework (DCF) is a compact rubric for assessing whether the target's technology estate can deliver the commercial plan. It organizes digital capabilities into ten pillars, each scored on a 0–5 scale with evidence, then weighted by business model and segment. The result is a **Weighted Digital Maturity Score (WDMS)** and, more importantly, a short list of gaps whose fixes change revenue, margin, or cash in your horizon. Use it in a two- to four-week diligence sprint with clean-team access to artifacts (not source code) and with structured sessions across product, engineering, security, data, and revenue operations.

### The ten pillars (what “good” looks like and why it pays)

#### 1. Product Architecture & Extensibility

What you're testing: modularity, clear domain boundaries, stable APIs,

configuration over customization, versioning/compatibility discipline, multi-tenant readiness, and partner-friendly extensibility (SDKs, webhooks, events).

Why it pays: faster feature velocity and safer change → higher win rate, lower churn hazard after price moves; integration speed → lower CAC and shorter payback in enterprise segments.

## 2. Data, Analytics, and AI

What you're testing: capture of critical events, unified identifiers, quality and lineage, governed warehouse/lakehouse, self-serve BI, experimentation platform, model governance (features, drift, explainability), and privacy-by-design.

Why it pays: accurate attribution and LTV/CAC; better pricing and packaging; defensible differentiation where data compound (Chapter 8.4).

## 3. Platform Operations (SRE) and Reliability

What you're testing: explicit SLOs and error budgets, observability, incident response/MTTR, safe deployment (canary/blue-green), change failure rate, disaster recovery (RTO/RPO), multi-region posture, and capacity management.

Why it pays: fewer SLA credits, higher NRR, and price resilience; enables enterprise and regulated customers.

## 4. Security, Privacy, and Compliance

What you're testing: secure SDLC, vulnerability management, identity and secrets, third-party risk, encryption/key management, attestations (e.g., SOC 2/ISO), privacy controls and consent, AI/model risk procedures.

Why it pays: access to RFP-gated segments, reduced sales friction and cycle time, lower probability of catastrophic churn or fines.

## 5. Cloud, FinOps, and Unit Cost

What you're testing: cost allocation and showback, autoscaling and reserved commitments, hotspot awareness (e.g., database/egress), third-party API quotas and pricing, capacity ladders with time-to-add.

Why it pays: CM2 expansion through lower unit cost; prevents margin collapse when usage intensity grows (Chapter 8.3).

## 6. GTM Tech Stack and Revenue Operations

What you're testing: CRM hygiene and stage discipline, MAP/CDP integration, lead routing, attribution incrementality, CPQ and price governance, billing/subscription/entitlement accuracy, partner portals and marketplace integrations.

Why it pays: higher conversion and faster cycle, controlled discount leakage, clean realized-price corridors (Chapters 8.2 and 9.1).

#### 7. **Customer Experience, Support, and Success Tech**

What you're testing: omnichannel support, deflection/self-serve, in-app messaging, proactive detection from telemetry, playbooks tied to health scores, knowledge management, and feedback loops to product.

Why it pays: lower cost-to-serve, reduced churn hazard after changes (price, packaging, policy), and upsell readiness.

#### 8. **Delivery, Dev Productivity, and Quality**

What you're testing: CI/CD maturity, test automation, environment management, feature flags, trunk-based development, product discovery cadence, design system reuse, and backlog hygiene.

Why it pays: higher deployment frequency at lower change-failure rate → faster revenue capture and lower rework CTS.

#### 9. **Ecosystem and Integrations**

What you're testing: connectors to priority systems, app-store readiness, certification and listing status, partner enablement and sandbox, EDI where needed, and API documentation quality.

Why it pays: unlocks channels and accounts; reduces implementation hours → better payback and win rate.

#### 10. **Digital Governance and Portfolio Management**

What you're testing: clear product strategy and road-mapping, investment allocation and kill rules, architecture/runway reviews, risk register (policy, dependency, obsolescence), and value tracking (OKRs linked to P&L).

Why it pays: fewer zombie initiatives and faster pivot to segments with stronger economics.

### **Scoring rubric (0–5) and anchors you can defend**

- **0 – Nonexistent:** ad hoc, no evidence, outcomes depend on individuals.
- **1 – Emerging:** isolated practices; inconsistent data; manual gates; outages and rework common.
- **2 – Repeatable:** basic processes in place; partial tooling; reliability depends on heroics during peaks.
- **3 – Defined:** documented standards; DORA and SLOs tracked; APIs and data model stable; attestations in flight.
- **4 – Managed:** metrics drive decisions; automation prevalent (tests, deploys, cost allocation); third-party risk governed; consistent partner integrations.

- **5 – Differentiating:** capabilities compound advantage (e.g., data network effects, developer platform); reliability and cost are strategic levers.

Score each pillar per segment/route-to-market where economics actually differ (enterprise vs. SMB, marketplace vs. direct).

## **Weightings by business model (edit, document, and lock)**

- **B2B SaaS / usage-based:** Architecture 20%, SRE 15%, Security/Privacy 15%, Data/AI 15%, FinOps 10%, GTM Stack 10%, Delivery 10%, Ecosystem 5%.
- **Marketplaces / platforms:** SRE 15%, Security/Trust & Safety 15% (folded into pillar 4), Data/AI 15%, Ecosystem 15%, FinOps 10%, GTM Stack 10%, Architecture 10%, Governance 10%.
- **E-commerce / DTC:** CX/Support 15%, GTM Stack 15%, Data/AI 15%, FinOps 10%, SRE 10%, Architecture 10%, Ecosystem 10%, Delivery 10%, Governance 5%.
- **Hardware + service:** Architecture (embedded/OTA) 15%, SRE/Field Ops 15%, CX/Support 15%, Data/AI 10%, FinOps 10%, Ecosystem 10%, Security/Privacy 10%, Delivery 10%, Governance 5%.

## **Evidence pack (request once; use across all pillars)**

- Architecture: system and domain diagrams, API catalog, versioning policy, extension points, SDKs/webhooks, backlog for architectural debt.
- Data/AI: event schemas, ID resolution, lineage, quality SLAs, warehouse governance, experiment logs, model cards and drift alerts.
- SRE: SLOs/error budgets, incident postmortems, on-call runbooks, deployment calendars, DORA metrics (deployment frequency, lead time, change-failure rate, MTTR), DR test results.
- Security/Privacy: vulnerability scans, pen-test summaries, secure SDLC artifacts, IAM/secret procedures, SOC/ISO audit letters, DPIAs/consents.
- FinOps: cloud invoices (by service), reserved vs. on-demand mix, unit-cost dashboards (per tenant/API call/GB), third-party API bills and rate-limit logs.
- GTM stack: CRM/MAP/CDP schema, lead routing and dedupe rules, CPQ/discount ladders, billing/entitlement mappings, marketplace/partner portals.

- CX/Support: ticketing and knowledge base metrics, contact rate per account/order, deflection flows, in-app messaging events, health-score inputs.
- Delivery: CI/CD pipeline config, test coverage reports, feature flag usage, environment parity notes, release notes cadence.
- Ecosystem: connector catalog, listing status, certification evidence, partner sandbox availability, EDI maps.
- Governance: portfolio and OKR reviews, architecture board minutes, risk register and mitigations.

## Commercial metrics to compute (tie tech to dollars)

- **Reliability:** availability and p95 latency vs. SLO by region/tier; SLA credits as % of revenue (Chapter 10.3).
- **Velocity/quality:** DORA metrics with trend; % canary/blue-green; change-failure rate × cost of rework.
- **Unit cost:** \$ per API call/account/order and per GB stored/egressed; % on-demand vs. reserved; third-party API \$ per active.
- **GTM efficacy:** attribution incrementality (test or MMM-validated), CPQ exception rate, discount depth by stage, entitlement accuracy (credits/write-offs).
- **Success/serve:** contact rate per account/order, FRT/TTR by severity, implementation hours per project, backlog age.
- **Data health:** event capture coverage, ID match rate, data defect rate, model drift frequency.
- **Ecosystem:** time-to-integrate for top 3 systems, % deals using connectors, marketplace rank/SLAs.

## The Digital Capability Canvas (copy-ready; fill one per pillar × segment)

- Scope and owner; maturity score (0–5) with evidence links.
- Why it matters commercially (price, win rate, NRR, CM2, payback, service).
- Key metrics and latest values (with corridor and trend).
- Gaps that move economics (top three, expressed as \$/bps).
- 90-day actions with cost, time-to-impact, and dependencies.
- Risks and watchlist items (policy, dependency, rate limits).
- Confidence label and verifier initials.

## Computation: Weighted Digital Maturity Score (WDMS)

For each segment, compute **WDMS = Σ(Pillar Score × Pillar Weight)**. Show both the number and a heatmap, then **translate** the result into two sets of model edits: (i) reliability/capacity constraints that cap bookings or raise SLA credits; (ii) unit-cost and discount-leakage adjustments that change CM2 and payback.

## Step-by-step assessment (five focused passes)

1. **Scope and segmentation (Half-Day 1):** Freeze segments and routes where economics differ. Set target SLOs you will test against (availability/latency for digital; OTIF/lead-time for fulfillment).
2. **Evidence landing (Half-Day 1):** Collect the artifacts listed above; confirm clean-team boundaries (no source code).
3. **Ops and reliability pass (Day 2):** Extract DORA, SLO/incident, and DR evidence; quantify SLA credits; compute reliability headroom and the cost of running at “surge” (Chapter 10.2).
4. **Data/GTM pass (Day 3):** Check event capture, ID resolution, and attribution incrementality; tie CPQ/billing and entitlement accuracy to realized price corridors (Chapters 8.2 and 9.3).
5. **FinOps and unit-cost pass (Day 4):** Build per-unit cloud/third-party costs; model three curves—on-demand, reserved, and “with hotspot fixes”—and reflect in CM2 (Chapter 8.3).
6. **Synthesis and scenarios (Day 5):** Score pillars, compute WDMS, and run two stress tests: **traffic spike** (+30% concurrency for four weeks) and **dependency shock** (third-party API throttling or policy change). Push results into price, CM2, and timing lines within 24 hours; propose covenants or earnouts when uncertainty is material.

## Decision links (from tech to investment case)

- **Price power:** Architecture and data enable packaging that sustains realized price; missing entitlement accuracy shows up as credits and leakage—lower price corridors in the model.
- **NRR/GRR:** Reliability, success tech, and proactive telemetry lower churn hazard; reflected in cohort survival curves (Chapter 6.3).
- **CAC/payback:** GTM stack hygiene and integrations shorten cycle and reduce spend; reflect in CAC (Chapter 9.4) and payback.

- **CM2:** Cloud and third-party unit costs, discount governance, and returns/contact rates land in CT S (Chapter 10.4) and CM2 (Chapter 8.3).
- **Capacity & service:** SRE and delivery maturity set throughput and SLA risk; cap bookings or add SLA credit lines where headroom is thin (Chapters 10.2 and 10.3).
- **Policy & platform:** Security/privacy and marketplace rules are gates; reflect timing and cost in 11.1/11.4.

## Early-warning indicators to monitor monthly post-close

- SLO burn rate and incident MTTR; p95 latency creep near SLO.
- Deployment frequency and change-failure rate trend; feature-flag coverage.
- Cloud \$ per active/user/API call; on-demand share; hotspot cost growth.
- CPQ exceptions and discount depth; billing/entitlement error rates and credits.
- Event capture gaps and ID match rate; experiment win rate and cycle time.
- Contact rate and backlog age; implementation queue length and slippage.
- Third-party API throttling and marketplace policy diffs.

## Red flags—and immediate responses

- **Chronic SLA credits or rising p95 latency** without an error-budget process → move price power to upside only; require a 60-day reliability sprint as a closing condition.
- **On-demand cloud dependence** with unit-cost spikes at growth tiers → lower CM2; add reserved commitments and hotspot fixes to the 90-day plan.
- **No entitlement/usage accuracy** → haircut realized price; tie earnouts to price realization/NRR.
- **Manual billing and CPQ workarounds** → elevate discount leakage risk; enforce DOA/guardrails and prioritize CPQ clean-up post-close.
- **Weak privacy/security attestations** where RFPs require them → cap enterprise growth to upside only; include certification milestones as conditions precedent.
- **Single critical dependency (payment, messaging, data)** with rate-limit or policy risk → run dependency shock in the model; set diversification or premium-tier SLAs as covenants.

## 90-day uplift plan (only moves that change cash fast)

- Reliability sprint on the top two incident classes; lock SLOs and error-budget gates; ship feature-flag coverage.
- FinOps quick wins: reserved/savings plans where utilization justifies; cache/egress fixes on the noisiest paths; drop or renegotiate low-ROI third-party APIs.
- GTM stack hygiene: repair lead routing and dedupe; harden CPQ discounts and entitlement mapping; close the loop from billing to realized price analytics.
- Data foundation: fix the top five missing events, unify IDs, and activate a basic experimentation cadence tied to pricing and onboarding.
- Ecosystem unblockers: certify or list top two connectors/marketplace apps that unlock named accounts.
- Security/privacy: close the top pen-test findings; publish the audit schedule; align product telemetry to privacy commitments.

## Acceptance criteria for a decision-grade digital review

- Pillar scores with evidence and confidence labels by segment/route-to-market; WDMS computed and explained.
- Reliability, unit-cost, GTM, and data metrics quantified with corridors and trends; links to SLA credits, realized price, CAC/payback, and CM2.
- Two stress scenarios run (traffic spike, dependency shock) with model toggles updated within 24 hours.
- A 90-day plan with owners, costs, and time-to-impact; term-sheet protections proposed where maturity gaps are material (certification milestones, indexation, earnouts on NRR/price realization).
- Clean-team protocols followed; all exhibits footnoted and replicable.

Adopt this framework and “strong tech” or “legacy platform” stop being vague labels. You’ll have a crisp, economic view of digital capability—what it enables, what it constrains, and exactly what to fix first to protect and expand the value you’re buying.

## 12.2 Tech Stack Competitiveness Checklist

A “competitive” tech stack is not a fashionable architecture diagram. It is a set of capabilities that lets the company win and keep customers at an attractive realized price, deliver reliably at scale, and improve unit economics as it grows—faster than credible alternatives. In commercial diligence, your task is to test that claim with evidence you can underwrite. This checklist gives you a defendable, segment-aware way to compare the target’s stack against named competitors and substitutes, translate gaps into dollars (price power, win rate, NRR, CM2, CAC/payback), and define a 90-day uplift plan that changes outcomes in your hold period.

### What “competitiveness” means in diligence (anchor this up front)

- **Right to win:** The stack enables differentiated outcomes customers will pay for (integration depth, workflow fit, analytics/AI, speed, reliability, trust).
- **Scale curve:** Performance and unit cost improve with growth (cloud/FinOps curves, automation, partner leverage), not degrade.
- **Switchability:** It is easier for a buyer to switch **to** the target than **from** it (migration tooling, data portability, API surface, ecosystem pull).
- **Resilience:** The stack keeps promises under stress (traffic spikes, dependency throttling, policy changes) without ruinous expedites or credits.
- **Velocity:** Teams can ship value faster and safer than rivals (DORA, change failure rate, time-to-integration), compounding advantage.

### Step-by-step assessment (fast path for diligence)

#### 1) Fix scope, segments, and comparators

Name the two to four segments/routes-to-market that move dollars (from Chapter 6). For each, list the **credible alternatives** buyers actually compare you to: two named competitors, one substitute (e.g., spreadsheet + services), and, where relevant, a platform’s native offering. Write a one-line WHTBT statement per segment: “To win Mid-Market Manufacturing, the stack must integrate with ERP X in <4 weeks, deliver p95 latency <300 ms at 10k concurrent users, and support a 3–5% realized price premium via analytics Y.”

## 2) Land the evidence pack once (reuse across cuts)

- **Architecture & platform:** system and domain diagrams, API catalog, SDKs/webhooks, extension points, versioning policy, multi-tenant posture.
- **Reliability & operations:** SLOs/error budgets, incident postmortems, DORA metrics, DR test logs, capacity headroom.
- **Data/AI:** event schemas, lineage/quality SLAs, governed warehouse/lakehouse, model cards, drift alerts, experiment logs.
- **Security & privacy:** secure SDLC artifacts, pen-test summaries, IAM/secret handling, attestations (e.g., SOC/ISO), DPAs/consents.
- **FinOps & unit cost:** cloud invoices by service, reserved vs. on-demand mix, \$/API call or account, third-party API bills and rate-limits.
- **Ecosystem & integrations:** connector catalog, certification/listing status, marketplace ranks/tier, partner sandbox and enablement.
- **GTM & billing:** CRM/CPQ discount rules, price ladders, entitlement mapping, billing accuracy/credits, partner portal health.
- **Performance tests:** p95/p99 latency and throughput at documented loads; change-failure rate; migration time studies.
- **Competitor artifacts (clean-team rules):** public docs, APIs, listing/compliance status, pricing pages, open benchmarks, procurement interview recalls.

## 3) Score along six competitive planes (0–5 scale with anchors)

Use the same segments and comparators across all planes; write “proof required” beside each criterion.

### 1. Functional fit & extensibility

- Depth of workflow coverage; configurability vs. customization debt; API completeness; SDKs/events.
- Proof: win/loss reasons; time-to-integration studies; partner adoption of extension points.
- Pays through: win rate, faster cycle, lower implementation CTS, higher NRR.

### 2. Performance & reliability at target SLOs

- Availability; p95/p99 latency; MTTR; change-failure rate; surge headroom at 80–85% constraint utilization.
- Proof: SLO burn logs, incident metrics, load-test reports.
- Pays through: fewer credits, better retention, enterprise access.

### 3. Data advantage & AI leverage

- Event coverage, ID resolution, quality/lineage; governed features; experimentation cadence; model governance.
- Proof: telemetry gaps closed, uplift from tests, model drift handling.
- Pays through: price premium, upsell, lower CAC.

### 4. Security, privacy, and compliance access

- Attestations; third-party risk; encryption/key management; privacy-by-design; AI/algorithmic accountability where applicable.
- Proof: audit letters, DPIAs, RFP gate passes.
- Pays through: RFP wins, shorter cycles, fewer escalations.

### 5. Economics & scalability (FinOps + third-party)

- Unit cost curves (on-demand vs. reserved/savings); hotspot awareness (DB, egress, third-party API fees); automation level.
- Proof: \$/API call or account trends; reserved coverage; cost anomalies resolved.
- Pays through: CM2 lift with volume; protected margin in usage spikes.

### 6. Ecosystem & channel readiness

- Integration coverage for “must-have” systems; marketplace/app-store status; partner certification; EDI where needed.
- Proof: listing/tier, connector attached on deals, partner-sourced pipeline.
- Pays through: access, lower CAC, faster implementations.

Scoring anchors (0–5) should mirror 12.1’s rubric: 0 = nonexistent, 3 = defined and repeatable, 5 = differentiating and compounding.

## 4) Weight by business model (lock and publish)

- **B2B SaaS/usage-based:** Performance/Reliability 20%, Data/AI 15%, Security/Privacy 15%, Architecture/Extensibility 15%, FinOps 15%, Ecosystem 10%, GTM/Billing 10%.
- **Marketplaces/platforms:** Ecosystem 20%, Performance/Reliability 20%, Security/Trust 15%, Data/AI 15%, FinOps 15%, Architecture 10%, GTM 5%.
- **E-commerce/DTC:** CX/Support tech 15% (treat within Performance/Reliability for service), GTM/Billing 15%, Data/AI 15%, FinOps 15%, Ecosystem 10%, Architecture 10%, Security/Privacy 10%, Delivery/Quality 10%.

Document any deviations for regulated or embedded/hardware-plus-service models.

### 5) Compute the Weighted Tech Competitiveness Score (WTCS)

WTCS\_segment =  $\Sigma$  (Plane Score  $\times$  Weight). Show the math and a confidence label (H/M/L). Publish a heatmap versus named competitors using only **public** or clean-team-approved data. Where competitors are unknown, benchmark to “credible substitute” thresholds (e.g., spreadsheet + SI delivery time, platform native latency).

### 6) Quantify economics (turn scores into dollars)

For each segment/channel, tie WTCS and its sub-scores to:

- **Price corridors** (8.2): higher Performance/Data/Security scores → higher realized price or lower discount reliance.
- **Win rate & cycle** (9.1): Functional fit/Ecosystem → stage conversion; Security/Privacy → cycle compression.
- **CAC & payback** (9.4): Ecosystem/GTM stack → lower acquisition cost and faster implementation.
- **CM2/unit cost** (8.3, 10.4): FinOps → \$/API call/account/order; reduced credits/returns.
- **NRR/GRR** (6.3): Reliability/Support tech/Data → lower churn hazard, higher expansion.

### 7) Stress-test where tech usually breaks

Run two or more fast scenarios and propagate results into the model:

- **Traffic spike:** +30% concurrency for 4 weeks—does p95 latency stay under SLO without on-demand cost blow-up?
- **Dependency shock:** third-party API throttling or price hike; payment or messaging provider incident.
- **Migration surge:** 10 enterprise cutovers in parallel—does implementation capacity or data tooling become the constraint?
- **Policy change:** marketplace or platform terms shift (rate limits, ranking, take-rates); privacy residency requirement.
- **Feature parity attack:** named rival ships capability X—time-to-parity and economic impact (8.4 parity-creep monitor).

## 8) Write the 90-day uplift plan (only moves that change cash fast)

- **Reliability sprint** on top two incident classes; lock SLOs/error budgets; expand feature-flag coverage.
- **FinOps moves:** convert high-utilization services to reserved/savings; fix two hotspot endpoints (cache, query plan, shard); renegotiate or replace low-ROI third-party APIs.
- **Ecosystem unlockers:** certify/list top two connectors; publish migration tooling; stand up a partner sandbox with quick-start guides.
- **GTM/billing hygiene:** repair CPQ guardrails; tighten entitlement mapping; resolve billing credits at root cause.
- **Data foundation:** close top five missing events; unify IDs; restart an experiment cadence for pricing/onboarding tweaks.
- **Security/privacy gates:** close critical pen-test findings; schedule attestations required in RFPs; document AI/algorithmic risk controls where applicable.

## The checklist (use this as you work)

### Architecture & Extensibility

- Domain boundaries clear; versioned public APIs; stable event model; configuration over customization; multi-tenant guardrails.
- Extension points (SDKs/webhooks) used by partners; backwards compatibility policy enforced; migration scripts/templates exist.

### Performance & Reliability

- SLOs with error budgets; p95/p99 latency and availability by region/tier; DORA metrics trending the right way; DR tested with RTO/RPO met.
- Constraint headroom  $\geq 15\text{--}20\%$  at base; surge plan for +30% concurrency without SLO breaches or ruinous cost.

### Data & AI

- Event capture  $\geq 95\%$  on critical flows; lineage and quality SLAs; governed features; experiment platform with documented wins; model drift detection and rollback.
- Customer-facing analytics/ML demonstrably move outcomes (price premium, win rate, upsell), not vanity.

## **Security & Privacy**

- Secure SDLC; secrets and IAM hygiene; vuln management SLAs; attestations current/dated; DPAs & consents aligned to product telemetry; third-party risk governed.
- For AI: model inventory, evaluation, explainability for regulated segments.

## **FinOps & Unit Cost**

- Cost allocation/showback; reserved vs. on-demand commitments aligned to utilization; hotspot visibility (DB/egress/API fees).
- Unit-cost curves built (per API call/account/order) with targets and owners.

## **Ecosystem & Integrations**

- Connectors for “must-haves” by segment; certification/listing status; marketplace rank/tier; partner enablement; EDI where relevant; time-to-integrate < target.
- Migration kits (schema maps, playbooks, test harnesses) lower switching friction.

## **GTM Stack & Billing**

- Clean CRM/MAP/CDP flows; lead routing/dedupe; CPQ discount ladders; billing/entitlement accuracy; credits tracked to root cause.
- Attribution incrementality tested (not platform ROAS only).

## **Delivery & Quality**

- CI/CD automation coverage; change-failure rate low and improving; environment parity; feature-flag use; defect escape rate trending down.

## **Governance**

- Roadmap tied to P&L (OKRs); architecture review cadence; risk register for dependencies and obsolescence; kill rules enforced.

## Quantitative lenses you can compute quickly

- **Performance/Cost Index (PCI)** = (p95 latency at target load vs. SLO) × (unit cost at load ÷ target) → lower is better.
- **Integration Coverage Ratio** = (# certified / "must-have" connectors delivered ÷ # required in segment).
- **Migration Friction Index** = (median hours to cutover + data quality defects per migration) ÷ cohort size.
- **Reliability Penalty Rate** = SLA credits ÷ segment revenue (LTM).
- **FinOps Leverage** = (\$ on-demand - \$ reserved/savings counterfactual) ÷ total cloud \$ (LTM).
- **Entitlement Accuracy** = (credit notes and write-offs due to entitlement errors ÷ billings).
- **DORA Health** = composite of deployment frequency ↑, lead time ↓, change-failure ↓, MTTR ↓.

## Copy-ready templates (paste into your workspace)

### A) Tech Stack Competitiveness Card (one per segment)

- Segment & comparators (2–3 named + 1 substitute).
- WHTBT statement (win conditions).
- Plane scores (0–5) with proof links; WTCS and confidence.
- Economics link: price corridor, win/cycle, CAC/payback, CM2, NRR effects.
- Top 3 gaps and 90-day actions (cost, owner, time-to-impact).
- Stress-test results (traffic spike, dependency, migration, policy).
- Sources and clean-team notes; verifier initials.

### B) Performance Test Charter

- SLOs (availability/latency); traffic profile; data set size; concurrency; success criteria; rollback plan.
- Metrics to capture (p50/p95/p99, error rates, MTTR); cost telemetry on the same window.
- Owner; date; environment parity notes.

### C) Unit-Cost Curve Sheet

- \$/API call/account/order at p50/p95 load; reserved vs. on-demand; third-party API \$ per active; hotspots and planned fixes.

### D) Integration Coverage Sheet

- “Must-have” systems by segment; connector status (GA/beta/roadmap), marketplace/listing level; % deals using connector; migration kit availability.

### E) Third-Party Dependency Card

- Provider; function; rate limits and SLAs; incident history; price tiers; diversification plan; economic impact of throttle/outage.

## Industry nuances (handle explicitly)

- **Regulated B2B (health/financial/public sector):** attestations and data residency are gate conditions; weight Security/Privacy and Reliability more heavily; encode timing and cost into 11.1/11.4.
- **Marketplaces/platforms:** trust & safety belongs with Security; search rank and take-rates are quasi-regulatory; treat paid placement creep as a FinOps and channel risk (9.2, 11.4).
- **E-commerce/DTC:** returns and contact rates dominate CTS; CX and fulfillment tech must link to 10.3/10.4.
- **Hardware + service:** field telemetry and OTA update capability are core; treat spares/diagnostics as part of reliability and NRR.

## Clean-team and competition guardrails

- Compare to competitors using public artifacts, procurement/partner interviews, and anonymized, aggregated data only.
- No pre-close coordination or competitively sensitive exchanges. Maintain a source log and ring-fence.

## Early-warning indicators (monitor monthly)

- SLO burn and p95 latency creep; incident MTTR; change-failure rate.
- Unit-cost \$ per API call/account/order; on-demand share rising.

- Entitlement/billing credits; CPQ exception and discount depth drift.
- Connectors attach rates on new wins; marketplace rank/tier shifts; partner certification decay.
- Data capture gaps; experiment cadence; model drift alerts.
- Third-party API throttle events; fee increases; platform policy diffs.

## Red flags—and immediate responses

- **SLA credits trending up** with no error-budget process → lower price corridors; require a reliability sprint as a closing condition.
- **On-demand cloud dependence** at growth tiers → reflect CM2 downside; fund reserved commitments and hotspot fixes in the 90-day plan.
- **No migration tooling** while growth depends on takeaways → haircut win-rate and cycle assumptions; build migration kits Day-1.
- **Connector gaps** on “must-have” systems → move enterprise growth to upside only; prioritize two connectors for certification.
- **Entitlement/billing inaccuracies** → discount leakage risk; harden CPQ rules and entitlement mapping; tie earnouts to realized price/NRR.
- **Single critical dependency** without diversification → model throttle/outage scenario; require alternate or premium SLA.

## 72-hour sprint plan (from blank page to decision-grade view)

- Day 0:** Freeze segments, comparators, and weights; issue the evidence request; confirm clean-team boundaries.
- Day 1:** Score Performance/Reliability and FinOps (SLOs, DORA, unit-cost curves); draft two Tech Stack Competitiveness Cards.
- Day 2:** Score Architecture/Data/Security; complete Integration Coverage and Dependency Cards; run traffic spike and dependency shock.
- Day 3:** Compute WTCS by segment; translate into price, win/cycle, CM2, CAC/payback, and NRR changes; publish the 90-day uplift plan and term-sheet protections (certification milestones, indexation, earnouts on NRR/price realization).

## Acceptance criteria for a decision-grade competitiveness review

- Segment-level cards completed with plane scores, WTCS, sources, and confidence labels.

- Reliability, unit-cost, integration, and billing/entitlement metrics quantified and tied to economics.
- Two stress scenarios run; model toggles updated within 24 hours; valuation ranges and structures reflect residual risk.
- A 90-day uplift plan with owners, costs, and time-to-impact; clean-team protocols documented.

Use this checklist and “modern tech” or “legacy stack” stops being a slogan. You’ll have a comparative, economics-anchored view of the stack—where it truly leads, where it lags, and exactly what to fix first to defend price, accelerate win rate, lift CM2, and protect retention.

## 12.3 Cybersecurity & Data Privacy Risk Guide

Cybersecurity and data privacy are commercially material. A breach, outage, or misuse of data does not just generate headlines—it shows up as SLA credits, delistings, failed audits, lost tenders, churn, litigation, and lengthened payback. In commercial due diligence your job is not to re-run an audit; it is to (i) locate the **crown jewels** and the **likely failure points**, (ii) quantify **revenue-at-risk** (RaR) and **margin-at-risk** (MaR) under realistic incidents, and (iii) specify the **few fixes** that change outcomes within the hold period. Use this guide to produce decision-grade outputs that tie directly to price realization, NRR/GRR, CM2, CAC/payback, and timing.

### How this guide is structured

You will (1) assemble a compact evidence pack; (2) map crown jewels and attack surface; (3) baseline security and privacy controls; (4) quantify incident scenarios; (5) push toggles into the model and term sheet; and (6) issue a 90-day plan with owners, dates, and costs. Keep it segmented by product family, customer tier, channel, and region; averages hide exposure.

### Scope and lenses (freeze before you start)

- **Segments and routes-to-market:** same segmentation as Chapter 6 (customer/job, size band, channel, region, product).
- **Crown jewels:** data that creates legal or reputational exposure (PII/PHI/PCI, user-generated content, biometrics), systems that produce

revenue (checkout, trading, payments, APIs), and secrets that create advantage (source code, models, pricing).

- **Incident families to test:** ransomware/outage, data exfiltration, business email compromise (BEC) and payment fraud, credential-stuffing on consumer apps, third-party/subprocessor breach, cloud misconfiguration, insider error, and regulatory enforcement after privacy/control failures.

## Evidence pack (request once; analyze many times)

- **Governance & assurance:** current security and privacy policies, risk register, board/C-level reporting, security roadmap and budget, SOC/ISO/PCI/HIPAA attestations or gaps, results of the last penetration test and vulnerability scans (summary only), audit letters, business continuity & disaster recovery (BCP/DR) tests, breach/incident postmortems for L24M.
- **Architecture & operations:** system and data-flow diagrams; public-facing assets inventory; identity directory (SSO/MFA coverage); privileged access model; secrets management; logging/observability scope; EDR/XDR coverage; backup architecture, immutability, and restore tests; change management; third-party dependencies and rate limits.
- **Data privacy:** data inventory and classification; Records of Processing Activities (RoPA); retention & deletion schedules; consent and preference management; cookie/SDK deployment; cross-border transfer mechanisms; DPIAs; DSAR volumes and SLA performance; marketing law compliance (e.g., opt-in/opt-out evidence).
- **Commercial interfaces:** customer security addenda in MSAs, SLA credit ladders for security/reliability breaches, marketplace/retailer policy requirements, RFP security/privacy gates, subprocessor list and contracts/DPAs, cyber insurance cover (limits, retentions, exclusions).
- **People & process:** security awareness program, phishing simulation metrics, joiner-mover-leaver controls, shadow-IT/SaaS sprawl reports, contractor/offshore access.

## Step-by-step assessment (fast path for diligence)

### 1) Map crown jewels and blast radius

List the top 5–10 data sets and systems that matter commercially. For each: owner, where stored/processed, copies/backups, who has access (by role), and which customers/regions are implicated. Add the **blast radius:** if this asset is

compromised or down, which segments stop transacting, for how long, and which contracts trigger credits or termination.

## **2) Draw the external attack surface and control coverage**

Summarize internet-facing assets (domains, APIs, apps), third-party entry points (IDP, payment, messaging, data vendors), and privileged access paths. Compute quick coverage ratios by segment/tenant where relevant: **MFA coverage, SSO adoption, EDR coverage, log coverage** on crown-jewel systems, **backup immutability** share, **critical/high CVE remediation time** (p50/p90), and **admin account count**.

## **3) Baseline privacy posture and commercial gates**

- **Data lifecycle:** what's collected, minimum necessary, legal basis, consent granularity, retention and deletion actually enforced, and DSAR throughput.
- **Cross-border/residency:** where data sits vs. where users live; residency toggles for regulated customers; latency/cost impacts if regionalization is required.
- **Marketing & cookies:** CMP in place; evidence of consent sync to MAP/CDP; email/SMS compliance; platform/OS privacy changes affecting attribution or re-engagement (connect to 9.3).
- **RFP & channel gates:** which certifications or attestations must-have (e.g., SOC/ISO, PCI scope), and what revenue is contingent on them.

## **4) Review incident history and leading indicators**

Over the last 24 months, summarize: incidents (type, cause, dwell time, MTTD/MTTR), near misses, credits/fines paid, external notifications, and changes implemented. Track **phish click rate, BEC attempts, ticket backlog** for security/privacy, and **open high-severity pen-test findings**.

## **5) Quantify scenarios that change decisions**

Translate incidents into dollars with simple, auditable equations. Tie every number to a driver or contract term.

- **Ransomware/outage (platform or 3PL/DC):**

RaR\_day = Daily revenue in affected segments × % unable to transact.  
 MaR\_day = SLA credits + expedites + overtime + cloud overage - any insurance recovery (after retention, within limits).  
 Total impact ≈ (RaR\_day + MaR\_day) × duration\_days + churn hazard uplift × at-risk ARR.

- **Data exfiltration (PII/PHI/PCI/intellectual property):**  
Incident cost = Notification & forensics + monitoring + legal/regulatory + customer credits + PR + insurance retention + churn hazard.  
Churn hazard  $\approx$  affected accounts  $\times$  hazard uplift (from observed post-breach churn in similar segments)  $\times$  ARR/account.  
Add **platform/retailer delist risk** where applicable (Chapter 9.2, 10.3).
- **BEC & payment fraud (AR/AP tampering):**  
Loss exposure = Average invoice size  $\times$  probability of diversion  $\times$  detection lag – recoveries.  
Add DSO drift if disputes rise; reflect in working-capital lines.
- **Credential-stuffing (consumer apps/marketplaces):**  
MaR = fraud reimbursements + support CTS + chargebacks + platform penalties; include downstream CAC/payback elongation if trust signals fall.
- **Third-party/subprocessor or cloud misconfiguration:**  
RaR/MaR proportional to dependency share for affected segments; include compliance penalties if residency or purpose limitations are violated.
- **Enforcement & privacy fines:**  
Exposure = range of penalties relevant to jurisdiction  $\times$  likelihood band  $\times$  duration of non-compliance; add remediation capex/opex and cycle-time slippage for new controls.

Where data are thin, present **corridors** (low/base/high) with assumptions. Always show **insurance math** explicitly: limits, coinsurance, exclusions (e.g., war/critical infrastructure), and time to recovery.

## 6) Push findings into the model within 24 hours

- **Price realization:** lower corridors in segments where security/privacy gaps create discount pressure or escalate security addenda.
- **CM2:** add SLA credit lines and CTS deltas (for fraud/chargebacks, support load, cloud coverage during incidents).
- **NRR/GRR:** apply a churn-hazard uplift for affected cohorts (link to 6.3).
- **Timing:** slip revenue recognition where remediation or certification is a gate.
- **Working capital:** increase DSO and dispute reserves under BEC/fraud risk.

## 7) Translate residual risk into terms and covenants

- **Conditions precedent:** close specific “go/no-go” gaps (e.g., certification, pen-test remediation, DR test pass) before closing.
- **Indemnities/escrows:** known or suspected incidents, unresolved investigations, privacy violations, legacy data debt (e.g., untracked archives).
- **Covenants:** maintain SSO/MFA coverage, EDR/log coverage on crown-jewel systems, backup immutability and quarterly restore tests, subprocessor change notifications, privacy program milestones, and indexation for new compliance cost.
- **Earnouts:** tie to NRR or price realization in ESG-/security-gated segments once certifications land.

## Quick-compute metrics that tie to economics

- **MFA coverage (users/admins)** and **SSO adoption** across employees/contractors and customer tenants.
- **Critical/high CVE remediation time** (median and p90) and **% overdue**.
- **EDR/XDR coverage** on endpoints and servers; **log coverage** for crown-jewel systems.
- **Privileged identities:** count, break-glass accounts, SoD conflicts, orphaned accounts.
- **Backup posture:** immutability enabled (Y/N), last successful restore test age, RPO/RTO achieved.
- **Incident performance:** MTTD/MTTR for top three incident types; open high-severity findings >30 days.
- **Privacy throughput:** DSAR volumes and SLA adherence; deletion job success; consent capture rate; % marketing sends without valid consent.
- **Third-party risk:** % revenue touching vendors without current security/privacy attestations; single-point dependencies with no premium SLA or alternative.

## Clean-team & safe-handling rules (non-negotiable)

- No customer- or key-material-identifiable artifacts outside the clean-team ring-fence.
- Accept **summaries** of pen tests and scans; do not request exploit details or credentials.

- No active scanning or phishing simulations in diligence without written authorization from the target's counsel.
- Redact subprocessor endpoints and IPs in external exhibits; use codenames for critical assets.

## Industry nuances you must handle explicitly

- **Healthcare/life sciences:** HIPAA/clinical data and device cybersecurity create timing gates; tie to approvals and coverage (11.1).
- **Fintech/payments:** PCI scope and key management; BEC and ACH fraud are primary cash risks; card network programs create chargeback thresholds.
- **Marketplaces/e-commerce:** credential-stuffing, account-takeover, and refund abuse drive penalties and delist risk; trust & safety staffing is CTS.
- **Industrial/IoT:** legacy OT, weak patching windows, and vendor remote access; safety and downtime hit revenue directly.
- **SaaS/AI platforms:** model governance, training-data provenance, prompt/embedding data handling, and tenant isolation; API rate-limit and dependency shocks are central (12.2).

## Copy-ready templates (paste into your workspace)

### A) Cyber & Privacy Risk Canvas (one per segment)

- **Scope & owner:** [segment/channel/region]; accountable exec; security and privacy POCs.
- **Crown jewels:** [data sets/systems], access paths, backups.
- **Controls snapshot:** MFA/SSO %, EDR %, log %, CVE remediation p50/p90, backups (immutability/RPO/RTO), pen-test open Sev-1/2.
- **Privacy snapshot:** data map status, retention/deletion, DSAR SLA, consent/CMP status, residency controls.
- **Commercial gates:** certifications/attestations, marketplace/retailer rules, RFP must-haves.
- **Incidents (L24M):** type, cause, MTTD/MTTR, credits/fines, actions taken.
- **Scenario impacts (corridors):** RaR/MaR for ransomware/outage, exfiltration, BEC/fraud, credential-stuffing, third-party breach.
- **Model hooks:** price, CM2/CTS, NRR/GRR, working capital, timing.
- **Mitigations (90-day):** top 3 with cost, owner, and time-to-impact.
- **Confidence & sources:** H/M/L; artifact links; verifier initials.

**B) Security Control Checklist (tick H/M/L; add notes)**

- Identity: SSO, MFA (all users/admins), PAM for privileged sessions, JML automation, SoD enforcement.
- Endpoints/servers: EDR/XDR coverage, disk encryption, patch SLAs, device management for BYOD.
- Secrets & keys: vault usage, rotation, HSM for payment/PII, no secrets in code.
- Network/app: WAF, API gateway, DDoS plan, secure SDLC, SAST/DAST, dependency scanning, feature flags for kill switches.
- Observability: central logs, retention, alerting to on-call, playbooks, tabletop frequency.
- Backup/DR: immutable backups, offline copy, restore tests, RPO/RTO met.
- Third-party: subprocessor register, security addenda, SLA tier, exit/portability, rate-limit monitoring.
- Training: phish simulations, secure coding, privacy by design in product discovery.

**C) Privacy Operating Checklist**

- Data map & classification complete; RoPA maintained; minimization in place; retention & deletion enforced; DSAR tooling and SLA.
- Consent and preference capture; CMP configured; marketing systems honor preferences; children's data safeguards where needed.
- Cross-border transfer mechanism and residency toggles; vendor DPAs current; audit program for subprocessors; cookie/SDK inventory reviewed quarterly.
- DPIAs for high-risk processing; breach notification procedures tested; incident linkage to comms/legal.

**D) Scenario Card (one per incident family)**

- Trigger & scope; affected assets and segments; duration bands.
- Impact bridge: RaR, SLA credits, fraud/chargebacks, support CTS, cloud overage, legal/PR, insurance.
- Churn hazard uplift & pipeline impact; marketplace/retailer penalties.
- Mitigations & lead times (e.g., reserved capacity, premium SLAs, rate-limit increases, DR drills, vendor switch).
- Owner; playbook and comms templates; next tabletop date.

## Early-warning indicators (monitor weekly/monthly)

- Rising p95 latency toward SLO; recurring Sev-1/2 incidents; MTTR drift (link to 10.3, 12.1).
- Open critical/high CVEs >30 days; EDR/log coverage dips; new orphaned or privileged accounts.
- Phish click rate and BEC attempts; payment-diversion near-misses; spike in refunds/chargebacks.
- DSAR backlog; deletion job failures; consent error rates; CMP deployment gaps.
- Subprocessor changes without notice; platform/marketplace policy diffs tied to security/trust.
- Insurance notices (coverage changes, exclusions) and premium hikes.

## Red flags—and immediate responses

- **No SSO/MFA on employees or admins** → downgrade enterprise price/NRR assumptions; require MFA/SSO rollout as CP; enforce discount guardrails until closed.
- **Backups without immutability/restore tests** → cap bookings in regulated segments; add DR pass as CP; reflect outage downside in model.
- **Open Sev-1/2 pen-test findings >60 days** → haircut realized price and NRR; escrow remediation costs; tie earnouts to price realization/NRR.
- **Subprocessor with repeated findings or no attestation** → haircut revenue in affected segments; require alternate or premium SLA; add covenant on subprocessor changes.
- **Privacy programs exist only on paper** (no data map, DSAR backlog) → increase compliance cost and churn hazard; add milestones and holdbacks.

## 90-day uplift plan (only moves that change cash fast)

- **Identity first:** SSO + enforced MFA for employees/admins; PAM for break-glass; kill orphan/admin bloat.
- **Incident & DR:** lock SLOs and error budgets; run two tabletops (ransomware, BEC); enable immutable backups; complete a restore test; publish RPO/RTO.

- **FinOps & resilience:** reserve cloud capacity on hot paths; raise rate limits or add a secondary provider for critical dependencies; ship feature-flag kill switches.
- **Third-party & contracts:** upgrade to premium SLAs for single-point providers; update DPAs; align customer security addenda with what the platform can actually deliver.
- **Privacy hygiene:** finish the data map; enforce deletion/retention on crown-jewel systems; fix consent capture and DSAR tooling; publish a cross-border/residency statement where it wins deals.
- **Billing & credits loop:** tag every security-/privacy-related credit and drive root-cause fixes; reflect reductions in CM2.

## 72-hour sprint plan (from blank page to decision-grade)

- Day 0:** Freeze segments and crown jewels; issue evidence request; confirm clean-team boundaries.
- Day 1:** Build control coverage snapshot (MFA/SSO, EDR, logs, backups, CVE SLAs, admin counts); draft two Cyber & Privacy Risk Canvases.
- Day 2:** Quantify three scenarios (ransomware/outage, exfiltration, BEC/fraud) with low/base/high bands; compute insurance math; identify certification/RFP gates and subprocessor exposures.
- Day 3:** Push toggles into the model (price corridors, CM2 credits/CTS, NRR hazard, working capital, timing); publish early-warning indicators and a 90-day plan; propose term-sheet protections (CPs, covenants, indemnities, earnouts tied to NRR or price realization).

## Acceptance criteria for a decision-grade cyber/privacy review

- Crown jewels and blast radius mapped by segment; control coverage quantified with evidence and confidence labels.
- Three incident scenarios modeled with **RaR/MaR corridors** and insurance effects; model updated within 24 hours.
- Privacy program assessed end-to-end (data map, consent, DSAR, retention, residency); commercial gates and channel policies documented.
- 90-day uplift plan issued with owners, cost, and time-to-impact; term-sheet protections drafted where residual risk is material.
- Clean-team protocols observed; all exhibits footnoted and replicable.

Run this guide and “we take security seriously” becomes a defensible, economics-anchored view: what is truly at risk, what it would cost if it broke, and exactly what to do in the first 90 days to protect price, retention, and margin.

## 12.4 Innovation Pipeline Assessment Template

Innovation is only valuable when it is **timely, de-risked, and wired to economics**. In commercial due diligence, the objective is not to admire the roadmap; it is to translate the pipeline into **revenue timing, price power, NRR uplift, CM2 impact, and cash burn**—and to assign realistic probabilities and lead times. Treat “innovation” broadly: new features, SKUs, analytics/AI capabilities, packaging and pricing changes, new routes-to-market, partnerships, and business-model moves. Your assessment should separate ideas from **investable options** with defined evidence thresholds, resources, and go/no-go dates.

This template gives you a step-by-step method, scoring rubric, and copy-ready tools to (i) inventory the pipeline, (ii) stage projects with **evidence-based gates**, (iii) quantify risk-adjusted value, (iv) reconcile to capacity and compliance, and (v) wire the result into valuation ranges and term-sheet structure.

### What “good” looks like (anchor this before you start)

- **Customer pull is explicit.** Each initiative is tied to named customer jobs, quantified pain, and observed willingness-to-pay (6.2).
- **Feasibility is proven where it matters.** Critical uncertainties have experiments or prototypes with measured outcomes; dependencies and rate limits are known (12.1, 12.2).
- **Unit economics survives contact with scale.** There is a credible path to CM2 neutrality/positivity within the hold period (8.3, 10.4).
- **Regulatory and privacy gates are priced and scheduled.** Approvals, certifications, or data residency are treated as timing gates with costs (11.1, 12.3).
- **GTM readiness is real.** Packaging, price fences, channel enablement, and entitlement/billing accuracy are specified (8.2, 9.2).
- **Portfolio is balanced and kill rules are enforced.** Zombie projects are rare; capital is concentrated where option value is highest.

## Step-by-step pipeline assessment (a two- to four-week sprint)

### 1) Freeze scope and segmentation

Use the same segmentation from Chapter 6 (customer/job, size band, route-to-market, region, product family). Define the hold-period horizon (e.g., 18–36 months) and materiality thresholds (e.g.,  $\geq 2\%$  revenue lift or  $\geq 100$  bps CM2 swing).

### 2) Build the pipeline inventory (single source of truth)

Collect all in-flight and proposed initiatives. For each, capture: problem statement, target segment(s), proposed value proposition, evidence to date, stage, critical dependencies, resourcing, spend to date, and next decision date. Include non-product innovations (pricing and packaging experiments, channel programs, partnerships, service models).

### 3) Assign stages with evidence-based gates

Avoid calendar-based “percent complete.” Use four stages with **Definition of Done** checklists:

- **Discover** (desirability risk): problem validation interviews; quantified pain; first WTP signal; success metric defined.
- **Validate** (viability risk): prototype or concierge MVP; initial conversion/retention; pricing experiment read; evidenced willingness-to-pay; compliance path drafted; FMV estimate for feature/package.
- **Build** (feasibility + scale risk): architecture and data design complete; SLO impact assessed; capacity ladder (10.2) and unit cost (12.1/FinOps) defined; security/privacy review passed; pilot/lighthouse signed.
- **Scale** (GTM risk): billing and entitlement accuracy validated; channel enablement live; support runbooks and SLAs set; service and cost-to-serve modeled (10.3/10.4); DR and incident playbooks updated.

Promote at gate reviews only when **evidence is in hand**, not when a plan exists.

### 4) Quantify risk-adjusted value (rNPV) and option logic

Convert narrative to dollars and timing using simple, auditable equations:

- **Cash flows:** forecast incremental revenue by segment  $\times$  **realized price** (8.2)  $\times$  attach/penetration  $\times$  ramp curve – **CM2 drag** (COGS + CTS; 10.4) – opex.

- **Risk-adjusted NPV (rNPV):** sum over stages:  

$$rNPV = \sum_t (\text{CashFlow}_t \times \prod_{i \leq t} p_i) / (1+r)^t - \sum_t (\text{StageCosts}_t \times \prod_{i \leq t} p_i)$$

where  $p_i$  is the probability of clearing stage  $i$ , updated from actual evidence (not generic priors).
- **Expected Value of Information (EVI):** value of running the **next experiment** = (change in rNPV if the uncertainty resolves favorably × probability of learning) – experiment cost. Use EVI to prioritize tests.
- **Option elasticity:** compute “value at stake per week” ( $\Delta rNPV / \Delta t$ ) to surface where delays punish economics most.

## 5) Reconcile with capacity, reliability, and privacy/security

For each initiative, confirm (i) constraint headroom at target SLOs (12.1, 10.2), (ii) unit-cost curves and cloud/third-party fees (12.1 FinOps), and (iii) privacy/security gates and attestations (12.3). If any are binding, cap the upside and/or push milestones.

## 6) Validate GTM readiness and price power

Map each initiative to packaging, fences, and list pricing (8.2), channel activation (9.2), and CAC/payback math (9.4). No GTM plan → no upside in base case.

## 7) Portfolio balance and kill rules

Aggregate by **Core / Adjacent / New** and by **time to cash**. As a baseline, many portfolios benefit from ~70/20/10 allocation of spend to Core/Adjacent/New, adjusted for context. Enforce kill rules: if a project misses two evidence gates in a row or burns EVI < 0 for a quarter, shelve it or pivot.

## 8) Push into the model and term sheet

- **Base case:** include only initiatives with ≥70–80% combined stage probability and inside the hold period; haircut realized price until entitlement/billing error rate is ≤ target.
- **Upside case:** include initiatives with 30–60% stage probability, capped by capacity and policy gates; tie to earnouts or covenants.
- Reflect **timing gates** (regulatory/attestations), **CM2 effects** (unit cost + CTS), and **NRR** uplift for expansion features.

## Scoring rubric and portfolio view

### Weighted Innovation Health Score (WIHS)

Score each initiative 0–5 on five dimensions, then weight by segment economics to produce a project score; portfolio WIHS is the weighted mean by spend.

1. **Desirability (0–5):** Voice-of-Customer proof, LOIs, cohort retention or usage uplift in tests.
2. **Viability (0–5):** unit economics corridor (CM2 path; payback within horizon); pricing/packaging tested.
3. **Feasibility (0–5):** architecture fit, SLO headroom, unit cost curve defined, security/privacy cleared, dependency risk.
4. **GTM Readiness (0–5):** packaging, entitlement, billing accuracy, channel enablement, support runbooks.
5. **Momentum (0–5):** velocity (cycle time to learning), team capacity, on-time gates, EVI positive.

Anchor scores to **evidence** (artifacts, metrics, contracts); never to opinions.

## Copy-ready templates

### A) Innovation Pipeline Inventory (fields to capture for every initiative)

- Title and short problem statement.
- Target segment(s)/route-to-market; customer jobs and quantified pain.
- Stage (Discover/Validate/Build/Scale) and next gate date.
- Evidence to date: VoC, experiments, prototypes, pricing tests, LOIs/lighthouse customers.
- Dependencies: platform components, third-party APIs, data, privacy/security, regulatory approvals, supply chain.
- Resource plan: squad composition (PM/Eng/Design/Data/QA/Legal/Sec), capacity months, partner reliance.
- Economic model: realized price path, attach/penetration, unit cost and CTS, expected CM2, cash burn, payback.
- Risk & mitigations: top 3 risks, owner, EVI for the next test.
- Decision rules: go/kill/shelve criteria and date.

### B) Innovation Evidence Map (one-pager per initiative)

- **Hypotheses:** desirability, feasibility, viability, GTM.
- **Critical uncertainties:** ranked by rNPV sensitivity.
- **Experiments/tests:** design, success metric, sample size/power, start/stop dates, decision rule.
- **Evidence so far:** numeric outcomes; confidence label (High/Medium/Low).
- **Next decision:** promote/hold/kill with rationale.

### C) Stage Gate Checklist (use verbatim at reviews)

- **Discover → Validate:**
  - ≥10 target-customer interviews with convergent pain; quantified WTP or revealed preference.
  - One high-fidelity prototype or concierge MVP with ≥1 target success metric movement.
  - Pricing test design approved (8.2); security/privacy pre-check done.
- **Validate → Build:**
  - Lighthouse customer(s) signed (paid pilot, LOI, or contract addendum).
  - Measurable lift in activation/retention or conversion vs. control.
  - Architecture/design review passed; capacity ladder and SLO impact assessed (12.1/10.2); initial FinOps curve set.
  - Regulatory/attestation path and timelines signed off (11.1, 12.3).
- **Build → Scale:**
  - DR/incident playbooks updated; SLOs met at load in test; entitlement/billing accuracy ≥99.5% for scope.
  - Support runbooks, SLAs, and training complete; channel materials shipped; price fences enforced.
  - CM2 corridor validated on pilot cohort; CTS within plan (10.4).

### D) Risk-Adjusted Economics Card (attach to each initiative)

- Incremental revenue and CM2 by quarter (base/range).
- Stage probabilities with evidence notes.
- rNPV and ΔrNPV per quarter of delay.
- Required capex/opex; cash burn profile; payback month at scale.
- Capacity and policy gates with dates; model hooks (price, CM2, NRR, timing).

### E) Governance & Cadence

- **Monthly portfolio review:** WIHS trend, spend vs. EVI, kills/shelves, headcount reallocation.
- **Quarterly customer council:** lighthouse feedback, NPS for beta features, price realization checks.
- **Change control:** any promotion that changes SLOs, unit cost, or CTS must pass a technical/operations review (12.1, 10.x).

## Quantitative lenses you can compute quickly

- **Innovation Velocity:** number of **evidence-based** gate promotions per quarter ÷ active squads.
- **Learning Lead Time:** median days from test start to decision; target a steady decline.
- **Dollarized Learning Rate:**  $\Delta rNPV$  created per month from evidence; use to prioritize squads.
- **Zombie Ratio:** share of initiatives with >60 days and no customer touch or code/experiment artifact.
- **Attach/Uplift Evidence:** change in conversion, activation, retention, or ARPU in treatment vs. control cohorts.
- **Price Realization Readiness:** % of CPQ/billing/entitlement test invoices with zero credits.
- **Capacity Shadow Price:**  $\Delta rNPV$  per engineer-month for the top three initiatives—guides reallocation.

## Integration points with other workstreams

- **Chapter 6 (Demand):** VoC and elasticity findings must anchor desirability and price experiments.
- **Chapter 8 (Pricing/Unit Econ):** Pack/price tests and unit economics determine viability; entitlement accuracy determines realized price corridors.
- **Chapter 9 (GTM):** Channel enablement and CAC/payback shape the scale stage.
- **Chapter 10 (Ops):** Capacity and service SLOs constrain timing and CM2; include test traffic and pilot logistics in 10.2/10.3 plans.
- **Chapter 11 (Regulatory/ESG):** Approvals and policy shifts create timing gates and cost toggles.

## Early-warning indicators (monitor monthly)

- Gate slippage >30 days on any initiative with ≥5% of plan revenue.
- Entitlement/billing errors >0.5% on pilots; rising SLA credits on beta features.
- Capacity headroom <15% at the constraint, or cloud on-demand share rising on hot paths (12.1).
- LOIs/lighthouse churn; pilot NPS or engagement below control.
- EVI negative for two consecutive months; zombie ratio trending up.
- New regulatory or platform policy diffs affecting launch (11.4).

## Red flags—and immediate responses

- **Roadmap without evidence.** Response: freeze promotions; run two fast tests to establish WTP and behavior change; cut projects with no path to proof.
- **Entitlement/billing not ready.** Response: move upside to upside-only case; add CPQ/billing cleanup to 90-day plan; enforce discount guardrails (8.2).
- **SLO headroom thin.** Response: cap beta cohort; run reliability sprint before scale; widen SLA credit lines in the model (10.3, 12.1).
- **Privacy/regulatory unclear.** Response: treat as timing gate; push revenue right; add CP or covenant for certification/approval (11.1, 12.3).
- **Unit cost balloons with load.** Response: reserve capacity and fix hotspots; lower CM2 corridors; require FinOps milestones pre-scale.

## 90-day uplift plan (only moves that change cash fast)

- Evidence engine:** stand up an experimentation cadence (weekly start/stop decisions), with a shared calendar and pre-registered analysis plans.
- Two pricing tests live:** finalize fences, discount guardrails, and invoice accuracy; measure realized price and churn hazard (8.2, 6.4).
- Lighthouse program:** sign and activate 5–10 lighthouse customers with success metrics and reference rights.
- Billing/entitlement hardening:** close top three failure modes; set ≥99.5% invoice accuracy target for scale-gated initiatives.
- FinOps fixes:** convert top two services to reserved/savings plans; fix one hotspot endpoint; instrument unit-cost dashboards per initiative.

- Regulatory and privacy milestones:** lock the attestation/approval schedule; draft customer-ready statements for gated segments.
- Capacity ladder commits:** book the first rung for the bottleneck shared by the top two initiatives (10.2).

## Term-sheet levers tied to the pipeline

- **Earnouts:** target realized price, NRR from named initiatives, or ARR activation milestones.
- **Conditions precedent:** certifications/attestations, approval letters, DR test pass for scale initiatives, billing/entitlement accuracy thresholds.
- **Covenants:** indexation clauses on new offers, SLA floors, subprocessor change notifications, inventory/service levels for hardware-plus-service launches.
- **Capex escrow:** tied to capacity adds required for scale.

## 72-hour sprint plan (from blank page to decision-grade)

- Day 0:** Freeze scope, segmentation, horizon, and materiality; issue a single pipeline/evidence request; set clean definitions for stages and gates.
- Day 1:** Build the Pipeline Inventory; run first pass WIHS scoring; draft three Innovation Evidence Maps.
- Day 2:** Quantify rNPV for top five initiatives; compute EVI and capacity/policy gates; draft Stage Gate Checklists and Risk-Adjusted Economics Cards.
- Day 3:** Push base and upside toggles into the model; publish portfolio WIHS, kill/shelve list, and a 90-day uplift plan; propose earnouts, CPs, and covenants where uncertainty is material.

## Acceptance criteria for a decision-grade innovation review

- Pipeline Inventory complete and segmented; stages assigned with **evidence-based gates** on page.
- rNPV and EVI computed for top initiatives with documented assumptions; capacity, reliability, and policy gates reconciled.
- WIHS scored with evidence; portfolio balance reviewed; zombies identified and addressed.

- Model updated within 24 hours (price, CM2, NRR, timing); term-sheet levers tied to specific initiatives.
- A 90-day plan with owners, costs, and dates; early-warning indicators defined; clean-team protocols observed.

Run this template and the “innovation story” becomes a portfolio of **priced options** with clocks, owners, and evidence—not promises. You will know which initiatives create value in your hold period, what could break them, and the minimum set of actions and terms that protect and amplify their economics.

# Chapter 13. Historical Financial Performance

Historical performance is not a backward-looking ritual; it is the most efficient way to falsify (or fortify) the forward thesis. A clean, decision-grade read of the last 12–16 quarters tells you what the engine actually produces—by segment and route-to-market—when price changes, mix shifts, promotions ebb and flow, competitors react, or operations strain. This chapter focuses on turning the income statement into **bridges** that quantify drivers you can underwrite: price realization, volume, mix, channel, geography, product family, FX, inorganic moves, and one-offs. The output should plug directly into your demand, pricing, unit-economics, and scenario work so the “plan” is a continuation (or an intentional break) from what’s been demonstrated.

## 13.1 Revenue Bridge Analysis – Step-by-Step Guide

A revenue bridge explains **how** the business moved from Revenue A (period 0) to Revenue B (period 1) by isolating the drivers that matter for underwriting. The goal is not just the picture; it is the **math and governance** behind it—definitions, allocation rules, reconciliations, and confidence labels—so Finance, Sales, and the deal team agree on what is “price,” what is “volume,” and what is simply noise.

### What the bridge must answer (and for whom)

- **For investors:** What portion of growth is repeatable (price power, mix, expansion) versus episodic (one-offs, promotions, timing)? What is organic, constant-currency growth after stripping FX and M&A?
- **For operators:** Which segments and channels created or destroyed realized price? Where did promotions or paid placement buy volume at poor economics?
- **For risk:** How much of the change came from customers or SKUs with delist, churn, or compliance exposure?

## Freeze the rules before you compute

- **Revenue definition:** Use **vendor-realized revenue** (list – on-invoice discounts – off-invoice/promos – returns/chargebacks – marketplace take-rates) to align with the pricing waterfall (Chapter 8.2). Document exceptions (e.g., gross vs. net for marketplaces; pass-through freight or fuel surcharges).
- **Scope and granularity:** Build bridges at **total company** and at least two cuts that drive economics (e.g., Product Family × Route-to-Market; Region × Segment).
- **Comparison windows:** LTM vs. prior LTM, YoY by quarter, and YTD—pick one primary view and reproduce the others from the same base.
- **Currency:** Present **constant-currency** results (period-1 revenues restated at period-0 average rates or rolling monthly rates) and show the FX step explicitly.
- **Organic vs. inorganic:** Separate M&A/divestiture effects. Pro forma if transparency exists, but never bury inorganic growth in “volume.”

## Assemble the minimum viable data pack

Request once; reuse everywhere:

- **GL revenue** by month with adjustment details (discounts, rebates, returns, chargebacks, take-rates).
- **Order/invoice line-items:** SKU, quantity, list price, net price, discounts, promo codes, customer, channel, ship date, region, currency.
- **Customer master:** segment/tier, route-to-market, region, “new vs. existing” flag, parent/child hierarchy.
- **Product master:** family, KVI status, lifecycle (new/active/EOL), regulated or approval-bound flag.
- **Promotions and price changes:** effective dates, fences, and guardrails; paid placement spend where relevant.
- **M&A/divestiture log:** close dates, included SKUs/customers/geos, pro forma notes.
- **FX rates:** monthly averages used by Finance.
- **Calendar/timing notes:** 53rd week, shutdowns, stockouts, backlog burn-down.
- **SaaS/recurring:** ARR/NRR roll-forward (New, Expansion, Contraction, Churn) with cohorts and price/seat logs.

- **Marketplace/platform:** GMV, take-rates by tier/category, refunds, penalties.

## The decomposition methods (pick once; document)

To avoid “residual” fights, use explicit formulas and apply them consistently.

- **Price–Volume–Mix (transactional):**  
Work at the **line-item** or **SKU-family** level. A robust and simple approach is the **mid-point (Fisher) method** which splits cross-terms fairly:
  - **Volume effect** =  $\Sigma(Q_1 - Q_0) \times (P_0 + P_1)/2(Q_1 - Q_0) \times (P_0 + P_1)/2$
  - **Price effect** =  $\Sigma(P_1 - P_0) \times (Q_0 + Q_1)/2(P_1 - P_0) \times (Q_0 + Q_1)/2$
  - **Mix effect** = the remainder after isolating price and volume at the family or segment level (i.e., change in composition across SKUs/segments holding total volume and weighted average price constant).  
Where list/discounts are available, break **Price** into **List change**, **On-invoice discounts**, **Off-invoice/promo**, **Take-rate change**, and **Compliance/chargebacks** to align with realized price analytics (8.2).
- **Order math (e-commerce & retail):**  
**Revenue** = **Sessions** × **Conversion** × **Orders per buyer** × **AOV (units × net unit price)**. Bridge each driver; tie AOV to realized price factors.
- **ARR roll-forward (SaaS/recurring):**  
**ΔARR** = **New** + **Expansion** – **Contraction** – **Churn** ± **Price** – **FX** ± **M&A**. Keep **Price** separate from Expansion/Contraction (true re-rating vs. seat/module adds). Use cohorts to reconcile to NRR (6.3).
- **Marketplace net revenue:**  
**Net Rev** = **GMV** × **Take-rate** – **Incentives** – **Refunds/Penalties**. Bridge GMV drivers (buyers × orders/buyer × AOV), then isolate take-rate and penalty shifts.

## Step-by-step build (from blank sheet to decision-grade)

### 1) Reconcile the perimeter

Start with booked revenue Period 0 → Period 1. Add a first bridge that isolates **FX** and **M&A/divestitures**. Now you have **organic, constant-currency** change to decompose.

## 2) Choose the unit of analysis per cut

- Transactional: **SKU family × Region × Channel**.
- SaaS: **Cohort × Segment × Product family**.
- Marketplace: **Category × Tier × Region**.  
Document any roll-ups.

## 3) Normalize for timing and policy artifacts

- **Calendarization:** correct 53rd week, holiday shifts, or one-time backlog release.
- **Policy & accounting:** flag any revenue-recognition changes (sell-in vs. sell-through, bill-and-hold, multi-element allocation). Do **not** treat these as “price” or “volume”; show a separate step.

## 4) Compute the “price tree” before anything else

Walk realized price from list to net:

List → - On-invoice discounts → - Off-invoice promotions → - Take-rates/fees  
→ - Chargebacks/compliance → = **Vendor-realized net price**.

Quantify the change in each branch vs. prior period. This isolates **true price power** from promotion mix or channel fees.

## 5) Run the price–volume–mix math

Apply the mid-point formulas at your chosen granularity. Present in this sequence: **Price → Volume → Mix**. For SaaS, pair with **ARR roll-forward** so the field sees both lenses.

## 6) Attribute mix visibly

Break **Mix** into the drivers that matter for underwriting: **Product mix, Geography mix, Channel/route-to-market mix, Customer/segment mix**. Avoid dumping all cross-terms into a single “mix” bar.

## 7) Compile the bridge narrative

Create a **Revenue Bridge Canvas** for every top cut that states, in plain English, why each bar moved (e.g., “Retail channel -\$3.2M: higher take-rates and OTIF penalties; realized price -210 bps despite +90 bps list increase”).

## 8) Tie to economics

- Map **Price** changes to **CM2** via the pricing waterfall (8.2) and cost-to-serve (10.4).

- Map **Volume** to **capacity** (10.2) and **service** (10.3) to explain sustainability.
- Map **Mix** to **NRR/CAC** (6.3, 9.4) where channel and segment economics differ.

### 9) Produce three standard bridges

- **Company LTM YoY (constant currency, organic).**
- **Top Segment (e.g., Product A × Direct NA).**
- **Recurring/ARR roll-forward (SaaS only).**

Use the same definitions and allocation rules across all three.

### 10) Quality-assure and lock

Reconcile to GL by period; **ratio-of-sums** for roll-ups; footnote exclusions; label low-confidence cuts. A second person should reproduce each bar from source files.

## Practical allocation rules (write them on the page)

- **Promos vs. price:** Promotions that are **discounts** belong under **Price**; **funded paid placement** lives outside Price (treat as CAC/marketing cost) unless it permanently changes take-rate.
- **Returns and chargebacks:** Include their **net** revenue effect under **Price** (realized price) and their **cost-to-serve** effect in CM2 (10.4).
- **Channel fees/take-rates:** Treat as part of **realized price**, not as opex.
- **Intro SKUs and EOL:** When new SKUs launch or old ones sunset, attribute to **Mix**; if pricing ladders changed, show a **Price** bar as well.
- **Large deals/projects:** Call out as a separate **One-off** step if the revenue pattern will not recur at similar margins or conversion cost.

## Templates you can copy as you work

### Revenue Bridge Canvas (one page per cut)

- **Scope & period:** [e.g., LTM through Jun-2025, constant currency, organic].
- **Starting revenue → Ending revenue:** values and % change.
- **Bars and \$ impact:** FX, M&A, Policy/Timing, Price (List, On-invoice, Off-invoice, Take-rate, Chargebacks), Volume (units/orders/ARR adds), Mix (product, channel, region, segment), One-offs.
- **Plain-English attribution:** top 3 reasons with evidence (price file, promo calendar, take-rate letter, S&OP notes).

- **Economics link:** CM2 impact from price moves; CTS impact from penalties/returns; CAC/payback impact from channel shift.
- **Confidence & QA:** reconciliation note; low-confidence cuts flagged.

## Data request (issue once)

- GL revenue with discount/return/chargeback/take-rate detail by month.
- Order/invoice line-items with SKU, quantity, list, discount, net, currency, customer, channel, ship date.
- Price lists and promo calendars, with effective dates and fences.
- Customer and product masters; route-to-market mapping.
- M&A/divestiture log; FX monthly averages; accounting policy notes.
- SaaS cohort/ARR roll-forward (if recurring); marketplace GMV and take-rate files (if applicable).

## Driver dictionary (put in the appendix)

- **Price:** list changes, on-invoice discounts, off-invoice promotions, take-rates/fees, chargebacks/compliance fines.
- **Volume:** units shipped, orders, active buyers, new ARR, seats/modules added.
- **Mix:** product family, channel/route, region, segment/tier, SKU lifecycle.
- **Policy/Timing:** accounting changes, calendar effects, backlog release.
- **FX:** translation only; transaction FX shows up inside price realization if priced in multiple currencies.
- **M&A/Divestitures:** inorganic additions/subtractions.

## QA checklist (use verbatim)

- Revenue definition matches **vendor-realized** basis; price waterfall reconciles to GL discounts, rebates, and fees.
- FX and M&A isolated before decomposing; constant-currency policy documented.
- Price/volume/mix math uses **mid-point (Fisher)** or another documented method; no unexplained residuals.
- ARR roll-forward reconciles to bookings/billings and recognized revenue; price re-ratings separated from expansion/contraction.

- Promotions treated consistently; platform **take-rates** inside realized price; paid placement treated as CAC (unless it structurally changes fees).
- Ratio-of-sums for roll-ups; currency consistency; all exhibits footnoted; second-person reproduction completed.
- Low-confidence cuts labeled; known data gaps and their expected direction of bias disclosed.

## Interpretation guide (what the bars usually mean)

- **Price ↑ with stable or improved mix:** Evidence of differentiation (8.4); likely supports higher realized price corridors and lower promo dependence.
- **Price ↑ but CM2 ↓:** Take-rates, penalties, or returns/chargebacks may be rising—check 10.3 and 10.4.
- **Volume ↑ with Mix ↓:** Growth via channels/segments with weaker economics; revisit channel spend and price fences (9.2, 9.3).
- **Mix ↑ driven by route-to-market shift:** If mix improves because of direct channels, CAC/payback may also improve (9.4); validate with funnel and cost-to-serve.
- **FX dominates:** Underwrite constant-currency; consider natural hedges or indexation (11.3, 11.4).
- **One-offs large:** Move those dollars to upside-only; reflect in terms (earnouts, covenants).

## Red flags—and how to respond

- **Growth mainly from promotions (off-invoice) with flat or falling list:** Lower realized price corridors; enforce discount guardrails; test elasticity (6.4).
- **Take-rates and compliance fines rising in marketplaces/retail:** Treat as structurally realized price pressure; diversify channels or raise price fences (9.2, 11.4).
- **Revenue recognition policy shifts driving growth:** Move to a separate **Policy** bar; don't underwrite as price or volume; consider a quality-of-earnings deep dive.
- **High return/chargeback rates contributing to “volume”:** Shift attention to 10.4; pull back on low-quality demand.
- **Mix skew to a few customers/SKUs:** Concentration risk; scenario a delist or churn (7.4, 10.1).

## 72-hour sprint plan (from blank page to a defendable bridge)

- Day 0:** Freeze revenue definition, scope, periods, and constant-currency policy; issue the single data request.
- Day 1:** Land GL tie-out; build the FX/M&A/policy first bridge; compute realized price tree (list → net).
- Day 2:** Run price–volume–mix math at chosen granularity; build ARR roll-forward (if recurring) and marketplace net-revenue bridge (if applicable); attribute mix (product/channel/region/segment).
- Day 3:** Produce three standard bridges; write plain-English attributions; push price and mix deltas into CM2, NRR, CAC/payback; label confidence; log verifier sign-off.

## Acceptance criteria (your “done” checklist)

- Organic, constant-currency growth computed and reconciled to GL; FX/M&A/policy bars isolated.
- Price–volume–mix bridges produced at company and at least one economic cut; price tree reconciles to the pricing waterfall.
- ARR roll-forward (if recurring) and/or marketplace net-revenue bridge (if relevant) completed and reconciled.
- Mix properly attributed (product, channel, region, segment); no unexplained residuals.
- Economics links explicit (CM2, NRR/CAC/payback); model updated within 24 hours; confidence labels present.
- QA complete with second-person reproduction; all exhibits footnoted; clean-team rules observed.

Run this guide and your revenue story stops being a line on a chart. It becomes a set of **auditable drivers** you can price, staff, and defend—so the plan you underwrite is a continuation of demonstrated price power and repeatable mix, not a hope that promotions or one-offs will keep saving the quarter.

## 13.2 Margin Decomposition Template

Margin work in diligence is not an accounting exercise; it is a translation between how value is created (price power, mix, efficiency, service quality) and how cash lands (CM2 and beyond). The objective is a decision-grade **margin tree** and a set of **bridges** that quantify what drove the last 12–16 quarters of margin up or down—by segment and route-to-market—and what that implies for the forward case. The output must reconcile to the GL, align with your revenue bridge (13.1), and plug directly into pricing (Chapter 8), cost-to-serve (10.4), capacity (10.2), service levels (10.3), and digital unit costs (12.1/12.2).

### Define the margin tree up front

Use consistent definitions across every exhibit and label them on the page:

- **Vendor-realized revenue (VRR):** list price minus on-invoice discounts minus off-invoice/promotions minus take-rates/fees minus returns/chargebacks.
- **CM1 (Gross Margin):** VRR – **COGS** (materials/components, direct labor, manufacturing/fulfillment overhead actually in COGS, landed freight to inbound, packaging, duties; for SaaS: hosting and core third-party compute if presented above the line).
- **CM2 (Contribution after Serve):** CM1 – **Cost-to-Serve (CTS)** (pick/pack/ship outbound, accessorials, returns/refurbishment, compliance penalties/credits, support/success minutes, field/service, payment processing and fraud, platform/third-party API usage, cloud coverage tied to delivering the service).
- **Optional CM3 (after variable selling):** CM2 – **variable S&M** (paid placement, performance marketing that scales with orders, reseller commissions). Use only if the operating model benefits from it; otherwise keep S&M below the line.

Write once how the company books hosting, support labor, outbound freight, and platform fees; these classifications materially affect comparability and must be frozen before analysis.

### Build a single margin narrative anchored in four bridges

Every analysis references one or more of these bridges:

1. **Price–Cost Gap Bridge:** from VRR to CM1 by isolating realized price drivers versus input costs (commodities, components, labor, freight, duties).
2. **COGS Variance Bridge:** from standard to actual cost per unit (or from prior period cost to current), decomposed into rate and efficiency variances.
3. **Cost-to-Serve Bridge:** from CM1 to CM2 by bucket (shipping, accessorial, returns, support, payment fees, API/cloud, penalties).
4. **Mix & Channel Economics Bridge:** how product/channel/region/segment mix changed CM1% and CM2%, even if price and unit costs were flat.

## **Step-by-step guide (from blank sheet to decision-grade)**

### **1) Freeze scope, segmentation, and period**

Adopt the same segments used elsewhere (customer/job, size band, route-to-market, region, product family). Choose one primary time view (LTM vs. prior LTM or YoY by quarter) and reproduce others from the same base. Work in constant currency for comparability.

### **2) Land the minimum viable data pack**

Ask once; reuse across all bridges.

- Revenue and discounts files at invoice/line level (list, net, promo codes, take-rates, returns/chargebacks).
- **COGS detail** by SKU or family: BOMs, standard costs and revisions, purchase prices, PPV logs, labor rates, routings, overhead rates and absorption, scrap/yield, inbound freight/duty, broker/surcharges, inventory adjustments (E&O, revaluation).
- **CTS detail:** WMS/TMS pick and pack minutes, materials, parcel/LTL invoices with accessorial, returns/refurb costs, payment processor fees and chargebacks, support/success minutes and rates, field/service logs, cloud invoices (compute/storage/egress) and third-party API bills, SLA credits/retail penalties.
- Operational context: service metrics (OTIF, latency), capacity headroom, expedite spend, changeover time (10.2/10.3), promotions calendar, KVI list.
- Accounting context: capitalization policies (software, tooling), overhead allocations, freight capitalization, classification of hosting/support, revenue recognition notes.

### 3) Draw the margin tree first

On one page, walk **List → VRR → CM1 → CM2** with dollars and percentages for the period and prior comparable period. This becomes the anchor everyone references.

### 4) Compute the Price–Cost Gap Bridge

Start with VRR. Build bars for:

- **Price tree:** List, on-invoice discounts, off-invoice/promos, take-rates/fees, returns/chargebacks.
- **Input costs:** materials/components (and commodity indexation), direct labor, manufacturing overhead, inbound freight/duty.
- **Result:** CM1 movement from prior to current period.

Use mid-point (Fisher) math to split price and volume fairly, then attribute the remainder to mix. Keep FX and M&A outside this bridge.

### 5) Run a COGS variance analysis (rate vs. efficiency)

For manufactured or assembled goods, use the standard variance taxonomy; for each SKU family, compute:

- **Material price variance (MPV)** = (Actual unit price – Standard unit price) × Actual quantity purchased.
- **Material usage variance (MUV)** = (Actual quantity used – Standard quantity allowed for actual output) × Standard unit price.
- **Labor rate variance (LRV)** = (Actual hourly rate – Standard rate) × Actual hours.
- **Labor efficiency variance (LEV)** = (Actual hours – Standard hours for actual output) × Standard rate.
- **Manufacturing overhead variances** (spend, efficiency, and volume/absorption).
- **Yield/scrap variance** (if tracked outside of usage).  
Reconcile these to the GL's variance accounts; keep an audit trail by SKU family or value stream.

For SaaS and usage businesses, translate to **unit-cost variances**: \$ per API call/account/order, split into **rate** (provider price or on-demand mix) and **quantity/efficiency** (inefficient queries, low cache hit, data retention bloat).

## 6) Build the Cost-to-Serve (CTS) Bridge

From CM1 to CM2, quantify each bucket as \$ and as % of VRR, by segment and channel:

- Outbound shipping and accessorial (fuel, oversized, residential).
- 3PL fees and storage (for fast turns); brokerage and duties on outbound if any.
- Returns/reverse logistics (probability × cost – recovered value), refurbishment, markdowns.
- Payment processing fees and chargebacks; fraud losses.
- Support/success minutes and field/service costs; warranty reserve movement.
- Platform/marketplace credits/penalties; OTIF/compliance fines.
- Cloud and third-party API unit costs tied to serving transactions/tenants (for digital products).

Use **time-driven ABC** for people steps and **invoice-anchored** numbers for bought services. Reconcile totals to the GL (10.4).

## 7) Attribute mix explicitly

Do not hide composition effects. Decompose mix into:

- **Product mix** (shift to premium/complex SKUs or regulated lines).
- **Channel/route-to-market mix** (direct, marketplace, distributor, OEM).
- **Geography mix** (landed cost and duty changes by region).
- **Customer/segment mix** (enterprise vs. SMB; tiered support entitlements).

Show how mix alone lifted or diluted CM1% and CM2%.

## 8) Normalize and isolate non-recurring items

Call out the dollars and logic for E&O write-downs, warranty campaigns, recall costs, one-time logistics disruptions, unusual hedging gains/losses, and accounting policy shifts. Move these to “one-offs” and keep them out of recurring drivers.

## 9) Tie to the operating model and the forward case

- Translate **price-cost gap** into realized price corridors (8.2) and indexation policy.
- Convert **COGS variances** into capacity and supplier actions (10.1, 10.2) and procurement terms.

- Convert **CTS drift** into route/network fixes, policy and packaging changes, and support deflection (9.2, 10.4, 10.3).
- Reflect **mix** in channel spend and coverage (9.1–9.4).

#### **10) Push toggles into the model within 24 hours**

Add scenario levers for commodity/fuel/wage moves, FX, returns rate, take-rates, cloud on-demand share, and support minutes. Update CM2 by segment/channel accordingly.

### **Practical formulas and allocation rules (state on the slide)**

- **CM1% = CM1 ÷ VRR; CM2% = CM2 ÷ VRR.**
- **Price-cost gap ( $\Delta CM1\%$ )**  $\approx \Delta RealizedPrice\% - (w_{material} \times \Delta MaterialCost(w_{material} \times \Delta MaterialCost\%) + (w_{labor} \times \Delta LaborCost\%) + (w_{freight} \times \Delta InboundFreight\%) + (w_{overhead} \times \Delta Overhead\%)$  ( $w_{material} \times \Delta MaterialCost$ , where weights are prior-period cost shares).
- **Return drag on CM2 (per order)**  $\approx$  Return probability  $\times$  (reverse logistics cost – recovered value) + incremental support minutes  $\times$  rate.
- **Payment fee drag**  $\approx$  Card-processed VRR  $\times$  Δbps.
- **Cloud unit-cost** = Cloud spend attributable to serving  $\div$  (API calls or active accounts); split **rate** (provider price, on-demand vs. reserved) and **efficiency** (engineering fixes).
- Use **ratio-of-sums** for roll-ups; never sum of ratios.
- **Promotions** and **take-rates** live under **Price**; **paid placement** is variable S&M (optional CM3), not Price, unless it permanently changes fees.
- **Outbound shipping** belongs in **CTS**; **inbound freight/duty** belongs in **COGS**.
- **Hosting/support classification:** respect the company's policy but disclose it prominently; for cross-company comparisons, provide an “**analytical restatement**”.

### **Templates you can copy directly**

#### **A) Margin Tree Canvas (company or segment)**

- Scope & period; VRR, CM1, CM2 (dollars and %).
- Price tree to VRR with bars and dollars.
- COGS buckets with dollars and % of VRR.
- CTS buckets with dollars and % of VRR.

- One-offs and policy notes; confidence label; GL tie-out statement.

#### **B) Price–Cost Gap Card (per product family × region or segment)**

- Realized price movement (list, discounts, promos, take-rates, returns) with evidence.
- Input-cost movement (materials, labor, freight, duties, overhead).
- Net CM1 change; sensitivity to commodity/fuel ± bands; indexation coverage; owner and next action.

#### **C) COGS Variance Card (manufactured goods)**

- MPV, MUV, LRV, LEV, overhead variances; scrap/yield; absorption.
- Root causes (supplier, yield, mix, learning curve); mitigation and timing; GL reconciliation note.

#### **D) CTS Variance Card (by segment/channel)**

- Shipping & accessorial, returns/refurb, support minutes, payment fees/fraud, API/cloud, penalties/credits.
- Drivers (distance/speed, DIM/oversize, policy thresholds, contact rate, SLA adherence); levers and owners.

#### **E) Mix & Channel Economics Card**

- Mix deltas across product/channel/region/segment; CM1%/CM2% impact; CAC/payback and NRR implications; planned re-weighting.

#### **QA and data-hygiene checklist (use verbatim)**

- Margin definitions (VRR, CM1, CM2) written on page; hosting/support/outbound shipping classification disclosed.
- GL tie-out complete for COGS and CTS totals; timing differences explained.
- Constant-currency policy applied; FX separated before decomposition.
- Price–volume–mix uses mid-point method; no unexplained residuals.
- Variances reconciled to standard-cost accounts (where used); absorption and E&O isolated.
- Invoice-anchored rates used for freight, duties, processors, cloud, APIs; TDABC rates documented for people time.
- Ratio-of-sums applied to roll-ups; confidence labels set (H/M/L).

- One-offs flagged; promotions/paid placement and take-rates treated consistently with revenue work.
- Verifier re-computation passed; clean-team protocols observed.

## Interpretation guide (what the deltas usually mean)

- **CM1 ↑ while realized price flat:** real cost wins (e.g., mix to low-duty geos, supplier price breaks, yield fixes). Test sustainability and indexation.
- **CM1 ↓ despite list increases:** promotions or take-rates are offsetting; discount governance or channel shift likely required.
- **CM2 ↓ with CM1 flat:** serving the business is getting more expensive—returns, shipping, support, or platform/API costs rising. Move quickly on policy, packaging, routing, and deflection.
- **Mix dilutes CM2% but lifts revenue:** growth is coming through weaker-economics channels or segments; revisit coverage and price fences.
- **Cloud unit-cost spikes with growth:** reserve coverage low or engineering hotspots; add FinOps fixes to Day-1 plan.

## Early-warning indicators (monitor monthly post-close)

- CM1% and CM2% by segment/channel with **variance to plan**; price–cost gap trend.
- Freight/accessorials as % of VRR; return rate and “no fault found” share; support minutes per order/account.
- Payment fee bps; chargeback rate; fraud losses.
- Cloud \$ per API call/account; on-demand share; third-party API cost per active.
- Commodity index proxies; supplier lead-time and PPV; absorption variance.
- Penalties/credits (OTIF/SLA) and delist warnings.
- Mix drift: share of revenue in low-CM2 channels/segments.

## Red flags—and immediate responses

- **CM2 erosion concentrated in marketplaces/retail:** rising take-rates or penalties; diversify channels, tighten OTIF, raise free-shipping thresholds, and enforce return policies.

- **Manufacturing absorption swings driving CM1 volatility:** capacity utilization or standard setting is off; adjust rates, level-load, or rebase standards post-close.
- **High E&O or warranty spikes:** quality or demand-planning issues; reprice or exit SKUs; launch root-cause program with 90-day targets.
- **Support minutes and SLA credits trending up:** reliability gap; launch error-budget governance (12.1) and raise deflection/self-serve.
- **Cloud/API overage bills without growth in actives:** runaway queries or leakage; pause feature rollouts until hotspots fixed; add reserved commitments.

## 90-day margin plan (only moves that change cash fast)

- **Indexation:** add CPI/commodity/fuel clauses in new and renewal contracts (where legal); harden discount guardrails and price fences (8.2).
- **Freight & packaging:** rebid priority lanes; add a secondary gateway; reduce DIM weight; set late cutoff capacity (10.1, 10.4).
- **Returns:** tighten policy and triage; improve fit/quality; stand up refurb channels where margin-positive.
- **Support & success:** deploy deflection and knowledge base fixes; re-tier entitlements; staff to severity SLAs; automate low-value contacts.
- **FinOps:** convert eligible cloud services to reserved/savings; fix top two hotspots (cache/query); renegotiate or replace low-ROI APIs.
- **Supplier terms:** dual-source critical components; lock allocation priority; negotiate MOQs and lead times; secure cost-down roadmaps.
- **Standards reset:** if standard cost is stale, re-set standards to reduce false variances; align absorption to realistic volumes.

## 72-hour sprint plan (from blank page to a defendable margin view)

- Day 0:** Freeze definitions and classifications; issue a single data request; align constant-currency policy.
- Day 1:** Publish the margin tree (List → VRR → CM1 → CM2); compute the Price–Cost Gap Bridge and identify top three drivers.
- Day 2:** Run COGS and CTS variance bridges for two largest segments/channels; attribute mix; isolate one-offs; reconcile to GL.

- Day 3:** Push toggles into the model (price, commodities, freight, returns, payment bps, cloud, support minutes); issue a 90-day margin plan with owners; set early-warning indicators; document confidence and verifier sign-off.

## Acceptance criteria for a decision-grade margin decomposition

- Margin tree published with clear definitions; GL tie-out complete; FX/M&A isolated.
- Four bridges produced (Price–Cost Gap, COGS Variance, CTS Bridge, Mix & Channel) for company and top segments/channels.
- Equations, allocation rules, and confidence labels on the page; no unexplained residuals; ratio-of-sums respected.
- Model updated within 24 hours; red flags and 90-day actions assigned with owners and timelines; clean-team rules observed.

Use this template and margin talk becomes a precise, auditable story: where value is created, where it leaks, and which few levers move CM2 quickly and sustainably in your hold period.

## 13.3 Working Capital Diagnostic Checklist

Working capital is the cash reality of your business model. It converts bookings into bank balances (or not), determines how fast you can fund growth without external capital, and telegraphs operational health long before the P&L does. A robust diligence looks past the headline DSO/DIO/DPO to the machinery underneath—terms discipline, deductions, returns, reserves, processor holdbacks, inventory accuracy, supply-base power, project billing hygiene, and seasonal bulges. Your aim is to produce a **segmented, decision-grade** picture of working capital, express it as levers that move cash in the next 13 weeks and 12 months, and wire those levers into valuation, covenants, and the 90-day plan.

### Scope and definitions—freeze what you will measure

Anchor every exhibit to the same definition: **Operating Net Working Capital (oNWC)** =  $(\text{Trade Receivables} + \text{Inventory} + \text{Other Operating Current Assets}) - (\text{Trade Payables} + \text{Other Operating Current Liabilities})$ , explicitly **excluding** cash,

short-term debt, current tax, and one-off items. Compute and discuss both **absolute dollars** and **days** (DSO, DIO, DPO, CCC). Segment by product family, customer tier, route-to-market, and region; averages hide cash.

## Data pack—request once, reuse everywhere

- Trial balance and monthly balance sheets (36 months if available).
- AR aging by customer (current/30/60/90/120+), dispute and deductions codes, credit notes, chargebacks, processor holdbacks/reserves, credit insurance, factoring/SCF usage.
- AP aging by vendor, terms by contract and actual paid-days, early-pay discounts, dynamic discounting/SCF files, three-way-match exceptions.
- Inventory by site and category (raw/WIP/finished/field stock/consigned/VMI/in-transit), cycle-count results, slow-moving/obsolete reports and reserves, returns/RMA and refurbishment.
- Revenue/COGS monthly, by segment/channel; purchase journal or receipts (for DPO on purchases); promotions calendar, trade spend accruals, retailer/marketplace penalties.
- Contracts and policies: payment terms (sell-side/buy-side), incoterms, billing milestones, retention/withhold clauses (projects), processor/marketplace payout terms, warranty/returns policy.
- SaaS/recurring: bill timing (annual vs. quarterly vs. monthly), prepaid/contract liabilities (deferred revenue), renewal schedule, refund/cancellation terms.
- Project-based: WIP schedules, under/over-billing, change orders, retentions, certifications.
- FX exposure by currency for AR/AP; tax/VAT receivable/payable.
- Seasonality markers (peak months, Chinese New Year builds, holiday freezes), S&OP calendars.

## Formulas you will use (write them on the page)

- **DSO** =  $(\text{Average Trade AR} \div \text{Credit Sales}) \times \text{Days}$ . (Also compute **cohort DSO** by customer tier to expose tail pain.)
- **DIO** =  $(\text{Average Inventory} \div \text{COGS}) \times \text{Days}$ . (Also compute **Weeks of Supply** and **turns**.)
- **DPO** (purchases-based) =  $(\text{Average Trade AP} \div \text{Purchases}) \times \text{Days}$ . Use purchases rather than COGS where possible to avoid absorption noise.

- **Cash Conversion Cycle (CCC)** = DSO + DIO - DPO. For recurring/subscription models, compute **Days Contract Liability (DCL)** =  $(\text{Deferred Revenue} \div \text{Revenue}) \times \text{Days}$  and show **Net CCC** (CCC - DCL) to capture negative working-capital effects.
- **Early-pay APR** (to judge discount economics)  $\approx \text{Discount \%} \div (\text{Days saved}/365)$ .
- **Inventory health:** % slow-moving (no movement in 90/180/360 days), **RMA rate, first-pass refurb yield.**

## Step-by-step diagnostic (from blank sheet to decision-grade)

### 1) Reconcile and normalize

Tie ending balances to the GL; strip FX and M&A first. Adjust for accounting policy shifts (e.g., freight capitalization, standard-cost rebase). Anchor analysis in constant currency and like-for-like perimeter.

### 2) Build the working-capital bridge

Show how oNWC moved from prior LTM to current LTM by driver: AR, Inventory, AP, Other Op Assets/Liabilities, FX, scope, one-offs. Write one sentence per bar in business language (e.g., “\$12.4M AR increase from retail deductions and processor reserves; paid-days slipped 7.”).

### 3) Decompose receivables beyond DSO

- **Aging & tail risk:** % >60/90/120; top-20 customer balances and delist/churn hazard; cross-age with dispute codes.
- **Terms discipline:** policy vs. actual paid-days by tier/channel; audit “net-30 means net-45” leakage; EOM and receipt-of-goods wrinkles.
- **Deductions & chargebacks:** root-cause mix (OTIF, price, promo, compliance); win rate on disputes; cycle time to resolution; accrual adequacy.
- **Processor/marketplace effects:** payout lags, reserve rates, rolling holdbacks; fraud/chargeback programs and thresholds.
- **Credit risk:** insurance limits and utilization; risk tiering; first-order default probability signals (dispute rate, days past due trend).
- **Factoring/ABL:** eligible base, advance rates, recourse terms, covenants; cost vs. early-pay APR.

#### 4) Examine inventory as a system

- **Structure:** mix across raw/WIP/FG/field stock/consigned/VMI/in-transit; location accuracy vs. ERP; cycle-count variance.
- **Health:** slow-moving and obsolete ladders; weeks of supply by KVI/SKU family; RMA loop and refurb yield; shrink/scrap trend.
- **Planning & capacity link:** forecast error, safety-stock policy, MOQ/lead-time drag; changeover time and lot-size economics (10.2); E&O reserve adequacy.
- **Ownership & terms:** incoterms cutoffs (FOB vs. DDP), title transfer in transit, supplier-owned inventory on-site, consignment accounting.
- **Seasonality:** pre-build profiles; peak sell-through vs. carryover risk.

#### 5) Pressure-test payables

- **Term discipline:** policy vs. contracted vs. actual paid-days; early-pay usage and realized APR; dynamic discounting or SCF penetration; share of spend on “Day-0” rails (card, ACH on receipt).
- **Leakage controls:** three-way-match exceptions, duplicate payments, vendor-master hygiene (duplicates, bank change controls), price/quantity variances.
- **Supplier power:** concentration, sole-source status, allocation risk; penalties for late pay; relationship temperature.
- **Compliance:** public-sector prompt pay rules, construction lien waivers, labor/material lien releases.

#### 6) SaaS/usage specifics

- **Billing cadence & DCL:** annual vs. quarterly vs. monthly prepay; DCL by tier; renewal cliffs; refunds.
- **Collections:** involuntary churn (failed payments), dunning effectiveness, dispute rate; reseller/marketplace payout schedules for ARR.
- **Consumption:** true-up/overage timing; credit balance liabilities; contract assets (unbilled receivables).

#### 7) Projects & long-cycle businesses

- **WIP hygiene:** under/over-billing, retentions, certification cycles, change-order approval lags; claim rates and win times.
- **Milestone truth:** % revenue recognized ahead/behind billings; cash vs. POC gap; performance bonds and guarantees.

- **Customer funding:** mobilization advances; escrow arrangements; joint-check agreements.

### **8) FX and tax timing**

- Currency mismatches between AR and AP; natural hedges; collection lag vs. FX swings; VAT/GST receivable aging and refund cycle times.

### **9) Build a 13-week cash view tied to working capital**

Translate the diagnostic into a forward cash cadence: receipts by cohort, deductions cadence, processor payouts, inventory receipts vs. supplier payments, retentions and certifications, VAT refunds. This becomes the operating bridge between plan and liquidity.

### **10) Wire into model, covenants, and terms**

Push **DSO/DIO/DPO** and **oNWC turns** by segment into the driver model; add scenario toggles (DSO +10, DIO +7, DPO -5; processor reserve +1-2% of GMV; return rate +300 bps). Map covenant headroom (ABL borrowing base, interest coverage) to these toggles. Convert big uncertainties into **structure**: receivable eligibles, inventory appraisal haircuts, SCF adoption milestones.

## **The checklist (use this verbatim as you work)**

### **Receivables (cash in)**

- Aging structure and tail >60/90/120 days; top-20 exposure; dispute backlog age.
- Terms: contracted vs. realized paid-days by tier/channel; EDI compliance; grace-period “gotchas.”
- Deductions: OTIF/compliance/price/promo root causes; recovery rate; cycle time; accrual sufficiency.
- Processors/marketplaces: payout lags, rolling reserves %, chargeback ratio vs. program thresholds; reserve release cadence.
- Credit risk: limits, insurance coverage, concentration; watchlist and triggers.
- Mechanisms: lockbox, auto-cash application, dunning ladder, payment links, self-service disputes.
- Financing: factoring/ABL/SCF use, cost, covenants; assignability in key contracts.

### **Inventory (cash stuck)**

- Composition by type/site; cycle-count accuracy; variance trend.
- Slow-moving/obsolete ladders, reserve policy vs. reality; RMA and refurb yields.
- Weeks of supply by KVI/SKU family; safety-stock method; MOQ/lead-time constraints.
- In-transit ownership and cutoffs; consignment/VMI accounting clarity.
- Planning discipline: forecast error, S&OP cadence; promotions link to pre-build logic.
- Quality/returns: first-pass yield, defect codes; warranty reserves and burn.
- Capacity coupling: changeover/lot size driving excess; supplier allocation risk.

### **Payables (cash out)**

- Paid-days vs. contracted terms; early-pay discount capture and APR; SCF participation.
- Three-way match exception rate; duplicate payments; vendor-master hygiene; bank detail changes approval.
- Concentration: top-20 vendors' share and leverage; penalty clauses; prepayment requirements.
- Compliance: liens, statutory prompt pay, public sector clauses; audit rights.

### **Other operating current items**

- Deferred revenue / contract liabilities (DCL) and renewal timing; credit balances.
- Trade spend accruals, post-audit claims (retail); co-op/MDF timing.
- VAT/GST receivable aging; customs deposits; payroll timing; insurance prepaids.
- Processor reserves and escrow balances; warranty and returns reserves.
- Project retention and performance bonds.

### **Governance and controls**

- Policies exist and are enforced: credit approval, terms exceptions, returns/RMA, deductions write-off thresholds, vendor onboarding, three-way match.

- Dashboards track **p50/p75/p90** paid-days and dispute/return backlog, not just averages.
- S&OP integrates inventory/cash; AR/AP calendars aligned to peaks and promotions.

## Triangulations that catch hidden cash issues

- **Cohort DSO vs. headline DSO:** rising tail while average holds flat → deductions are masking slippage.
- **DSO vs. processor reserve trend:** higher reserve + flat chargebacks → a policy change, not behavior; adjust cash view.
- **DIO vs. service metrics:** rising inventory and rising backorders → location/accuracy problem, not level.
- **DPO vs. price-cost gap:** deteriorating DPO alongside worsening input costs → supplier power shift; pre-negotiate SCF or indexation (11.4).
- **Returns vs. CTS:** return spikes driving cash drag and CM2 erosion → fix policy/quality (10.4) before chasing AR.

## Industry nuances to handle explicitly

- **Retail/CPG:** deductions and post-audit claims dominate; scan-based trading and consignment blur title; OTIF penalties and routing guide compliance drive cash.
- **Marketplaces/DTC:** processor reserves and payout lags; refund/chargeback programs; paid placement timing vs. cash recognition.
- **SaaS/usage:** negative working capital via DCL; involuntary churn (failed payments) is cash leakage; reseller billing creates timing mismatches.
- **Hardware + service:** spares and field stock; RMA loops; warranty reserves; import duties timing.
- **Construction/industrial projects:** WIP under/over-billing, retentions, certifications; change-order cash timing; lien waivers.
- **Healthcare:** payer mix, prior-auth denials, clawbacks; 835/837 remittance timing; credit balances handling.

## Early-warning indicators (monitor weekly/monthly)

- % AR >60/90/120 days; dispute backlog age; win rate on deductions.
- Paid-days drift vs. policy by top customers; new “net-45” creep on formerly net-30 tiers.

- Processor reserve % or payout lag increases; chargebacks > program thresholds.
- Slow-moving inventory share; E&O reserve releases or spikes; cycle-count accuracy.
- DPO slipping; early-pay usage falling without a rate change; duplicate payment flags.
- VAT/GST receivable growth; retention aging; warranty reserve burn variance.
- Seasonality build deviating from S&OP; CCC trending away from plan.

## Red flags—and immediate responses

- **Retail deductions explode** without root-cause closure → stand up a **deductions war room**, pause low-ROI promos, tie customer compliance to ship-confirm; haircut revenue in the model and add CM2 drag.
- **Processor reserves jump** → treat as quasi-structural; widen cash ranges; renegotiate tiers or diversify providers.
- **Inventory accuracy <97%** or cycle-count deltas rising → freeze SKU introductions in affected sites; launch inventory integrity sprint; cap bookings that depend on suspect stock.
- **Paid-days slippage with top vendors** → escalate an SCF program or structured early-pay with APR math; assign executive coverage and set a vendor calendar.
- **Retentions/WIP swell** → tighten billing milestones; require joint-checks on risk accounts; add covenant and liquidity buffers.

## Levers that move cash in 13 weeks and 12 months

- **AR & collections:** term enforcement and DOA, auto-dunning, small-balance auto-writeoffs, payment links/portals, lockbox, dispute triage, credit insurance expansion, receivable financing (with explicit cost).
- **Deductions control:** close top root causes (OTIF, ASN, price files); weekly dispute clinics with big-box retailers; tighten promo approval and accruals.
- **Inventory:** re-tier safety stocks, SKU rationalization, VMI/consignment where supplier power allows, location accuracy fix, refurb/resale channels, MOQ renegotiation.

- **AP:** convert to **purchases-based DPO** discipline; expand SCF; capture economically rational early-pay discounts; clean vendor master; enforce three-way match.
- **SaaS/usage:** increase prepay share; smooth renewals; reduce involuntary churn (card updater, retries); shorten refund windows; tighten reseller terms.
- **Projects:** milestone re-phasing, advance billing, faster certification cycles, change-order governance, retainage release campaigns.
- **FX/tax:** netting AR/AP in the same currency; accelerate VAT refunds; align incoterms to cash.

## Governance and cadence

- Weekly cash stand-up (20 minutes): AR receipts vs. plan, deductions, processor payouts, inventory receipts, critical vendor payments, variance to 13-week forecast.
- Monthly working-capital review: segmented DSO/DIO/DPO, CCC, bridge vs. plan, early-warning indicators, and 90-day actions with owners.
- Quarter-close discipline: tie oNWC to GL; document one-offs; refresh scenario toggles in the model.

## Copy-ready templates

- **Working Capital Canvas (one per segment/channel)**
  - Scope & period; oNWC dollars and turns; DSO/DIO/DPO/CCC (and DCL for recurring).
  - Bridge (drivers and \$ deltas); plain-English causes.
  - Top exposures (customers/vendors/SKUs); seasonality profile.
  - Levers & 90-day actions (cash impact, owner, date).
  - Confidence label; GL tie-out note.
- **Receivables Control Card (per top customer/processor)**
  - Terms (contracted vs. paid-days); aging; dispute/deduction mix; reserve/payout rules; win rates; actions and owners.
- **Inventory Health Card (per site/SKU family)**

Weeks of supply; slow-moving ladders; E&O reserves; accuracy %; RMA/refurb metrics; actions.

- **Payables Term & Leakage Card (per top vendor/category)**

- Contracted vs. paid-days; discount capture APR; exceptions (3-way match); duplicate risk; actions.
- **13-Week Cash Flow Sheet**
  - Receipts by cohort; processor payouts; inventory receipts; supplier payments; tax/VAT; retentions; variance tracker.

## 72-hour sprint plan (from blank page to decision-grade)

- Day 0:** Freeze definitions and perimeter; issue a single data request; set constant-currency policy.
- Day 1:** Build the oNWC bridge; compute segmented DSO/DIO/DPO/CCC (and DCL); tie to GL; flag top five cash variances.
- Day 2:** Deep-dive AR deductions and processor reserves; inventory health by site/SKU; AP terms vs. paid-days and leakage; produce three Canvas pages (largest segment, largest channel, SaaS or project cut if relevant).
- Day 3:** Publish a 13-week cash plan; add scenario toggles to the model (DSO/DIO/DPO/reserves/returns); issue a 90-day action plan with owners and quantified cash impact; propose covenant adjustments or structural protections where uncertainty is material.

## Acceptance criteria for a decision-grade working-capital review

- Definitions and perimeter written on page; GL tie-out complete; FX/M&A/one-offs isolated.
- DSO/DIO/DPO/CCC (and DCL for recurring) computed **by segment/channel/region**, not just company-wide; cohort and tail analyses included.
- Working-capital bridge produced with plain-English drivers and cash deltas; seasonality profile stated.
- AR deductions, processor reserves, inventory health, and AP term discipline analyzed with root causes and actions.
- 13-week cash view published; model toggles updated within 24 hours; red flags and 90-day owners named.
- Confidence labels and verifier sign-off recorded; clean-team protocols observed.

Execute this checklist and working capital stops being a set of ratios at the back of the deck. It becomes a **cash playbook**—segmented, auditible, and actionable—so you can fund growth from operations, protect covenant headroom, and make valuation reflect the speed at which dollars actually move.

## 13.4 KPI Benchmark Dashboard Template

A KPI dashboard in diligence is not a wall of numbers. It is a **decision system** that (i) compresses the target's last 12–16 quarters into a few trend lines that actually move valuation, (ii) benchmarks those lines against credible corridors (internal history, nearest-neighbor comps, policy/platform thresholds), and (iii) makes the next actions obvious. Your aim is to produce a **segmented, auditible** dashboard that links directly to revenue bridges (13.1), margin trees (13.2), working-capital levers (13.3), pricing and unit economics (Chapter 8), GTM and funnel (Chapter 9), operations (Chapter 10), regulatory/policy (Chapter 11), and tech maturity (Chapter 12).

### What “good” looks like

- **Segmented:** views by product family, customer tier, route-to-market, and region (the same lens as Chapter 6).
- **Normalized:** constant currency, organic perimeter, calendarized (working days/53rd week) with definitions written on the page.
- **Benchmarked:** each KPI shown against **two corridors**—internal 12-quarter history and an external/threshold band (peer or platform/policy).
- **Economic:** every KPI maps to price power, win rate, NRR/GRR, CM2, CAC/payback, cash, or timing.
- **Auditible:** formulas, sources, and reconciliation notes attached; confidence labels (H/M/L) visible.
- **Actionable:** RAG thresholds with named owners, next review dates, and pre-agreed playbooks when red/amber.

## The dashboard structure (five panes you can ship)

### Pane 1 – Executive summary (one page)

- *Growth*: organic constant-currency revenue YoY, ARR/GMV growth (where relevant).
  - *Unit economics*: CM1%, CM2%, CAC payback (months), realized price corridor vs. plan.
  - *Customer health*: NRR/GRR, logo retention, cohort survival (12- and 24-month).
  - *Commercial engine*: conversion by stage, win rate, pipeline coverage.
  - *Cash & resilience*: CCC (or Net CCC for recurring), liquidity headroom, SLA credits trend.
- Each tile shows: **last quarter, LTM, 12-quarter sparkline, benchmark band, RAG, owner.**

### Pane 2 – Growth & customer outcomes

- Revenue bridge highlights (price/volume/mix) with implications for realized price (13.1).
- NRR/GRR by segment; expansion ratio; churn hazard factors (from 6.3).
- New logo growth; cohort activation and 90-day retention.
- Average order value (AOV) and frequency (e-commerce), or seats/modules and ARPU (SaaS).

### Pane 3 – Unit economics & pricing

- Realized price waterfall (list → net) and discount distribution; price realization vs. fences (8.2).
- CM1% and CM2% by segment/channel; cost-to-serve buckets as % of vendor-realized revenue (10.4).
- CAC by channel; incremental ROI for top three marketing tactics (9.3); payback months (9.4).
- Contribution per order/account; promo and paid-placement dependence (when applicable).

### Pane 4 – Go-to-market & funnel

- Stage-by-stage conversion and velocity; win rate vs. top three competitors (7.x, 9.1).

- Channel mix and attach rates; partner/marketplace tier status and penalty incidents (9.2).
- Sales productivity (new ARR per seller; bookings per head); discount guardrail exceptions.

#### **Pane 5 – Operations, tech & cash**

- Service SLOs (OTIF, p95 latency), SLA credits, contact rate per order/account (10.3).
- Capacity ladders and headroom at the constraint (10.2); expedite spend.
- Cloud/third-party unit cost curves and on-demand share (12.1/12.2).
- Working capital: DSO/DIO/DPO/CCC (and DCL for recurring) with bridges and seasonality (13.3).
- Policy/marketplace thresholds watchlist items that affect economics (11.4).

#### **Benchmarks without drama (the “ladder” you’ll cite on every slide)**

1. **Internal corridors:** 12–16 quarter history (p25–p75) as the default “benchmark.”
2. **Nearest-neighbor comps:** two to four peers (public filings, investor decks) mapped to the same metric definitions; show only ranges—not logos—unless permitted.
3. **Platform/policy thresholds:** marketplace OTIF/return/late-ship limits, payment network chargeback programs, regulatory SLAs—hard gates where failing turns economics red.
4. **Third-party data or analyst ranges:** use only as directional bands, never as the sole benchmark.  
Label the ladder at the bottom of each exhibit so readers know which band they are seeing.

#### **Build it once: step-by-step (a two- to four-day sprint)**

##### **1) Freeze scope and definitions**

- Organic perimeter, constant-currency policy, working-day/calender adjustments.
- Metric dictionary (see below), segmentation lens, data sources, and confidence labels.

## 2) Assemble the evidence pack

- GL and order/invoice lines; pricing files and promo calendar; ARR/NRR roll-forward; funnel exports (CRM/MAP); channel/marketplace reports; service and SLA data; cloud and third-party invoices; working-capital ledgers; policy/platform bulletins.
- For each source, record extract date, owner, and reconciliation status.

## 3) Select the KPIs (20–25 max) and map to economics

Pick only metrics that you will act on. Use the menus below per business model; avoid vanity measures.

## 4) Normalize and reconcile

- Strip FX and M&A; align periodization; reconcile roll-ups via **ratio-of-sums**.
- Footnote classification quirks (hosting/support inside COGS vs. CTS, gross vs. net revenue).

## 5) Apply benchmark bands and RAG

- Compute internal p25–p75 and p90 bands; overlay peer/threshold corridors where available.
- Pre-agree RAG thresholds **by segment** (e.g., NRR <100% = red in SMB, <105% = red in Enterprise).

## 6) Publish with actions and owners

- Every red tile has a lever from Chapters 8–12, an owner, and a date.
- Push changed toggles into the operating model within 24 hours.

## The metric dictionary (copy, edit, and lock)

### Cross-model core

- **Organic constant-currency revenue growth:** ΔRev (ex-FX/M&A).
- **CM1%, CM2%:** as defined in 13.2; classification footnote on page.
- **Realized price index:** Net ÷ List (weighted); show distribution by segment/channel.

- **CAC (blended and by channel):** fully loaded marketing + sales to first dollar of gross margin/CM2; show **CAC payback (months)** = CAC ÷ monthly CM2 contribution from the acquired cohort.
- **NRR, GRR:** cohort-based roll-forward; treat price re-ratings separately from expansion.
- **Churn hazard factors:** share of churn with leading indicator flags (SLA credits > threshold, high contact rate, return issues).
- **Contribution per order/account:** CM2 dollars ÷ orders/accounts.
- **CCC (and Net CCC for recurring via DCL).**
- **Revenue concentration:** top-10 share and **HHI** to show fragility.

### SaaS / usage

- **New/Expansion/Contraction/Churn ARR** (logo and \$); **Sales efficiency** (new ARR per fully ramped seller per quarter).
- **Magic number** ( $\Delta \text{ARR}_q/q$  Sales & Marketing) used cautiously—pair with payback.
- **Uptime and p95 latency vs. SLO; SLA credits % of revenue.**
- **Cloud unit cost per active/account/API call; on-demand share; third-party API \$ per active.**
- **Entitlement/billing accuracy:** credits/write-offs ÷ billings.

### E-commerce / DTC

- **Traffic → conversion → AOV (units × net price); orders per buyer; repeat rate** at 30/90/180 days.
- **Return rate** by reason; **refund/chargeback rate; paid share of traffic** and **promo dependence.**
- **Outbound freight + accessoriials % of revenue; pick/pack/materials %; payment fee bps.**
- **CM2 per order** before/after returns; **free-shipping threshold hit rate.**

### Marketplaces / platforms

- **GMV, take-rate, net revenue; buyers/sellers active, listing depth, fill rate, cancellation/late-ship rate.**
- **Trust & safety:** disputes per 1,000 orders, fraud losses, policy penalties/delisting.
- **Payment rails mix; processor reserve %; payout lag.**

## B2B distribution / hardware + service

- Fill rate/OTIF, backorder rate, order lines per order; quote-to-order conversion.
- Warranty claim rate, RMA loop time, first-pass yield, field failure rate.
- Spare parts attach, service attach, contract renewal/upsell.
- Freight as % of revenue, duty mix, project implementation hours vs. standard.

## Technology maturity (commercial lens)

- **DORA** (deploy freq., lead time, change-failure, MTTR) and **SLO burn rate**; tie to SLA credits and NRR (12.1).
- **Integration coverage** (share of deals using certified connectors), **time-to-integration**.

## Working capital

- **DSO (headline and cohort), DIO** (and slow-moving ladders), **DPO** (purchases-based), **CCC/Net CCC; processor reserves; deductions mix and win rate**.

## KPI Card template (use for every tile)

- **Metric & definition** (copy from dictionary; include formula).
- **Scope** (segment/channel/region), **period** (Q, LTM), **currency**, **perimeter** (organic).
- **Last value, LTM, 12-Q sparkline** with internal band; **external/threshold band** if applicable.
- **Source & QA** (system, extract date, GL tie-out note).
- **Confidence** (H/M/L) and **owner**.
- **Interpretation** (one sentence): why it moved and what to do.
- **Action** (if red/amber): lever, owner, date, expected \$ impact.

## Normalization & QA checklist (use verbatim)

- Constant-currency rule applied; **FX/M&A** removed before comparisons.
- LTM and quarterly series **reconcile to GL**; ratio-of-sums for roll-ups.
- Price realization aligns to the **pricing waterfall**; channel fees/take-rates inside price.

- **Classification footnote** for hosting, support, outbound shipping (consistency across CM1/CM2).
- **Cohort logic** shared across NRR/GRR, payback, and churn.
- **Calendarization** (working days/53rd week) documented.
- **Benchmark ladder** labeled on each chart (internal band, peer band, policy threshold).
- **Confidence labels** assigned; low-confidence metrics quarantined from investment case.
- Second-person **reproduction test** complete.

## RAG thresholds and playbooks (examples to adapt by segment)

- **NRR:** <100% red; 100–110% amber; >110% green → actions: price fence fix, expansion motion, success coverage (6.4, 8.2, 9.x).
- **CM2%:** below internal p25 red; p25–p50 amber; >p50 green → actions: CTS levers (10.4), promo mix, freight/routing, support deflection.
- **CAC payback (months):** >24 red; 12–24 amber; <12 green → actions: channel shift, guardrails, pricing uplift, billing/entitlement cleanup (9.2–9.4, 8.2).
- **OTIF / p95 latency:** beyond threshold red → actions: capacity rung add, reliability sprint (10.2, 12.1).
- **Returns / chargebacks:** above platform threshold amber/red → actions: policy reset, fit/quality fixes, fraud tooling (10.4, 11.4).
- **CCC / Net CCC:** deterioration >10 days vs. plan red → actions: terms enforcement, reserves renegotiation, inventory health, SCF (13.3).

## Visualization guidance (keep it simple and comparable)

- **Sparklines + bands** beat gauges; show the last 12–16 quarters with p25–p75 and p90 bands shaded.
- **Distributions** for prices/discounts and payback (histograms) reveal leakage; avoid single-point KPIs when dispersion matters.
- **Stacked bridges** for price and CTS make drivers visible; avoid pie charts.
- **Index series** (100 = baseline quarter) help align seasonal businesses.
- **Annotations** for policy/platform changes and big promos prevent misreads.

## Common traps—and how to avoid them

- **KPI drift (definitions change quietly).** Lock a dictionary and version it; annotate changes.
- **Vanity metrics without levers.** If you cannot name the lever/owner, drop the metric.
- **Averages hide tails.** Show p50/p75/p90 for latency, discounts, payback, DSO; tails drive risk.
- **Benchmarks from different definitions.** Never overlay a peer band unless formulas match.
- **Mix contamination.** Segment or your benchmarks lie; especially for CM2 and CAC.
- **Over-indexing one model.** SaaS metrics don't map 1:1 to marketplaces; tailor per model.

## Early-warning indicators (embed under each pane)

- **Growth:** orders-to-inventories ratio (or PMIs for industrial exposure), pipeline coverage <3× next-quarter target.
- **Unit economics:** discount depth drift; take-rate/penalty notices; on-demand cloud share rising.
- **Customer health:** SLA credits > threshold; contact rate ↑; return rate ↑; cohort survival dip.
- **GTM:** paid share ↑ with flat conversion; win rate ↓ vs. named competitor.
- **Operations & cash:** DSO tail >90 days; slow-moving inventory ↑; DPO slipping; processor reserves ↑.

## Cross-links to action playbooks

- Red/amber on **price or discount** → 8.2 Pricing Architecture; 8.4 Differentiation Scorecard.
- Red/amber on **CM2 or CTS** → 10.4 Cost-to-Serve; 10.3 Service-Level; 10.2 Capacity.
- Red/amber on **CAC/payback** → 9.1 Funnel Diagnostics; 9.2 Channel Mix; 9.3 ROI.
- Red/amber on **NRR/GRR** → 6.3 Cohorts; 12.1 Reliability; 12.3 Cyber/Privacy if credits/incidents drive churn.
- Red/amber on **policy/platform** → 11.4 Watchlist; 11.1 Regulatory Mapping.

## **Copy-ready templates (paste directly into your workspace)**

### **A) KPI Dashboard Backlog (one line per tile)**

- Metric | Definition (formula) | Segment/Channel | Period | Source | Benchmark band (internal/peer/threshold) | RAG rule | Owner | Confidence | Next action & date

### **B) KPI Card (single-tile doc)**

- Metric & scope; formula; last, LTM, sparkline; bands; interpretation; action; source & QA; confidence; owner; next review.

### **C) Benchmark Band Sheet**

- Metric | Internal p25/p50/p75/p90 | Peer corridor (min–max) | Policy/Platform threshold | Notes/assumptions | Review cadence.

### **D) Data & QA Log**

- Source system | Extract date | Fields | Reconciliation (GL/ARR/workflows) | Issues & fixes | Sign-off.

## **72-hour sprint plan (from blank page to decision-grade dashboard)**

- Day 0:** Freeze scope, segmentation, definitions, and normalization rules; issue a single, consolidated data request; list 25 provisional KPIs mapped to economics.
- Day 1:** Land sources and reconciliation; build Executive Summary and Growth & Customer panes with internal bands; overlay external thresholds where hard gates exist.
- Day 2:** Build Unit Economics and GTM panes; compute price waterfall, CM2 by segment, CAC/payback, and funnel diagnostics; assign RAG and owners with actions.
- Day 3:** Build Operations/Tech/Cash pane; add early-warning indicators; publish the dictionary, benchmark ladder, QA log; push updated toggles into the operating model; schedule monthly dashboard cadence.

## Acceptance criteria for a decision-grade KPI dashboard

- 20–25 KPIs max, **segmented**, normalized, reconciled to GL/ARR/GMV; formulas on page; confidence labeled.
- Internal bands shown for all KPIs; peer/threshold bands applied for material ones; **RAG rules** pre-agreed by segment.
- Explicit links from each red/amber metric to a lever, owner, date, and expected \$ impact; toggles updated in the model within 24 hours.
- Metric dictionary, benchmark ladder, and QA log published; second-person reproduction test passed; clean-team protocols observed.

Build the dashboard this way and it becomes more than reporting. It becomes a living **operating and underwriting tool**—clear on what matters, calibrated against credible ranges, and wired to the exact actions that move revenue, margin, retention, and cash in your hold period.

## Chapter 14. Forecast Modeling and Scenario Analysis

A forecast is a decision engine, not a spreadsheet. In commercial diligence you are not trying to predict the future; you are building a model that **prices a range of plausible futures**, exposes the few levers that actually move revenue, margin, and cash, and ties those levers to named owners and timing. The model must be **driver-based** (not account-based), **segmented** (the same cuts you used throughout this playbook), and **auditable** (every number traceable to an assumption with a source and a confidence label). Its outputs should drop directly into valuation ranges, debt capacity and covenant headroom, term-sheet protections, and a 90-day plan.

This chapter shows you how to assemble that engine at diligence speed and quality. We start with a step-by-step build, then—later in the chapter—layer on scenarios, sensitivities, and simulation so the Investment Committee sees outcomes, not narratives.

### 14.1 Driver-Based Model Build – Step-by-Step Guide

#### Purpose and guardrails

Before typing a single formula, write one sentence that fixes scope and standards: “Monthly driver model for the next 36 months and annual thereafter; organic perimeter; constant-currency view with FX overlay; segments = [customer/job, size band, route-to-market, region, product family]; margins defined as VRR → CM1 → CM2 (Ch. 13.2).” Commit to three rules: (1) no hard-coded numbers on calculation sheets; (2) ratio-of-sums for all rollups; (3) every assumption has an owner, a source, and a confidence label.

#### Step 1 – Choose time granularity, horizon, and perimeter

Set the calendar monthly for the first 24–36 months to capture seasonality and GTM cadence, then annual beyond the hold period if needed. Freeze the consolidation perimeter (organic vs. pro forma) and the currency policy (build constant-currency first; add an FX overlay later). Align accounting conventions that affect modeling—classification of hosting/support and outbound freight,

revenue recognition quirks, capitalization policies—so margin math is consistent with Chapters 8, 10, 12, and 13.

## Step 2 — Lock segmentation and model structure

Use one segmentation everywhere: product family, route-to-market, region, and customer tier/job-to-be-done (Chapter 6). Create a simple, durable structure:

- **Assumptions Hub:** the only place users can type numbers; includes the driver register, scenario parameters, and sources/confidence.
- **Modules:** Revenue, CM1 (COGS), Cost-to-Serve (CM2), Opex & Capex, Working Capital, Debt & Interest, Taxes, FX, Consolidation.
- **Outputs:** P&L, cash flow, balance sheet, covenants and liquidity, valuation bridges, and a one-page scenario summary.

Color-coding is optional; **separation of concerns** is not. Keep assumptions, calculations, and outputs on different sheets to avoid silent errors.

## Step 3 — Build the Revenue engine(s) by business model

Model revenue as **functions of operational drivers**, not as trend lines. Use the constructs below; keep them segmented.

### 1. B2B SaaS / usage

- **ARR roll-forward** each month:  
 $\Delta\text{ARR} = \text{New} + \text{Expansion} - \text{Contraction} - \text{Churn} \pm \text{Price}$   
 (re-ratings)  $\pm$  FX.  
 New ARR is a function of capacity (fully ramped sellers), productivity (new ARR per seller per month), and win rate (Chapter 9.1). Expansion/Contraction come from NRR cohorts (6.3). Price re-ratings link to 8.2 fences.
- **Revenue recognition:** start with ARR; convert to revenue via recognition rules (e.g., straight-line for subscriptions; usage = rate  $\times$  metered consumption with seasonality, floors/ceilings, and minimum commits).
- **Key drivers:** seller ramp curve, pipeline coverage, stage conversion, cycle length, price realization, seat/module attach, consumption per active, churn hazard modifiers (SLA credits, contact rate—Ch. 10.3).

## 2. E-commerce / DTC

- **Order math:** Revenue = Sessions × Conversion × Orders per buyer × AOV.
- **AOV** = Units per order × Net unit price; net price comes from the **pricing waterfall** (List - on-invoice discounts - off-invoice promos - take-rates/fees - expected returns/chargebacks; Ch. 8.2, 13.1).
- **Key drivers:** traffic by source, paid share and CPC/CPA, promo depth, channel mix, return rate by reason, marketplace penalties, and paid placement elasticity (Ch. 9.3).

## 3. Marketplaces / platforms

- **Net revenue** = GMV × Take-rate – Incentives – Refunds/Penalties.
- **GMV** = Active buyers × Orders per buyer × AOV; take-rate ladders by category/tier; penalty ladders for policy breaches (Ch. 11.4).
- **Key drivers:** activation rates for buyers/sellers, listing depth/fill rate, trust & safety loss rates, search rank/paid placement dependence.

## 4. Hardware + service / B2B distribution

- **Units × ASP** by family and channel, with attach for spares and services.
- **Backlog and book-to-bill** to time revenue when lead times are material; include project milestones if revenue recognition is POC/milestone-based.
- **Key drivers:** capacity ladders (10.2), OTIF service gates (10.3), channel rebates and compliance costs, and regulated approvals (11.1).

Whichever path you use, **pin the base year to the revenue bridge** (13.1). The first forecast month should reconcile to the last actual month; do not rely on plugs.

## Step 4 – Model COGS and CM1 from real cost drivers

Tie costs to what you actually consume.

- **Manufactured/assembled goods:** BOM-based material costs, purchase price variances vs. indices, conversion costs (labor rates × hours; overhead absorption vs. capacity), inbound freight and duties, scrap/yield. Add supplier terms (rebates, MOQs) where they change unit cost with scale (10.1, 10.2).
- **Digital products:** hosting/compute/storage/egress unit curves (12.1), third-party API usage fees, and reserved vs. on-demand coverage. Split **rate** effects (provider price, mix of tiers) from **efficiency** (engineering fixes).
- **Indexation:** if contracts allow, include CPI/commodity/fuel indexation ladders on both price and cost sides; they matter in stagflation scenarios (11.3).

## Step 5 – Add Cost-to-Serve to get to CM2

CM2 reveals the real economics of growth. Build CTS as explicit functions:

- **Shipping & accessoriess** = Orders × weight/zone profile × carrier rate cards × service level mix ± fuel/macro surcharges.
- **Returns and refurb** = Orders × return probability × (reverse logistics cost – recovered value); pair with drivers that reduce returns (fit/quality, packaging).
- **Payment fees and fraud** = Card-processed revenue × bps by rail – recoveries; include chargeback program thresholds.
- **Support & success** = Accounts or orders × contact rate × minutes per contact × loaded rate; reduce via deflection/self-serve (10.3).
- **SLA credits/penalties** = Incidents × credit schedule; driven by reliability (12.1).
- **Platform/API** = Active tenants or API calls × unit fees × on-demand share.

Reconcile CTS totals to your CM2 bridge (13.2).

## Step 6 – Opex and capex with operating logic, not percentages

Stop scaling opex with revenue unless there is a provable link.

- **Sales & Marketing:** capacity-based (ramped sellers, SDRs, CSMs) and program-based (channel spend tied to CAC/payback guardrails). Commissions follow bookings or cash collection depending on policy.
- **R&D / Product / Engineering:** headcount plan, contractor mix, capitalization ratio for qualifying software, and depreciation horizon; tie to the innovation pipeline gates (12.4).
- **G&A:** base + step-functions (facilities, finance systems, audit/compliance), with policy-driven increments (security/privacy attestations–12.3; regulatory filings–11.1).
- **Capex:** split maintenance vs. growth rungs; connect growth capex to capacity ladders (10.2).

## Step 7 – Working capital and cash conversion

Cash pays the bills, not EBITDA. Build working capital mechanically, by segment and channel (13.3):

- **Receivables:** DSO by tier/channel (contracted terms vs. paid-days), deductions cycle times and win rates, processor reserves/holdbacks, and chargebacks.
- **Inventory:** weeks of supply by family/site, slow-moving ladders and E&O, pre-build seasonality, consignment/VMI.
- **Payables:** DPO on **purchases**, early-pay program usage (APR math), SCF penetration, and vendor concentration.
- **Deferred revenue (for recurring):** bill cadence (annual/quarterly/monthly), renewal cliffs, refunds. Flow these into a **13-week cash view** that reconciles to the monthly model.

## Step 8 – Debt, interest, and liquidity

Add a debt schedule that can withstand scenarios:

- **Term debt:** amortization profile, interest rate (base + spread), step-ups, PIK toggles.

- **Revolver/ABL:** borrowing base (receivable eligibility, inventory advances), draws/repayments, minimum liquidity.
- **Covenants:** leverage, interest coverage, DSCR; compute headroom each quarter, not annually.
- **Hedging:** rate and FX hedges as overlays with cost.

## Step 9 — Taxes and statutory tails

Model cash taxes with a simple effective-rate approach plus loss-utilization rules; treat NOL usage and limitations separately. Include **sales tax/VAT** timing where material (especially marketplaces and cross-border). Keep statutory differences as disclosures unless they move cash inside the horizon.

## Step 10 — FX and consolidation overlay

Run the base case in constant currency; apply an FX layer that translates revenue and cost lines using monthly rates and exposes transaction FX where pricing or sourcing is cross-currency. Scenarios in Chapter 11.3 will toggle FX paths alongside macro drivers.

## Step 11 — Quality gates and self-diagnostics

Bake checks into the model so it refuses to lie:

- Balance sheet balances every month (cash bridge ties).
- Revenue first-forecast month ties to last actual; CM1/CM2 reconcile to LTM bridges.
- No circular references; error flags for negative inventories, negative headcount, or CAC payback beyond threshold.
- **Ratio-of-sums** for all multi-segment rollups.
- A **reproduction log**: a second person can rebuild a result from the assumption cell in ≤3 clicks.

## Step 12 — Hook up the scenario manager

Create a **Scenario Parameters** section with named cases (e.g., Soft-Landing, Recession, Stagflation, Rate-Shock, Energy/FX Shock—Chapter 11.3). Each case sets a small set of parameters:

- End-market proxies (PMI, housing starts, IT spend) → demand elasticities by segment.
- Price power corridors and promo guardrails; indexation on/off.
- Input costs: commodity/energy/freight bands; wage inflation.
- Reliability/penalty ladders and return/fraud rates that move CTS.
- Financing costs, FX paths, and working-capital drifts (DSO/DIO/DPO deltas).

Press a button (or select a dropdown), and **every** output page should update: P&L, cash, covenants, valuation ranges, and a one-page narrative of “what changed, why, and who owns the response.”

## Step 13 – Make outputs decision-grade

Limit the output set to what IC and operators need:

- **Five-line P&L** and **cash** by month and year (Revenue; CM2 and %; Opex; EBITDA; Cash from ops).
- **Bridge pages** from the last actuals to each scenario’s Year-1 and Year-2 outcomes (price, volume, mix, CTS, opex, working capital).
- **Covenant headroom** chart with trigger months.
- **Valuation lenses** (multiples or DCF sensitivities) tied to scenario outputs, not to independent assumptions.
- A **one-page “Levers and Owners”** for the next 90 days.

## Driver Register (copy-ready checklist)

- Demand & Mix:** traffic/sessions; pipeline, stage conversion, win rate; attach/penetration; cohort survival; channel shares; geography/product mix.
- Price & Realization:** list changes; on-invoice discounts; off-invoice promos; take-rates; penalties/credits; price fences; re-rating cadence.
- COGS:** material indices; supplier prices; yields/scrap; labor rates and efficiency; inbound freight/duty; reserved vs. on-demand compute.
- Cost-to-Serve:** carriers and rate cards; fuel; return probability and cost; payment fee bps; fraud loss rate; contact rate/minutes; SLA credit schedule; API unit fees.
- Opex/Capex:** headcount (hire, ramp, attrition); compensation and benefits inflation; program spends; capitalization ratio; capacity rung capex.

- Working Capital:** DSO by tier; deduction win rate; processor reserve %; DIO by family/site; slow-moving ladders; DPO on purchases; SCF/discount APRs; DCL.
- Finance & FX:** base rate and spread; amortization; revolver rules; FX rates by pair; hedge costs.
- Policy/Platform:** take-rate changes; threshold ladders; certification/attestation timing and cost (11.4, 11.1, 12.3).

Each driver line should have: **value, source, date, owner, confidence (H/M/L), and scenario multipliers.**

## Practical formulas (clear and auditable)

- **SaaS ARR roll-forward:**

$ARR_{t+1} = ARR_t + New_t + Expansion_t - Contraction_t - Churn_t \pm Price_t.$   
 $Revenue_t = ARR_t / 12$  for pure subscriptions; add usage = Rate  $\times$  Consumption (with floors/ceilings).

- **E-commerce orders:**

$Orders_t = Sessions_t \times Conversion_t \times OrdersPerBuyer_t;$   
 $Revenue_t = Orders_t \times Units/Order_t \times NetPrice_t;$   
 $NetPrice_t = List \times (1 - OnInvoiceDisc) \times (1 - OffInvoicePromo) \times (1 - TakeRate) \times (1 - Returns - Chargebacks).$

- **Marketplace net revenue:**

$NetRev_t = GMV_t \times TakeRate_t - Incentives_t - Refunds/Penalties_t.$

- **CM1% movement (price-cost gap):**

$\Delta CM1\% \approx \Delta RealizedPrice\% - \sum (\text{cost share}_i \times \Delta UnitCost_i\%).$

- **CTS items:**

$ReturnsDrag/order \approx ReturnProb \times (ReverseLogCost - RecoveredValue) + SupportMinutes \times Rate.$   
 $PaymentFeeDrag \approx Card\text{-processed VRR} \times bps.$   
 $Cloud/API CTS \approx UnitFee \times Activity \times OnDemandShare.$

- **CAC payback (months):**

Payback = CAC  $\div$  Monthly CM2 Contribution from the acquired cohort.

- **Working capital:**

$DSO = (\text{Avg AR} \div \text{Credit Sales}) \times Days; DIO = (\text{Avg Inventory} \div \text{COGS}) \times Days; DPO = (\text{Avg AP} \div \text{Purchases}) \times Days; CCC = DSO + DIO - DPO.$   
For recurring, compute **Net CCC** = CCC - Days Contract Liability.

## QA and model hygiene (use this as a build checklist)

- Base month reconciles to last actuals; LTM to GL; **price waterfall** aligns to discount and fee files.
- CM1/CM2 reconcile to the margin decomposition (13.2); working-capital lines reconcile to the diagnostic (13.3).
- No hard-codes in calc sheets; assumption cells tagged with source and date.
- Rollups use **ratio-of-sums**; FX overlay separate from constant-currency core.
- Error flags for negative inventories, impossible payback, covenant breaches; a summary “red bar” on the outputs.
- A second person can trace any KPI to a single assumption in ≤3 clicks (write this into acceptance criteria).

## Common traps—and the fix

- **Trend-line revenue with no operational logic.** Fix: replace with ARR roll-forward, order math, or GMV × take-rate, tied to funnels and capacity.
- **Treating promotions as growth.** Fix: model realized price with the full waterfall; show promo dependence and price power separately.
- **Unit-cost optimism.** Fix: split **rate** vs. **efficiency**; include on-demand cloud share and third-party API fee escalators.
- **Working-capital hand-waving.** Fix: DSO/DIO/DPO by segment; add processor reserves and deductions explicitly; wire a 13-week cash view.
- **Scenario bloat.** Fix: three anchored cases plus one exposure-specific case (rate, energy/FX) is plenty; each must move revenue, CM2, cash, and headroom.
- **No owners.** Fix: every red cell on the dashboard maps to a named lever and a date.

## 72-hour sprint plan (from blank page to decision-grade model)

- Day 0:** Freeze scope, segmentation, horizon, definitions (VRR→CM1→CM2), perimeter, and constant-currency policy. Create Assumptions Hub with owner/source/confidence fields.

- Day 1:** Build Revenue modules by model type (SaaS, e-comm/transactional, marketplace, hardware+service) and reconcile the first forecast month to last actuals; drop in price waterfall logic.
- Day 2:** Add COGS and CTS drivers; connect to CM1/CM2; wire Opex/Capex; build working-capital mechanics; add debt and covenant pages.
- Day 3:** Stand up the Scenario Manager with soft-landing, recession, and stagflation presets (11.3); finish outputs (P&L, cash, covenants, valuation bridges). Run a verifier pass and issue the one-page “Levers & Owners.”

## Acceptance criteria for a decision-grade driver model

- Single source of truth; monthly for 24–36 months; organic and constant currency; segments aligned to Chapter 6.
- Revenue modules are driver-based (ARR roll-forward, order math, or GMV × take-rate), reconcile to the last actual, and reflect price realization from the waterfall.
- CM1/CM2 built from cost drivers; CTS explicit (shipping, returns, payments, support, SLA credits, cloud/API).
- Opex/Capex capacity-based; working capital mechanical; debt and covenants computed monthly; FX overlay separate.
- Scenario Manager toggles macro, price power, input costs, reliability penalties, financing, FX, and working capital; outputs update everywhere.
- QA checks in place; ratio-of-sums applied; no circular references; second-person reproduction passed; every key assumption has an owner, a source, and a confidence label.

Build the model this way and you will have a compact, auditable engine that turns historical truth into a forward range, ties every dollar to an operational lever, and tells management and investors—clearly—what must be true for the plan to hold and where to act first when the world shifts.

## 14.2 Scenario Definition Checklist

Scenarios are disciplined “worlds you can run,” not colorful labels. Each one must (i) be externally anchored, (ii) translate macro and platform/policy changes into micro-drivers by segment and route-to-market, (iii) state what management is allowed to do (with timing and cost), and (iv) output a complete path for revenue, CM2, cash, and covenant headroom. If a case cannot be parameterized, reproduced, and governed, it is not a scenario—it’s a story. Use this checklist to define three to five structurally different cases and wire them into the driver-based model from 14.1 and the macro/policy guidance in Chapter 11.

### **Set the ground rules (freeze these before modeling)**

- Horizon and cadence: monthly for 8–12 quarters; annual thereafter if needed.
- Perimeter and currency: organic, constant-currency core with a separate FX overlay.
- Segmentation lens: same cuts as Chapters 6–13 (product family × route-to-market × region × customer tier).
- Materiality threshold: only define/maintain a scenario if it moves ≥2% revenue, ≥100 bps CM2, ≥50 bps covenant headroom, or ≥50 bps WACC.
- Governance: one owner per scenario; refresh anchors monthly; re-score triggers at least quarterly.

### **Choose structurally different cases (not louder versions of the same)**

Anchor three “always-on” cases and add up to two exposure-specific ones if the business warrants it.

- Soft-landing / benign disinflation.
- Recession (volume shock; easing rates; wider spreads).
- Stagflation (weak growth, sticky inflation; limited monetary relief).
- Optional overlays, picked from your exposure map: rate-shock/funding squeeze; energy/FX shock; policy/platform tightening; supply disruption or quality recall; dependency shock (critical vendor/API/payment rail); cyber/privacy incident.

## Draft a Scenario Charter (copy-ready fields, one page per case)

- Name and scope; horizon; segmentation.
- External anchors and timestamp (macro paths, policy/platform thresholds).
- Parameter set (see dictionary below) with units, lags, and low/base/high corridors.
- Allowed management actions: which levers you permit, with owner, start date, and cost (price moves, indexation, channel reweighting, capacity rungs, reserved cloud commitments, SCF, staffing/OT changes).
- Disallowed actions: moves you will not assume in-case (e.g., “no net headcount reduction,” “no list price cuts without fence changes”).
- Model hooks: named drivers in 14.1 that these parameters change.
- Outputs to watch: revenue, CM2, cash, covenant headroom (by segment/channel); NRR; CAC/payback.
- Trigger dashboard: the two to three early-warning indicators that flip you into this case (with thresholds and required evidence).
- Confidence label (H/M/L) and verifier initials.

## Parameter dictionary (define once, then reuse across cases)

When you set a parameter, always specify the **unit, timing/lag, path** (monthly), and, where appropriate, a **corridor** (low/base/high).

- Demand & mix
  - End-market proxy path by region (e.g., PMI new orders, housing starts, IT spend).
  - Elasticity by segment/route; cross-elasticities where substitutes matter.
  - Mix constraints (e.g., enterprise share capped by certification timing).
- Pricing & promo
  - Realized price corridor by segment; list change cadence; discount guardrail shifts; promo depth/frequency; indexation on/off and floors/caps.
- Input costs
  - Commodity baskets; energy; inbound freight/duty; third-party API/cloud rates; supplier rebates.
  - Pass-through ability and lag by segment/contract type.

- Capacity & reliability
  - Constraint utilization ceiling; surge policy and cost; implementation throughput; SLA credit ladders; return and defect rates.
- Labor & service
  - Wage inflation; staffing availability; productivity drift; support contact rate and minutes per contact; field/installation crew utilization.
- Financing & FX
  - Base rate + spread; refinancing windows; revolver rules; hedging bands; FX paths for major pairs.
- Working capital
  - DSO by tier/channel; processor reserves/holdbacks; DIO by family/site; DPO on **purchases**; deferred revenue cadence (for recurring); deduction/chargeback rates and cycle times.
- Policy/platform/ESG gates
  - Take-rate/penalty thresholds; new certification/attestation milestones; packaging/EPR fees; residency/data obligations; carbon/energy price overlays.

## Separate “weather” from “response” (two runs per case)

- **Passive case:** apply scenario weather only; no management action beyond BAU cadence.
- **Managed case:** add allowed actions (priced, dated, and owned). Always show the delta and the cash cost of action. Never bake the response into the weather.

## Orthogonality and conservation checks (keep the math honest)

- Do not silently improve mix or discount discipline when demand falls unless you model the operational move that causes it (e.g., shuttering low-ROI channels).
- Apply **lags** realistically: price pass-through trails cost; DSO shifts after demand shocks; returns spike with a delay.
- Constrain bookings to capacity headroom and service SLOs; cap enterprise mix if certifications are not in place.
- Use **ratio-of-sums** for rollups; state whether corridors represent independent or correlated moves.

- Reconcile Year-1 deltas to bridges (price, volume, mix, CTS, working capital). If it doesn't reconcile, it doesn't stand.

## Triggers and early-warning indicators (define now, not later)

Pick two to three **observable** signals per case and set “flip rules.” Examples:

- Demand: PMI new orders below 48 for two consecutive months; pipeline coverage <3x next-quarter target; orders-to-inventories ratio deteriorating for two months.
- Pricing/costs: competitor price index down >3% QoQ; carrier GRIs + surcharges announced; commodity index up/down by set thresholds.
- Service/returns: SLA credits >X bps of revenue for two months; OTIF below Y%; return/chargeback rate above platform threshold.
- Finance: processor reserve +100 bps; BBB spread +150 bps; DSO tail >90 days rising for two months; borrowing-base headroom under set buffer.
- Policy/platform: take-rate or penalty rule change notices; certification deadlines within 90 days without on-track status.

Write the **play on flip**: the three moves you will execute immediately (pricing fence, channel mix shift, capacity or spend pivot).

## Management actions library (only moves you can actually execute)

- Pricing and indexation (fences, guardrails, cadence, and customer comms).
- Channel reweighting (marketplace vs. direct; partner tiers; paid placement caps).
- Capacity ladders and service (shift patterns, temp labor, expedite rules, SLO tradeoffs).
- FinOps (reserved/savings commitments; hotspot fixes; third-party API plan changes).
- Working capital (terms enforcement, SCF, early-pay APR logic, inventory re-tiering, deduction triage).
- Risk posture (premium SLAs with critical vendors; hedging bands; inventory buffers).
- Pipeline and spend (CAC guardrails, program cut lines; sales capacity controls).

Every action needs: owner, start date, lead time, one-time cost, and expected monthly effect on revenue/CM2/cash.

## **Output package (what every scenario must produce)**

- P&L and cash by month; covenant headroom by quarter.
- Bridges vs. last actuals and vs. baseline: price, volume, mix, CTS, opex, working capital.
- Segment/channel pages: revenue, CM2, NRR, CAC/payback, cash contribution.
- One-page narrative: “what changed, why, and who does what next” with dated actions and costs.
- Term-sheet translation: indexation clauses, inventory/service covenants, certification CPs, indemnities, earnouts tied to NRR or price realization.

## **Quality controls (accept no scenario without these ticks)**

- Anchors and sources dated on the Scenario Charter; parameters expressed with units, lags, and corridors.
- Passive vs. managed runs both shown; management actions costed and owned.
- Deltas reconcile to driver bridges; FX overlay separate from constant-currency core.
- Capacity and policy constraints enforced; covenant math computed monthly.
- Early-warning triggers and playbooks documented; dashboard hooks defined.
- Verifier can reproduce each case from the Charter in ≤3 clicks.

## **Common traps—and the fix**

- Too many cases with tiny differences → hold to three core plus at most two exposure-specific.
- Point estimates everywhere → switch to corridors and show output fans; pick actions robust across the band.
- Hidden optimism in pricing and mix → tie price corridors to elasticity evidence and fences (Ch. 6.4, 8.2); cap mix by certification and capacity.
- Ignoring cash and headroom → every case must show 13-week cash in the downside and quarterly covenant headroom.
- Response magic → if you cannot name the owner, cost, and start date, it's not allowed in the managed case.

## 72-hour sprint plan (from blank page to decision-grade cases)

- Day 0: Freeze scope, segments, horizon, thresholds; draft Scenario Charter shells; import baseline and two alternates from Chapter 11; assemble exposure map by segment/channel.
- Day 1: Fill parameter dictionary with monthly paths/corridors and lags; define allowed actions with owners and costs; wire toggles into the model (14.1); run passive vs. managed for baseline and recession.
- Day 2: Add stagflation and one exposure-specific case (e.g., rate-shock or platform tightening); reconcile deltas to bridges; define triggers and flip rules; write one-page narratives.
- Day 3: Publish outputs (P&L, cash, headroom, segment pages); propose term-sheet protections; set refresh cadence; log verifier sign-off.

## Acceptance criteria (use this as your “done” checklist)

- Three to five externally anchored, structurally different cases; Scenario Charters complete; parameters expressed with units, lags, and corridors.
- Passive and managed versions of each case, with action costs and owners; deltas reconcile to bridges.
- Monthly outputs for revenue, CM2, cash, and covenant headroom; downside includes a 13-week cash view.
- Triggers and playbooks defined and linked to the KPI dashboard; governance cadence published.
- Verifier reproduction passed; term-sheet translations documented for residual uncertainties.

Build scenarios with this rigor and “downside” or “upside” stops being a mood. You will have a compact set of climates—each wired to micro-drivers, explicit actions, cash math, and terms—so you can underwrite outcomes with confidence and know exactly what to do when the world shifts.

## 14.3 Sensitivity Analysis Template

Sensitivity analysis is the microscope for your driver-based model. Scenarios (14.2) tell you what happens when the **world** changes; sensitivities tell you what happens when a **lever** moves—price by 1%, take-rates by 50 bps, DSO by 10 days—holding everything else constant. Done well, it ranks the assumptions that matter, quantifies local elasticity around the base case, exposes nonlinear “cliffs” (penalty ladders, covenant breaches), and turns debate about opinions into debate about slopes. Your outputs should flow straight into the valuation range, the term sheet (indexation, covenants, earnouts), and a 90-day action list with owners.

### Design principles (freeze these before you compute)

- **Segmented, not averaged.** Compute and display sensitivities by product family × route-to-market × region × customer tier; average sensitivities hide risk.
- **Comparable shocks.** Use standardized step sizes (by driver type) so a tornado chart ranks drivers on a fair basis.
- **Local first, then wide.** Measure **local** slopes around your base and probe **curvature** to detect nonlinearities and threshold effects.
- **Orthogonality.** One driver at a time for sensitivities; use two-way grids only for chosen pairs where cross-effects are economically real.
- **Auditable.** Every sensitivity has a unit, a step size, a date-stamped source, and an owner; a second person can reproduce it in ≤3 clicks.
- **Economic.** Always compute impact on **CM2, cash, covenant headroom**, and, where relevant, **NRR** and **CAC payback**—not just revenue or EBITDA.

### Step-by-step build (from blank sheet to decision-grade)

#### 1) Fix the target outputs and the measurement window

Select one primary output for ranking (e.g., **Year-2 CM2 dollars** or **Month-12 cash**), plus the short list you will show on each card: Revenue, CM2 %, CM2 \$, Cash, Covenant Headroom, CAC payback, NRR. Choose the period(s) that matter (Month-6 and Month-18; Year-1 and Year-2; LTM at exit).

#### 2) Assemble the Sensitivity Register (shortlist the levers)

Start from the driver register (14.1) and shortlist 15–25 candidate levers that plausibly move ≥100 bps CM2 or ≥2% cash within your horizon. Classify each by

**controllability** (high/low), **lead time** ( $\leq 90$  days/ $> 90$  days), and **confidence** (H/M/L). Typical families:

- **Demand & mix:** conversion rates, attach/penetration, enterprise vs. SMB share.
- **Pricing & realization:** list change cadence, discount guardrails, promo depth, take-rates/fees, return/chargeback rates.
- **COGS & unit cost:** commodity baskets, labor rates, inbound freight/duty, cloud/third-party API rates and on-demand share.
- **Cost-to-Serve:** shipping/accessorials, support contact rate and minutes, SLA credits.
- **Working capital:** DSO by tier, processor reserves, DIO (weeks of supply), DPO on purchases, deduction cycle times.
- **Finance & FX:** base rate + spread, FX pairs, borrowing-base advance rates.
- **Policy/platform:** penalty thresholds, certification timing, packaging/EPR fees.
- **Capacity/reliability:** constraint utilization ceilings, implementation throughput.

### 3) Set standardized step sizes (your “shock library”)

Define once, then reuse so your tornado is meaningful. Adapt for the business, but start with:

- **List price / realized net price:**  $\pm 1$  percentage point (pp) on list;  $\pm 100$  bps on realized net.
- **Volume / conversion / attach:**  $\pm 5\%$  relative.
- **Take-rate / platform fees:**  $\pm 50$  bps.
- **Returns / chargebacks:**  $\pm 200$  bps absolute on the relevant rate.
- **Commodity / inbound freight / energy:**  $\pm 10\%$  relative.
- **Wage inflation:**  $\pm 5\%$  relative.
- **Cloud/API unit price:**  $\pm 10\%$  relative; **on-demand share:**  $+10$  pp.
- **Payment processor reserve:**  $+100$  bps of GMV.
- **DSO / DIO / DPO:**  $+10$  /  $+7$  /  $-5$  days (purchases-based DPO).
- **Base rate:**  $+200$  bps; **FX:**  $\pm 10\%$  on major pairs.
- **SLA credits:**  $+50$  bps of revenue.

Document deviations where the step would breach a contractual fence or an operational bound.

**4) Compute local slopes and elasticities (clean math, no plugs)**

For a driver XXX with base  $x_0$  and output YYY with base  $y_0$ :

- **Central-difference semi-elasticity (unit effect):**

$$S = \frac{Y(x_0 + \Delta x) - Y(x_0 - \Delta x)}{2 \Delta x} \text{ (units of Y per unit X).}$$

- **Central-difference elasticity (percent-to-percent):**

$$\varepsilon = \frac{Y(x_0(1+h)) - Y(x_0(1-h))}{2h x_0} \times \frac{x_0}{y_0} = \frac{Y(x_0(1+h)) - Y(x_0(1-h))}{2h y_0}.$$

- **Curvature check (nonlinearity flag):**

$$\kappa = \frac{Y(x_0(1+h)) + Y(x_0(1-h)) - 2Y(x_0)}{h^2 Y(x_0)}.$$

If  $|\kappa|$  is large (e.g., >0.2), label the driver **nonlinear** and expand the range or use a two-way grid near thresholds.

**5) Rank and visualize (tornado + spider)**

- **Tornado:** For your primary output, compute the absolute change from the standardized shock for each driver and sort descending. Produce one tornado per major segment/channel so trade-offs are not diluted by mix.
- **Spider:** For the top five drivers, show a spider chart with output vs. driver change (-10% to +10% or appropriate range) to reveal asymmetry and curvature.

**6) Build two-way grids for the two or three critical pairs**

Where interactions are economically real (e.g., **price realization × demand elasticity; return rate × paid placement; base rate × DSO; FX × input cost**), run a 5×5 grid. Shade “danger zones” (negative cash, covenant breach, NRR < 100%) and annotate the **iso-lines** where those thresholds flip.

**7) Compute break-evens and cliffs (solve the “what has to be true”)**

Use goal seek or a bisection routine to find the driver value where you hit a threshold.

- **Price-cost break-even:** required realized price lift to hold CM2 when input costs rise.
- **Liquidity break-even:** DSO (or reserve %) at which minimum liquidity buffer is breached in Month-X.

- **Coverage break-even:** base rate at which interest coverage or leverage covenant trips.
- **Channel-policy cliff:** return or late-ship rate where marketplace penalties escalate tiers.  
Publish each as a **Sensitivity Card** with the driver level, the month of breach, and the first three mitigations.

### **8) Portfolio-level “value at risk” (delta method, optional but fast)**

If you have historical or scenario-based variance for drivers and a correlation matrix, approximate output variance:  $\text{Var}(Y) \approx g^T \Sigma g$ , where  $g$  is the vector of semi-elasticities. Report p10/p90 bands and which covariances dominate. This is a quick way to turn your tornado into a probabilistic view without full Monte Carlo.

### **9) Probabilistic sensitivity (Monte Carlo, optional extension)**

For high-uncertainty levers (demand, FX, base rate, returns), assign distributions and correlations, run 5,000–10,000 draws, and report median, p10/p90 bands and the probability of **cash < 0** or **covenant breach by Month-X**. Keep distributions and correlations in the Assumptions Hub with sources and dates.

## **Templates you can copy directly**

### **A) Sensitivity Register (one line per driver)**

- Driver name and unit; segment/channel; base value; standardized step (absolute or %); formula hook (cell/range); source & date; owner; confidence (H/M/L); controllability (H/L); lead time (<90/>90 days); outputs tracked (Revenue, CM2 \$, CM2 %, Cash, Headroom, NRR, CAC payback).

### **B) Sensitivity Card (one per top driver × segment)**

- Driver and unit; base and step; local semi-elasticity ( $\Delta Y / \Delta X$ ) and elasticity; curvature flag; **ΔCM2 \$, ΔCash, ΔHeadroom, ΔNRR, ΔPayback** under the standardized shock; two-way grid partner (if any); break-even value and breach month; three mitigations with owners and timing.

### C) Tornado Spec

- Output metric and period; standardized shocks used; segment/channel scope; ranked list of drivers with absolute dollar impact; confidence labels; footnotes for nonlinear/threshold drivers.

### D) Two-Way Grid Spec

- Pair of drivers; ranges and step counts; outputs to visualize; thresholds to overlay (cash = 0, headroom = 0, NRR = 100%); annotations for “danger corners”; decision rule (“if in zone A, then execute actions 1–3”).

### E) Break-Even Finder

- Constraint (e.g., CM2  $\geq$  target, Headroom  $\geq$  10%); variable to solve; search range and tolerance; solution; first-order plan (price fence, channel reweighting, FinOps, terms enforcement).

## Practical guidance and guardrails

- **Reset state between runs.** Ensure each shock starts from the same base; cache flushing avoids compounding.
- **Respect fences.** Do not test price moves that violate contract indexation rules or channel parity clauses (link to 8.2 and 11.4).
- **Discretes ≠ derivatives.** For on/off items (certification achieved, second source live), compute a **discrete delta** ( $Y_{on} - Y_{off}$ ), not a derivative.
- **Capacity caps.** Clamp bookings where constraint utilization exceeds your ceiling or SLOs; sensitivities that assume unlimited capacity are fiction (10.2, 12.1).
- **Monotonicity checks.** If a tiny increase in X produces a non-monotonic Y, you likely hit a step function (tiered take-rates, penalty ladders); mark as nonlinear and grid it.
- **Ratio-of-sums.** When rolling up across segments, recompute the output at the portfolio level; do not average segment elasticities.

## Business-model-specific lenses (pick the ones that apply)

- **SaaS/usage:** price re-rating vs. expansion; entitlement accuracy (credits) as a driver of realized price; uptime/latency → SLA credits → NRR; cloud unit-cost and on-demand share → CM2.

- **E-commerce/DTC:** returns and chargebacks; free-shipping threshold hit rate; freight accessorial; paid-share of traffic; promo depth vs. conversion.
- **Marketplaces:** take-rate tiers; late-ship/OTIF penalties; search rank and paid placement elasticity; dispute/fraud loss rates.
- **Hardware + service/B2B distribution:** inbound freight and duties; yield/scrap; service attach; warranty claim rates; project milestone slip.

## Turn sensitivities into decisions

- **Levers × Impact map:** 2×2 of **impact** (from tornado rank) vs. **controllability**; act immediately on high-high, seek terms or structure for high-low (indexation, SLAs, covenants, earnouts).
- **Term-sheet translations:**
  - **High price sensitivity, low control** → indexation clauses, price-fence flexibility, earnouts tied to **realized price**.
  - **High working-capital sensitivity** → inventory/service covenants, SCF targets, reserve caps.
  - **High take-rate/platform sensitivity** → channel diversification covenants; paid-placement caps; special indemnities for known investigations.
- **Operating plan:** top five drivers become Day-1 initiatives with quantified **ΔCM2** and **ΔCash** and dated owners.

## Early-warning indicators (derive straight from the top five sensitivities)

- Competitor price index and promo depth; realized price slippage vs. fences.
- Returns/chargebacks; processor reserve notices; penalty letters from marketplaces/retailers.
- Cloud on-demand share; third-party API overage; SLA credits.
- DSO tail (>90 days); deduction backlog age; DPO slip on top vendors.
- Base-rate and spread jumps; FX pairs outside corridor.

## Red flags—and how to respond

- **One driver dominates the tornado** (e.g., take-rate) → diversify exposure or hard-wire terms; move growth in that channel to the upside case.

- **Nonlinear cliffs near base** (penalties, capacity, covenant) → build and run two-way grids; set explicit flip triggers and playbooks.
- **Top levers are low-control** (macro, policy) → translate into structure (indexation, CPs, indemnities, earnouts) and scenario governance.
- **Opposite-sign sensitivities across segments** → stop portfolio averages; manage mix actively with price fences and channel reweighting.

## 72-hour sprint plan (from blank page to a board-ready pack)

- Day 0:** Freeze outputs, periods, segments, and the shock library; populate the Sensitivity Register with sources, owners, confidence.
- Day 1:** Compute local slopes via central difference for all drivers; flag nonlinear items; produce segment-level tornados; draft the top ten Sensitivity Cards.
- Day 2:** Build two-way grids for the top three pairs; run break-even finders for liquidity and coverage; translate findings into term-sheet hooks and Day-1 actions.
- Day 3:** Publish the pack: tornados, spiders, grids, break-evens, and a Levers × Impact map with owners and dates; wire early-warning indicators into the KPI dashboard; update the model toggles and valuation range.

## Acceptance criteria (use this as your “done” checklist)

- Sensitivity Register complete and segmented; step sizes standardized and documented.
- Local semi-elasticities and elasticities computed via central difference; curvature flagged; non-linears gridded.
- Tornado charts by segment with absolute dollar impact on the primary output; spiders for top five drivers.
- Two-way grids and threshold/break-even values for critical pairs and constraints (cash, headroom, NRR).
- “Levers × Impact” map and a 90-day action list with owners, costs, and expected  $\Delta\text{CM2}/\Delta\text{Cash}$ .
- Early-warning indicators derived from the top sensitivities and added to the dashboard; verifier reproduction passed.

Build your sensitivities this way and you will replace hand-waving with slopes, discover where the plan is fragile or robust, and equip management with a

short, dated list of moves that change cash, margin, and headroom within your hold period.

## 14.4 Model Integrity Quality-Assurance Checklist

A forecast model is only as good as the trust you can place in its numbers. Quality assurance (QA) is how you convert a complex, driver-based model into something an Investment Committee can underwrite and operators can run. Think of QA as layered defenses: structure, reconciliation, arithmetic, cross-module consistency, stress behavior, governance, and documentation. The goal is not perfection—it is **decision-grade reliability**: every figure traceable to an assumption with a source and owner; every bridge reconciling; every scenario repeatable; every failure mode anticipated.

### Guiding principles (use these to judge every check)

- **Segmentation first.** Validate at the same cuts you model (product × route-to-market × region × customer tier). Portfolio totals can mask defects.
- **Reproduce, don't believe.** A second person must recreate any headline number from the assumption cell in ≤3 clicks.
- **Ratio-of-sums.** Rollups recompute from atomic units; never average ratios.
- **Weather vs. response.** Separate external shocks from management actions; show the delta and the cost.
- **Document deviations.** If you depart from a rule (e.g., hosting classification), write it on the page.

### Layer 1 — Structural hygiene

- **Separation of concerns.** Assumptions on one sheet; calculations on others; outputs on dedicated pages. No inputs in calc sheets.
- **Naming & units.** Named ranges for key drivers, with units, time basis (monthly), and currency. Label corridors (low/base/high).
- **No hard-codes in formulas.** Constants live in the Assumptions Hub with owner, source, and date.
- **Consistent segmentation.** Every module carries the same dimensions; no “Other” catch-all without definition.

- **Time index integrity.** Single calendar spine; start/end flags for each business line; no orphan months.
- **Protected structure.** Lock formula cells; highlight input cells; avoid volatile functions and external links; remove dead sheets.

## Layer 2 — Reconciliation to source truth

- **Last-actual tie-out.** First forecast month equals last booked month for revenue, CM1, CM2, opex, cash—no plugs.
- **LTM reconciliation.** LTM figures match the GL within agreed tolerance; differences logged.
- **Constant-currency & perimeter.** FX and M&A effects isolated before modeling; policy written on page.
- **Bridge alignment.** Revenue bridge (13.1) and margin tree (13.2) reproduce inside the model; differences explained.
- **Working-capital linkage.** AR/AP/Inventory match trial balance; DSO/DIO/DPO match the diagnostic (13.3).

## Layer 3 — Arithmetic and accounting integrity

- **Balance sheet balances.** Monthly. Cash bridge closes exactly.
- **Cash is king.** Operating cash flow equals EBITDA – ΔWC – cash taxes + non-cash add-backs ± timing.
- **No silent circularity.** Iteration off unless intentionally used (and documented) for interest or working-capital feedbacks.
- **No negative impossibles.** Guardrails for negative headcount, negative inventory, or negative tax bases; error flags visible.
- **Tax logic.** Effective rate policy and NOL usage documented; cash vs. book tax timing clear.

## Layer 4 — Cross-module consistency

- **Pricing waterfall → CM2.** List/discounts/promos/take-rates from 8.2 feed realized price and show up in CM2 via returns, fees, and penalties.
- **Capacity rungs gate bookings.** Throughput caps (10.2) constrain revenue and service SLOs (10.3); no growth beyond headroom.
- **Working capital reacts to growth.** DSO/DIO/DPO move with mix, seasonality, and channel; deferred revenue (recurring) offsets CCC.

- **Tech costs behave with usage.** Cloud/API costs follow actives or API calls and on-demand share (12.1/12.2).
- **Scenario toggles only touch intended cells.** 14.2 parameters map one-to-one to drivers; a toggle map is published.

## Layer 5 – Scenario and toggle QA

- **Passive vs. managed runs.** Weather-only and weather-plus-actions both compute; deltas and action costs visible.
- **Trigger discipline.** Early-warning indicators defined (11.3) and wired to scenario switches.
- **Orthogonality tests.** One toggle at a time changes the intended outputs; cross-effects only where modeled.
- **Lag realism.** Price pass-through and DSO shifts obey realistic lags; returns spike with delay after demand shocks.

## Layer 6 – Sensitivity QA (14.3 alignment)

- **Standardized shocks.** Step sizes set once (e.g., ±100 bps realized price, +10 days DSO).
- **Central-difference slopes.** Use symmetric moves for local response; label nonlinear drivers and grid them.
- **Capacity & cliffs.** Sensitivities respect capacity caps, penalty ladders, and covenant thresholds.
- **Break-even solves.** Publish required driver levels for cash-zero, headroom-zero, CM2-target.

## Layer 7 – Data integrity and validation

- **Type and range checks.** Dates are dates; rates in 0–1; negative signs consistent (refunds/chargebacks).
- **Deduplication and completeness.** No double-counted segments; every row sums to a parent; zero “mystery” residuals.
- **Outlier scans.** Discounts, return rates, and unit-cost distributions flagged beyond p99.
- **Seasonality sanity.** Monthly patterns align to history unless assumptions justify change (and cite it).

## Layer 8 — Performance and robustness

- **Calc time budget.** Full recalc under 5 seconds on a standard laptop or clearly documented otherwise.
- **Lean formulas.** Prefer INDEX/XMATCH to volatile OFFSET/INDIRECT; avoid array explosions.
- **Stress runs.** Extreme scenarios (zero demand, 2x demand, 300 bps rate spike, +10 pp on-demand cloud share) complete without errors; errors flagged, not hidden.

## Layer 9 — Governance, versioning, and audit trail

- **Versioning.** Semantic version number; change log describing what changed, why, and by whom.
- **Assumption registry.** Every driver: value, source link, extract date, owner, confidence (H/M/L).
- **QA log.** Tests executed, result (pass/fail), exceptions, remediations, verifier initials, date.
- **Three lines of defense.** Builder self-check → peer verifier → partner sign-off.
- **Readme.** One-page “how to use” with module map, toggle map, and acceptance criteria.
- **Clean-team compliance.** No PII or sensitive competitor data outside the ring-fence; exhibits source-coded.

## Layer 10 — Documentation you can hand to IC

- **Model dictionary.** Definitions, formulas, units, and accounting policies (VRR → CM1 → CM2).
- **Scenario charters.** For each case: anchors, parameters, allowed actions, triggers, outputs (14.2).
- **Sensitivity register.** Drivers, step sizes, elasticities, break-evens (14.3).
- **Bridges on a page.** Revenue and CM2 bridges from last actuals to Year-1/Year-2 for baseline and downside.
- **Covenant tracker.** Headroom by quarter; breach month flags; playbook on flip.

## Smoke test (run this before any share)

- Does the model balance and cash tie?

- Can a second person find and edit the three biggest drivers in ≤3 clicks and see outputs update?
- Do baseline Year-1 bridges reconcile to price/volume/mix/CTS/working-capital deltas?
- Do passive vs. managed scenarios differ only by allowed actions—and is the cash cost of action explicit?
- Do top-five sensitivities match the story told in the IC memo?

## **Copy-ready QA artifacts (paste these into your workbook)**

### **Model QA Checklist (tick before release)**

- Structure: separation, naming, units, protection.
- Reconciliations: last-actual tie-out; LTM vs. GL; constant-currency; perimeter; 13.1/13.2 alignment.
- Arithmetic: balanced BS; cash bridge; no negative impossibles; documented tax logic.
- Cross-module: pricing waterfall → CM2; capacity caps; WC behavior; cloud/API scaling; scenario toggle map.
- Scenario & sensitivity: passive vs. managed; standardized shocks; nonlinear flags; break-evens.
- Data hygiene: types, ranges, outliers, seasonality; dedup & completeness.
- Performance: recalc time; extreme runs; no volatile function abuse.
- Governance: version, change log, assumption registry, QA log; three-line sign-off; clean-team compliance.

### **QA Sign-Off Block (append to the front sheet)**

- Model version & date.
- Scope (horizon, segmentation, perimeter, currency).
- Exceptions to standards (with rationale).
- Verifier name & date; Partner approver & date.
- Statement: “This model reconciles to last actuals and LTM, applies the pricing waterfall and CM2 definitions, enforces capacity and policy constraints, and produces passive vs. managed scenarios and standardized sensitivities. Residual risks: [list].”

## Red flags—and immediate fixes

- **Hidden plugs to make cash tie.** Remove; rebuild the cash bridge; surface timing differences explicitly.
- **Scenario toggles change the wrong metrics.** Publish a toggle map; refactor links; add cell-protection.
- **Capacity ignored.** Clamp bookings; introduce headroom ladders; propagate to service SLOs and SLA credits.
- **Promotions treated as growth.** Move promo depth to realized price; reflect CTS and payback effects.
- **On-demand cloud share rising silently.** Add FinOps toggles; unit-cost dashboards; reserved commitment milestones.
- **Covenant math annual only.** Switch to monthly computation; add cure periods and triggers.

## Early-warning indicators (keep these live post-close)

- Recalc time jump; new external links; proliferation of volatile functions.
- Rising residuals in reconciliations; “Other/Misc” bars growing.
- Divergence between dashboard KPIs and model outputs.
- Frequent manual overrides in calc sheets; increase in low-confidence assumptions.
- Scenario triggers firing without corresponding model switch or playbook execution.

## 72-hour QA sprint plan (from draft to decision-grade)

- Day 0: Structure & reconciliation.** Lock definitions (VRR → CM1 → CM2), segmentation, perimeter, FX policy. Tie first forecast month to last actual; LTM to GL; publish the Readme and version.
- Day 1: Arithmetic & cross-module.** Balance sheet and cash tie; revenue/margin/working-capital bridges inline; capacity caps enforced; pricing waterfall feeding CM2.
- Day 2: Scenarios & sensitivities.** Passive vs. managed runs for baseline and recession; standardized shocks; top-five sensitivities and two-way grids; break-even finds; covenant headroom chart.
- Day 3: Governance & sign-off.** Fill assumption registry and QA log; run the reproduction test; record exceptions; finalize Sign-Off Block with verifier and partner approvals.

## Acceptance criteria for a decision-grade model

- Structure clean; inputs isolated; units and segmentation consistent; no hard-codes in calc sheets.
- Reconciles to last actuals and LTM; constant-currency and perimeter treatment explicit; bridges align with 13.1/13.2.
- Balanced statements; cash bridge ties; capacity, policy, and WC constraints enforced; FX overlay separate.
- Scenario Charters (14.2) implemented with passive vs. managed; standardized sensitivities (14.3) with break-evens; covenant math monthly.
- Assumption registry and QA log complete with owners, sources, dates, confidence; version and change log current; clean-team compliance observed.
- Verifier reproduction test and partner sign-off completed; residual risks disclosed with proposed term-sheet protections.

Run QA with this rigor and your model ceases to be a fragile spreadsheet. It becomes a **reliable decision engine**—auditable, repeatable, and ready for the pressure of the Investment Committee and the realities of operating the business on Day 1.

## Chapter 15. Synergy and Value Creation Assessment (Deal Context)

Value creation in a deal is not a slogan; it is a dated, costed, and evidenced plan to expand revenue, lift CM2, accelerate cash, and mitigate risk within the hold period. In commercial due diligence, your job is to separate **underwritable synergies** from wishful thinking, translate them into driver-level edits in the model (Chapter 14), and hard-wire governance so they actually show up in the P&L. This chapter focuses first on **revenue synergies**—the ones that excite Investment Committees and unsettle competitors—and then (later in the chapter) on cost, working-capital, and strategic value levers. Throughout, we keep to the same segmentation used in Chapters 6–13 and the same definitions of realized price and CM2, so numbers travel cleanly from thesis to term sheet to Day-1 plans.

### 15.1 Revenue Synergy Identification Guide

Revenue synergies are not “+5% on top.” They are **specific motions**—cross-sell, up-sell, bundling, channel and geo extension, price power from a stronger value proposition, and new logos unlocked by credibility or ecosystem—that you can evidence, price, and staff. The output of this guide is a portfolio of **Revenue Synergy Cards** with attach rates, timing, cost, owners, and risks, and a consolidated **Synergy Bank** you can plug into the driver model.

#### Principles to anchor before you start

- **No averages.** Work by segment × route-to-market × region × product family (Chapter 6)
- **Commercial physics.** Tie every dollar to a customer action (conversion, attach, re-rating) and to operating constraints (capacity, SLOs, compliance).
- **Risk-adjusted math.** Present base/low/high, clear gates, and probabilities. Cannibalization and churn risk are **defaults**, not caveats.
- **Clean-team and antitrust.** Pre-close, share only aggregated, non-customer-identifiable data. No coordination on pricing, customer allocation, or go-to-market execution until approvals.

- **Hold-period discipline.** If it cannot move cash inside your horizon, it belongs in “strategic options,” not in the base synergy case.

## Step-by-step identification (from blank page to a defendable synergy bank)

### 1) Fix the scope and success criteria

Write one sentence that constrains ambition: “We will underwrite only those revenue synergies that (i) clear legal/antitrust and customer-consent gates, (ii) show **evidence** of right-to-win, (iii) lift **CM2** (not just revenue), and (iv) produce cash within 18–36 months.” Confirm segmentation and the model hooks you will use (attach rate, conversion uplift, realized-price bps, cycle-time deltas, CAC/payback changes).

### 2) Assemble the evidence pack (request once; reuse everywhere)

- **Customer & product masters** for both firms: top-200 accounts, segments/tiers, current SKUs/modules, active routes, contracts (terms, MFN, exclusivities, non-solicits), renewal dates.
- **Commercial telemetry:** win/loss and reason codes, discount distributions, price fences, CPQ rules, billing/entitlement accuracy, expansion/cross-sell history, cohort retention (Chapter 6.3).
- **Channel & ecosystem:** partner tiers and certifications, marketplace listings and ranks, attachments of “must-have” integrations (Chapters 7.1, 12.2).
- **Operational constraints:** capacity ladders and SLOs (10.2–10.3), onboarding/implementation throughput, regulatory/attestation status (11.1, 12.3).
- **Pricing and unit economics:** pricing pages and deal desks, realized price corridors (8.2), CM2 by segment/channel (13.2).
- **Legal & policy gates:** antitrust counsel memo, clean-team protocol, data-sharing limits, channel/marketplace policy constraints (11.4).

### 3) Name the revenue synergy families (and what proves each)

- **Cross-sell:** sell Company B’s SKUs to Company A’s installed base (and vice versa). *Proof:* overlap accounts, use-case adjacency, integration readiness, lighthouse references, entitlement/billing ability to invoice accurately at launch.
- **Up-sell/rate-card re-rating:** move accounts to higher-value tiers/bundles on renewal. *Proof:* WTP evidence, feature

usage/telemetry, cohort uplift from pilots, price fences and DOA ready (8.2).

- **Bundling & packaging:** combined offer with clearer value narrative and higher realized price. *Proof:* A/B price tests, attach of complementary modules, churn hazard unchanged in trials.
- **Geo expansion:** take proven offers into regions using the other party's footprint. *Proof:* regulatory/certification readiness, in-country data/service levels, partner coverage, localized content.
- **Channel leverage:** push through the other party's channels (distributors, resellers, marketplaces, hyperscaler co-sell). *Proof:* partner capacity and incentives, listing eligibility, private-offer mechanics.
- **Ecosystem lift:** integration catalog closes competitive gaps and improves win rate. *Proof:* connector attach in new wins, time-to-integration < target, co-marketing slots.
- **Brand/credibility effects:** larger balance sheet and references increase conversion and shorten cycles. *Proof:* win-rate and velocity lifts in like-for-like segments after announcement (normalize for competitor reaction).
- **Innovation acceleration:** near-term launches become sellable earlier due to combined assets. *Proof:* Stage-gate evidence from Chapter 12.4 (lighthouse, SLO impact, entitlement accuracy).

#### **4) Build the Cross-Sell & Up-Sell Heatmap (qualify before you quantify)**

For each segment × route × region, rate the motion on a 0–5 **Right-to-Win** scale using evidence. Score against: problem/fit, proof (references/telemetry), integration/entitlement readiness, channel reach, legal/consent status, and capacity headroom. Anything <3 is **upside only** or a **strategic option**; do not load it into the base case.

#### **5) Quantify with simple, auditable equations**

Use the smallest number of moving parts; keep units clear. Examples:

- **Cross-sell revenue** (for a given segment/channel):  
Eligible base (accounts or seats) × Attach rate × Adoption curve × Realized net price.  
$$\text{CM2 contribution} = \text{Revenue} \times \text{CM2\%} - \text{Incremental CTS}$$
  
(implementation/support) – Incremental CAC/program spend.
- **Up-sell/re-rating:**  
Renewal base × Adoption share × ΔRealized price (bps) × Retention factor (1 – churn hazard uplift).

- **Channel leverage:**  
Partner-sourced pipeline × Win-rate uplift × Realized price × CM2% – MDF/commission.
- **Geo expansion:**  
In-region footprint (eligible TAM share × access via channel) × Conversion × Realized price – localization/serve CTS.
- **Brand/velocity:**  
Pipeline coverage × ΔStage conversion × ΔCycle time → time-phased bookings change → revenue recognition per model rules.

## 6) Bake in cannibalization, churn hazard, and capacity limits

- **Cannibalization:** if bundle A replaces high-margin SKU X, subtract displaced CM2.
- **Churn hazard:** apply uplift factors where price re-ratings or migrations risk attrition (use elasticity and VoC from Chapters 6.4 and 8.2).
- **Capacity/SLO:** cap bookings where implementation, support, or platform reliability (12.1) would be breached; include SLA credits if you push too fast (10.3).

## 7) Convert to risk-adjusted economics (rNPV) and timing

For each initiative, compute risk-adjusted cash flows by stage:

- rNPV
  - $rNPV \approx \sum (\Delta CM2_t - IncrementalCAC/CTS_t - Opex_t - Capex_t) \times \prod (stage pass probabilities) \div (1+r)^t - \text{one-time integration costs.}$
- Use **evidence-based** stage gates: sellable narrative signed off, entitlement/billing accuracy ≥99.5%, partner listing live, certification complete, capacity rung booked (10.2).

## 8) Map to model hooks (Chapter 14)

Create a **Synergy-to-Model Map** so finance can update one set of cells:

- Attach rate uplift (by segment/channel).
- Realized price delta (bps) and discount guardrail edits.
- Stage conversion and cycle-time improvements; seller productivity.
- Channel/partner mix share shift; take-rate changes.

- Implementation throughput; support contact rate deltas and minutes per contact for CTS.
- Working-capital side effects (prepay mix, DSO for new channels, processor reserves for marketplaces).
- One-time integration spend and recurring opex to sustain the motion.

### **9) Design the front-line motion (what people will actually do)**

- **Cross-sell blitz:** account mapping (top-100, named owners on both sides), joint discovery scripts, mutual NDAs where needed, three lighthouse offers with fixed “land” scopes, 30-day pilot SLAs, success metrics, and reference harvesting.
- **Re-rating plan:** renewal calendar with 120-/90-/60-day tasks, new fences and DOA, CPQ templates, customer-ready value calculators, and guardrails for vulnerable cohorts.
- **Bundle launch:** SKU and entitlement harmonization, FAQs and objection handling, price realization dashboards (8.2), and billing dry-run tests (zero credits tolerated).
- **Channel leverage:** partner enablement kit in 2 pages, MDF offers, demo/POC environment, private-offer mechanics, and certification path with dates.
- **Geo play:** localization checklist (content, tax, privacy, routing), support schedule, in-country partners, data residency statement (12.3).
- **Ecosystem motion:** connector catalog with two “must-have” integrations prioritized, listing/certification plan, and a migration toolkit to lower switching friction.

### **10) Codify risks and dis-synergies (and cost them)**

- **Customer conflict or MFN clauses** → require carve-outs or renegotiations; treat as timing gates.
- **Channel conflict** (distributors vs. direct; marketplace delist risk) → scenario a downgrade and haircut revenue in that route; add policy covenants (11.4).
- **Forced migrations** → add churn hazard and CTS spikes; delay re-rating until support burden normalizes.
- **Cultural/comp plan friction** → unless incentives change, cross-sell rarely happens; bake comp plan changes into opex and timing.
- **Quality or SLO drift** during integration → add SLA credits and NRR hits (10.3, 12.1).

Turn each into **Revenue-at-Risk (RaR)** and **Margin-at-Risk (MaR)** corridors and subtract from rNPV.

## **Copy-ready templates (paste straight into your workspace)**

### **A) Revenue Synergy Card (one per initiative × segment/route/region)**

- **Name & owner; why now** (deal-thesis link).
- **Mechanism:** cross-sell / up-sell / bundling / channel / geo / ecosystem / brand / innovation.
- **Right-to-win (0–5)** and evidence links (references, telemetry, certifications, partner status).
- **Math:** eligible base; attach/adoption; realized-price delta; CM2%; incremental CTS/CAC; timing.
- **Risks:** cannibalization, churn hazard, channel conflict, capacity/SLO, legal/policy gates.
- **Gates:** entitlement/billing accuracy, listing/certification, capacity rung booked, DOA/fences live.
- **Economics:** ΔRevenue, ΔCM2, ΔCash (L12M, Y1, Y2); rNPV; confidence label (H/M/L).
- **First 90 days:** top 3 actions with cost and date; KPIs; exit criteria for promotion or kill.

### **B) Cross-Sell & Up-Sell Heatmap (fields to fill)**

- Segment × route × region; overlap count; integration readiness; consent/contract status; partner reach; capacity headroom; **Right-to-win score;** priority flag (P1/P2/P3).

### **C) Bundle Canvas (fields to fill)**

- Target jobs and segments; included SKUs/modules; fences and surcharges; list and target realized price; value narrative; migration path; billing/entitlement mapping; support SLAs.

### **D) Channel Leverage Plan (fields to fill)**

- Target partners/marketplaces; listing/certification gaps; private-offer mechanics; co-sell alignment; MDF and spiffs; compliance thresholds (return, late-ship, chargeback); pipeline targets.

## E) Synergy-to-Model Map

- Parameter cells: attach, conversion, cycle time, realized price bps, channel share, implementation throughput, support minutes/contact, DSO/processor reserve deltas; one-off and run-rate costs.

## Metrics, governance, and incentives (make it real)

- **KPI set:** attach rate by segment; NRR uplift; realized price vs. corridor; bookings from partner/marketplace; time-to-first-\$; implementation throughput; billing credits (should be  $\approx 0$ ); CM2 per order/account.
- **Cadence:** weekly stand-up for the top three initiatives; monthly “Synergy Bank” review with CFO and CRO; quarterly re-estimates (rNPV and confidence labels).
- **Incentives:** comp plan changes (cross-sell credit, renewal re-rating credit, partner-sourced credit); spiffs with sunset dates; exec bonuses tied to **ΔCM2 and cash**, not just bookings.
- **Controls:** antitrust guardrails; price fence governance; CPQ/doa enforcement; policy/watchlist from Chapter 11.4 baked into playbooks.

## Early-warning indicators (by motion)

- **Cross-sell:** attach < target in first 30 accounts; implementation backlog > capacity rung; rising support contact rate on new bundles.
- **Re-rating:** discount depth creeps up; billing credits or entitlement errors appear; churn early-warning (Chapter 6.4) flashes on targeted cohorts.
- **Channel:** penalty or delist warnings; paid placement dependence rises; partner pipeline stalls versus enablement calendar.
- **Geo:** delays on residency/attestations; translation/compliance gaps; first-response times miss targets.
- **Ecosystem:** connector attach < plan; certification slips; migration friction (hours/cutover) higher than modeled.

## Red flags—and the immediate response

- **No entitlement/billing readiness** → move synergy to upside only; fix CPQ/billing/entitlement as a Day-1 condition; do not run a bundle without invoice accuracy  $\geq 99.5\%$ .

- **Capacity/SLO thin** → cap pilots; add a reliability/capacity sprint to the 90-day plan; reflect SLA credits and NRR drag in the model.
- **Channel conflict** → freeze direct offers in contested tiers; renegotiate reseller carve-outs; model delist risk and set policy covenants.
- **Price-led synergy with weak VoC** → run two pricing tests immediately; hold re-rating out of the base until evidence shows realized price holds without churn spike.
- **Gun-jumping risk** → route all pre-close actions through counsel and the clean-team; keep any joint customer contact to publicly available information and approved scripts.

## 90-day lift plan (moves that change cash fast)

- **Top-100 cross-sell:** joint account mapping, 30-day lighthouse offers, reference harvesting; attach dashboard live.
- **Re-rating pilots:** two fences + DOA live, renewal calendar sequenced, value calculators in reps' hands, first 20 renewals coached.
- **Channel enablement:** publish two listings/certifications; activate private offers; run first partner webinar; MDF tied to pipeline and win-rate metrics.
- **Bundle readiness:** SKU and entitlement harmonized; billing dry-run pass; customer comms and FAQs out; support scripts loaded.
- **Capacity lock:** book first capacity rung (10.2); publish SLOs and error-budget gates (12.1).
- **Controls:** clean-team protocol enforced; pricing fence governance and CPQ rules pushed; watchlist (11.4) monitored weekly.

## 72-hour sprint plan (from blank page to an underwritable synergy bank)

- Day 0:** Freeze scope, segmentation, legal guardrails; issue a single evidence request; draft Heatmap skeleton and Synergy-to-Model Map.
- Day 1:** Fill Heatmap with right-to-win scores; create 8–12 Revenue Synergy Cards for P1 motions; run quick math (attach, adoption, realized price bps, CM2).
- Day 2:** Quantify cannibalization, churn hazard, and capacity caps; compute rNPV corridors; draft front-line motions and 90-day actions; wire parameters into the model (Chapter 14).

- Day 3:** Publish the Synergy Bank with owners, costs, and dates; set KPIs and cadence; propose term-sheet protections (indexation, channel policy covenants, certification CPs, earnouts tied to NRR or realized price).

## Acceptance criteria for a decision-grade revenue synergy assessment

- Cross-Sell & Up-Sell Heatmap complete with evidence-based right-to-win scores.
- 8-12 Revenue Synergy Cards with attach/adoption, realized price bps, CM2, timing, risks, gates, and owners.
- Cannibalization, churn hazard, and capacity/SLO caps quantified; rNPV corridors computed; model hooks wired (14.1).
- 90-day plan issued with costs and dates; KPI dashboard defined; clean-team and antitrust guardrails documented.
- Investment Committee can see **which dollars depend on which gates**, who owns them, and what happens to cash and CM2 if a gate slips.

Use this guide and “revenue synergy” becomes a precise set of customer moves—evidenced, gated, and priced—not a percentage you hope will appear after close.

## 15.2 Cost Synergy Estimation Template

Cost synergies are not a percentage haircut on expenses. They are **specific, durably repeatable cost removals**—in COGS, Cost-to-Serve (CTS), and SG&A—that you can price, phase, and govern. In commercial due diligence, your task is to (i) baseline cost with the same segmentation used for revenue and margin, (ii) identify concrete levers (procurement, footprint, operations, tech, cloud, support, G&A), (iii) quantify run-rate savings and one-time costs, (iv) haircut for execution risk and dis-synergies, and (v) wire the result directly into the driver-based model (Chapter 14) and the CM2 logic (13.2). Treat savings as **changes in drivers** (rates, volumes, yields, minutes, bps) rather than as line-item decrements. That is how they survive scrutiny—and how they show up in cash.

## Freeze definitions and guardrails (before any math)

- **Run-rate vs. in-period savings:** Run-rate = steady-state monthly reduction once the lever is fully live; In-period = the portion realized in calendar time (ramp-up and slippage matter).
- **Gross vs. net:** Always present savings **net of:** implementation costs, stranded fixed cost, inflation/market drifts, and reinvestment required to protect service levels.
- **Scope and segmentation:** Same cuts as Chapters 6–13 (product family × route-to-market × region × customer tier). Separate **COGS**, **CTS**, and **SG&A**.
- **Clean-team and antitrust:** Pre-close, only aggregated and anonymized data can be shared; **no** joint vendor negotiations or price coordination without counsel and a signed clean-team protocol.
- **Hold-period discipline:** Only include savings that turn into cash inside the horizon (typically 18–36 months). Put the rest into “strategic options.”

## Step-by-step: from blank page to an underwritable cost-synergy bank

### 1) Baseline the cost—build one spend truth

Create a clean, comparable **spend cube** for both companies:

- **By category:** direct materials/components, freight/inbound duty, manufacturing conversion, packaging, 3PL/warehouse, parcel/LTL, payment processing & fraud, cloud/compute/storage/egress, third-party APIs/data, support/success/BPO, software/SaaS licenses, contractors, facilities & utilities, insurance, audit/advisory, marketing programs, HR/benefits, IT/telecom, travel.
- **By vendor:** top-200 suppliers, rate cards, rebates, step-down discounts, term sheets, auto-renew dates, termination penalties.
- **By site and function:** plants/DCs/call centers, seat counts, utilization, fixed vs. variable split, lease terms, maintenance schedules.
- **By unit driver:** \$/lb, \$/shipment, \$/order, \$/API call, minutes/contact, \$/user/month, \$/kWh, \$/sq ft.  
Normalize for constant currency, organic perimeter, and seasonality.  
Reconcile to GL totals and the CM1/CM2 tree (13.2).

## 2) Identify the synergy pools (what typically pays fast)

- **Direct procurement (materials & services):** price harmonization to best-in-class, supplier rationalization, volume aggregation to unlock tier breaks and rebates, indexation alignment, should-cost and VA/VE redesign, dual-sourcing for bargaining power.
- **Logistics & network:** carrier rationalization, multi-lane re-bids, DIM/packaging optimization, mode shifts, DC consolidation, slotting/picking productivity, cross-dock and pool-distribution where density allows.
- **Manufacturing & operations:** footprint consolidation (close/mothball/repurpose sites), changeover and batch-size optimization, labor productivity, yield/scrap improvement, energy and maintenance programs, automation where payback <24 months.
- **Cost-to-Serve / post-purchase:** returns/refurb loop efficiency, policy fixes (restocking, free-shipping thresholds), support deflection (self-serve, knowledge base), entitlement and billing accuracy to eliminate credits.
- **Cloud, data & software (“FinOps”):** reserved/savings plans, right-sizing, de-duping environments, storage lifecycle policies, egress avoidance patterns, API plan optimization, SaaS/license rationalization (remove overlaps, consolidate tiers).
- **SG&A overlaps:** finance, HR, legal, IT help desk, facilities, audit/advisory, insurance, duplicate public-company costs (if take-private), overlapping management layers.
- **Sales & marketing efficiency (handle with care):** agency consolidation, ad-tech/tool stack simplification, event portfolio rationalization. Only book savings that **do not** degrade conversion, win rate, or NRR—pair with 9.1/9.3 diagnostics.
- **Payment rails & fraud:** blended bps reduction from volume tiers, chargeback program optimization, fraud tooling to reduce losses and manual review minutes.
- **Insurance & benefits:** brokerage consolidation, captive structures, benefit plan harmonization (flag retention and wage/benefit dis-synergies explicitly).

## 3) Quantify each lever with simple, auditable equations

Use driver math; avoid opaque percentages.

- **Procurement (rate card):**

Savings = Volume\_consolidated × (Old rate - New rate) × Coverage% - Lost rebates + Rebate uplift.

Implementation cost = sourcing event cost + testing/qualification + dual-running. Timing = contract notice + ramp weeks.

- **Yield & scrap (manufacturing):**

Savings/month = (Scrap\_baseline - Scrap\_target) × Material\_cost\_per\_unit × Units - Rework/QA added cost.

- **Labor productivity (ops/support):**

Savings = FTE\_reduction × Fully loaded cost × Realization% - Severance/retention - Backfill contractors.

Realization schedule: 0% (Month 0) → 50% (Month X) → 100% (Month Y) after notice and handover.

- **Freight & parcel:**

Savings = Shipments × Avg weight/zone mix × (Old \$/shipment - New \$/shipment) - Accessorial drift.

Add packaging/DIM fixes: ΔDIM × Rate\_card × Shipment count.

- **Cloud & APIs:**

Savings = Usage × (On-demand rate - Reserved rate) × Reserved coverage% + Rightsizing delta - Commitment premiums.

API plan: Calls × (Old \$/call - New \$/call) - overage minimums.

- **Returns/refurb:**

Savings/order = (Return\_prob\_baseline - Return\_prob\_target) × (Reverse\_log\_cost - Recovered\_value) + ΔSupport minutes × rate.

- **Payment fees:**

Savings = Card-processed VRR × Δbps - Additional reserves/holdback cost (cash drag is separate).

- **Facilities & footprint:**

Run-rate savings = Fixed costs eliminated (rent, utilities, security) - stranded overhead retained.

One-time costs = lease break fees + make-good + relocation/move + asset write-offs + IT cutover.

Every equation must carry **units, coverage, ramp, and confidence (H/M/L)**.

#### **4) Build the realization curve (cash, not just run-rate)**

For each lever, specify monthly phasing with gates:

- **Procurement:** RFP/negotiation (30–90 days), notice periods (30–180), vendor onboarding and QA (2–8 weeks).

- **Footprint:** board approval, works-council/union process, notice, lease exit, move/commissioning (often 6–18 months).
- **Cloud/IT:** commit purchase (instant), re-platforming (4–16 weeks), decommission legacy (8–24 weeks).
- **People:** org design, notices, knowledge transfer (4–16 weeks), severance/retention payouts timing.
- **Policy/CTS:** comms and policy change (2–6 weeks), system/checkout updates (2–8 weeks), effect on demand/NRR monitored.

Use S-curves or step functions; avoid straight lines unless justified.

### **5) Net it down—implementation costs and unavoidable offsets**

- **One-time:** severance and retention, program management/IMO, legal and advisory, IT integration, lease exits/make-goods, relocation, dual-run costs, certification/validation, change management and training.
- **Stranded cost:** overhead that persists after consolidation (e.g., corporate utilities, insurance minima); model the bleed-off plan or keep it as a residual.
- **Inflation drift:** commodity, energy, wage changes that partially offset savings.
- **Reinvestment:** reliability or quality spend to protect service levels; FinOps tooling; QA staffing during consolidation.

### **6) Dis-synergies and risk haircut (treat as first-class citizens)**

- **Service-level degradation:** higher contact rates, SLA credits, OTIF penalties.
- **Wage/benefit harmonization:** upward adjustments due to parity, union or statutory rules.
- **Supplier power:** fewer vendors can mean worse terms or exposure to single-source risk.
- **Channel/partner friction:** loss of MDF, co-op funds, or tier benefits.
- **Attrition & morale:** productivity dip during transition.  
Convert to **Margin-at-Risk (MaR)** corridors and subtract from savings.

### **7) Turn savings into risk-adjusted NPV (rNPV)**

For lever  $i$  with monthly net savings  $S_{i,t}S_{\{i,t\}}S_{i,t}$ , probability  $p_{i,p_i}$  of clearing each gate, and discount rate  $r_{rr}$ :

- $rNPVi = \sum_t (S_{i,t} \times \prod_{g \leq t} p_{i,g}) / (1+r)^t - \text{one-time}_i$  ;  
 $\text{one-time}_i = \sum_t (S_{i,t} \times \prod_{g \leq t} p_{i,g}) / (1+r)^t$  ;  
Rank by  **$\Delta CM2/\$, \Delta Cash/\$,$**  and **time-to-impact.**

## 8) Wire the savings into the model (Chapter 14 hooks)

- **COGS:** material rate deltas, yield/scrap factors, labor rates and hours, inbound freight, energy/utilities.
- **CTS:** parcel/LTL rate cards, return probability and reverse-log cost, support minutes and rate, payment bps, cloud/API unit costs and reserved coverage.
- **SG&A:** headcount/FTE by function with ramp, SaaS/license seats  $\times \$/seat/month$ , facilities fixed costs, audit/insurance.
- **Working capital side-effects:** DIO/DSO/DPO changes from vendor and policy moves; processor reserves.
- **One-time costs & capex:** severance, lease exits, integration spend, automation capex (with depreciation or direct cash impact).

## Copy-ready templates (use verbatim)

### A) Cost Synergy Card (one per lever $\times$ segment/channel)

- **Name & owner:** business rationale (why it exists).
- **Baseline & unit driver:** current rate/volume/yield; source link.
- **Mechanism:** rate reduction, vendor consolidation, yield, labor productivity, footprint, cloud/IT, CTS policy, SG&A overlap, insurance/benefits, payment bps.
- **Math:** formula with units; coverage%; monthly ramp; run-rate at steady state.
- **Economics:**  $\Delta CM1/\Delta CM2$ ,  $\Delta Opex$ ,  $\Delta Cash$  by month (Y1/Y2), one-time costs, stranded cost.
- **Risks/offsets:** MaR, dis-synergies, service guardrails.
- **Gates & dates:** approvals, notices, certifications, works-council, IT cutover.
- **Confidence (H/M/L):** dependencies (legal, vendor, system).
- **KPIs:** unit cost trend, contact rate, SLA credits, error budgets, savings realized vs. plan.

**B) Spend Cube Request (clean-team friendly fields)**

- Vendor, category, site/function, GL account; 24-month monthly spend; rate card terms and tiers; volumes and units; rebates; start/end dates; termination penalties; contacts; currency.

**C) Procurement Event Plan (for each major category)**

- Category & scope; market structure & benchmarks; strategy (consolidate vs. split); lotting; should-cost; timeline; governance; risks; fallback; savings & rNPV.

**D) Footprint Decision Guide**

- Demand by region (3-year), site cost curve, SLO targets, labor availability, logistics cost to serve, lease terms, automation options, capex, one-time costs, time to close/open, regulatory/works-council steps, stranded cost plan.

**E) FinOps Savings Card (cloud & APIs)**

- Baseline usage by service; on-demand vs. reserved share; \$/unit; commitment plan; right-sizing actions; decommission plan; savings math; risk (lock-in, performance); owner & dates.

**F) SG&A Consolidation Stack**

- Function, baseline FTE & cost, overlaps, retained model, systems to keep/retire, TSA scope and duration, severance/retention, compliance (SOX, payroll, benefits), ramp and controls.

**G) Synergy-to-Model Map**

- Exact driver cells in 14.1 for COGS, CTS, SG&A, working capital, one-time costs; version and change log.

**Governance, tracking, and “quality of savings”**

- **Synergy Bank:** a single list of levers with run-rate and in-period cash, one-time costs, probability bands, owners, and dates.

- **Quality of Savings (QoS):** book only savings that hit P&L and cash; exclude budget cuts that reappear as service loss or backlog.
- **Controls:** GL cost centers and project codes to capture savings and one-time costs; monthly variance review led by the CFO/IMO; independent verifier sign-off.
- **Cadence:** weekly top-five lever stand-up; monthly bank refresh; quarterly rNPV re-score.

## Industry nuances you must account for

- **Healthcare & life sciences:** cGMP validation and QA overhead; change-control costs; GPO contracts; device/clinical quality risks.
- **Fintech & payments:** processor reserve/holdback side-effects; PCI scope; fraud loss elasticity to tooling spend.
- **SaaS & data:** cloud vendor commit terms, egress penalties, multi-tenant isolation limits; de-duping SaaS while protecting entitlement/billing accuracy.
- **Retail/CPG & marketplaces:** OTIF/compliance penalties; returns policy economics; paid placement vs. take-rate; seasonality locks on network changes.
- **Industrial & distribution:** union/works-council processes; safety and warranty exposure; duty regime shifts with footprint moves.
- **Energy-intensive:** hedging for power/fuel; carbon/EPR overlays (11.2) that affect net savings.

## Early-warning indicators (monitor weekly/monthly)

- RFP/contract slippage vs. plan; vendor pushback or price-increase notices.
- Works-council/union delays; retention risk on critical roles.
- SLA credits, contact rate, OTIF drift during CTS or footprint changes.
- Cloud on-demand share rising; API overage bills; postponed decommissions.
- Stranded cost not bleeding off; lease-exit negotiations stall.
- Inflation or FX offsets eroding promised savings.

## Red flags—and immediate responses

- **Savings depend on service cuts.** Response: move to upside-only; add deflection/automation first; enforce SLO guardrails.
- **No GL tie-out.** Response: halt claims; implement cost-center tracking; reconcile to 13.2 bridges.
- **Footprint closures with no stranded-cost plan.** Response: add a bleed-off schedule; delay booking run-rate.
- **Cloud “savings” without commits deployed.** Response: execute reservation now; publish coverage; set unit-cost dashboards.
- **Headcount reductions without process redesign.** Response: implement standard work/automation; freeze FTE claims until throughput proof.

## 90-day cost-synergy lift plan (moves that change cash fast)

- **Procurement quick wins:** re-bid top five categories; align to best-in-class rate cards; sign two rebate programs; lock indexation where favorable.
- **Logistics:** consolidate carriers; launch packaging/DIM fixes; renegotiate fuel/GRI surcharges on key lanes.
- **FinOps:** convert top services to reserved/savings; right-size two largest workloads; downgrade or remove three overlapping SaaS tools.
- **CTS policy:** update free-shipping threshold; roll out return triage; publish knowledge base and deflection flows for top five contact drivers.
- **Payment fees:** negotiate blended bps with processor(s); tighten chargeback program; deploy 3-D Secure where ROI positive.
- **Footprint & people:** decide site rationalization (go/no-go) with a dated plan; finalize org design for back office; communicate retention packages.
- **Controls:** GL tracking live; synergy dashboard launched; IMO cadence running.

## 72-hour sprint plan (from zero to a defendable cost-synergy bank)

- Day 0:** Freeze definitions; stand up the spend cube; publish clean-team protocol; reconcile to GL and CM2 tree.

- Day 1:** Identify pools and draft 12–18 Cost Synergy Cards; quantify with unit math; set ramps and gates; estimate one-time costs.
- Day 2:** Haircut for dis-synergies and MaR; compute rNPV corridors; wire hooks into the 14.1 model (COGS, CTS, SG&A, WC, one-times).
- Day 3:** Publish the Synergy Bank with owners and dates; set KPIs and governance; propose term-sheet translations (TSAs and pricing/commit terms with critical vendors; carve-outs; indemnities for known exits; covenants on service levels and inventory).

## Term-sheet levers to protect realization

- **TSAs:** precise scope, service levels, and price caps for back-office and IT; taper plan.
- **Vendor & platform contracts:** preserved rates or step-downs; indexation clauses; termination/assignment consents; API plan continuity.
- **Footprint:** landlord consents; make-good caps; environmental/waste liabilities allocated.
- **People:** retention pools approved; severance funded; works-council timing in CPs.
- **Covenants:** service-level floors; inventory and lead-time covenants during network changes; FinOps coverage milestones.
- **Indemnities/escrows:** known lease exits, early-termination penalties, E&O/WIP exposures.

## Acceptance criteria for a decision-grade cost-synergy assessment

- Spend cube reconciled to GL and the CM1/CM2 tree; constant-currency and organic perimeter.
- 12–18 Cost Synergy Cards with unit math, ramps, one-time costs, MaR haircuts, and confidence labels.
- Savings wired into the driver model (14.1) across COGS/CTS/SG&A/WC; cash and run-rate shown; bridges reconcile to 13.2.
- Governance live: Synergy Bank, GL tracking, KPIs, cadence, and independent verification.
- Term-sheet protections drafted for critical dependencies (TSAs, vendor terms, consents, covenants).
- Investment Committee can see **who owns which dollars, when they land, what could slip, and how that would be mitigated.**

Use this template and “cost synergy” becomes a portfolio of **priced, phased, and governed** changes to rates, yields, minutes, and fixed costs—visible in CM2 and cash, not just on a slide.

## 15.3 Integration Feasibility Checklist

Integration feasibility is the bridge between your synergy thesis and cash in the bank. It tests whether you can **legally, safely, and economically** combine (or tightly coordinate) the two businesses without breaking service levels, customer trust, or regulatory obligations. It also decides **how much** to integrate (full fusion vs. federation vs. interface), **when** to integrate (Day-1, first 90 days, and beyond), and **what it will cost** in one-times and execution capacity. Your output should be a single, decision-grade view: a **readiness heatmap, gated cutover plan, TSA blueprint**, and a **risk-adjusted cost/benefit** that plugs into the driver-based model (Chapter 14). Treat this like an engineering safety case: define the minimum evidence needed to proceed, and refuse to make value promises that the integration cannot deliver within the hold period.

### Start with the integration thesis (minimum viable integration)

Before you inventory tasks, answer three questions: **Why integrate at all? How much is enough? What cannot break?** Anchor on the value drivers you underwrote in Chapters 15.1 and 15.2 and choose the operating posture per domain:

- **Fuse** (single system/process/org now) when synergy depends on one way of working (e.g., one CPQ & billing engine to realize price, one warehouse network to reduce CTS, one PLG funnel to lift conversion).
- **Federate** (shared standards, separate stacks/orgs) when regulatory licenses, reliability, or time-to-cash argue for controlled autonomy.
- **Interface** (APIs, data pipes, or commercial agreements) when integration risk is high relative to value, or when you need an option to pivot.

Document these choices in your **Integration Blueprint** with the target state for each domain: **Legal entities, People/Org, Product & Pricing, GTM & Channels, Operations & Supply Chain, Technology & Data, Finance & Tax, Risk & Compliance.**

## The feasibility checklist (workstream by workstream)

### 1) Legal, antitrust, and pre-close guardrails

- Antitrust/merger control status, gun-jumping boundaries, clean-team protocol, scope of competitively sensitive data allowed pre-close.
- Change-of-control notifications/approvals: sector regulators, data protection authorities, financial services, telecom, healthcare, defense/export.
- Entity strategy: keep/separate for licenses and customer contracts, tax nexus, and labor law.
- IP and OSS posture: assignments, third-party consents, open-source license compatibility, patent encumbrances.
- Cross-border constraints: CFIUS/local equivalents; sanctions exposure; beneficial ownership updates.

### 2) Customer, contract, and commercial policy constraints

- Assignment/novation and consent clauses; MFN/price-protection; exclusivity and non-compete limits; notice periods; co-terminus requirements.
- Service credits and SLAs transferability; support entitlements harmonization without breaching contracts.
- Key-account plans and “no surprises” comms (timing and content pre- vs. post-close).
- Channel/partner agreements: reseller/distributor veto rights, tiering consequences, MDF/coop cadence, vendor-of-record constraints.

### 3) Platform and marketplace policy compliance

- Take-rates, penalties, and policy thresholds; multiple-seller policies; brand registry/GS1 and listing ownership.
- On-time in-full (OTIF), late-ship and return thresholds; listing migration/delist risk; private-offer mechanics (cloud marketplaces).
- Evidence that combined offer meets rank/quality thresholds; paid-placement dependency and caps.

#### **4) Technology, data, and security (commercial lens)**

- Target architecture: keep/migrate/retire for **CPQ, billing/entitlement, payment rails, CRM/marketing ops, data warehouse/CDP, support stack, product/engineering toolchain, cloud & network.**
- Identity & access: SSO/IAM strategy, customer identity merge, partner portals, least-privilege mapping.
- Data migration: scope, data model mapping, data quality & dedupe, test cutovers, rollback plan; data residency & cross-border flows.
- Privacy & security: DPAs, records of processing, DPIAs, SOC2/ISO 27001 alignment, HIPAA/PCI where applicable; incident response integration and breach notification logic.
- Reliability and SLOs: error budgets, capacity headroom, DR/BCP alignment; change-freeze windows and deployment cadence.
- Third-party dependencies: API plan terms, quota/overage risks; cloud commitments and FinOps savings plan.

#### **5) Product, pricing, and packaging**

- SKU/module mapping and de-duplication; bundle design; price-fence and guardrail harmonization; list vs. realized price corridors (Ch. 8.2).
- Entitlement and metering: feature flags, usage measures, seat definitions, migration grants.
- Migration plans: grandfathering, re-rating rules at renewal, discount unwind cadence; communications and value calculators.
- Regulatory labeling/UDI (healthcare, devices), export controls, accessibility/localization requirements.

#### **6) Go-to-market and channel operations**

- Org design: seller/CSM coverage, territories, comp plans (credit for cross-sell/re-rating), partner account mapping.
- Funnel tooling: CRM objects and pipelines, stage definitions, attribution model, forecast hygiene.
- Enablement: playbooks, demos/POC environments, certifications; partner contracts and incentives aligned to the combined offer.
- Conflict policy: direct vs. channel and marketplace rules; escalation path; price parity where required.

## **7) Operations and supply chain**

- Network design: DC/plant footprint, routing logic, carrier contracts, inventory positioning, S&OP cadence; quality system harmonization.
- Capacity ladders and bottlenecks (10.2); service SLOs and penalty ladders (10.3).
- SKU and packaging harmonization; EPR/packaging compliance by country; labeling and customs/tariff impacts.
- Returns/refurb loops and warranty policy integration; field service coverage.
- Vendor terms and assignments; VMI/consignment status; critical single-source risk and mitigation.

## **8) Finance, tax, and treasury**

- ERP/ledger consolidation, chart-of-accounts mapping, revenue recognition policies, close cadence, consolidation eliminations.
- Order-to-cash and procure-to-pay process design; credit & collections policy; deductions handling; processor reserves.
- Payroll, benefits, and statutory tax registrations; indirect tax/VAT, nexus, and exemptions; transfer pricing policy.
- Banking, liquidity, and controls (SOX if applicable); borrowing-base integration for ABL.

## **9) People, culture, and change**

- Org structure and decision rights (RACI); span of control targets; leadership selections and succession.
- Retention and severance plans; works-council/union processes and timing; immigration/relocation constraints.
- Culture risks and rituals: communications cadence, values, manager toolkits, listening posts.
- Training: role-based curricula for sellers, CSMs, support, finance, ops, and engineering.

## **10) Program governance and economics**

- Integration Management Office (IMO) with workstream charters, RAID log, decision forums, and budget.
- Synergy tracking “bank”: each initiative with  $\Delta\text{Revenue}/\Delta\text{CM2}/\Delta\text{Cash}$ , one-time costs, probability, owner, and date.

- TSA strategy and economics (see below); cutover decisioning (big-bang vs. phased vs. “strangler”).
- Model hooks connected to 14.1; term-sheet protections drafted for residual risks (indexation, covenants, CPs, indemnities, earnouts).

## Go/No-Go gates (evidence thresholds before each cutover)

Define **Definition of Done** checklists per domain. Do not proceed on hope.

- **Customer & revenue:**
  - Entitlement/billing dry-run accuracy ≥99.5% for affected SKUs or tiers.
  - CPQ quotes match price fences and discount DOA; zero invoice credit defects in pilot.
  - Cross-sell playbooks tested with ≥10 lighthouse accounts; attach rate within ±20% of plan without discount creep.
- **Technology & data:**
  - Data migration test: accurate records ≥99.9%; dedupe precision/recall ≥95/95; rollback tested.
  - SLO headroom ≥15% at constraint; DR tested; on-call runbooks merged.
  - IAM/SSO cutover tested; least-privilege confirmed for crown-jewel data.
- **Operations:**
  - DC or carrier switch simulated; pick/pack and routing KPIs within ±5% of baseline; returns loop working.
  - Service desk: contact rate delta <10% for two weeks in pilot; CSAT ≥ baseline.
- **Finance:**
  - Close calendar dry-run; order-to-cash and procure-to-pay cycle time within thresholds; collections and deductions tooling live.
  - Tax and payroll compliance verified in new entities/regions.
- **Regulatory & policy:**
  - Change-of-control approvals/notifications complete; platform policy compliance confirmed; certifications live.

If any gate fails, **pause** and reroute the synergy to upside-only until fixed.

## TSA (Transition Service Agreement) scoping and exit

- Scope and service levels for IT (hosting, identity, email/collab, ERP), finance (close, AP/AR), HR (payroll/benefits), facilities, customer support, and security.
- **Price caps and glidepath** to avoid TSA cost creep; explicit termination milestones and penalties for slippage.
- Shadow-run periods and acceptance criteria; runbook for TSA exit per service.
- Risks: hidden tool dependencies, license transferability, capacity gaps after exit; mitigation with staged insourcing or managed services.

## Cutover strategy and playbooks

- **Big-bang** for small surface areas with high coupling (e.g., brand switch, email domains).
- **Phased** for systems with long tails (CRM objects, billing catalogs, data warehouse).
- **Strangler pattern** for high-risk code or platform migrations: route new traffic to the new system while draining old.
- Always define: blackout windows, roll-forward and rollback criteria, smoke tests, hypercare staffing, and communication templates.

## Copy-ready templates (paste straight into your workspace)

### A) Integration Feasibility Heatmap (0–5 scale per domain)

- Domains: Legal/Regulatory; Customer/Contracts; Platform/Channels; Technology & Data; Product/Pricing; GTM & Channels; Operations & Supply Chain; Finance & Tax; People & Culture; Security/Privacy; TSA & Cutover; Economics & Model Hooks.
- For each: current score, top three blockers, earliest achievable gate date, owner, confidence.

### B) Integration Blueprint Canvas (per domain)

- Target state (Fuse/Federate/Interface), value driver(s) unlocked, must-not-break constraints, systems/processes to keep/migrate/retire, gating approvals, one-time cost, run-rate effect, start/finish dates.

### C) Regulatory & License Transfer Tracker

- Obligation; jurisdiction; trigger (change of control/assignment); authority/counterparty; required deliverables; notice/approval SLAs; status; owner; critical path link.

#### **D) Data & Identity Migration Card**

- Datasets in scope; record counts; quality score; mapping & dedupe rules; test plan and metrics (accuracy, precision/recall); privacy/legal gates; IAM changes; rollback/runbook; cutover date; owner.

#### **E) Billing/Entitlement Readiness Test**

- Catalog alignment; price fences and DOA; taxation rules; invoice formats; credit/collections flow; meter integrity; test cohort results; defect log and burn-down; acceptance criteria ( $\geq 99.5\%$  accuracy).

#### **F) TSA Scope Worksheet**

- Service, in-scope systems/processes, volumes/SLAs, price and escalator, exit milestones, shadow-run criteria, termination triggers, residual risk plan, owner.

#### **G) Cutover Playbook (one per system/process)**

- Strategy (big-bang/phased/strangler), dependencies, blackout windows, smoke tests, rollback plan, hypercare staffing, comms templates, success metrics.

#### **H) Org & Comp Alignment Canvas**

- Org chart target; decision rights (RACI); comp & incentive changes; retention/transition plan; works-council or union steps; training plan and completion KPIs.

#### **I) Synergy-to-Integration Map**

- For each underwritten synergy/cost lever: integration dependency (gate), planned cutover, one-time costs,  $\Delta CM2/\Delta Cash$  impact month, model cell(s) to toggle.

## Industry-specific nuances to test explicitly

- **SaaS/usage:** entitlement and billing accuracy, tenant migrations, API plan limits, SOC2/ISO posture, data residency, SLOs and incident response merge; hyperscaler marketplace listings and private-offer mechanics.
- **E-commerce/DTC & marketplaces:** seller of record, brand registry, listing migration, returns policy, paid placement dependencies, OTIF thresholds, duty/tax engines.
- **Fintech & payments:** PCI scope, processor reserve/holdbacks, scheme compliance, fraud tooling integration, KYC/KYB & AML policy harmonization.
- **Healthcare & life sciences:** QMS alignment (cGMP/ISO13485), UDI/labeling, clinical/real-world evidence claims, HIPAA & regional equivalents, device software validation and change control.
- **Industrial & field service:** safety and certification transfers, warranty policy, field force scheduling and parts logistics, export controls.
- **Public sector:** security accreditation (FedRAMP/StateRAMP/IRAP), data residency, subcontracting clauses, small-business set-aside constraints.

## Economics: one-time costs and cash plan

- One-times: severance/retention, IT migration and licenses, TSA fees, rebranding, facilities moves and make-goods, certifications/validations, dual-running, change management and training.
- Cash timing: month-by-month phasing, working-capital impacts (inventory re-positioning, processor reserves, DSO/DPO shifts), capitalized vs. expensed items.
- Risk haircut: probability-weighted gates; **Margin-at-Risk** from SLA credits, returns, paid placement, and channel penalties during transition. Feed all into Chapter 14.

## Early-warning indicators (watch weekly in integration command center)

- Billing/entitlement defects; invoice credit rates; discount creep vs. DOA.
- SLO burn rate or OTIF slippage; contact rate spikes; SLA credits issued.
- Project plan slippage on regulatory/consent items; unexpected platform policy notices.

- Data migration test failure rates; IAM access exceptions; security incidents.
- TSA cost burn above plan; shadow-run defects not burning down; stranded-cost accumulation.
- Key-talent attrition; training completion gaps; rumor levels in engagement surveys.

## Red flags—and immediate responses

- **Gun-jumping risk or antitrust red lines** → lock down joint comms and planning to counsel-approved clean-team scope; shift synergy to upside-only until clearance.
- **Billing/entitlement not ready** → postpone price/pack changes; keep catalogs separate; fund a 30-day fix; protect revenue with customer guarantees.
- **Capacity/SLO thin** → cap migrations; add a reliability sprint; staff hypercare; reflect SLA credits and NRR drag in the model.
- **Consent & license delays** → ring-fence affected books; maintain dual brands; sequenced migrations by jurisdiction; propose CPs/escrows in the term sheet.
- **TSA sprawl** → set hard exit milestones; add price caps; stand up managed services as bridge; prioritize highest-cost TSAs for early exit.
- **Culture/retention risk** → trigger retention packages; simplify decision rights; double the manager comms cadence; pause non-critical changes in affected teams.

## 90-day integration lift plan (moves that change cash fast)

- **Day-1 controls:** brand/comm templates, support routing, order acceptance, credit & collections continuity, security and access baselines.
- **Cross-sell readiness:** CPQ and entitlement alignment for top three offers; seller/CSM enablement; ten lighthouse accounts live.
- **CTS improvements:** shipping/returns policy harmonization; carrier rationalization on top lanes; knowledge base and deflection flows deployed.
- **FinOps & IT:** reserved/savings plans live; top two workloads right-sized; duplicate SaaS tools rationalized.
- **Network quick wins:** packaging/DIM fixes; lane re-bids; duty/tax engine alignment for cross-border.

- **TSA exits:** schedule shadow-runs for two highest-cost services; publish exit acceptance criteria; staff backfills.
- **People:** org and comp decisions announced; retention letters out; role-based training completion to ≥90%.

## 72-hour sprint plan (from blank page to a defendable feasibility view)

- Day 0:** Freeze integration thesis and posture (Fuse/Federate/Interface) by domain; issue a single evidence request; draft the Heatmap and Blueprint shells.
- Day 1:** Fill Heatmap with 0–5 scores and blockers; complete Regulatory Tracker and TSA Scope; draft Data & Billing Readiness Cards; pick cutover strategies.
- Day 2:** Run gate tests (pilot or dry-run metrics); quantify one-times and MaR haircuts; wire integration dependencies into the 14.1 model; propose term-sheet protections (CPs, covenants, indemnities, earnouts).
- Day 3:** Publish the Integration Blueprint, Go/No-Go gates, TSA plan, and 90-day lift; stand up the IMO cadence, KPI set, and early-warning dashboard.

## Acceptance criteria for a decision-grade integration feasibility

- Integration Blueprint complete with target posture per domain and “must-not-break” constraints.
- Heatmap scored 0–5 with dated gates, owners, and confidence; top blockers and critical path clear.
- Go/No-Go checklists defined and measured in pilots/dry-runs (billing/entitlement ≥99.5%, SLO headroom ≥15%, data accuracy ≥99.9%, etc.).
- TSA scope priced with exit milestones; cutover strategies selected with rollback plans; hypercare staffed.
- One-time cost and MaR haircut quantified; model hooks wired; term-sheet protections documented.
- IMO governance lives with RAID log, cadence, KPI dashboard, and synergy bank linkage.
- Clean-team and antitrust guardrails documented; regulatory/consent tracker active.

- Investment Committee can see **what integrates when, what it costs, what could break, and which protections are in place.**

Run this checklist and “integration” stops being a vague promise. It becomes a gated, evidence-led program that protects customers and service levels while converting your synergy thesis into risk-adjusted cash within the hold period.

## 15.4 Value Capture Roadmap Guide

A value capture roadmap turns a deal thesis into a dated, resourced, and governable program that moves revenue, CM2, and cash within the hold period. It connects your synergy bank (15.1–15.2), integration feasibility (15.3), and the driver-based model (14.1–14.4) into one operating plan the CFO, CRO, COO, and CTO can run. The roadmap is not a Gantt chart; it is a **sequence of decisions and proofs**—what must be true by when, who owns it, what it costs, and how dollars will show up in the bridge from last actuals to Year-1 and Year-2. Build it like an engineering program: explicit gates, measurable acceptance criteria, small batches, and fast feedback loops.

### Principles that keep the roadmap real

Work from cash backwards. Every initiative must show how it changes a driver in the model, how that driver moves revenue or CM2, and how quickly that shows up in cash. Plan by constraints, not by wish lists—capacity rungs, SLO floors, regulatory approvals, platform policies, and customer consents set the pace. Make **risk-adjusted** plans; present base/low/high with probabilities. Govern with a single source of truth: one synergy bank, one dependency map, one set of definitions, one cadence. Wire incentives to **ΔCM2 and cash**, not just bookings or cost lines. And above all, protect the franchise: no roadmap is worth a broken SLA, regulatory breach, or antitrust misstep.

### Step-by-step build of a decision-grade value capture roadmap

#### 1) Start with a value tree, not a task list

Translate the deal thesis into a **value tree** with four trunks: Revenue, CM2, Working Capital, and Risk/Option Value. Under each trunk, place the specific levers you have already sized (attach rate uplift, realized price bps, take-rate reductions, freight and cloud unit costs, returns policy, support deflection,

DSO/DIO/DPO shifts). Quantify the Year-1 and Year-2 targets for each branch and link every branch to a single KPI and model cell. The tree is your north star; if a proposed activity cannot be placed on a branch, it is not in scope.

## **2) Consolidate the synergy bank into a program backlog**

Pull the Revenue and Cost Synergy Cards into one backlog with uniform fields:  $\Delta\text{Revenue}/\Delta\text{CM2}/\Delta\text{Cash}$  by month, run-rate, one-time cost, confidence (H/M/L), gates from the integration feasibility work, owner, and earliest start and finish dates. Normalize all dollars to constant currency and organic perimeter. Add **unit drivers** (price bps, minutes, \$/unit, calls per active, return rate) so you can audit realization later.

## **3) Prioritize by value density, feasibility, and sequencing logic**

Score each initiative on risk-adjusted NPV per month of execution capacity; right-to-win evidence; dependency count; and time-to-first-cash. Prefer moves with high **value density** ( $\Delta\text{CM2}$  or cash per week of effort) and low dependency complexity. Separate **quick wins** ( $\leq 90$  days, no structural dependencies) from **enablers** (catalog harmonization, entitlement/billing accuracy, certification, reserved cloud coverage) that unlock multiple dollars later. Sequence by constraints: staffed squads, capacity ladders, SLO floors, regulatory approvals, platform policy thresholds, TSA exit windows.

## **4) Plan the work in waves with explicit gates and acceptance criteria**

Define **Wave 0 (Day-1 readiness)** for stability and controls; **Wave 1 (first 90 days)** for quick wins and lighthouse proofs; **Wave 2–3 (Quarters 2–4)** for structural synergies; and **Wave 4+** for options outside the hold-period core. Each wave needs entry and exit criteria written as tests: billing dry-run accuracy  $\geq 99.5\%$ ; realized price fence live with DOA; returns triage deployed; carrier re-bids signed; reserved cloud coverage  $\geq X\%$ ; OTIF  $\geq$  threshold; SLA credits  $\leq$  bps cap; DSO drift  $\leq$  target; top-100 cross-sell attach  $\geq$  target band.

## **5) Build the capacity plan and squad roster**

Value capture fails when calendars pretend people are infinitely divisible. Define squads with named leaders, skills, and weekly capacity. Cap squad WIP to two to three concurrent initiatives. Pair each squad with a finance partner who owns baseline, measurement, and GL tagging. Agree on the “no heroics” rule: you cannot launch new playbooks unless hypercare capacity is booked and SLO error budgets allow it.

## **6) Map dependencies and the critical path**

Create a single dependency map across domains: product/catalog, data,

CPQ/billing, channel listings and marketplace policies, network/ops, compliance, and people/comp. Mark hard gates in red, soft dependencies in amber. Identify the **critical path** to the three biggest dollars; time-box discovery for any unknowns. No ghost dependencies: every dependency must have an owner and a date or it does not exist.

### **7) Instrument measurement and attribution before you launch**

Decide how you will prove dollars. Lock a **benefits attribution method** per lever: counterfactuals (A/B or geo-splits), holdouts on renewals for re-rating, pre/post with matched cohorts for support deflection, contract-level realized price audits for pricing, parcel invoice audits for freight, cloud provider bills for FinOps, and processor statements for payment bps. Create a **benefit ledger** with GL project codes and dashboards that show realized vs. plan at the unit-driver level. If you cannot measure it, you cannot book it.

### **8) Wire the roadmap to the model and scenarios**

For every initiative, point to the **exact assumption cells** in the driver model that move (attach, price bps, take-rate, returns %, shipping rate card, cloud on-demand share, contact rate/minutes, DSO/DIO/DPO, processor reserve, channel mix). Pre-build “go/no-go toggles” per gate. When an initiative clears its gate, finance flips the toggle; the base and scenarios update and the valuation range refreshes. This keeps IC and lenders aligned in real time.

### **9) Set governance, cadence, and decision rights**

Stand up a weekly **Value Review** (30–45 minutes) with the CEO, CFO, CRO/COO/CTO, IMO lead, and squad leads. Focus on dollars, gates, and risks; avoid status theater. Run a monthly **Wave Gate** where you promote, pause, or kill initiatives based on evidence. Publish decision rights: who can launch, pause, or change scope; who approves discount guardrail edits; who releases capacity or budget; who flips model toggles.

### **10) Align incentives and change management**

Update comp plans so sellers receive credit for cross-sell and re-rating; success teams are rewarded for NRR uplift; operators for CM2 and SLO adherence; finance for cash and measurement quality. Add time-boxed SPIFFs with sunset dates for early attachment. Train managers to coach the new plays; publish scripts, objection handling, and value calculators. Keep antitrust and clean-team rules visible in all playbooks.

### **11) Connect to term-sheet protections and TSA exit**

Translate residual risks into structure: indexation clauses for price-cost risk;

inventory/service covenants during network changes; certification conditions precedent for geo/channel plays; indemnities for known exits; earnouts tied to **realized** price or NRR. Set TSA exit milestones with acceptance tests and price caps. Your roadmap dates should match these commitments.

## **12) Publish the 30/60/90 and 13-week cash plan**

Day-1 is about stability: brand and comms, order acceptance, credit and collections continuity, security, and support routing. The **first 13-week cash plan** shows when procurement, freight, FinOps, fee reductions, and working-capital moves land; finance updates it weekly and explains variances by driver, not by department.

## **Copy-ready templates to accelerate your build**

### **Value Capture Roadmap Canvas (one page per initiative)**

- Name and owner; branch of the value tree (Revenue / CM2 / Working Capital).
- Mechanism and unit driver(s) (e.g., +150 bps realized price; -8% parcel \$/shipment; -3 minutes/contact; -10 days DSO).
- Economics:  $\Delta$ Revenue,  $\Delta$ CM2,  $\Delta$ Cash by month; run-rate; one-time cost; confidence (H/M/L).
- Gates and dependencies: from integration feasibility; earliest start/finish; critical path link.
- Measurement plan: counterfactual or audit method; GL tags; dashboard tile ID.
- Risks and MaR corridor; mitigations and owners.
- Model hooks: exact assumption cells and toggles; scenario interactions.
- First 30/60/90 actions; hypercare plan; acceptance criteria.

### **Wave Plan Template (for Wave 0–3)**

- Objectives and target dollars; entry and exit gates with acceptance tests; squads and capacity; dependency milestones; hypercare staffing; communications and customer/partner touchpoints; risks and contingency triggers.

## **Benefits Ledger and Attribution Log**

- Initiative; unit driver; baseline and current; source system; realized \$ vs. plan this month and LTM; attribution method; auditor/verifier sign-off; model toggle status; variance notes.

## **KPI Tree & Instrumentation Plan**

- For each branch: lead metrics (e.g., attach demo-to-close, discount guardrail compliance, return reason mix, contact rate, cloud on-demand share) and lag metrics (NRR, CM2%, CAC payback, cash); data owner; refresh cadence; thresholds for RAG.

## **Owner One-Pager**

- Purpose and “why now”; three weekly moves; risk/decision backlog; help needed; next gate date; definition of done.

## **Communications Plan Checklist**

- Internal: Day-1 note, weekly value digest, playbook updates, manager toolkits, office hours.
- External: key-account briefings, partner enablement, marketplace listing updates, policy notices, migration offers and guarantees.
- Legal guardrails: antitrust and clean-team reminders on every page.

## **Operating mechanics that make the roadmap work**

Run a short weekly **Value Review** with three artifacts only: the **Synergy Bank** sorted by ΔCash next 90 days, the **Dependency Map** with red/amber gates, and the **Benefits Ledger** showing realized vs. plan at unit-driver level. Decisions: promote, pause, kill; release or reassign capacity; flip model toggles; update scenario weights if early-warning indicators move. Keep a tight **hypercare** loop for any change that touches customers, billing, or SLOs—pre-staff, instrument, and give teams a measured exit.

## **Early-warning indicators to wire into the dashboard**

Monitor leading signals that threaten value: realized price erosion vs. fences; rising contact rate or SLA credits; return/chargeback spikes; parcel or cloud on-demand share drifting up; processor reserve hikes; DSO tail growth;

marketplace penalty warnings; gate slippage for certifications or consents; TSA burn above plan; attrition in key squads. Each indicator should have a predefined **flip rule** and a play: tighten discount guardrails, cap paid placement, defer a bundle, add a reliability sprint, reallocate squad capacity, or trigger a term-sheet protection.

## **Red flags—and the immediate response**

If dollars depend on unproven behavior (e.g., “customers will accept a re-rating without elasticities or VoC”), move the initiative to **upside only** and run a pilot with a holdout. If billing/entitlement readiness is below threshold, freeze bundle or price changes; fix accuracy before launch. If capacity is over-subscribed, reduce WIP and sequence; do not borrow against SLOs. If measurement is ambiguous, install instrumentation and GL tags before claiming savings—no metrics, no money. If TSA exits slip, escalate to owners, trim scope, and stand up managed services as a bridge.

## **90-day value lift plan (moves that change cash fast)**

In the first quarter, bias towards levers with short proof cycles and clean measurement. For revenue: cross-sell to top-100 mapped accounts with fixed-scope lighthouse offers; re-rate renewals where fences and DOA are live; publish a realized price dashboard and enforce discount guardrails. For CM2: re-bid parcel lanes and deploy packaging/DIM fixes; move priority cloud workloads to reserved/savings plans; tighten returns triage and support deflection. For cash: enforce terms on top-20 accounts, triage retail deductions weekly, launch SCF or early-pay where APR is favorable, right-size weeks of supply on non-KVIs. Instrument everything, book GL codes, and update the model within 24 hours of gate clearance.

## **72-hour sprint plan (from analysis to a board-ready roadmap)**

Day 0: Publish the value tree and the consolidated synergy bank; freeze definitions and acceptance tests; stand up the dependency map. Day 1: Prioritize by risk-adjusted NPV per month of capacity; assign squads; draft Wave 0–1 with gates and owner one-pagers; wire model hooks and toggles. Day 2: Finalize measurement plans and GL tags; set the weekly Value Review and monthly Wave Gate; load early-warning indicators into the KPI dashboard. Day 3: Issue the 30/60/90 plan and 13-week cash cadence; align incentives; publish

the communications plan; secure term-sheet protections and TSA exit milestones.

## **Acceptance criteria for a decision-grade value capture roadmap**

The value tree is complete with quantified targets and one KPI per branch. A single synergy bank lists initiatives with  $\Delta\text{Revenue}/\Delta\text{CM2}/\Delta\text{Cash}$  by month, run-rate, one-times, confidence, owners, and gates. Wave 0–3 are dated and gated; squads and capacity are assigned; dependencies and the critical path are explicit. Measurement and GL tagging are live; a benefits ledger and dashboards track unit drivers and dollars; model hooks and toggles are wired; scenarios refresh when gates clear. Governance is in place with weekly Value Reviews and monthly Wave Gates; incentives and comms are aligned; legal and TSA constraints are embedded. IC can see what lands when, who owns it, how it is measured, and what happens to cash and headroom if a gate slips.

Build the roadmap with this rigor and you will replace optimism with operating truth: a small set of high-density initiatives, sequenced by constraint, measured at the unit level, and wired to the model—so value creation becomes a managed flow of auditable dollars, not a slide buried in the appendix.

# Chapter 16. Risk Identification and Mitigation

Great commercial diligence does not end with upside and base-case numbers. It must also surface the **distribution** of outcomes—the ways revenue, CM2, and cash can miss, and what you will do when early signs appear. Risk work in diligence is not a pessimists' appendix; it is a **portfolio view of uncertainties** linked to drivers in your model, scenario toggles, and term-sheet protections. Done well, it produces a prioritized heat-map, clear owners, measurable early-warning indicators, and pre-priced playbooks that convert surprise into managed variance.

This chapter standardizes how to identify, quantify, and govern commercial risk. We use a single taxonomy across market demand, customers and channels, pricing power, operations and supply, technology and data, regulatory/ESG, people, and financing/liquidity. Every risk is expressed in **dollars at risk** ( $\Delta\text{CM2}$  and  $\Delta\text{Cash}$  within the hold period), connected to the driver-based model (Chapter 14) and to scenario logic (11.3). The output is a **Commercial Risk Heat-Map** and **Risk Register** you can run on Day 1.

## 16.1 Commercial Risk Heat-Map Template

A heat-map is useful only if it changes decisions. The template below forces each risk to travel a consistent path: description → evidence → driver mapping → dollar exposure → triggers → playbook → owner and date. It also ensures comparability across segments and routes-to-market.

### Principles before you start

- **Segmented, not averaged.** Score risks by product family × route-to-market × region × customer tier; portfolio totals hide concentration.
- **Financial, not adjectival.** Quantify impact as  **$\Delta\text{CM2}$**  and  **$\Delta\text{Cash}$**  for Year-1 and Year-2; add **covenant headroom** effects when relevant.
- **Model-anchored.** Each risk connects to named drivers and toggles in the 14.1 model; impacts are computed, not guessed.

- **Governed.** One owner per risk; triggers and playbooks written; cadence agreed.
- **Legal-safe.** Respect clean-team and antitrust boundaries when using customer, pricing, or vendor data pre-close.

## The scoring framework (use these definitions consistently)

- **Likelihood (L, 1–5):** Probability the risk materializes within 12–24 months (1=rare, 5=very likely).
- **Impact (I, \$):** Dollar effect if it happens, measured as  $\Delta\text{CM2}$  and  $\Delta\text{Cash}$  in the first 12 months from occurrence (also note covenant headroom  $\Delta\text{bps}$ ).
- **Velocity (V, 1–5):** Time-to-impact once triggered (1=slow, 5=fast).
- **Controllability (C, 1–5):** Ability to influence frequency or severity (1=high control, 5=low control).
- **Detectability (D, 1–5):** Ease of seeing it early with KRIs (1=easy, 5=hard).
- **Correlation/Clustering (K, 1–5):** Tendency to co-move with other risks (1=independent, 5=highly correlated).
- **Confidence (H/M/L):** Evidence strength behind your L/I/V/C/D/K judgements.

Recommended derived metrics (state weights on the page):

- **Risk Priority Number (RPN):**

Risk Priority Number (RPN):  $RPN = L \times \hat{I} \times V \times D'$  where  $\hat{I}$  is impact normalized to the portfolio and  $D' = (6 - D)$  if you prefer higher is worse.

- **Value-at-Risk (VaR):**

$\text{VaR}_{12m} = P(\text{event}) \times \text{Impact}_{12m}$  (compute CM2-VaR and Cash-VaR)

- **Headroom-at-Risk (HaR):** Probability-weighted minimum quarterly covenant headroom loss within horizon.
- **Mitigation ROI:**

$$\frac{\text{VaR reduction}}{\text{Mitigation NPV cost}}.$$

- Heat-map anatomy (what to show on one page)
- **Axes:** Likelihood (x-axis) vs. Impact banded in dollars (y-axis, use CM2 or Cash).
- **Bubble size:** Cash-VaR (probability × cash impact).
- **Bubble color:** Velocity (hotter = faster).
- **Bubble outline:** Confidence (solid=high, dashed=medium, dotted=low).
- **Facets:** One panel per major segment/channel so concentration is obvious.
- **Overlays:** RAG zones tied to your risk appetite (e.g., red if Cash-VaR > \$X or HaR threatens ≤ Y bps buffer).

## Step-by-step build (work this sequence; it saves time)

### 1. Set appetite and thresholds

- Define red/amber/green cutoffs for Cash-VaR, CM2-VaR, and HaR.
- Agree the “fast risk” threshold (e.g., Velocity ≥4) that triggers pre-positioned responses.

### 2. Fix the taxonomy and harvest candidates

- **Market & demand:** end-market contraction, mix shift to price-sensitive cohorts, competitive price war.
- **Customer & concentration:** top-10 exposure, key-account delist risk, reseller dependency.
- **Pricing & channel:** realized price erosion, take-rate hikes, marketplace penalties.
- **Operations & supply:** inbound cost spikes, capacity bottlenecks, returns surge, carrier service failures.
- **Technology & data:** reliability incidents, API/third-party dependency, cloud coverage, cybersecurity/privacy.
- **Regulatory & ESG:** policy/tariff changes, certifications/attestations, EPR/packaging fees, data residency.
- **People & execution:** key-person loss, sales coverage gaps, integration slippage (Chapter 15.3).
- **Finance & liquidity:** processor reserve increases, DSO tail growth, borrowing-base shortfalls, rate spikes.

### 3. Map each risk to model drivers

- Identify the exact **assumption cells** (price bps, discount depth, take-rate, conversion, return %, freight rate cards, cloud on-demand share, contact rate/minutes, DSO/DIO/DPO, processor reserve bps).
- Define the **shock** (magnitude and duration) that represents the event.

#### 4. Quantify impact and VaR

- Run the driver shock through the model to compute **ΔCM2**, **ΔCash**, and **ΔHeadroom** by month.
- Estimate **Likelihood** (base and scenario-conditional). For each scenario  $s$ :  $VaR_r = \sum_s P(s) \times P(r|s) \times Impact_r | s$
- Record **Velocity** as time from trigger to 80% of full impact.

#### 5. Score C, D, K and set Confidence

- Controllability reflects available levers (indexation, coverage shifts, second-sourcing, FinOps).
- Detectability is based on KRI strength and lead time (see KRI library below).
- Correlation uses your sensitivity correlations (14.3) or expert judgement.
- 

#### 6. Plot the heat-map and validate with owners

- Review outliers; challenge assumptions; add mitigations where the plan is thin.
- Confirm owners, triggers, and playbooks.

#### 7. Wire triggers and playbooks to governance

- Add risks and KRIs to the KPI dashboard; define **flip rules** (two consecutive breaches, or a single hard threshold).
- Pre-approve actions and budgets for fast risks.

## Risk Register fields (copy this structure)

- Risk name and category; **owner**; **segment/channel/region**; description and cause; related scenarios.
- **Model drivers** affected; shock size and duration; impact pathway to CM2 and Cash.
- **L, I (\$), V, C, D, K**, Confidence; **VaR (CM2, Cash); HaR; RPN**.
- **KRIs and triggers** (thresholds, sources, refresh cadence).
- **Mitigation plan** (preventive, detective, corrective), budget and timing; **residual risk** post-mitigation.
- Interdependencies and escalation path; last review date; next review date.

## Risk Card template (use one card per top risk)

- **What is it?** One-sentence statement of the risk and why it matters.
- **Where does it show up?** Segment/channel and model drivers.
- **How big is it?**  $\Delta$ CM2,  $\Delta$ Cash in Month-6/Month-12; Cash-VaR; HaR; Velocity.
- **What should we watch?** KRIs with concrete thresholds and data owners.
- **What will we do when it flips?** Playbook in three steps with owners and spend caps.
- **What reduces it now?** Preventive actions with ROI and dates.
- **What remains?** Residual risk and confidence label.

## KRI library and example triggers (adapt and publish)

- **Demand & pricing**
  - Category index or PMI new orders below threshold for two months; competitor price tracker -3% QoQ; win-rate vs. top-3 competitor -5 pp.
  - Triggered playbooks: tighten discount guardrails, re-weight channels, activate price fences and value messaging, pause low-ROI paid placement.
- **Channel & marketplace**
  - Take-rate change notice; late-ship/OTIF warning; return/chargeback ratio above program tier.
  - Playbooks: inventory re-positioning, routing and cut-off changes, returns triage, marketplace escalation.

- **Operations & supply**
  - Carrier on-time below SLA for two weeks; parcel accessorial up 150 bps; yield/scrap spike.
  - Playbooks: surge capacity, re-bid lanes, packaging/DIM fixes, temporary mode shift with guardrails.
- **Technology & data**
  - SLO burn rate > threshold; p95 latency breach; SLA credits > X bps; third-party API overage.
  - Playbooks: error-budget policy enforcement, reserved coverage, throttle non-critical features, spin up spare capacity.
- **Cyber/privacy**
  - Elevated failed login patterns; critical CVE exposure outstanding; DLP alerts trending up.
  - Playbooks: patch sprints, access control tighten, customer comms templates, outside counsel on call.
- **Regulatory & ESG**
  - Draft policy moving to final; certification deadlines within 90 days off-track; EPR fees announced.
  - Playbooks: label/pack changes, certification task force, pass-through surcharges per fences.
- **People & execution**
  - Critical role vacancy probability; attrition above threshold; training completion < target.
  - Playbooks: retention packages, pipeline and coverage re-plan, training blitz.
- **Finance & liquidity**
  - Processor reserve +100 bps; DSO tail >90 days rising two months; borrowing-base headroom < buffer.
  - Playbooks: terms enforcement, SCF/early-pay, reserve renegotiation, collections sprint.

## Mitigation catalog (tie each to drivers and ROI)

- **Reduce frequency or severity:** indexation, second-source suppliers, diversified channels, reliability and FinOps sprints, discount/price fence governance, returns and support deflection, inventory re-tiering, payment rail diversification.
- **Transfer:** insurance (cyber, D&O, business interruption), hedges (FX, fuel, rates), service credits with vendors.

- **Avoid:** exit vulnerable SKUs/geos/channels; defer launches that threaten SLOs; block unproven bundles pre-billing readiness.
- **Accept with reserves:** set **risk budget** for credits, expedite, and remediation; add covenants and earnouts in term sheets for residual uncertainty.

## Quantification tips and formulas (keep them on the slide)

- Cash-VaR per risk  $r$ :  $\text{VaR}_r = P(r) \times \Delta\text{Cash}_{12m}$ . Calculate with and without mitigations.
- Scenario-weighted VaR:  $\sum_s P(s) \times P(r|s) \times \Delta\text{Cash}_{r|s}$ . Use scenarios from 14.2.
- Portfolio variance (delta method, optional):  $\text{Var}(\text{Cash}) \approx g^\top \Sigma g$  where  $g$  are cash semi-elasticities from 14.3 and  $\Sigma$  is driver covariance.
- Mitigation ROI:  $\text{ROI} = \frac{\text{VaR}_{\text{pre}} - \text{VaR}_{\text{post}}}{\text{Mitigation cost NPV}}$ .
- Headroom-at-Risk: monthly headroom at p10 across scenarios; breach month and cure rule documented.

## Governance and cadence

- **One list.** A single Risk Register for the company; no duplicative spreadsheets.
- **Weekly 30-minute review.** Top 10 Cash-VaR items, trigger status, playbook execution; promote/pause/kill mitigations.
- **Monthly refresh.** Re-score L/I/V/C/D/K; update scenario weights and covariances; reconcile to the model and KPI dashboard.
- **Quarterly IC pack.** Heat-map by segment/channel, Cash-VaR and HaR trends, mitigations ROI, term-sheet protections progress.
- **Owner accountability.** Each risk has one named owner, dated actions, and a budget. No owner → not a risk; it's a rumor.

## Early-warning dashboard tiles (embed alongside KPIs)

- Realized price index vs. fence; discount depth distribution; return and chargeback rates; paid placement dependence.
- OTIF and carrier penalties; parcel accessoriels; support contact rate and minutes; SLA credits; p95 latency.
- Cloud on-demand share; third-party API costs per active; error-budget burn.

- DSO tail and deduction backlog; processor reserves; borrowing-base headroom.
- Policy and marketplace threshold alerts; certification burn-down; EPR fee trackers.

## Red flags—and how to respond

- **Narrative risks with no driver mapping.** Map to drivers in 24 hours or drop from the top-10.
- **Everything is medium.** Force dollar ranges and probability bands; publish Cash-VaR and HaR to break ties.
- **Heat-map without owners or triggers.** With no owner or trigger, a risk cannot move; assign or remove.
- **Relying on insurance as a plan.** Insurance changes who pays, not whether customers churn; keep mitigations operational.
- **Correlation blindness.** Cluster risks (e.g., marketplace + returns + paid placement) and cap gross exposure.
- **KRIs without data owners.** Assign a data owner and refresh cadence for each KRI or remove it.

## 72-hour sprint plan (from blank page to a board-ready heat-map)

- Day 0:** Freeze appetite thresholds; publish taxonomy; pull candidates from workstreams; stand up a unified Risk Register shell.
- Day 1:** Map top 20 risks to model drivers; compute  $\Delta CM2$ ,  $\Delta Cash$ , HaR for baseline; score L/V/C/D/K; set Confidence.
- Day 2:** Scenario-weight VaR; build the heat-map by segment/channel; draft KRIs and triggers; write playbooks for top 10.
- Day 3:** Assign owners and budgets; wire KRIs to the dashboard; add term-sheet protections where residual risk is material; schedule the weekly review.

## Acceptance criteria for a decision-grade heat-map

- Risks are **segmented**, quantified in  **$\Delta CM2$** ,  **$\Delta Cash$** , and **HaR**, and **mapped to model drivers** with scenario-weighted VaR.
- A single **Risk Register** with owners, triggers, playbooks, residual risk, and confidence labels; KRIs have data owners and cadences.

- The **heat-map** displays Likelihood vs. Impact with bubble size = Cash-VaR, color = Velocity, outline = Confidence, faceted by segment/channel; RAG ties to risk appetite.
- Weekly and monthly governance set; term-sheet protections documented for residuals; reproductions pass (a second person reaches any number from the Register in ≤3 clicks).

Use this template and “risk” becomes a managed portfolio of quantified exposures with clear early warnings and pre-approved moves—wired into your model, scenarios, and value-capture roadmap—so you can protect cash, headroom, and reputation when the world shifts.

## 16.2 Red-Flag Recognition Checklist

Red flags are not abstract worries; they are **observable patterns** that, if left unaddressed, translate into missed revenue, eroded CM2, weaker cash conversion, and tighter covenant headroom. The purpose of this checklist is to help you spot these patterns early, assign owners, and trigger **pre-agreed playbooks** before small drifts become valuation problems. Use it in week one of diligence and then continuously through integration. Anchor every flag to a **driver in the model** (Chapter 14), an **early-warning indicator** (Chapter 16.1), and a **concrete response** (cross-referenced to Chapters 8–15).

### How to use this checklist

Scan each domain below for triggers. When one appears, take three steps immediately: (1) **freeze** the relevant model assumption (confidence → Low; add a haircut and widen ranges), (2) **open** a short, dated evidence request to confirm or clear the flag, and (3) **launch** the first-response playbook tied to that domain. If a flag is fast-moving (service levels, platform penalties, liquidity), escalate the case to a daily stand-up until stabilized.

### Data integrity and transparency

- KPI definitions shift mid-process, or you cannot reconcile first forecast month to last actuals.
- Cohort/NRR/GRR data “not available,” or VoC access is limited to pre-selected customers.

- Pricing waterfall components (on-invoice, off-invoice, fees, penalties) are missing or inconsistent across systems.
- Frequent “one-time” add-backs; non-GAAP metrics dominate the story. First response: lock a metric dictionary; require GL tie-outs (Ch. 13); downgrade model confidence and run baseline with wider bands until reconciled.

## Market demand and growth

- Orders, bookings, or pipeline coverage fall below 3x next-quarter target without a clear, external explanation.
- Conversion or win rate drops vs. the top three competitors; sales-cycle lengthening.
- Growth driven disproportionately by price promotions or paid placement, not volume or mix.  
First response: shift scenario weights toward recession/stagflation (Ch. 14.2); tighten discount guardrails (Ch. 8.2); validate with third-party market indicators.

## Customer concentration and health

- Top-10 customers >40–50% of revenue, or >25% due for renewal in the next two quarters.
- Rising logo churn or “silent churn” (reduced seat/usage) in the last two cohorts.
- Accounts with outsized revenue also drive outsized deductions, credits, or SLA claims.  
First response: segment the plan; add concentration haircuts; initiate key-account VoC and contract reviews; consider earnouts tied to NRR (Ch. 15.4).

## Pricing and monetization

- Realized net price (after discounts, promos, fees, penalties, returns) is falling despite a stable list price.
- Discount depth variance by rep/region without fences; MFN or price-parity clauses limit flexibility.
- Platform or marketplace take-rate increases/penalties appearing in settlement files.  
First response: rebuild the pricing waterfall (Ch. 8.2); implement

fence/DOA discipline; scenario a take-rate hike; add indexation clauses to term sheets if risk persists.

## Go-to-market and funnel

- CAC payback >24 months or trending up; rising paid share with flat conversion.
- Pipeline quality issues (stale stages, sandbagging, inconsistent stage definitions across teams).
- Partner/channel contribution falls while MDF or commissions rise.  
First response: run Funnel Diagnostics (Ch. 9.1); reweight channels (Ch. 9.2); cut low-ROI programs (Ch. 9.3) and reflect payback guardrails in the model (Ch. 9.4).

## Unit economics and cost-to-serve (CM2)

- CM2 % compressing faster than CM1 %; returns/chargebacks or SLA credits rising.
- Outbound freight \$/shipment rising faster than carrier GRIs; accessorial up; DIM charges spiking.
- Cloud on-demand share creeping up; third-party API overages; support minutes per contact rising.  
First response: activate CTS playbooks (Ch. 10.4); deploy FinOps moves (Ch. 12.2); tighten returns policy and deflection (Ch. 10.3); push immediate rate-card actions.

## Operations and supply chain

- OTIF below threshold; backorders rising despite inventory growth; inventory accuracy <97%.
- Single-source or allocation risk for top SKUs; inbound freight surcharges or fuel spikes unhedged.
- Warranty defects or quality escapes trending up.  
First response: launch a supply-chain resilience sprint (Ch. 10.1); re-tier safety stock; accelerate second-source actions; update DIO assumptions.

## Technology, reliability, and security

- p95 latency breaches; error-budget burn above target; elevated incident counts; SLA credits issued.
- Lapsed SOC/ISO attestations; privacy DPIAs missing; data residency gaps.
- Critical vendor/API dependency with quota or pricing risk.  
First response: reliability sprint (Ch. 12.1); security/privacy risk plan (Ch. 12.3); throttle non-critical features; negotiate SLAs or diversify vendors.

## Channels and marketplaces

- Policy warnings (late-ship, OTIF, returns) or delist threats; over-reliance on paid placement for rank.
- Unclear seller-of-record status post-deal; brand registry issues.
- Take-rate changes announced or under review.  
First response: run the Disruptor/Policy Watchlist (Ch. 7.4, 11.4); re-route fulfillment, cap paid placement, and scenario the new take-rate.

## Regulatory, policy, and ESG

- Certifications/attestations expiring within 90 days; new EPR/packaging fees or carbon taxes looming.
- Labeling/claims misalignment in regulated categories; export controls ignored in sales motion.
- Pending policy change with material revenue or CTS implications.  
First response: activate Regulatory Mapping (Ch. 11.1); cost the ESG overlay (Ch. 11.2); add covenants/CPs; adjust realized price/CTS assumptions.

## Financial quality (recognition and adjustments)

- Revenue recognition practices are aggressive (bill-and-hold; ship-to-bill anomalies; uncontrolled returns).
- Returns/warranty reserves thin; frequent back-dated credits; recurring “non-recurring” adjustments.
- Backlog/book-to-bill high but weak conversion to cash; ARR roll-forward does not foot.  
First response: tie to GL and policy memos (Ch. 13.1); haircut revenue

recognition where proof is thin; expand sample testing and invoice audits; re-score model confidence to Low.

## **Working capital and liquidity**

- AR tail >90/120 days rising; deduction backlog growing; processor reserves/holdbacks up.
- DSO slipping, DPO shrinking, DIO rising—CCC deteriorating; VAT/GST refunds delayed.
- Tight covenant headroom; borrowing-base eligibility thin; reliance on factoring/SCF to meet liquidity.  
First response: execute the Working Capital Diagnostic (Ch. 13.3); publish a 13-week cash view; add cash haircuts and covenant triggers; propose terms of enforcement and SCF milestones.

## **People, incentives, and execution capacity**

- Key-person dependency with no bench; elevated regretted attrition; misaligned comp (e.g., no cross-sell credit).
- Thin IMO or unclear decision rights; change fatigue; works-council/union timing ignored.  
First response: implement retention, clarify RACI, and cap concurrent initiatives; re-sequence roadmap by capacity (Ch. 15.4).

## **Integration feasibility and timing**

- CPQ/billing/entitlement not ready (billing dry-run accuracy <99.5%); data migration untested; TSA sprawl.
- Consent/novation delays; platform policy uncertainty on combined listings.  
First response: move dependent synergies to upside-only; enforce Go/No-Go gates (Ch. 15.3); add CPs/indemnities and TSA exit milestones to the term sheet.

## **Behavioral and process signals**

- Selective data access, delays in sensitive cuts, or inconsistent stories across leaders.
- Management minimizes risks without evidence, or “trust us” replaces unit-level math.

- Pre-close coordination suggestions that risk **gun-jumping** (pricing or customer allocation).  
First response: escalate to counsel, tighten clean-team scope, and treat dependent dollars as upside-only until evidence clears.

## Immediate first-response playbooks (use verbatim)

- **Freeze & haircut:** lower confidence on flagged drivers; apply conservative haircuts (e.g., -100 to -200 bps realized price; +10 days DSO; +200 bps returns; +50 bps processor reserves) and widen ranges in scenarios (Ch. 14.2–14.3).
- **Evidence sprint (72 hours):** targeted data pulls (invoice and credit samples, parcel bills, cloud bills, settlement reports, AR/AP agings, cohort tables), 10–15 VoC calls focused on the flagged segment, and two contract reads per top customer/vendor.
- **Operational containment:** cap promo depth; pause bundles requiring billing changes; reroute shipments; throttle non-critical workloads; stand up a **war room** for deductions/returns/SLA credits.
- **Term-sheet protections:** add indexation, certification CPs, inventory/service covenants, reserve caps, indemnities, or earnouts tied to **realized price** or **NRR** (Ch. 15.4).
- **Governance:** daily 20-minute stand-up for “fast” flags until three consecutive green readings; dashboard KPIs live (Ch. 16.1).

## Evidence requests that clear (or confirm) the most common flags

- **Pricing:** last 12 months of deal-line discount files, promo calendars, fee/penalty and take-rate details, realized price by segment/channel.
- **Returns/CTS:** RMA by reason, reverse-log costs, refurb yield, paid placement spend vs. rank, parcel invoices with accessories.
- **Cloud/API:** monthly provider bills, reserved vs. on-demand share, API plan terms and overages, unit cost per active/API call.
- **Working capital:** AR/AP agings with dispute codes, deduction logs and win rates, processor settlement/holdback schedules, inventory slow-moving ladders.
- **Recognition:** revenue policy memos, backlog aging, ARR roll-forward (new/expansion/contraction/churn/price), credit memo samples.
- **Reliability/security:** incident logs, SLO burn, SLA credits, SOC/ISO letters, open high-severity vulnerabilities and remediation dates.

## No-go or reprice triggers (raise to Investment Committee immediately)

- Inability to reconcile revenue or ARR roll-forward; billing/entitlement accuracy <99.5% in dry-run for affected SKUs; material reliance on bill-and-hold without controls.
- Active or likely platform delisting; take-rate increase that wipes out >200 bps CM2 with no credible mitigation.
- Processor reserve or chargeback rates rising to program thresholds; borrowing-base headroom projected below buffer within two quarters.
- Sustained reliability or safety risks (SLA credits >X bps for two months; p95 latency > SLO; quality escapes with recall exposure).
- Regulatory approvals or certifications unlikely within the window that value depends upon.

## Common false positives—don't overreact

- **Subscription DCL effects:** negative working capital is normal; check **Net CCC** (Ch. 13.3).
- **Seasonality:** Q4 returns and accessorial spikes may normalize; use two-year comps and weekly profiles.
- **Mix shifts:** lower realized price can be benign if mix moves to SMB or new geos with better CM2 per capacity minute; validate with the margin tree (Ch. 13.2).
- **Promotional events:** planned promos can depress realized price without indicating erosion; confirm guardrails and post-event recovery.

## Red-Flag Card (copy-ready fields)

- Flag & domain; segment/channel/region; driver(s) affected; **what we see** (evidence).
- **So what:**  $\Delta\text{CM2}$  and  $\Delta\text{Cash}$  (Month-6/Month-12), headroom impact, velocity.
- **KRIs & triggers:** thresholds; data owners; cadence.
- **First-response:** three steps with owners and dates; spend cap.
- **Proof required to clear:** specific files/tests; due date.
- **Status:** open/mitigating/closed; residual risk; model confidence level.

## 72-hour triage plan (from sighting to stabilization)

- Day 0:** Freeze assumptions; publish Red-Flag Card; start daily stand-up if fast risk.
- Day 1:** Land evidence pack; run focused VoC; execute first operational containment; update model haircuts and scenario weights.
- Day 2:** Validate/quantify with refreshed bridges (price/volume/mix/CTS/WC); draft term-sheet protections if residual risk is material; set KRIs on the dashboard.
- Day 3:** Decide: clear, contain, or reprice. If “contain,” keep the war room and maintain haircuts until three consecutive green readings.

## Acceptance criteria for a decision-grade red-flag review

- All top-10 risks have Red-Flag Cards with owners, evidence, KRIs, and first-response playbooks; impacts are expressed in **ΔCM2**, **ΔCash**, and **headroom** and are mapped to model drivers.
- Haircuts and scenario ranges updated within 24 hours of a flag; KPI dashboard shows KRIs with thresholds and data owners.
- Term-sheet protections drafted where residual risk remains; clean-team and antitrust rules observed.
- Weekly report to Investment Committee lists the top flags, what moved, dollars at risk, actions taken, and expected clearance dates.

Run this checklist and “red flag” shifts from a vague worry to a **managed, quantified exposure** with owners, triggers, and actions—wired into your model, scenarios, and value-capture plan so you protect margin, cash, and covenant headroom when it matters.

## 16.3 Mitigation Strategy Design – Step-by-Step Guide

Mitigation design turns a risk list into **dated, budgeted, and drill-ready moves** that protect revenue, CM2, cash, and covenant headroom. The test of quality is simple: when an early-warning indicator trips (16.1), your team executes the play without debate, the driver-based model (14.1) updates within 24 hours, and Investment Committee can see **how much Value-at-Risk (VaR) you removed for how many dollars**. This guide lays out a practical, repeatable method to design,

cost, prioritize, and govern mitigations—anchored in the same segmentation and unit economics used throughout this playbook.

## Design principles (keep these in view as you work)

- **Driver-anchored.** Every mitigation must map to named drivers (price bps, conversion, return %, shipping rates, cloud on-demand share, DSO/DIO/DPO, processor reserves) and show its impact on **ΔCM2**, **ΔCash**, and **headroom**.
- **Bow-tie thinking.** Treat each risk as a central “event” with **preventive controls** (reduce likelihood), **detective KRIs** (see it early), and **responsive playbooks** (limit severity, accelerate recovery).
- **Time value of mitigation.** Faster, partial protection often beats larger, slow programs. Rank by **VaR reduced per month** and **time-to-effect**.
- **Legal and policy compliance.** Respect antitrust and clean-team boundaries pre-close; align with platform and regulatory constraints (Ch. 11).
- **No heroics.** If a play needs unnamed capacity, unbudgeted spend, or breaks SLOs, it is not a mitigation—it is a wish.

## Step-by-step method

### Step 1 — Fix targets and appetite

Translate risk appetite into numbers: Cash-VaR and Headroom-at-Risk (HaR) buffers by segment/channel; maximum acceptable monthly probability of covenant breach; SLO and customer-impact floors. Declare the **top-10 Cash-VaR risks** (from 16.1) that mitigation must cover in the next 90 days.

### Step 2 — Select the mechanisms (prevent, transfer, absorb, avoid)

For each prioritized risk, list candidate mechanisms across four families:

- **Prevent/Reduce frequency:** indexation clauses and price fences (8.2), second-source suppliers (10.1), reserved cloud coverage and FinOps (12.2), reliability sprints (12.1), returns policy and deflection (10.3), terms enforcement (13.3).
- **Transfer:** insurance (cyber, business interruption), financial hedges (FX, fuel, rates), vendor SLAs with credits.
- **Absorb/Respond:** surge capacity ladders (10.2), working-capital facilities/ABL headroom, dispute and deduction “war rooms,” marketplace penalty response kits.

- **Avoid/Exit:** exit channels/SKUs/geos with chronic negative CM2, defer bundles until billing/entitlement is  $\geq 99.5\%$  accurate (15.3).

### Step 3 — Design the option set (Mitigation Option Canvas)

For each mechanism, draft a one-page **Option Canvas**:

- **Trigger** (from your KRI and flip rule), **window to act**, and **velocity** the play can keep up with.
- **Operating lever(s)**: which driver(s) move and by how much (target deltas and lags).
- **Coverage**: segments/channels included; constraints (capacity, policy thresholds, certifications).
- **Economics**: VaR pre/post,  $\Delta CM2$ ,  $\Delta Cash$  per month, residual risk; one-time and run-rate costs.
- **Readiness**: people, contracts, tooling, and data required; current readiness score (0–5).
- **Owner & date**.

### Step 4 — Quantify with the model (no hand-waving)

Wire each option into the 14.1 model and compute:

- **$\Delta CM2_t$ ,  $\Delta Cash_t$ ,  $\Delta Headroom_t$**  after activation, using realistic **lags** (price pass-through, DSO drift, carrier transition times).
- **VaR reduction** = (probability  $\times$  cash impact) pre- vs. post-mitigation over 12 months.
- **Mitigation ROI** = VaR reduction  $\div$  NPV of mitigation cost.  
Prioritize options that **remove fast-moving Cash-VaR** and protect headroom in the next two to four quarters.

### Step 5 — Choose the portfolio (frontier of impact, speed, and feasibility)

Build a simple frontier:

- **X-axis**: time-to-effect (to 80% of benefit).
- **Y-axis**: monthly Cash-VaR removed.
- **Marker style**: feasibility/readiness (0–5).  
Select a balanced set: at least one **fast play** per top risk (triggered within days), one **structural play** per sticky risk (weeks–months), and one **financial backstop** where operating levers are weak (hedges, SCF, reserve caps).

## Step 6 — Write the playbooks (Trigger-to-Action Matrix)

For each chosen mitigation, write a **Trigger-to-Action** in three lines:

- **Trigger (KRI + threshold + persistence rule).**
- **Action set (D-1/D0/D+7):** exactly who does what and with what spend cap.
- **Success test:** the driver and KPI movements you expect within 7–14 days.

### Examples:

- **Realized price erosion** → Trigger: realized price index < -100 bps vs. fence for two weeks.  
Action: lock discount DOA, narrow fences for segments A/B, launch value messaging v2, pause low-ROI promos; success = +50 bps realization in 14 days, stable win rate.
- **Returns/chargebacks spike** → Trigger: return rate +200 bps or chargebacks ≥ threshold.  
Action: returns triage flow live, free-shipping threshold up \$X, size/fit widget on PLP, fraud rules tightened; success = -150 bps returns/chargebacks in 30 days, CM2/order +\$Y.
- **Processor reserve hike** → Trigger: reserve +100 bps notice.  
Action: diversify rails for cohorts X/Y, negotiate tier relief, accelerate terms enforcement for top-20 AR; success = Net CCC improves ≥5 days in 60 days, headroom +Z bps.

## Step 7 — Pre-position resources and contracts

Mitigation fails when it needs procurement or legal action after the trigger.

Pre-sign:

- **Rate cards** (secondary carriers, alternative payment processors, cloud commitments).
- **Commercial clauses** (indexation, surcharges, SLAs with vendors, reserve caps).
- **Operating capacity** (temp labor vendors, surge shifts, overflow support/BPO, managed services).
- **Data/KPIs** (dashboards, price realization audits, returns reason codes, cloud unit-cost tiles, AR/AP controls).

### **Step 8 – Drill and certify**

Run table-top and live drills for the top five plays. Certify readiness with **five tests**:

- Trigger detection works (KRI updates on cadence; alert fires).
- People know the play (role scripts, contact lists, war-room calendar).
- Systems behave (CPQ/DOA, returns flows, routing rules, fraud tooling, FinOps toggles).
- Cash math ties out in the model within 24 hours.
- Customer impact stays within SLOs (no unplanned SLA credits or OTIF breaches).

### **Step 9 – Budget, reserves, and guardrails**

Create a **Mitigation Budget** with pre-approved spend caps per play and a **Risk Reserve** (for expedite, SLA credits, and promotions you will not run). Publish **guardrails**: SLO error-budget use, discount ceilings, paid placement caps, inventory buffer limits, and hedge bands.

### **Step 10 – Governance and refresh**

Fold mitigation into the weekly **Risk Review** (16.1): KRIs, triggers hit, plays executed, VaR removed, residual risk. Quarterly, refresh elasticities and lags (14.3), re-price hedges and insurance, and rebalance the portfolio to the new frontier.

## **Mitigation Option Canvas (copy-ready fields)**

- Risk & segment/channel; owner; trigger (KRI + threshold).
- Lever(s) and target driver deltas with units and lags.
- Coverage & constraints (capacity, policy, certification).
- Economics:  $\Delta CM_2 / \Delta Cash$  (Month-1/Month-3/Month-6),  $\Delta Headroom$ ; VaR pre/post; ROI; residual risk.
- Readiness (0–5), dependencies, one-time and run-rate costs.
- D-1/D0/D+7 actions; success tests; rollback rule.

## **Trigger-to-Action Matrix (one line per top risk)**

- **Risk | Trigger | Immediate actions (D0) | Week-1 actions (D+7) | Success tests | Owner | Budget cap**

## KRI calibration checklist

- Unit, source, refresh cadence, and data owner defined.
- Thresholds set with **two-year history** or peer bands; persistence rules (e.g., “breach for two consecutive readings”).
- False-positive review: ensure seasonal/holiday or promo effects do not fire triggers.
- Link to model driver cell and toggle; confirm propagation to P&L, cash, headroom.

## Mitigation economics—formulas you will use

- **VaR reduction** -

$$= P(\text{event}) \times \Delta\text{Cash}_{12m, \text{pre}} - P(\text{event}) \times \Delta\text{Cash}_{12m, \text{post}}.$$

- **Mitigation ROI** - VaR reduction ÷ NPV(costs).
- **Time-to-effect** - months to 80% of modeled ΔCash benefit.
- **Coverage index** - share of top-10 Cash-VaR with a certified (drilled) playbook.

## Domain-specific mitigation menus (pick and tune)

- **Pricing & realization:** tighten DOA, narrow fences, A/B value messages, list indexing at renewal, floor prices for long-tail SKUs, reseller parity rules.
- **Channel & marketplace:** fulfillment re-routing, pre-positioned inventory buffers for peak SKUs, penalty avoidance audits, private-offer mechanics, paid-placement caps, alternate marketplaces.
- **Returns & CTS:** fit/size tools, packaging/DIM fixes, restocking rules, returnless refunds thresholds, refurb yield sprints, payment rail mix, chargeback program tuning.
- **Supply & logistics:** alternate carriers and lane re-bids, pooled distribution, second-source activation, energy/fuel hedges, SKU rationalization, S&OP cadence tightening.
- **Cloud & third-party tech:** reserved/savings plan coverage ladders, autoscaling guardrails, request shaping and caching, multi-region failover limits, API plan tier changes.

- **Working capital & liquidity:** terms enforcement play, deductions war room, SCF and dynamic discounting, inventory re-tiering (weeks of supply), processor reserve renegotiation, revolver draw rules.
- **Cyber/privacy & reliability:** patch sprints, WAF/rate-limit rules, incident-comms templates, SLO error-budget policy, premium vendor SLAs.
- **People & execution:** retention offers for named roles, coverage re-plan, training blitz, freeze on scope creep, capacity WIP caps.

## War-room SOP (for fast risks)

- **Activation:** trigger fires → auto-page owner → 30-minute stand-up with finance partner.
- **Cadence:** daily 20 minutes until three consecutive green readings.
- **Artifacts:** one-page situation report (KRI trend, driver deltas, CM2/Cash impacts, actions taken, issues/risks).
- **Rules:** no new actions without owner and stop-rule; no permanent policy changes from the war-room without governance sign-off.

## Measurement and attribution (no dollars without proof)

- Pick a method **before** launch: matched cohort pre/post, A/B, geo split, audit of unit invoices (parcel, cloud, processor), contract-level realized price audits.
- Tag GL lines and program costs to a **Benefit Ledger**; reconcile to model deltas weekly; separate **weather** from **response**.

## 72-hour sprint plan (from risk list to drilled playbooks)

- Day 0:** Set appetite; pick top-10 Cash-VaR risks; draft three Option Canvases per top risk; wire drivers in the model.
- Day 1:** Quantify VaR reduction and ROI; choose the portfolio (fast, structural, financial); write Trigger-to-Action lines; set budgets and guardrails.
- Day 2:** Pre-position contracts and capacity; build dashboards and alerts; run one table-top and one live drill for the top three plays; certify readiness and publish coverage index.
- Day 3:** Start weekly Risk Review; integrate toggles into scenarios (14.2); load plays into the Value Capture Roadmap (15.4); draft term-sheet

protections for residuals (indexation, covenants, CPs, indemnities, earnouts).

## Acceptance criteria for a decision-grade mitigation plan

- Top-10 Cash-VaR risks each have **at least one fast and one structural** playbook with owners, budgets, and drills completed.
- Each play is **driver-mapped**, costed, and shows **ΔCM2, ΔCash, ΔHeadroom** in the model with realistic lags; VaR reduction and ROI are computed.
- Triggers and KRIs** are live on the dashboard with thresholds, persistence rules, and data owners; alerts route to named owners.
- Contracts and capacity** to execute plays are pre-positioned; legal and platform constraints documented; guardrails published.
- Governance** is running: weekly Risk Review, quarterly refresh; Benefit Ledger reconciles realized dollars to model deltas.
- A **coverage index** shows the share of portfolio Cash-VaR protected by certified playbooks; residual risks are translated into term-sheet protections.

Design mitigations this way and risk stops being a slide at the back of the book. It becomes an **operating discipline**: quantified, pre-approved moves that your team can execute on signal—protecting margin, cash, and headroom without sacrificing customers or compliance.

## 16.4 Residual Risk Quantification Template

Residual risk is the **risk that remains after you have executed your mitigations, transfers, and exclusions**—plus the cost and side effects of those mitigations themselves. In diligence and post-close governance, quantifying residual risk is how you decide (i) how much uncertainty you are still underwriting, (ii) what reserves and covenants you need, and (iii) what you must translate into the term sheet (indexation, CPs, indemnities, earnouts). This template makes the math auditable and comparable across segments, routes-to-market, and geographies and plugs directly into the driver-based model (Chapter 14), the heat-map (16.1), and mitigation playbooks (16.3).

## What “residual” means—working definitions

- **Gross risk:** probability × severity before any mitigation, by driver and segment.
- **Mitigation effect:** the reduction in probability and/or severity achieved by preventive controls, plus any **lag** until the effect shows up.
- **Transfer effect:** insurance recoveries, hedges, vendor SLAs, or earnouts that shift cash impact, adjusted for **deductibles, limits, basis risk, coinsurance, waiting periods**, and counterparty performance risk.
- **Residual risk:** gross risk minus mitigation and transfer effects **plus** added costs, lags, and secondary risks introduced by the mitigation itself.
- **Reserves:** ring-fenced cash (or access to liquidity) sized to cover a chosen tail (e.g., monthly p95 losses for 6–13 weeks). Reserves do not reduce residual risk; they fund it.

## Inputs you must lock before you compute

- Scenario set and weights (14.2), including macro, rate, energy/FX, and policy/platform cases.
- Top drivers and elasticities with standardized shocks (14.3).
- Mitigation portfolio with trigger-to-action logic, lags, and costs (16.3).
- Current covenants, borrowing-base rules, minimum liquidity buffer, and hedge/insurance terms.
- SLO/penalty ladders and channel/platform thresholds (10.3, 11.4).
- One measurement horizon for compliance: **12 months** (for VaR and cash control), plus **next two to four quarters** for covenant headroom.

## Step-by-step residual quantification (use this sequence every time)

### 1) Choose outputs and horizon

Decide which outcomes you will measure: **ΔCM2, ΔCash, and ΔCovenant headroom** by month over 12 months (and quarterly thereafter). Make the segment/**channel** your base unit; portfolio comes last.

### 2) Build the pre-mitigation impact distribution, risk by risk

For each risk in the register (16.1), map to **named model drivers** (price bps, conversion, return %, take-rate, freight/cloud unit costs, support

minutes/contact, DSO/DIO/DPO, processor reserves, FX/rates). Specify a shock path (magnitude, onset, duration) **by scenario** and run the model to obtain:

- A monthly **cash impact series** and **CM2 impact series**.
- **Velocity** (months to 80% of full impact).
- **Breach month** for the first covenant excursion (if any) and minimum headroom.

### 3) Layer in mitigation and transfer effects

For each risk, apply the chosen plays and transfers:

- Reduce **probability** and/or **severity** based on the mitigation's certified effectiveness and **lag** (from 16.3 drills).
  - Subtract **insurance/hedge recoveries** after deductibles, limits, coinsurance, and **basis risk**; include **premium/hedge cost**.
  - Add **secondary effects** (e.g., paid placement caps reduce rank; surge carriers raise parcel unit costs; hedges introduce collateral calls).
- Now re-run the model to produce a **post-mitigation impact series**.

### 4) Compute residual metrics per risk

For each risk rrr:

- **12-month Cash-VaR (residual)**

$$= P(r) \times \Delta \text{Cash}_{12m, post} \text{ (scenario-weighted).}$$

- **CVaR (tail)**

= average cash loss in the worst  $q\%$  of the simulated outcomes (use  $q = 10$  or  $5$ ).

- **HaR (Headroom-at-Risk)** = scenario-weighted **minimum quarterly headroom** within 12 months; report **breach probability** and **first breach month**.
- **Residual  $\Delta CM2$  and  $\Delta Cash$**  at Month-6 and Month-12 (for bridge pages).
- **Mitigation ROI** =  $(\text{Cash-VaR}_\text{pre} - \text{Cash-VaR}_\text{post}) \div \text{NPV}(\text{mitigation cost})$ .

### 5) Aggregate to portfolio without double counting

Portfolio risk is not the sum of parts. Use one of two auditable methods:

- **Delta method (fast, analytic):** compute cash semi-elasticities ggg for key drivers (14.3) and a covariance matrix  $\Sigma \backslash \text{Sigma} \Sigma$ . Approximate **portfolio**

**cash variance** as  $g^T \Sigma g / \text{top } \Sigma g$  (after mitigation effects), then apply a z-score (e.g., 1.28 for p90) for VaR.

- **Monte Carlo (preferred when nonlinearities/thresholds matter):** draw correlated shocks for drivers; apply scenario weights and mitigation lags; compute the distribution of **monthly cash, minimum headroom, and LTM CM2**; report median, p10/p90 (or p95), and breach probabilities. When risks share the same drivers (e.g., marketplace penalties, returns, and paid placement), **cluster them** and ensure the same driver shock feeds each to avoid double counting.

## 6) Size reserves and liquidity buffers

Translate residual distributions into **funding plans**, not just slides:

- **Operating risk reserve (ORR):** for fast risks (service credits, returns, chargebacks, expedite), set monthly reserve to **p95 residual cash outflow** and hold **6–13 weeks** of coverage depending on velocity.
- **Liquidity buffer:** minimum of (covenant buffer to avoid breach with 95% confidence, 13-week **cash low point** at p10, cash needed for TSA and integration one-times over next 90 days).
- **Specific reserves:** returns/warranty, SLA credits, deductions/write-offs—use historical variance **plus** residual uplift from mitigations not yet fully effective.  
Document **draw rules** (what trips a draw), **replenishment rules**, and **owners**.

## 7) Translate residuals into term-sheet protections

When material residuals remain, propose structure:

- **Indexation and surcharge clauses** for price–cost gap residuals; **reserve caps** with processors; **inventory/service covenants** during network changes; **certification CPs** for geo/channel plays; **indemnities/escrows** for known exits; **earnouts** tied to **realized price** or **NRR** where price power or retention risk dominates.  
Note which protections reduce probability vs. severity and reflect them in the residual math.

## 8) Publish the pack and wire it to governance

Produce a **Residual Risk Waterfall** for the portfolio and a **Residual Risk Card** for the top 10 items. Load KRIs and flip rules to the dashboard (16.1) and insert reserve draws into the 13-week cash cadence. Update the driver model's **toggle sheet** so residual risk is always current.

## Residual Risk Waterfall (build one for the portfolio and each top risk)

- Gross Cash-VaR (12m) → minus Preventive mitigation → minus Transfer (net of premiums and basis risk) → plus Mitigation costs and secondary effects → equals **Residual Cash-VaR**.
- Show the same for **ΔCM2** and for **HaR** (with breach month if applicable).
- Annotate **confidence labels** (H/M/L) and the **lag to effectiveness** for each lever.

## Practical formulas (keep these on the page)

- **Scenario-weighted residual VaR** for risk rrr:

$$\text{VaR}_r = \sum_s P(s) [P(r|s) \Delta \text{Cash}_{12m, post|s}]$$

- **Residual headroom breach probability** over 12 months:

$P(\min_t H_t < 0)$  (estimate via Monte Carlo; report first breach month).

- **Optimal hedge ratio** when hedging a driver XXX with instrument HHH:

$h^* = \text{Cov}(X, H)/\text{Var}(H)$ ; residual variance factor =  $1 - \rho^2$  if sized perfectly (then add basis risk and margin/collateral costs).

- **Insurance expected net:**

$E[\text{Recovery}] = \min(\text{Loss} - \text{Deductible}, \text{Limit}) \times (1 - \text{Coinsurance})$

**Net impact** = Loss - Recovery + Premium + Claims-handling lag cost.

- **Reserve sizing rule-of-thumb:** monthly ORR =

=  $\mu_{resid} + z_{p95} \sigma_{resid}$  for the fast-risk basket; hold 1.5–

3.0× months based on **Velocity** and **Detectability** (16.1).

## Residual Risk Card (copy-ready fields; one per top risk)

- **Risk & segment/channel;** owner; scenarios most sensitive.
- **Drivers & shock path** (units, onset, duration) and **mitigations/transfers** applied (with lags).

- **Economics:** Residual  $\Delta CM2$  and  $\Delta Cash$  at Month-6/Month-12; **Residual Cash-VaR (12m); CVaR; HaR** (min headroom, breach probability, first breach month).
- **Costs & side effects:** mitigation run-rate and one-time cost; secondary impacts (e.g., rank loss, capacity penalties, collateral calls).
- **Reserves & triggers:** monthly reserve amount; draw/replenish rules; KRIs and flip thresholds; dashboard tile IDs.
- **Structure:** term-sheet protections tied to the residual; hedge bands/insurance limits.
- **Confidence (H/M/L)** and next review date.

## Reserve Sizing Worksheet (fields to complete)

- **Fast-risk basket:** SLA credits, returns, chargebacks, expedite, processor reserves—residual monthly mean and standard deviation; p95; months of coverage.
- **Liquidity buffer:** p10 13-week cash low; headroom buffer; TSA and integration cash needs; revolver availability after borrowing-base eligibility.
- **Accounting tags:** GL codes for reserves and releases; owner and approval thresholds.

## Portfolio aggregation checks (avoid common traps)

- **No double counting.** If two risks share a driver (e.g., marketplace penalties and return spikes), feed them the **same correlated driver draws**.
- **Lag realism.** Price pass-through and DSO shifts trail shocks; SLA credits may persist after an incident; hedges may require **margin** before they pay.
- **Concentration.** Show contribution to Residual Cash-VaR by segment/channel and the **top-10 customer/route** concentration.
- **Dependency overrides.** Integration delays (15.3) can raise residuals across multiple risks; update lags and probabilities consistently.

## Decision outputs Investment Committee should see

- **Residual Cash-VaR and HaR** for the portfolio (median, p10/p90), with first breach month and cure options.
- **Top-10 Residual Risk list** with owners, KRIs, and reserve draws.

- **Mitigation ROI ladder** showing VaR removed per dollar (and what remains).
- **Term-sheet translation:** which residuals are offset by clauses (indexation, covenants, indemnities, earnouts) and which are priced into the case.
- **Coverage index:** share of portfolio Cash-VaR with a **drilled** playbook (16.3) and with **funded reserves**.

## Governance and cadence

- **Weekly risk huddle** (15–30 minutes): changes in KRIs, triggers, plays executed, reserve draws and replenishments, residual VaR delta vs. plan.
- **Monthly model refresh:** re-run scenarios, sensitivities, residuals; re-price hedges/insurance; re-score confidence labels.
- **Quarterly IC update:** portfolio residuals, breaches avoided, reserve sufficiency, structure performance (e.g., indexation and earnouts).
- **Audit trail:** every number reproducible from a named driver cell in ≤3 clicks (14.4).

## Early-warning indicators aligned to residuals

- **Cash draw rate from reserves** above plan for two consecutive weeks.
- **KRIs** near flip thresholds (price realization, returns/chargebacks, SLA credits, processor reserves, DSO tail, paid placement dependence, cloud on-demand share).
- **Hedge effectiveness** drifting (basis widening; unexpected collateral calls).
- **Insurance friction** (coverage disputes, longer claims cycles) relative to modeled lags.

## Red flags—and fixes

- **Residual VaR dominated by a single channel/platform.** Cap exposure, diversify, and add platform-specific covenants/indemnities.
- **HaR shows high breach probability in Q2/Q3** despite mitigations. Bring forward structural plays or add financing backstops; reduce WIP to protect SLOs.
- **Reserves unfunded or untagged in GL.** Create project codes now; no claims without proof.

- **Optimistic hedge/insurance assumptions.** Add basis risk and lag; include collateral and premium drift; re-run CVaR.

## 72-hour sprint plan (from raw risks to residuals you can underwrite)

- Day 0:** Freeze scenarios, drivers, and mitigation portfolio; pick method (delta or Monte Carlo) and horizon; publish acceptance thresholds for Cash-VaR and HaR.
- Day 1:** Compute pre-mitigation impacts; apply mitigation/transfer lags and costs; produce residual metrics per risk; draft Residual Risk Cards.
- Day 2:** Aggregate portfolio with correlations; size reserves and buffers; draft term-sheet protections; wire KRIs and reserve draws into the dashboard and 13-week cash.
- Day 3:** Issue the Residual Risk Waterfall and IC summary; lock owners, budgets, and review cadence; add toggles to the model so residuals auto-refresh when mitigations clear gates.

## Acceptance criteria for a decision-grade residual risk pack

- Residual **ΔCM2, ΔCash, Cash-VaR, CVaR, and HaR** computed for each top risk and at the portfolio level, by segment/channel and by scenario.
- Mitigation and transfer effects **explicit**, including lags, costs, limits, deductibles, and basis risk; secondary effects included.
- Reserves sized with clear draw/replenishment rules; GL tags live; 13-week cash updated.
- Term-sheet protections drafted for material residuals and reflected in the numbers.
- Reproducibility: a second person can reach any headline figure from a driver cell in ≤3 clicks; confidence labels applied and governance cadence active.

Use this template and “residual risk” becomes a quantified, funded, and governed exposure—linked to drivers, scenarios, and structure—so you can price it in, protect headroom, and operate with eyes wide open throughout the hold period.

## Chapter 17. Synthesis and Storylining

Analysis creates truth; synthesis creates decisions. The goal of commercial due diligence is not to catalog findings but to **change the buyer's and lender's decisions**: buy or pass, at what price and terms, with which 90-day moves and protections. Storylining is the craft of turning a dense body of evidence—market, customer, competition, product, pricing, GTM, ops, tech, ESG, financials, scenarios—into a **short, answer-first narrative** that a time-pressed Investment Committee can underwrite. The standard we use throughout this chapter is simple: every page says one consequential thing; every consequential thing is sized in **ΔCM2, ΔCash, and headroom** within the hold period; and every dollar connects to **named model drivers** (Chapter 14), **risks** (Chapter 16), and **value-capture moves** (Chapter 15).

Start by agreeing the five or six “big answers” your story must deliver: (1) the market reality you are buying into; (2) the target’s true unit economics and price power; (3) competitive position and disruptor exposure; (4) GTM and operational capacity to scale without breaking CM2 or SLOs; (5) a scenario-anchored valuation range and covenant headroom; and (6) a gated path to value with residual risks translated into terms. Everything else in the deck either earns its place by **moving one of those answers**, or it falls to the appendix.

### 17.1 Insight Prioritization Framework

An **insight** is not a data point or a chart. It is a **decision-relevant claim** that, if true, **changes valuation, terms, or execution**. Prioritization is how you separate those few claims from the many observations that surround them. Use the framework below to move from a long list of findings to the eight to ten insights that carry your story.

#### Before scoring: hard gates that filter “non-insights”

- **No materiality, no airtime.** If the claim cannot move  $\geq 2\%$  revenue,  $\geq 100$  bps CM2,  $\geq 50$  bps covenant headroom, or  $\geq 50$  bps WACC within the hold period, it belongs in backup.

- **No actionability, no airtime.** If there is no lever, owner, or feasible timing, it is a context note, not an insight.
- **No evidence, no airtime.** If it cannot be tied to sources (VoC, telemetry, invoices, settlement files, GL, third-party data) and to **named cells** in the driver model, it is not ready.
- **No legality, no airtime.** Anything that would require pre-close coordination beyond clean-team rules is out until cleared (Chapters 11 and 15.3).

## The MOVE score (Materiality, Operability, Velocity, Evidence)

Score each candidate on a 1–5 scale (5 is best). Weightings reflect what Investment Committees value under time pressure.

- **Materiality (40%)** — “How big is it, economically?”
  - Measure in **ΔCM2** and **ΔCash** over 12–24 months.
  - Anchor to the model: change the specific driver(s) by the claimed delta and read the cash/CM2 effect (Ch. 14.1–14.3).
  - Heuristics: 5 = portfolio-level step-change; 3 = segment-level; 1 = local.
- **Operability (15%)** — “Can we influence it?”
  - High scores require a **named lever, owner, and credible path** (capacity rung, policy, contract clause, FinOps toggle, etc.).
  - Penalize items that depend on competitor behavior or regulator grace.
- **Velocity (20%)** — “How fast does it show up in cash?”
  - Time to 80% of impact from decision date.
  - 5 =  $\leq 90$  days; 3 = one to two quarters; 1 =  $\geq$ year.
- **Evidence (25%)** — “How strong is the proof?”
  - Triangulation count (e.g., VoC + invoice audit + cohort math), data quality, and **falsification attempts survived**.
  - Label confidence H/M/L; demote if L without a plan to lift.

**MOVE score = 0.40·M + 0.15·O + 0.20·V + 0.25·E.** Sort descending. Break ties with **downside asymmetry** (protecting headroom beats symmetrical upside) and **irreversibility** (closing windows first).

## Tiering: P0, P1, P2

- **P0 – Deal-critical** (must be in the top deck): MOVE  $\geq 4.0$ , or any item that creates/avoids a **valuation step** or **headroom breach** within 12 months.
- **P1 – Decision-shaping** (main body or fast backup): MOVE 3.0–3.9 with clear owner and timing.
- **P2 – Context** (appendix): MOVE  $< 3.0$  or high uncertainty; keep as monitoring items or options.

## The Insight Card (copy-ready template)

For every P0/P1, complete a one-pager. If you cannot fill a field, the insight is not yet underwritable.

- **Headline (answer-first):** a full-sentence claim that could sit on an IC agenda.
- **Why it matters:** quantified  **$\Delta CM_2$** ,  **$\Delta Cash$** , **headroom**, and where it hits the P&L/cash bridge.
- **Proof:** sources, tests run (A/B, audits), and **model hook** (cells moved, with units).
- **So what:** decision or action it implies (price/terms, 90-day move, capacity rung).
- **Risks & sensitivity:** what would disprove it; range from 14.3.
- **Owner & timing:** named executive, start date, milestones.
- **Confidence:** H/M/L with a plan to raise.

## Building the candidate list (fast and fair)

- **Harvest across lenses:** market, customer/VoC, competition, product/pricing, GTM funnel, ops/CTS, tech/digital, regulatory/ESG, financials, scenarios.
- **Phrase as “what changed” or “what must be true” statements**, not as topics (“Pricing power is limited” → “Realized price can rise 80–120 bps without churn in segments A/B due to fence tightening proven in VoC + invoice audit”).
- **Red-team each claim:** actively try to falsify it; run the opposite (e.g., “what if elasticity is 2x worse?”); if it survives, raise Evidence.

## Sizing materiality quickly (what math to run)

- **Price and promo:** apply the **pricing waterfall** delta to realized price bps; propagate to CM2 and retention using elasticity bounds (Ch. 8.2, 14.3).
- **Cross-sell & re-rating:** attach/adoption × realized price × CM2 – incremental CTS; cap by **implementation throughput** and SLOs (Ch. 15.1, 10.3).
- **CTS levers:** returns %, parcel \$/shipment, cloud on-demand share, support minutes/contact; multiply by volumes; reconcile to the CM2 bridge (Ch. 10.4, 13.2).
- **Working capital:** DSO/DIO/DPO deltas on current volumes; reflect processor reserves/holdbacks (Ch. 13.3).
- **Risk items:** change the driver and read **headroom** and **13-week cash** (Ch. 14.1, 16.1).

## The Prioritization Workshop (90 minutes, step-by-step)

- **10 min – Frame:** restate decision, thresholds, and MOVE weights; agree the **materiality floor**.
- **30 min – Pitch:** each workstream presents its top three candidates in Insight Card form.
- **20 min – Score:** silent voting on MOVE, then discuss gaps  $\geq 1$  point; adjust only with new evidence.
- **15 min – Stack:** sort by score; mark P0/P1/P2; ensure **portfolio balance** (do not let one route or segment dominate without cause).
- **15 min – Assign:** owners for missing proof or model hooks; due dates; pre-draft page titles.

## Turning prioritized insights into a story spine

- **Open with the “Big Answers” page:** five bullet headlines (P0s), each with a **number** and a **decision**.
- **Sequence by causality:** market → unit economics → differentiation → GTM/ops capacity → scenarios & risks → value capture & terms.
- **One-page-one-message rule:** title = answer; left side = proof; right side = “so what” (decision, dollars, owner, timing).
- **Bridge pages, not dashboards:** every section ends with a bridge from last actuals to Year-1/Year-2 showing the **few drivers** that move the outcome.

## Quality checks that keep the short list honest

- **Ratio-of-sums for rollups:** compute portfolio effects from atomic segments, not averages.
- **Weather vs. response:** separate passive vs. managed outcomes (Ch. 14.2) and show the **cost of action**.
- **Capacity & SLO caps enforced:** no insight claims growth beyond booked rungs or error-budget limits (Ch. 10.2, 12.1).
- **Headroom view present:** every P0 that affects cash shows **quarterly covenant headroom** and breach month.
- **Consistency:** the same driver names appear on Insight Cards, in the model, and on the bridges.

## Common failure modes—and the fix

- **Laundry list deck.** Fix: enforce materiality floor and the one-page-one-message rule; cap P0/P1 count.
- **Topic headers (“Market,” “Competition”).** Fix: convert to answer-first headlines with numbers and actions.
- **Upside theater without risk math.** Fix: pair each upside with its **residual risk** and term-sheet translation (indexation, CPs, indemnities, earnouts).
- **Averages hide pain.** Fix: present by segment/channel; include worst-quartile cohorts and sensitive routes.
- **No owners.** Fix: every P0/P1 must name an executive and a date.

## What the IC wants to see (use this as your acceptance test)

- Eight to ten **answer-first headlines** that change the buy/price/terms decision, each with **ΔCM2**, **ΔCash**, **headroom**, and named owners.
- A clean link from each headline to **driver-level math** and **scenario ranges**, not trend lines.
- A short list of **term-sheet protections** tied to residual risks and what must be true.
- A 90-day action page that lands the first dollars and de-risks the plan.
- An appendix that is findable by model driver, not by department.

## 72-hour synthesis sprint (from findings to an IC-ready spine)

- Day 0:** Apply hard gates; harvest candidates; draft Insight Cards; wire model hooks.

- Day 1:** Run MOVE scoring; tier P0/P1/P2; draft the “Big Answers” page and page titles; assign owners for missing proof.
- Day 2:** Build bridges and residual-risk call-outs; draft term-sheet translations; stitch the story spine; rehearse Q&A.
- Day 3:** Red-team; tighten to ten pages + appendix; lock numbers to model version; circulate the executive summary.

Prioritize insights this way and your deck stops being a tour of the analysis. It becomes a **decision instrument**: a small set of underwritable claims, each sized in dollars and days, wired to the model, backed by evidence, and translated into moves and terms management can execute on Day 1.

## 17.2 Pyramid Principle Storyboarding Guide

The Pyramid Principle is the fastest way to turn sprawling analysis into a deck that drives a decision. At its core: **lead with the answer**, support it with three to five **mutually exclusive, collectively exhaustive** (MECE) arguments, and back each argument with crisp evidence. In commercial due diligence, “answer-first” does not mean “opinion-first.” It means **cash-first**: every headline carries a number ( $\Delta CM2$ ,  $\Delta$ Cash, headroom) and a move (price/terms or execution) tied to named model drivers. Use this guide to storyboard your diligence in hours, not weeks, and to keep the spine intact as numbers update.

### Start with SCQA to find the governing thought

Use the SCQA scaffold—**Situation, Complication, Question, Answer**—to distill the governing thought for the entire deck and for each section. Situation frames the market and the target’s role; Complication states what makes this deal non-obvious; Question names the IC decision at risk; Answer is your governing thought (e.g., “Buy at X with Y terms because Z dollars are underwritable within the hold period, with headroom  $\geq W$  bps across scenarios”). Write SCQA in prose, then compress the Answer into a single sentence that can sit atop the pyramid.

### Build the pyramid: answer → reasons → proof

Your storyboard should ladder from the governing thought down to evidence, one page per rung.

- **Top (governing thought):** a single page with the buy/price/terms call and the total dollars that move valuation and headroom within the hold period.
- **Middle (reasons):** three to five arguments that, together, prove the top line (e.g., “Market demand is resilient in buyer segments,” “Unit economics support price power,” “GTM and capacity scale without CM2 leakage,” “Residual risk is quantified and covered”).
- **Base (proof):** exhibits, bridges, and model views that evidence each reason—VoC cuts, pricing waterfalls, funnel diagnostics, CTS benchmarks, scenario fans, risk heat-maps, and value-capture plans.

Order the reasons logically—**time** (now → close → 90 days → Year-2), **structure** (market → firm → execution → risk), or **priority** (largest \$ first). Never mix logics on the same rung.

## Title grammar that forces decisions

Every page title must be a **complete, testable sentence** containing a number and a verb. Avoid topic labels. Prefer “**Realized price can rise 80–120 bps in Enterprise (fence tightening; no churn delta in VoC)**” to “Pricing.” If you cannot write a decisive sentence, the page may not belong in the main spine.

- Patterns that work:
  - “We recommend X at \$Y with Z terms because  $\Delta\text{Cash} = \$A$  and headroom  $\geq B$  bps across scenarios.”
  - “Year-1 CM2 grows  $\$A - \$B$  driven by price +P bps and CTS -Q/unit; volume constrained by capacity rung #1.”
  - “Downside is funded: p10 headroom  $\geq H$  bps with reserve of  $\$R$  and triggers tied to KRI set M.”

## The ten-page spine (copy for PE IC or Credit Committee)

Build a minimal, decision-grade narrative before adding detail. This default spine fits most CDDs; tune titles and exhibits to your case.

1. **Investment recommendation (answer-first):** buy/price/terms;  $\Delta\text{CM2}$ ,  $\Delta\text{Cash}$ ; headroom by quarter; three reasons; two gating risks and protections.
2. **What we're buying (market reality):** TAM/SAM/SOM and growth drivers; exposure by segment/route; scenario fan for demand.

3. **True unit economics:** pricing waterfall to realized price; CM1→CM2 bridge; sensitivity to price, returns, freight/cloud/API.
4. **Competitive position:** share and momentum; moats/differentiation scorecard; disruptor threat scenarios.
5. **GTM and capacity to scale:** funnel diagnostics; channel mix economics; capacity ladder and SLO guardrails; CAC payback.
6. **Scenario-anchored valuation:** driver-based base/downside; tornado of value drivers; covenant headroom path.
7. **Risk & mitigation:** top-10 Cash-VaR heat-map; triggers/plays; residual risk and reserves; term-sheet translations.
8. **Revenue synergies we will underwrite:** attach/re-rating math; proof tests; gates; ΔCM2 and cash timing.
9. **Cost & CTS improvements we can bank:** procurement/logistics/FinOps levers; run-rate vs. in-period cash; one-time costs.
10. **90-day value capture & Day-1 controls:** dated actions, owners, KPIs; TSA exits; what flips the model toggles.

Everything else moves to the appendix, organized by **model driver** (price, mix, conversion, returns, freight, cloud, minutes/contact, take-rates, DSO/DIO/DPO, reserves) so Q&A finds proof quickly.

## Page archetypes and the right exhibit for each

Use the smallest artifact that proves the point. When in doubt, show **bridges** and **deltas**, not levels.

- **Bridge pages** prove change: last actual → Year-1 → Year-2 with bars labeled **price, volume, mix, CTS, opex, working capital**.
- **Waterfalls** prove composition: realized price from list to cash receipt (on-invoice, off-invoice, fees, penalties, returns).
- **Fans and bands** prove uncertainty: base vs. scenario bands with p10/p90 shading and triggers.
- **Tornado charts** prove sensitivity rank by absolute dollar effect on CM2 or cash.
- **Heat-maps** prove concentration and risk (by segment/route).
- **Ladders** prove capacity and gating (rung cost, lead time, throughput, SLO impact).

Each exhibit must carry **units, time base, constant-currency note, extract dates, and source codes**. The number in the title must be traceable to a **named model cell**.

## Storyboarding in six passes

Move quickly from a blank page to a coherent draft by separating creation from critique.

1. **Pass 1 – Headlines only:** draft titles for the ten pages in answer-first grammar. No charts yet.
2. **Pass 2 – Argument bullets:** under each title, list the three proof points you will show (one line each). Kill any page with <2 proof points.
3. **Pass 3 – Exhibit stubs:** write the name of the exhibit (e.g., “CM2 bridge by segment, FY+1”) and the model pull needed. Assign owners.
4. **Pass 4 – Numbers in:** populate the exhibits from the current model version; add sources and dates; ensure title numbers match charts.
5. **Pass 5 – Transitions:** add one sentence at the bottom of each page that **leads to the next page** (“...which is why we test price power next”).
6. **Pass 6 – Ruthless prune:** remove any page that does not change the decision, compress two if they say the same thing, push context to the appendix.

## MECE without dogma

MECE is a means, not an end. In practice: ensure your middle-rung arguments are non-overlapping (e.g., demand, unit economics, execution capacity, risk) and cover the conclusion. Avoid pseudo-MECE splits that confuse the reader (“customers, competitors, and internal” on the same rung is usually topic-based, not argument-based).

## Visual and language hygiene that speeds comprehension

- **One page, one message.** If you need two verbs in the title, you likely need two pages.
- **Show change, not just levels.** Bridges beat bar charts; fans beat two scenarios side-by-side.
- **Numbers first, adjectives last.** Replace “strong,” “attractive,” “limited” with **bps, days, \$/unit, %**.
- **Consistent units and time base.** Monthly for 8–12 quarters, then annual; constant currency with a clear FX overlay.
- **Label the uncertainty.** Low/base/high bands; confidence labels; scenario names and weights.

- **Color with purpose.** Use consistent colors across the deck for “base,” “downside,” “managed response”; avoid decoration.

## Audience tuning: IC vs. lenders vs. strategic buyers

- **PE Investment Committee:** bias to **cash and headroom**; emphasize ΔCM2 drivers, scenario bands, residual risk and term-sheet translations; keep synergy to what lands in the hold period.
- **Credit Committee/lenders:** lead with **downside path** (p10), covenant headroom by quarter, 13-week cash; show passive vs. managed outcomes and reserve policy; list collateral/ABL details.
- **Corporate/strategic:** add “fit” and option value; still price the first 24 months in cash; call out integration posture and customer/brand risks.

## Appendix architecture that makes Q&A easy

Organize backup by **driver** and **exhibit type**, not by department. In each section, the first page is a **map**: list the named model cells it supports, the source files, and the date last refreshed. Include **audit trails**: invoice and settlement samples for realized price; parcel and cloud bills for unit costs; AR/AP agings for working capital; VoC call list (anonymized) and discussion guides.

## The five-minute executive summary (spoken and written)

You need one oral version and one written page. Both mirror the pyramid.

- **Spoken:** 30–60 seconds on the governing thought; one sentence per reason with the key number; one sentence on residual risks and protections; one sentence on the 90-day plan.
- **Written:** a single page repeating the same structure, with each reason linked to its page number and the model version stamp.

## Quality control for the story (run these checks before you send)

- **Model lock:** every title number reproduces from the current model version in ≤3 clicks; FX and perimeter treatments are explicit.
- **Weather vs. response:** you show both passive and managed outcomes and the **cost of action**.

- **Capacity & SLO constraints enforced:** no growth beyond booked rungs or error-budget limits.
- **Headroom visible:** any page that changes cash shows quarterly headroom; breach month and cure if relevant.
- **Consistency:** driver names and units are identical across pages; scenario names and weights match Chapter 14.
- **Legality:** clean-team and antitrust guardrails respected; no customer-identifying data or competitor-sensitive pricing in the main deck.

## Red-team questions that sharpen the spine

- If the top page vanished, would the next three pages imply the same conclusion?
- Where could a skeptical CFO reasonably say “you showed me **levels**, not **deltas**”?
- Which page would a lender care most about, and is it in the main spine?
- What must be true for each headline? Is that condition evidenced, gated, or translated into the term sheet?

## A one-page storyboard template you can copy

- **Title (answer-first with number and verb).**
- **Why it matters ( $\Delta$ CM2,  $\Delta$ Cash, headroom; where it hits the bridge).**
- **Proof bullets (3):** exhibit name + one-line takeaway + source/date.
- **So what:** decision, action, owner, timing; toggles that flip in the model.
- **Transition:** one sentence that sets up the next page.

## The 24-hour polish

In the last day before IC, lock the model version; re-generate bridges; scan for mixed units; footnote sources with extract dates; compress titles by one clause each; cut one page that no longer changes the decision; rehearse the five-minute summary; align the appendix index to model drivers; and export a one-page “terms asks” list tied to residual risks.

Use the Pyramid Principle this way and your CDD deck becomes a **decision engine**: a short, answer-first spine supported by MECE arguments and driver-level proof, with clear lines from insight to dollars, from dollars to scenarios, and from scenarios to terms and Day-1 actions.

## 17.3 Executive Summary Checklist

The executive summary is the only page many decision-makers will read before they form a view. It must be answer-first, cash-first, and model-anchored—stating the buy/price/terms recommendation, the dollars that move valuation within the hold period, and the protections that keep headroom intact in downside scenarios. Treat it as a binding contract with the rest of your deck: every number in the summary must reproduce from named drivers in the model (Chapter 14), trace to the analysis sections, and translate into Day-1 actions and term-sheet asks.

### Core principles (design rules you should not violate)

- **Answer-first:** open with the explicit recommendation (buy or pass), price/valuation range, and non-negotiable terms; no “leading up to” the punchline.
- **Cash-first:** quantify **ΔCM2**, **ΔCash**, and **quarterly covenant headroom** within 12–24 months; avoid level metrics without deltas.
- **Driver-anchored:** cite the specific levers (price bps, conversion, attach, returns %, parcel/cloud unit cost, take-rate bps, DSO/DIO/DPO) that create the dollars.
- **Scenario-aware:** show base, downside (p10), and managed-response outcomes; separate **weather** from **response** and cost the response.
- **Underwritable:** include only items with an owner, timing, and proof; everything else lives in upside or options.
- **One page by default:** two pages only if lenders and equity need different cuts; anything longer is a deck, not a summary.

### What must appear—one-page default (order matters)

1. **Recommendation line (top banner)**  
“Buy at \$X enterprise value with Y terms (indexation, certification CPs, reserve caps, inventory/service covenants, earnout on NRR/realized price). Base case delivers **ΔCM2 \$A**, **ΔCash \$B** in Year-1, with **minimum headroom ≥ H bps** across scenarios.” Include model version ID, perimeter, constant currency note, and date.
2. **Three reasons that move cash**

- **Unit economics & price power:** realized price +P–Q bps in segments  $\alpha/\beta$  from fence tightening; CM2 lift \$...; elasticity and VoC proof.
  - **Cost-to-serve improvements:** returns –r bps, parcel/cloud \$/unit –u%, support minutes/contact –m; timing and gates.
  - **GTM & capacity:** conversion +c pp; attach +a pp; capacity rung #1 booked; CAC payback  $\leq t$  months in channels  $\gamma/\delta$ .
3. **Bridge from last actuals to Year-1 (cash and CM2)**  
A concise narrative of the bars you will show later: **price, volume, mix, CTS, opex, working capital**. Quote the two biggest bars with units (e.g., “price +110 bps,” “returns –180 bps”).
  4. **Scenario & headroom snapshot**  
Base vs. downside (p10) vs. managed response for **cash and headroom by quarter**; note first breach month in the passive downside (if any) and the actions that avoid it (with cost).
  5. **Top risks and mitigations (residual view)**  
List the two or three **Cash-VaR** items with KRIs and flip rules, the **residual Cash-VaR** after mitigations, and **funded reserve/liquidity buffer**. State the early-warning indicators.
  6. **Value capture—first 90 days**  
The three dated moves that land dollars fastest (owner, start date, acceptance test). Example: “Re-bid top parcel lanes (signed by Sept 30); realized –8–12% \$/shipment; GL tag 6123.”
  7. **Integration feasibility gates (only those that unlock dollars)**  
The one or two non-negotiable cutovers with acceptance criteria (e.g., “Billing/entitlement accuracy  $\geq 99.5\%$  for SKUs X/Y/Z before bundle launch”).
  8. **Term-sheet translations**  
The protections are tied to residual risks (indexation, certification CPs, reserve caps, indemnities/escrows, earnouts on realized price/NRR; TSA exit milestones). State which dollar bars depend on each.
  9. **What would change our answer**  
The one or two facts that would reprice or turn “buy” to “pass” (e.g., “platform delist,” “processor reserve +200 bps,” “VoC shows elasticity  $\geq 2\times$  in Enterprise”).
  10. **Provenance**  
Model version stamp; FX/perimeter; sources with extract dates (VoC N interviews; parcel/cloud bills; settlement files; GL tie-outs). Confidence labels H/M/L where appropriate.

## Variant add-ons by audience

- **PE Investment Committee:** emphasize  **$\Delta CM2/\Delta Cash$** , scenario bands, and residual risk with term-sheet asks; keep synergy to what lands in hold period.
- **Lenders/Credit Committee:** add 13-week cash low point, covenant headroom by quarter, borrowing-base mechanics, reserve policy, and passive vs. managed comparison.
- **Strategic buyer:** include integration posture (Fuse/Federate/Interface), customer/brand risk, and option value beyond hold period; still anchor near-term cash.

## Writing guidance (to keep it crisp and underwritable)

- Use **complete, testable sentences** with numbers and verbs; avoid topic labels.
- Quote **ranges** (low/base/high) when uncertainty is material; name the driver behind the range.
- Replace adjectives with **units** (bps, pp, \$/unit, days).
- Define any acronym on first use; avoid internal code names.
- Do not mix perimeter or currency; state **constant currency** and **organic scope**; show FX overlay only if material.

## Red-team questions to pressure-test the page

- If the top banner vanished, would the remaining lines still imply the same buy/price/terms?
- Which single driver explains most of  **$\Delta Cash$** ? Is that driver in the summary with a number, owner, and proof?
- Do scenario and headroom statements reflect **passive vs. managed** and the **cost of action**?
- Are any dollars dependent on unproven integration, billing, or certification gates? If yes, are the gates and acceptance tests explicit?
- Can a second person reproduce every number from the model in  **$\leq 3$  clicks**?

## Quality-control checklist (tick before sending)

- Recommendation line states **price and terms**; numbers reconcile to the current model version.

- Bridge math** (price/volume/mix/CTS/working capital) sums to the Year-1 and Year-2 deltas quoted.
- Scenario bands** are consistent with Chapter 14.2 weights; first breach month (if any) is accurate.
- Residual risk** shows Cash-VaR after mitigation and funded reserves; KRIs and flip rules are stated.
- Term-sheet asks** correspond 1:1 to residuals and underwritten dollars.
- All claims carry **source dates**; FX/perimeter noted; segmentation matches the rest of the deck.
- Legal guardrails (clean-team/antitrust) respected; no customer-identifying or competitor-sensitive data.

### Copy-ready one-page structure (use these exact lines as scaffolding)

- **Recommendation:** Buy at \$X EV with Y terms; base delivers  $\Delta\text{CM2}$  \$A and  $\Delta\text{Cash}$  \$B in Year-1; min headroom  $\geq H$  bps across scenarios.
- **Why this works (#1):** Realized price +P–Q bps in segments  $\alpha/\beta$ ; CM2 +\$...; elasticity and VoC evidence; fences/DOA live by [date].
- **Why this works (#2):** CTS down  $-u\%$  (\$/shipment, returns  $-r$  bps, cloud  $-v\%$ ); signed events and timing.
- **Why this works (#3):** GTM conversion +c pp; attach +a pp; capacity rung #1 booked; CAC payback  $\leq t$  months.
- **Bridge:** Last actual  $\rightarrow$  Year-1: price +..., mix –..., CTS +...; net  $\Delta\text{CM2}$  \$...;  $\Delta\text{Cash}$  \$... (working-capital +/- ... days).
- **Scenarios & headroom:** Base vs. p10 and managed; first breach month and cure; cost of action \$...
- **Top risks (residual):** Cash-VaR \$...; reserve \$...; KRIs and flip rules.
- **90-day plan:** Three moves, three owners, three dates.
- **Gates:** Billing  $\geq 99.5\%$  accuracy; certification X by [date].
- **Terms we need:** Indexation; reserve caps; certification CPs; inventory/service covenants; indemnities; earnouts.
- **Provenance:** Model v..., constant currency/perimeter; sources with extract dates; confidence labels.

### 72-hour sprint to a decision-grade summary

- Day 0:** Lock model version/perimeter/FX; draft the ten lines using answer- and cash-first grammar; insert placeholder numbers.

- Day 1:** Populate from the model; reconcile bridges; add scenario and headroom statements; draft term-sheet translations tied to residuals.
- Day 2:** Red-team the page; tighten to one page; add owners/dates for 90-day moves and gates; stamp sources and extract dates.
- Day 3:** Final QA with a fresh export from the model; freeze; circulate with the deck spine and appendix index.

## Acceptance criteria for an executive summary worth IC's time

- A **single page** that states buy/price/terms and quantifies **ΔCM2**, **ΔCash**, and **headroom** with base/downside/managed views.
- The **three biggest drivers are named** with units, owners, timing, and proof.
- Residual risk** quantified post-mitigation with funded reserves and triggers; 90-day moves dated and owned.
- Term-sheet asks** mapped directly to residuals and underwritten dollars.
- Every number reproducible from the current model in ≤3 clicks; sources dated; definitions consistent with the deck.

Use this checklist and your executive summary will earn its keep: a crisp, defensible page that tells IC exactly **what to do, why, for how much, by when, and with which protections**—all tied back to the model and forward to Day-1 execution.

## 17.4 Recommendation Validation Template

A recommendation is only as strong as the evidence and discipline used to validate it. The purpose of this template is to stress-test the buy/price/terms call before it reaches the Investment Committee, and to ensure that every asserted dollar—upside or downside—traces to a driver in the model, reconciles to historicals, survives scenario pressure, and is executable within the hold period. Use it as a **single pass/fail framework** that links insights (Chapter 17.1), story spine (17.2), executive summary (17.3), the driver-based model (Chapter 14), value creation (Chapter 15), and risk governance (Chapter 16).

## Guiding principles

Work answers-first and cash-first. Validate **ΔCM2**, **ΔCash**, and **quarterly covenant headroom**; everything else is context. Insist on reproducibility: a second person must be able to recreate each headline number from the assumption cell in three clicks or fewer. Keep segmentation consistent with the rest of the playbook (product × route-to-market × region × customer tier). Separate weather from response; cost the response. Stay inside legal guardrails (clean-team, antitrust) and platform or regulatory policies.

## The Recommendation Dossier (what you will produce)

- One-page executive summary (17.3) with model version stamp and scope notes.
- Ten Insight Cards (17.1) with MOVE scores and confidence labels.
- Model integrity sign-off (14.4) including reconciliation to last actuals and LTM.
- Scenario set and sensitivities (14.2–14.3) with passive vs. managed outcomes.
- Synergy bank and 90-day roadmap (15.1–15.4), gated and costed.
- Risk heat-map and residual risk pack with reserves and term-sheet translations (16.1–16.4).
- Integration feasibility heatmap and cutover gates (15.3).
- Term-sheet ask list mapped 1:1 to residuals and “what-must-be-true.”
- IC run-of-show: decision tree, alternatives, and conditions precedent.

## Step-by-step validation flow

### 1) Restate the decision and constraints

Write the recommendation in one sentence: buy or pass, at what EV, with which non-negotiable terms, and what cash/headroom path within 12–24 months. Note constraints: hold period, leverage and covenants, regulatory approvals, TSA windows, platform policies.

### 2) Trace thesis → drivers → dollars

Build a traceability link for every P0/P1 insight: which **driver cells** move (price bps, attach, conversion, return %, parcel/cloud \$/unit, take-rate bps, minutes/contact, DSO/DIO/DPO, processor reserves), by how much, with what lag, and what that yields for **ΔCM2** and **ΔCash**. Reject any claim that does not resolve specific driver edits.

### **3) Reconcile to history and accounting**

Confirm first forecast month = last actual for revenue, CM1, CM2, opex, and cash; LTM ties to GL per 13.1–13.3. Ensure pricing waterfalls and CM2 trees (8.2, 13.2) feed the model consistently. Verify working-capital logic and AR/AP/Inventory to trial balance (13.3).

### **4) Test scenarios and headroom**

Run at least baseline, recession, and stagflation plus any exposure-specific case (14.2). Show passive vs. managed paths; quantify the **cost of action**. Compute **quarterly covenant headroom** and first breach month (if any). Confirm the downside includes a 13-week cash view.

### **5) Rank sensitivities and prove robustness**

Use standardized shocks (14.3) to build a tornado for Year-1 **CM2 \$ or Cash**. For the top five levers, show spiders and threshold/break-even points (cash-zero, headroom-zero). If the plan depends on a lever with high impact and low controllability, translate that dependency into terms (indexation, caps, CPs, earnouts).

### **6) Triangulate valuation**

Check the price using three lenses and reconcile them to the same drivers:

- **Driver-to-DCF:** cash flows from the model; WACC and terminal logic explicit.
- **Implied multiples:** EV/Revenue, EV/CM2, EV/EBITDA against peer corridors, adjusted for growth, durability (NRR, gross churn), and capital intensity.
- **Reverse DCF / reverse multiple:** the growth, price power (bps), CTS/unit improvements, and working-capital turns implied by your offer; reject if these exceed evidenced ranges or capacity gates.

### **7) Underwrite execution and integration**

Cross-check the value capture roadmap (15.4) against integration feasibility (15.3). Every dollar after Day-1 needs a gate (billing/entitlement  $\geq 99.5\%$  accuracy, certification live, capacity rung booked) and an owner with dated milestones. No gate, no dollar.

### **8) Quantify residual risk and funding**

From the mitigation portfolio (16.3), compute **residual Cash-VaR, CVaR**, and **Headroom-at-Risk** (16.4). Size operating risk reserves (fast risks) and the liquidity buffer; wire reserve draws into the 13-week cash cadence.

**9) Translate uncertainty into terms**

Map residuals to structure: indexation/surcharges, reserve caps and settlement SLAs, certification CPs, inventory/service covenants, indemnities/escrows, and earnouts tied to **realized price** or **NRR**. Show how each clause reduces probability or severity in the residual math.

**10) Run the red-team**

Assign a devil's advocate to attack each P0: run worst-plausible elasticities, delay gates by 90 days, remove unproven synergies, shock take-rates and processor reserves by policy thresholds. Keep any haircut or range expansion that survives rebuttal.

**11) Frame alternatives**

Always prepare three actionable alternatives:

- **Reprice:** lower EV or change consideration mix; show revised IRR and headroom.
- **Restructure:** same price with stronger terms (indexation, caps, CPs, earnouts) to keep residuals within appetite.
- **Re-sequence:** defer value creation to cleared gates; adjust hold period or growth path.  
Include “pass” criteria if minimum headroom or reserve sufficiency cannot be met.

**12) Secure sign-offs**

Obtain written sign-off from finance (model and reconciliations), commercial (insights and levers), operations (capacity and SLOs), technology/security (reliability, privacy), legal (policies and terms), and risk/treasury (reserves and liquidity). No sign-off, no IC.

**Copy-ready tools and templates****A) Recommendation Validation Checklist (use for the final scrub)**

- Recommendation line states **buy/price/terms**, model version, scope (constant currency, organic perimeter).
- All P0/P1 insights trace to named driver cells; lags and units stated.
- First forecast month ties to last actuals; LTM reconciles to GL; CM2 tree consistent.
- Baseline and downside scenarios show passive vs. managed; **cost of action** visible; headroom computed quarterly.

- Tornado and break-evens for top five drivers; capacity and policy gates enforced.
- Valuation triangulated (DCF, implied multiples, reverse DCF); ranges consistent with peers and physics of the model.
- Integration gates and 90-day actions dated and owned; TSA scope priced with exits.
- Residual risk quantified; reserves sized; liquidity buffer adequate; KRIs and flip rules live.
- Term-sheet translations mapped 1:1 to residuals and underwritten dollars.
- Red-team deltas incorporated; sign-offs logged; Q&A binder indexed by model driver.

#### **B) Thesis-to-Driver Traceability Card (one per P0/P1)**

- Headline insight and **why it matters** ( $\Delta CM_2$ ,  $\Delta Cash$ , headroom).
- Driver(s) moved with units and lags; cell references; source evidence (VoC, invoices, billing/settlement files, parcel/cloud bills, AR/AP agings).
- Sensitivity band and break-even.
- Gate(s) and owner; earliest/most-likely start and effect dates.
- Residual risk/terms link; confidence label.

#### **C) Valuation Triangulation Worksheet (fill once, reuse)**

- DCF: WACC, terminal method, key driver deltas, Year-1/Year-2 cash.
- Implied multiples: EV/Revenue, EV/CM2, EV/EBITDA vs. peer corridors; adjustments for growth and durability (NRR, cohort decay).
- Reverse DCF: implied realized-price bps, CTS/unit change, working-capital turns, capacity utilization; compared to evidenced ranges and gates.
- Decision note: “At \$X EV we underwrite Y because ...; above \$X+ $\Delta$ , reverse DCF implies unproven Z → reprice or add terms.”

#### **D) Risk-to-Terms Mapping Grid (one line per residual)**

- Residual risk and Cash-VaR; KRIs and flip rules; mitigation already priced.
- Proposed term(s) and how they reduce probability or severity; residual Cash-VaR post-terms.
- Owner and negotiation status; fallback (reprice/pass) if term not secured.

### E) Go/No-Go Gate List (integration and compliance)

- Billing/entitlement accuracy  $\geq 99.5\%$  for affected SKUs; catalog/CPQ parity; invoice credit defects = zero in pilot.
- Certification/attestation live in target geos; platform listing/compliance confirmed.
- Capacity run booked; SLO headroom  $\geq 15\%$ ; DR tested; IAM/SSO cutover ready.
- Works-council/union/legal notifications complete; TSA shadow-runs passed with acceptance tests.

### F) IC Q&A Binder Outline (organize by driver, not by department)

- Price and elasticity pack; invoice and discount audits; VoC anonymized notes.
- CTS pack: returns/chargebacks, parcel and cloud bills, support minutes/contact.
- Funnel and channel pack; CAC/payback; marketplace policies and penalties.
- Headroom and 13-week cash; covenant math; borrowing-base.
- Residual risk cards; reserves policy; term-sheet drafts and marked changes.

### G) Decision Log and Sign-Off Block

- Decision statement; alternatives considered; reasons accepted/rejected.
- Model version; sensitivity and scenario stamps; exceptions to standards.
- Sign-offs: Finance, Commercial, Ops, Tech/Sec, Legal, Risk/Treasury, Partner.
- Dated conditions precedent and owners.

## Mathematical and logic checks (quick formulas you should run)

- Reverse DCF sanity:** does the EV imply realized-price bps or CTS/unit improvements outside proven ranges? If yes, reprice or add terms.
- Payback realism:** CAC payback  $\leq$  policy guardrail in all scenarios for the channels you rely on.

- Headroom cushion:** minimum quarterly headroom  $\geq$  buffer (e.g., 10–20% of covenant) in p10 downside **with** mitigation cost.
- Capacity conservation:** bookings constrained by capacity headroom and SLOs; no implied overrun of error budgets.
- Ratio-of-sums:** portfolio CM2% and NRR recomputed from segment dollars; no averaging of ratios.

## Red flags—and what to do if you see them during validation

- **Numbers that do not reconcile.** Halt; fix last-actual and LTM ties before IC.
- **Upside dependent on unproven gates.** Move dollars to upside-only; add CPs/earnouts tied to NRR or realized price.
- **Downside unfunded.** Increase reserves or change terms; if not feasible, reprice or pass.
- **One driver dominates a tornado with low controllability.** Diversify exposure or hard-wire terms (indexation, caps); otherwise reprice.
- **Clean-team or platform policy risk.** Narrow scope; delay integration; do not assume joint pricing or customer coordination pre-close.

## 72-hour sprint plan (from draft to decision-grade recommendation)

- Day 0:** Freeze model version, segmentation, perimeter, FX policy. Draft the Recommendation Dossier shell and populate Insight Cards with driver cells.
- Day 1:** Complete reconciliations; run scenarios and sensitivities; produce headroom path and 13-week cash; draft valuation triangulation and reverse DCF.
- Day 2:** Quantify residual risk and reserves; finish integration gates; map residuals to term-sheet asks; run the red-team; update ranges and confidence.
- Day 3:** Assemble executive summary; complete the Validation Checklist; secure sign-offs; lock the IC run-of-show and Q&A binder indexed by driver.

## Acceptance criteria for a decision-grade recommendation

- Buy/price/terms stated with **ΔCM2**, **ΔCash**, and **headroom** by quarter, consistent with the current model and reconciled to history.
- Each P0/P1 insight traces to named driver cells with units, lags, evidence, sensitivities, and break-evens.
- Baseline and downside scenarios show passive vs. managed paths; the **cost of action** is explicit; headroom computed quarterly; 13-week cash included.
- Valuation triangulated and reverse-tested; integration and value-capture gates dated; owners assigned.
- Residual risk quantified; reserves sized; KRIs wired; term-sheet translations mapped 1:1 to residuals and underwritten dollars.
- Red-team results incorporated; alternatives framed (reprice/restructure/re-sequence/pass); legal and platform guardrails observed.
- All artifacts are reproducible in ≤3 clicks from driver cells; sign-offs completed; IC-ready pack delivered.

Apply this template rigorously and your “yes” will be underwritable, your “no” will be defensible, and your terms will be directly tied to residual uncertainty—turning a recommendation into a disciplined commitment the operating team can deliver against.

# Chapter 18. Reporting and Deliverables

Commercial due diligence ends in decisions, not in datasets. This chapter codifies how to turn weeks of analysis into **crisp, decision-grade deliverables** that Investment Committees, lenders, and operators can underwrite and act on. The core package typically includes: a short **presentation deck** (the “spine”) with a larger appendix, the **driver-based model** and QA sign-off, a **risk pack** with triggers and playbooks, an **integration feasibility brief**, a **value-capture roadmap**, and a small set of **evidence exhibits** (pricing waterfall audits, parcel/cloud bills, AR/AP agings, VoC notes—anonymized). Everything must reconcile to the current model version, use the same segmentation and definitions, and respect legal guardrails (clean-team, antitrust, privacy, platform policies).

## 18.1 Presentation Deck Structure Template

A strong deck is short, answer-first, and cash-first. It opens with the recommendation and the dollars that move **CM2, cash, and quarterly covenant headroom** in the hold period; it then proves those claims with three to five MECE arguments and the minimum number of exhibits. Use the template below to storyboard, build, and QA the deck. Adapt page counts to your audience, but keep the logic intact.

### Purpose and design rules

- **Purpose:** enable a buy/price/terms decision in under 20 minutes; equip lenders and operators with the numbers, gates, and protections they need.
- **Answer-first titles:** every headline is a complete sentence with a number and a verb (e.g., “Realized price can rise 80–120 bps in Enterprise without churn delta”).
- **Cash-first exhibits:** show **bridges, deltas, and bands** (not raw levels). Quote **ΔCM2, ΔCash, and headroom** for Year-1/Year-2.
- **Model-anchored:** each number is traceable to **named driver cells** and the current model version stamp.
- **One page, one message:** three proof bullets max per page; everything else moves to the appendix.

- **Guardrails:** constant currency and organic perimeter; capacity and SLO caps enforced; clean-team rules observable on every page.

## Deck skeletons you can pick up and run

- **IC “spine” (10–12 pages):** use when time is tight (PE Investment Committee).
- **Full decision deck (20–30 pages):** add domain sections where exposure is material (e.g., marketplaces, cloud/FinOps, returns).
- **Lenders supplement (10–15 pages):** deeper downside, 13-week cash, covenant math, borrowing-base.
- **Strategic buyer variant (15–20 pages):** add integration posture (Fuse/Federate/Interface) and option value; still cash-first for 24 months.

## Slide-by-slide structure (copy-ready)

### 0) Cover & control information

- Title, client/target, workstream, confidentiality stamp, **model version ID**, perimeter and currency notes, date, version number (e.g., v1.3).

### 1) Executive recommendation (answer-first)

- **“Buy at \$X EV with Y terms** (indexation, certification CPs, reserve caps, inventory/service covenants, earnout on NRR/realized price). Base delivers **ΔCM2 \$A** and **ΔCash \$B** in Year-1; **min headroom ≥ H bps** across scenarios.”
- Footnote: constant currency, organic scope; link to model cell range.

### 2) Why this works (three reasons that move cash)

- Unit economics & price power (realized price +P–Q bps; elasticity proof).
- Cost-to-serve improvements (returns –r bps, parcel/cloud –u%, minutes/contact –m).
- GTM & capacity (conversion +c pp, attach +a pp; capacity rung #1 booked; CAC payback ≤ t months).

### 3) Market reality & scenarios

- TAM/SAM/SOM and buyer-segment exposure; growth driver decomposition; scenario fan (base, recession, stagflation) with p10/p90 shading; triggers to flip cases.

#### **4) True unit economics**

- Pricing waterfall to realized price; CM1→CM2 bridge by segment/channel; sensitivity to price, returns, freight/cloud/API; unit-driver definitions.

#### **5) Competitive position & disruptors**

- Share and momentum by segment; differentiation scorecard (moats/advantages); disruptor threat scenarios and mix shift risk.

#### **6) GTM & channel performance**

- Funnel diagnostics (stage conversion, cycle time, win rate); channel mix economics; CAC payback guardrails; marketplace policy thresholds in view.

#### **7) Operations, CTS, and capacity**

- Capacity ladder (rungs, lead times, SLO impact); CTS benchmarks (shipping, returns, support, payment bps, cloud/API unit costs); cost-to-serve improvement plan.

#### **8) Forecast & headroom (scenario-anchored)**

- Driver-based base vs. downside vs. managed response; quarterly **headroom path** and first breach month (passive); cost of actions that avoid breach.

#### **9) Risks, mitigations, and residuals**

- Top-10 **Cash-VaR** heat-map; triggers and playbooks; **residual Cash-VaR, CVaR**, reserves and liquidity buffer; early-warning indicators.

#### **10) Value creation & synergies we underwrite**

- Revenue: attach/re-rating math, gates, timing; **ΔCM2, ΔCash**.
- Cost & CTS: procurement/logistics/FinOps; run-rate vs. in-period cash; one-time costs.

## 11) Integration feasibility & cutover gates

- Fuse/Federate/Interface by domain; Day-1 controls; Go/No-Go acceptance tests (billing/entitlement  $\geq 99.5\%$ ; certifications; SLO headroom  $\geq 15\%$ ); TSA scope and exits.

## 12) Terms we need & 90-day plan

- Term-sheet translations tied 1:1 to residual risks; dated 90-day actions with owners and KPIs; model toggles that flip on gate clearance.

## Appendix index (first page of appendix)

- Organized by **model driver** (price, mix, conversion, returns, freight, cloud, minutes/contact, take-rates, DSO/DIO/DPO, reserves); each subsection lists exhibits, sources, and extract dates.

## Exhibit archetypes (pick the smallest artifact that proves the point)

- **Bridges:** last actual  $\rightarrow$  Year-1  $\rightarrow$  Year-2 for CM2 and cash with bars labeled **price, volume, mix, CTS, opex, working capital**.
- **Waterfalls:** realized price from list to cash (on-invoice, off-invoice, fees, penalties, returns).
- **Fans/bands:** scenario bands with p10/p90 shading; label triggers.
- **Tornados:** sensitivity rank by absolute  **$\Delta CM2$**  or  **$\Delta Cash$**  from standardized shocks.
- **Heat-maps:** risk or concentration by segment/channel.
- **Ladders:** capacity rungs with throughput, lead time, and SLO effect.
- **Grids:** two-way thresholds (e.g., realized price vs. elasticity; DSO vs. base rate; return rate vs. paid placement penalties).

## Required “page furniture” (put these elements on every slide)

- Header: project name, confidentiality, audience label (IC / Lenders / Strategic).
- Footer: **model version**, perimeter and currency, page number, and last update date.
- Footnotes: sources with **extract dates**; clean-team note where relevant (“Aggregated/anonymized; no customer-identifying data”).

- Units: currency code (USD/EUR/...), time base (monthly for 8-12 quarters, then annual), segmentation keys.

## Style and accessibility standards

- Titles in sentence case; **numbers in titles** where possible (bps, pp, \$/unit, days).
- Minimum font 11 pt for body; avoid color-only meaning (contrast-safe palette).
- Round consistently (nearest whole \$m; bps to nearest 10 unless small).
- Keep decimal places scarce ( $\leq 1$  where needed); mark estimates with ranges and confidence labels (H/M/L).
- Add concise **alt text** for critical charts (for accessibility and search).

## Source coding and data hygiene

- Use a simple source code in footnotes (e.g., “S1 Company ERP extract 2025-08-01; S2 Parcel invoices Apr-Jun 2025; S3 Cloud bills L3M; S4 VoC N=32 anonymized”).
- Reconcile to last actual and LTM; state **constant currency** and **organic perimeter**; show FX overlay only if material.
- Never include raw PII or customer-identifying data; never include competitor-sensitive pricing beyond public sources.

## File and version control

- **Naming:** `Client_Target_CDD_v{major.minor}_{YYYY-MM-DD}_{Audience}.pptx` (e.g., `ACME_Foxtrot_CDD_v1.3_2025-08-15_IC.pptx`).
- **Change log:** slide-level deltas with “what/why/who/when”; paste onto the hidden “Changelog” slide.
- **Lock:** freeze the model version ID when exporting the final numbers; restamp if anything changes.

## Audience-specific add-ons

- **Lenders/Credit Committee:** add 13-week cash, covenant math per quarter, borrowing-base eligibility and advance rates, passive vs. managed downside (cost of action explicit).

- **Strategic/Corporate:** add integration posture, customer/brand risk, and option value (beyond hold period) but still present cash/CM2 for 24 months.

## Slide build checklist (run before you export)

- Title is answer-first with a number and a verb.
- Three or fewer proof bullets; each cites an exhibit and source date.
- Numbers reconcile to the current **model version** in ≤3 clicks.
- Units, time base, segmentation, constant currency/perimeter stated.
- Capacity/SLO caps, platform policies, and regulatory limits enforced.
- Passive vs. managed paths separated; **cost of action** shown where relevant.
- Early-warning indicators and gate acceptance tests present where they matter.
- Legal/privacy footers present; no PII; clean-team scope respected.

## Ten must-have exhibits (include unless clearly non-applicable)

1. Executive bridge: last actual → Year-1 and Year-2 **ΔCM2** and **ΔCash**.
2. Pricing waterfall to realized price (with invoice and settlement audit references).
3. CM1→CM2 margin tree by segment/channel.
4. Funnel diagnostics (conversion, win rate, cycle time) and CAC payback.
5. CTS summary (returns %, parcel \$/shipment, cloud/API \$/unit, minutes/contact).
6. Capacity ladder with SLO headroom and rungs.
7. Scenario fan (base, recession, stagflation) and **quarterly headroom**.
8. Sensitivity tornado (top five drivers) with break-even thresholds.
9. Risk heat-map with **Cash-VaR** and residuals after mitigations.
10. 90-day value-capture plan with dated gates and owners.

## 72-hour deck sprint plan (from analysis to IC-ready)

- Day 0:** Freeze model version/perimeter/FX; select skeleton (spine/full/lenders/strategic); draft answer-first titles for pages 1-12.

- Day 1:** Populate exhibits from the model and evidence files; stamp sources and extract dates; insert headroom path and scenario bands; load sensitivity tornado and break-evens.
- Day 2:** Add risks/residuals and term-sheet translations; integrate integration gates and TSA exits; build the 90-day plan; reconcile bridges to model.
- Day 3:** Red-team (one pass for numbers, one for logic); run the slide build checklist; lock file name and model ID; export PDF alongside PPTX; prepare appendix index by **driver**.

## Acceptance criteria for a decision-grade deck

- Recommendation page states **buy/price/terms** and quantifies **ΔCM2**, **ΔCash**, and **headroom** across scenarios, consistent with the current model.
- Each insight page answers-first, cites exhibits with extract dates, and ties to named driver cells.
- Bridges, bands, and tornados appear where expected; capacity/SLO and policy constraints enforced.
- Residual risk and reserves are quantified; term-sheet asks map 1:1 to residuals; 90-day actions are dated and owned.
- Appendix is organized by **driver** and includes evidence audits (pricing, parcel/cloud bills, AR/AP agings, VoC notes—anonymized).
- Legal/privacy statements present; clean-team scope respected; no PII.
- A second person can reproduce any headline number from the model in **≤3 clicks**.

Use this template to keep your deck tight, auditable, and actionable—so busy committees can say “yes” (or “no”) with confidence, and operators know exactly what to do on Day 1.

## 18.2 Data-Room Documentation Checklist

A strong virtual data room (VDR) makes diligence faster, cleaner, and safer. It should let a second person reproduce any headline number in **≤3 clicks** from a **machine-readable source**, while protecting sensitive data with a clean-team and antitrust guardrails. Use this checklist to stand up (seller-side) and

interrogate (buyer-side) a data room that is complete, auditable, and legally compliant. Organize everything to mirror the segmentation and driver logic used throughout this playbook (product × route-to-market × region × customer tier) and the same definitions of realized price, CM2, and cash.

## Core principles (do these first)

- Answer- and cash-first: prioritize documents that explain **price, volume, mix, cost-to-serve, working capital, and headroom** within the hold period.
- Machine-readable over pretty: CSV/XLSX/Parquet for data; searchable PDFs for signed contracts/policies; avoid screenshots and pivoted spreadsheets.
- One source of truth per metric: declare the **system of record** and extract date for every file; reconcile last actuals and LTM to GL.
- Legal guardrails: enforce clean-team, antitrust, privacy, platform policy, and sector-specific rules (e.g., HIPAA/PCI) with written protocols.
- Provenance and versioning: every file carries a header with owner, extract timestamp, perimeter, currency, and change log.
- Reproducibility: any number in the deck must trace to a file and row/field in the VDR; keep a cross-reference (“evidence registry”).

## VDR setup & governance (seller-side)

- Security: SSO + MFA, watermarking, print/download controls, IP-range limits, session timeouts, user-level audit logs, timed access.
- Structure: numbered folder taxonomy, short names, and a single **README** at root explaining layout, definitions, and contact/SLA.
- Q&A: enable threaded Q&A with routing to functional owners; set a 48-hour response SLA and escalation path.
- Change control: weekly refresh window, version suffix in filenames, and a **delta** subfolder for changes since the last drop; maintain a change log.
- Destruction: define post-process retention period and require certifications of destruction from all parties.

## Recommended folder taxonomy (mirror your model drivers)

- 0\_ReadMe\_Definitions\_ChangeLog

- 1\_Market\_and\_Scenarios (third-party studies, category indices, demand indicators, scenario assumptions)
- 2\_Product\_Pricing\_Packaging (price books, fences/DOA, promos, rebate programs, CPQ rules, SKU catalogs)
- 3\_Revenue\_and\_Customers (ARR/NRR roll-forwards, bookings/opportunities, invoices/credit memos, top accounts—clean-team ready)
- 4\_GTM\_and\_Channels (pipeline by stage, win/loss, channel/partner contracts, MDF, marketplace settlement files and policy dashboards)
- 5\_Cost\_to\_Serve\_and\_Operations (returns/RMA, warranty, parcel/carrier invoices, WMS/TMS extracts, payment processing/chargebacks, support tickets/minutes)
- 6\_Technology\_and\_Cloud (cloud bills/CUR, API usage, reliability/SLO, SOC/ISO reports, DPIAs, incident logs)
- 7\_Supply\_Chain\_and\_Procurement (BOMs, supplier rate cards, rebates, duties/tariffs, capacity ladders)
- 8\_Financials\_and\_Working\_Capital (GL trial balance, revenue recognition memos, AR/AP agings, inventory ledgers, bank recs, debt/covenants)
- 9\_Regulatory\_Legal\_ESG (licenses, certifications, consents/novations, ESG metrics, EPR/packaging fees, privacy policies)
- 10\_HR\_and\_Incentives (org charts, comp plan templates, sales commission rules—no PII)
- 11\_Integration\_TSA (systems maps, interface inventories, TSA scope/SLAs, cutover plans)
- 12\_Evidence\_Registry\_and\_Model\_Links (source codes S1...Sn, model cell mapping, exhibit list)

## **File naming & versioning (use a consistent pattern)**

- Pattern:  
Area\_Subarea\_Descriptor\_Perimeter\_Currency\_ExtractYYYYMMDD\_v{major.minor}.ext  
Example: Revenue\_Invoices\_LineItems\_Global\_USD\_20250731\_v1.2.csv
- Include: extract date, time zone, perimeter (organic vs. total), currency, and version.
- Change log: who changed what and why; list added/removed fields, filters, and corrections.

## Required metadata & provenance (top of every file or a sidecar .txt)

- System of record, owner, extract timestamp and time zone.
- Definition of key metrics/dimensions (e.g., “Active,” “Churn,” “Order,” “Shipment,” “Invoice,” “Seat,” “Unit”).
- Perimeter notes (exclusions, discontinued SKUs, non-core entities).
- FX policy and constant-currency assumptions where applicable.
- Data refresh cadence and next planned drop.

## Data formats & hygiene standards

- Formats: CSV/XLSX/Parquet; JSON/NDJSON acceptable for logs; PDFs only for signed documents.
- No merged cells, hidden columns, or macros; one header row; one record per row; UTC timestamps or a stated local time zone.
- Keys and joins: unique IDs for customers, orders, invoices, shipments, tickets; provide crosswalks and maintain referential integrity.
- Missingness and duplicates: missing critical fields <1%; duplicates <0.5%; document any known gaps.
- Quality checks: totals reconcile to GL (revenue/CM1/CM2/cash); test sums vs. dashboards; sample 30–60 records to source screens.
- Integrity: supply checksums (e.g., MD5/SHA-256) for large files; avoid zipped files >1 GB—split logically and label parts.

## Time windows, grain, and segmentation

- Time coverage: minimum 36 months + YTD by month; 24 months by **weekly/daily** grain where available (orders, invoices, tickets, shipments, usage).
- Cuts: always include product family, route-to-market, region/country, customer tier; add channel/partner, marketplace, and cohort period where relevant.
- Snapshots vs. events: deliver event-level where possible (e.g., each invoice line, each RMA, each ticket) and a monthly snapshot for ARR/NRR and inventory.

## Clean-team, PII, and antitrust guardrails

- Red/Amber/Green data classes:
  - Green (shareable): aggregated by segment; anonymized line items with hashed IDs; public policies.
  - Amber (clean-team only): row-level customer transactions, detailed price/discount logs, partner-level settlement.
  - Red (prohibited pre-close): named customer pricing alongside competitive strategy, individual rep performance, non-public competitor data.
- Pseudonymization: hash customer and individual IDs; mask emails/domains; share geography at city-or-higher level unless needed.
- Privacy & security: DPAs, SCCs/TIAs for cross-border transfers; HIPAA/PCI scope statements; data minimization and retention plan; access log export at close.
- Antitrust: no joint pricing/market allocation planning; scripts for any joint customer interactions pre-close.

## Core datasets & exact field lists (provide these verbatim)

Revenue & customers (ERP/Billing/CRM)

- Invoices & credit memos: invoice\_id, invoice\_line\_id, order\_id, customer\_key (hashed), booking\_date, invoice\_date, sku\_id, sku\_name, quantity, list\_price, on\_invoice\_discount, off\_invoice\_discount/rebates, fees/penalties, taxes, net\_revenue, currency, salesperson\_id (hashed), channel, region, terms, due\_date, payment\_date, write-off\_flag, credit\_memo\_id, reason\_code.
- ARR/NRR roll-forward (SaaS): start\_ARR, new, expansion, contraction, churn, reactivation, end\_ARR by cohort/segment; logos and seats/usage counts (hashed).
- Pipeline/bookings (CRM): opportunity\_id, stage, amount, product, source, open/close dates, outcome, reason\_code, competitor.
- Price waterfall audit: list, fences, standard discount, promo, rebates, pocket price, realized price.

## Channels & marketplaces

- Settlement files: order\_id, sku\_id, gross, fees by type (take-rate, FBA/fulfillment, advertising), chargebacks/claims, returns, net payout, payout\_date; policy metrics (OTIF, late-ship, return rate, claim ratio).
- Partner contracts: tiers, MDF, commission grids, parity and exclusivity clauses, termination/notice periods.

## Cost-to-serve & operations

- Returns/RMA: rma\_id, order\_id, reason\_code, disposition, recovered\_value, reverse\_log\_cost, refurb\_cost, time\_to\_refund.
- Parcel/carrier invoices: shipment\_id, carrier, zone, weight, DIM, base\_rate, fuel, accessorial (by type), total; service level and on-time flag.
- Payment processing: settlement\_id, processor, method, fees (interchange + markup), reserves/holdbacks, chargeback count \$ and reasons; fraud/risk decisions.
- Support/service desk: ticket\_id, channel, topic, first\_response\_time, handle\_time/minutes, resolution, CSAT, refunds/credits issued.
- Warranty/quality: defect codes, returns within warranty, repair cost, replacements, field failure rate.

## Technology & cloud

- Cloud cost & usage (CUR or equivalent): account, service, usage\_type, usage\_quantity, blended/unblended\_cost, reservation/commit coverage, egress, region.
- API/provider usage: calls, plan, overages, throttling; cost per call.
- Reliability: incident log (start/end, severity), p95 latency series, uptime, SLA credits paid, error-budget burn.
- Security & privacy: SOC2/ISO reports, pen test summaries, vulnerability backlog, DPIAs, RoPAs, breach notifications (if any).

## Supply chain & procurement

- BOMs and component costs; supplier rate cards and rebates; PO lines with lead times; duty/tariff schedules; inventory transactions and valuations; network maps (plants/DCs/carriers).

## Financials & working capital

- GL trial balance and mapping to management P&L; revenue recognition memos; AR/AP agings with dispute/reason codes; inventory ledger and costing method; bank statements; debt agreements and covenant calculations; borrowing-base certificates.

## Regulatory, legal & ESG

- Licenses, certifications/attestations (e.g., HIPAA, PCI, CE/UL, FedRAMP/StateRAMP, EPR registrations), audits and expiry dates; privacy policies; environmental metrics (energy, emissions scopes if available), packaging/EPR fee history and forecasts.

## HR & incentives (no PII)

- Org charts; role counts and fully loaded cost by function/region; sales comp plans and DOA matrices; quota coverage; retention/attrition metrics in aggregate.

## Integration & TSA

- Systems inventory, data flows, interfaces, entitlements/billing catalog, CPQ configuration, identity/SSO footprint; TSA scope, SLAs, pricing, and exit milestones.

## Evidence registry (link sources to the model and deck)

- For each exhibit/number in the deck: source code (S1..Sn), file path, extract date, system of record, model assumption cells touched, QC checks passed, owner, confidence (H/M/L).

## Refresh cadence & change control

- Refresh calendar: weekly window with a posted time (e.g., Wednesdays 17:00 UTC).
- Delta files: only changes since last drop, with both adds and deletes flagged; maintain stable IDs.
- Freeze windows: lock data two business days before IC or lender meetings.
- Version bump rules: increase major when structure changes; minor for data refresh; restamp model if numbers move.

## Q&A process & SLA

- Routing: each folder has an owner; questions auto-route; legal reviews gate anything in Amber/Red classes.
- SLA: initial acknowledgment within 24 hours; complete response within 48 hours or date certain.
- Evidence requests: allow anonymized samples for clean-team review (e.g., 30 invoices, 30 returns, 30 tickets).
- Audit trail: keep a Q&A export in the VDR; summarize unresolved risks weekly.

## Industry-specific addenda (include where relevant)

- SaaS/data: entitlement/billing accuracy reports, tenant migrations, usage telemetry, marketplace private-offer logs, SSO/IAM maps; ARR policy memos.

- Fintech/payments: scheme rules, processor agreements, reserve/holdback policies, fraud vendor contracts, PCI scope and ROC/AOC.
- Healthcare/life sciences: QMS (cGMP/ISO13485), device labeling/UDI, clinical/real-world evidence claims controls, HIPAA BAAs.
- Retail/CPG & marketplaces: planograms, OTIF dashboards, returns triage, paid placement spend logs, brand registry, GS1/GTIN ownership.
- Industrial/field service: warranty terms, installed base by asset, field service routes, safety and certification registers.
- Public sector: accreditation packages (FedRAMP/StateRAMP/IRAP), data residency attestations, subcontracting clauses.

## Pre-upload quality checks (seller-side)

- Numbers tie: last actual month in model equals ERP/GL; LTM reconciled; bridges foot to price/volume/mix/CTS/working capital.
- Completeness: every checklist line above either posted or marked "N/A" with rationale.
- Data quality: missingness, duplicates, referential integrity within thresholds; random record audit back to source screens.
- Legal: clean-team redactions/pseudonymization applied; privacy/sector controls documented; no competitor-sensitive content.
- Accessibility: filenames readable; documents searchable; scanned PDFs OCR'd; no password-protected files inside the VDR (use VDR access controls instead).

## Buyer-side intake checks (on first login)

- README and definitions present; change log current; model version in deck matches VDR extract dates.
- Evidence registry exists and maps to driver cells; spot-check two numbers to raw rows.
- Clean-team scope and roster approved by counsel; access permissions reflect data classes.
- Q&A board live with owners; 48-hour SLA confirmed.

## **Red flags—and immediate fixes**

- Only dashboards/PDFs; no raw data. Fix: request CSV/XLSX extracts and a data dictionary; freeze analysis until provided.
- Invoices lack discount/fee detail; returns lack reason codes. Fix: request full price waterfall and RMA fields; annotate gaps and haircut realized price/CM2 in the model.
- Marketplace files missing fee breakdown or policy dashboards. Fix: require settlement detail and policy metrics; apply take-rate risk haircuts.
- Cloud bills summarized (no CUR) or API overages absent. Fix: request CUR/line-item usage and provider plan terms; run FinOps baselines.
- Privacy/antitrust exposure (named customers with sensitive pricing outside clean-team). Fix: quarantine folder; re-post anonymized/hard-masked files; document incident.
- No GL tie-out or ARR roll-forward that doesn't foot. Fix: halt underwrite; schedule a reconciliation session; downgrade model confidence and widen ranges.

## **72-hour sprint plan to stand up a decision-grade VDR (seller-side)**

- Day 0: Publish folder tree, README, definitions, clean-team protocol, and change log; load financials (GL, TB, revenue policy) and invoice/credit/RMA extracts.
- Day 1: Post pricing (books, fences, promos), CRM pipeline/win-loss, channel settlement and contracts, parcel/carrier and payment processor files, support tickets; add evidence registry shell.
- Day 2: Add cloud/CUR and API usage, reliability/security packs, procurement/supplier and inventory ledgers, regulatory/ESG and certifications, TSA and systems maps.
- Day 3: Reconcile last actuals and LTM; run QC; label gaps as “N/A” with rationale; open Q&A and set the 48-hour SLA.

## **72-hour sprint plan to validate a VDR (buyer-side)**

- Day 0: Confirm security, permissions, and clean-team scope; download evidence registry; tie two deck numbers to raw rows; post initial Q&A.

- Day 1: Reconcile revenue/CM1/CM2 to GL; ARR roll-forward to contract/event data; price waterfall to invoices; parcel and cloud costs to provider bills.
- Day 2: Validate returns/chargebacks, processor reserves, and support minutes/contact; test scenario inputs (demand indicators, take-rate policies, fuel/FX).
- Day 3: Log residual gaps; update model confidence; set refresh requests and cadence; align on term-sheet protections for data-proven risks.

## Acceptance criteria for a decision-grade data room

- All **core datasets** above are posted in machine-readable form with metadata, definitions, and extract dates; files reconcile to GL and policy memos.
- Clean-team/antitrust/privacy protocols are documented and enforced; sensitive data is anonymized or restricted.
- Evidence registry maps each deck/model number to a source file, field, and row; a second person can reproduce any figure in ≤3 clicks.
- Q&A is staffed with a 48-hour SLA; change control is active with versioned refreshes and deltas.
- Gaps and exceptions are explicitly labeled with impact on **ΔCM2, ΔCash**, and headroom and are priced into the model.

Use this checklist to turn the VDR into a **decision engine**: one taxonomy, one set of definitions, one evidence registry, clean raw data tied to the model, and legally sound protocols—so committees can underwrite with speed and confidence, and operators can act on Day 1.

## 18.3 Client Read-Out Facilitation Guide

A great read-out converts analysis into a decision, with clear terms and Day-1 actions. Your audience is busy and skeptical; they want an answer-first, cash-first narrative tied to the model—not a tour of work. Facilitation matters as much as content: the way you open, pace, navigate the model, handle objections, and close determines whether the room underwrites the recommendation or leaves with homework. This guide gives you a practical, repeatable way to run a decision-grade read-out in any setting—IC, lenders, or strategic buyers—without losing control of time, scope, or legal guardrails.

## Outcomes to lock before you present

You should walk in knowing exactly what you want the room to do. Define the outcomes in one sentence each and keep them in sight on your first slide and your notes.

- A buy/price/terms decision (or a dated decision plan with explicit conditions precedent).
- Agreement on **ΔCM2**, **ΔCash**, and **quarterly covenant headroom** within the hold period.
- Approval of the 90-day value-capture actions (owners, dates, acceptance tests).
- Agreement on residual risks, reserves, and term-sheet protections.
- Alignment on integration gates (what must be true before each dollar lands).

## Roles you must staff (and what each person does)

- **Lead Presenter (one voice):** owns the story spine; opens answer-first; manages time and transitions.
- **Model Navigator (“number runner”):** drives the live model on request, with a read-only copy and named toggles; never edits core assumptions live.
- **Workstream SMEs:** pricing, GTM, CTS/ops, tech/FinOps, regulatory; each speaks only to two or three pre-agreed claims.
- **Scribe:** captures decisions, conditions, asks, and follow-ups in real time; maintains the parking lot.
- **Timekeeper/Chat Monitor:** watches the clock, the chat (virtual), and signals when to move on.
- **Legal/Compliance Liaison:** interjects if a clean-team, antitrust, platform-policy, privacy, or sector rule is at risk.

## Default run-of-show (adapt to 60, 90, or 30 minutes)

- **Opening (3–5 min):** recommendation, price/terms, Year-1/Year-2 **ΔCM2**, **ΔCash**, minimum headroom by quarter, and the three reasons that move cash.
- **Market & unit economics (10–12 min):** scenario fan for demand; pricing waterfall and CM1→CM2 bridge; sensitivity to price/returns/freight/cloud.

- **GTM, channel, capacity (8–10 min):** funnel diagnostics, CAC payback, channel mix, capacity ladder and SLO guardrails.
- **Forecast & scenarios (6–8 min):** base vs. downside vs. managed response; cost of action; quarterly headroom path.
- **Risks & terms (6–8 min):** Cash-VaR heat-map, triggers, residual risk and reserves; term-sheet translations.
- **Value capture & 90-day plan (6–8 min):** dated actions, owners, acceptance tests; integration gates.
- **Decision and next steps (5 min):** restate the ask; confirm decisions, conditions, owners, and dates.

For a **30-minute** session, deliver the opening and three proof pages (unit economics, scenarios/headroom, risks/terms), then the decision. For a **90-minute** session, add deep-dive exhibits only for exposures that move  $\geq 2\%$  revenue or  $\geq 100$  bps CM2.

## **Pre-wire the room (the day before matters more than the day of)**

- **Map stakeholders:** deciders, recommenders, influencers, potential spoilers; note their likely concerns (price power, lender headroom, platform policies, integration risk).
- **Pre-brief 1:1:** share the executive summary and the ten-page spine; test the toughest claim with each skeptic and capture their “must-see” evidence.
- **Align expectations:** circulate the agenda, model version stamp, definitions (realized price, CM2, headroom), and clean-team scope; confirm time box and decision ask.
- **Dry run:** rehearse hand-offs, teach the Navigator the toggle names, pressure-test the top five tough questions, and practice the closing script.

## **The hour-before, ten-before, and first minute**

- **60 minutes before:** freeze deck and model version IDs; load back-pocket exhibits (pricing waterfall, CM2 bridge, scenario fan, tornado, risk heat-map, integration gates, term-sheet grid).
- **10 minutes before:** test audio/video; confirm screen-share; open a read-only model; place the decision line in your presenter notes; assign a chat monitor.

- **First minute script:** “We’ll recommend [buy at \$X with Y terms]. In Year-1 that yields  $\Delta CM2 \$A$  and  $\Delta Cash \$B$ , with **min headroom  $\geq H$  bps** across scenarios. I’ll prove that with unit economics, execution capacity, and risk protections. We’ll leave five minutes at the end to confirm decisions and owners.”

## Facilitation techniques that keep control without being rigid

- **Answer-first, then proof:** state the claim with the number; show one bridge or fan; pause for a beat; ask “Does anyone need more on this before we move on?”
- **Use the parking lot:** when a deep dive won’t move the decision, park it with an owner and a date.
- **Narrate transitions:** close each section with one sentence that sets up the next (“Price power is real, so now let’s test the headroom path if demand turns.”).
- **Time checkpoints:** call out a halfway and five-minute-remaining checkpoint; adjust pace explicitly.
- **Names, not departments:** assign actions to people, not functions.
- **No orphan charts:** if a page doesn’t change a decision, it lives in the appendix.

## Live model navigation protocol

- **Read-only first:** open a protected copy with toggles mapped to named drivers (price bps, attach, conversion, returns %, parcel/cloud \$/unit, take-rate bps, minutes/contact, DSO/DIO/DPO, processor reserves).
- **Standard shocks:** show sensitivity using pre-built “+/-” buttons from Chapter 14.3; avoid free-typing new assumptions live.
- **Scenario switches:** flip between baseline, recession, stagflation, and exposure cases; always display  **$\Delta CM2$ ,  $\Delta Cash$ , and quarterly headroom** and the cost of action.
- **Guardrails:** if a requested change exceeds observed evidence or capacity rungs, say so and log it as an offline what-if.

## Handling objections and difficult questions (scripts you can use)

- **“Your realized price lift is optimistic.”**  
“We’re not moving list prices; we’re tightening fences. The invoice audit

shows **+80-120 bps** in segments A/B with no churn delta in VoC. Here's the waterfall and the cell we move in the model. Want me to show the -50 bps downside elasticities band?"

- **"Show me how we avoid a covenant breach on the downside."**  
"In the passive p10, headroom bottoms at **X bps in Q3**. With the pre-approved actions (parcel re-bid, returns triage, reserved coverage) we keep **≥H bps**; the cash cost is **\$Y**. Let me flip to 'managed response' and the headroom path."
- **"I want to see the customer-level pricing pre-close."**  
"We can't share named customer pricing under clean-team rules. We can show anonymized invoice samples and the aggregate waterfall, and we've loaded an evidence pack in the data room. If needed, counsel can expand clean-team scope."
- **"Why not more synergy?"**  
"The integration gate is billing/entitlement **≥99.5%** accuracy and certification X. Dollars beyond that are upside-only until gates clear. We'd rather bank what lands in the hold period."
- **"Please change the model to 15% growth."**  
"Happy to show the scenario band. For any new assumption outside our evidenced range, we'll log it and return with a labeled "what-if so we don't anchor on unproven edits."

## Legal and policy boundaries to enforce in the room

- Clean-team and antitrust: no pre-close joint pricing, customer allocation, or vendor negotiation; use aggregated/anonymized data only.
- Platform and marketplace policies: do not discuss tactics that could trigger penalties or violate parity rules.
- Privacy and sector rules (e.g., HIPAA/PCI): no PII or PHI; reference SOC/ISO, DPIAs, and RoPAs instead.  
When a boundary risk appears, pause and invite legal to confirm the permitted scope.

## Virtual and hybrid delivery tips

- Keep one shared deck and one designated screen-sharer; disable participant annotation.
- Use a chat monitor to catch questions without interrupting flow; answer in voice at section breaks.

- Call on silent decision-makers by name; avoid letting the loudest voice set the agenda.
- Record decisions live in a visible “Decision & Actions” pane to reduce ambiguity.
- Have a fallback channel (dial-in or phone bridge) in case conferencing fails.

## **Back-pocket exhibits you should always have loaded**

- Pricing waterfall to realized price (with invoice and settlement audit references).
- CM1→CM2 bridge by segment/channel.
- Scenario fan (base, recession, stagflation) and **quarterly headroom** path.
- Sensitivity tornado with the top five drivers and break-even thresholds.
- Risk heat-map with **Cash-VaR**, residuals, and reserve levels.
- Integration feasibility gates and TSA exit milestones.
- Term-sheet translations mapped to residual risks.
- 90-day value-capture plan with owners and acceptance tests.

## **Decision capture and explicit close**

Close with a clear, verbal commitment and read-back. Then confirm owners and dates.

- “To confirm: we’re proceeding at **\$X EV** with **[terms]**; we accept the 90-day plan; and we set **[conditions precedent]**. **[Names]** own **[actions]** by **[dates]**. We will issue the decision note and updated model after this meeting.”

## **Red flags in the room—and how to respond**

- **Time hijack by a deep dive that won’t change the decision.** Park it; return to the spine; offer a breakout.
- **Model mismatch with an exec’s mental math.** Flip to the bridge or tornado; narrate drivers; avoid editing core assumptions live.
- **Definition fights (e.g., ARR vs. revenue, realized price vs. list).** Flash your metric dictionary; reconcile quickly; move on.

- **Clean-team creep.** Pause and ask legal to restate permitted scope; revert to aggregated proof; note any expanded scope as a post-meeting action.
- **Decision deferral with no conditions.** Propose a dated decision plan with specific gates, owners, and the exact proof required.

## After the read-out: what must be in the wrap-up pack

- Decision note with price/terms, **ΔCM2, ΔCash**, headroom path, and conditions precedent.
- Action log with owners, dates, acceptance tests, and dependencies.
- Updated model and the deck with the model version stamp.
- Q&A log with parked items and promised evidence (data-room links).
- Risk and reserve updates; term-sheet draft changes and negotiation plan.

## Day-before and day-of checklists

### Day-before

- Pre-wire deciders and skeptics; secure “no surprises” on the top two claims.
- Freeze definitions, segmentation, and model version; reconcile last actuals and LTM.
- Load back-pocket exhibits; rehearse tough questions; validate legal boundaries.

### Day-of

- Verify audio/video, screen share, and backup dial-in; open read-only model.
- Print or pin your opening and closing scripts; confirm role assignments.
- Start on time; state the decision and numbers in minute one; keep time checks.

## Audience-specific facilitation notes

- **PE Investment Committee:** keep to 10–12 pages; emphasize **ΔCM2/ΔCash**, headroom, residual risks, and terms; limit synergy to hold-period dollars.

- **Lenders/Credit Committee:** spend more time on passive vs. managed downside, 13-week cash, covenant math, borrowing-base mechanics, and reserve policy.
- **Strategic buyers:** add integration posture (Fuse/Federate/Interface), customer/brand risk, and option value; still anchor on the first 24 months of cash.

## Opening, reset, and closing scripts (use verbatim if helpful)

- **Opening:** “Our recommendation is **[buy at \$X with Y terms]**. That drives  **$\Delta CM2 \$A$**  and  **$\Delta Cash \$B$**  in Year-1, with **min headroom  $\geq H$  bps** across scenarios. We’ll prove it with unit economics, execution capacity, and risk protections.”
- **Mid-meeting reset:** “We’re 30 minutes in, two pages left before the decision. If we go deeper here, we will slip the decision. May I propose we park this and return to the headroom path?”
- **Closing:** “Before we adjourn: are we aligned on **[price/terms]**, the 90-day actions, and these **[conditions precedent]**? **[Name]** will circulate the decision note and updated model.”

## 72-hour facilitation sprint (from draft deck to decision)

- T-72 to T-48:** pre-wire stakeholders; rehearse; finalize the ten-page spine; align legal guardrails; ready back-pocket exhibits.
- T-24:** dry run with the exact team and roles; pressure-test top five questions; freeze model version and definitions.
- T-0 to T+2 hours:** deliver the read-out; capture decisions and actions live; send the decision note, updated model, and Q&A log.
- T+24:** close parked items per the action log; update the value-capture roadmap and term-sheet drafts if needed.

## Acceptance criteria for a high-performing read-out

- The meeting opens with a clear **buy/price/terms** statement and quantified  **$\Delta CM2$ ,  $\Delta Cash$** , and headroom, all tied to the current model version.
- The story spine follows the Pyramid Principle; each page changes a decision and ties to named model drivers.

- Time is controlled; deep dives that don't change the decision are parked with owners and dates.
- Live model navigation shows standard scenarios and sensitivities without free-typing assumptions.
- Legal and platform guardrails are observed; no PII or prohibited pre-close coordination.
- Decisions, conditions precedent, and 90-day actions are captured with owners and dates and circulated the same day.

Run your read-out with this discipline and you will replace debate with decisions: a crisp answer-first narrative, model-anchored proof, controlled Q&A, and a visible path from recommendation to cash.

## 18.4 Post-Mortem Review Template

A post-mortem is where diligence becomes a learning system. Its goal is not to relitigate decisions but to convert what happened—good or bad—into tighter hypotheses, cleaner models, faster execution, and clearer terms on the next deal. Treat it as you would a safety investigation: blameless, fact-rich, driver-anchored, and relentlessly practical. The outputs are concrete: a dated action list, updates to this playbook, reusable assets, and a one-page memo that improves your next IC outcome and your first 90-day value capture.

### Principles that keep the review honest

- **Blameless and specific.** Focus on facts, drivers, decisions, and constraints. No personal attribution.
- **Cash-first.** Analyze **ΔCM2**, **ΔCash**, and **quarterly headroom** impacts, not just activity.
- **Model-anchored.** Every observation links to named driver cells in the forecast model and to evidence in the data room.
- **Comparable.** Use a standard taxonomy, time windows, and metrics so results travel across deals.
- **Action-biased.** Each finding ends with a countermeasure: prevent, detect, or respond.

## Scope and timing (use this cadence)

- **Rapid debrief ( $\leq 72$  hours after read-out or close):** facts timeline, early wins/gaps, immediate fixes.
- **Structured post-mortem (within 10 business days):** full metrics, root-cause analysis, preliminary actions.
- **30-day deep dive (optional, for material gaps):** complex root causes (data architecture, marketplace policy, billing/entitlement, integration gates), confirmed countermeasures, and playbook updates.

## Who participates (and why)

- **Sponsor and Investment Lead:** decision context and terms negotiation.
- **Engagement Lead and Model Owner:** assumptions, sensitivities, and reconciliation.
- **Workstream leads:** market, VoC/pricing, GTM, CTS/ops, tech/FinOps, regulatory/ESG, finance/WC.
- **Risk & Treasury:** VaR, reserves, headroom.
- **Legal/Compliance:** clean-team, antitrust, privacy, platform policies.
- **Client counterpart or IMO lead (where appropriate):** integration feasibility and Day-1 realities.
- **Independent reviewer:** challenges logic, confirms reproducibility.

## Inputs to assemble before you begin

- Final deck and appendix with model version stamp and perimeter notes.
- Driver-based model with scenario and sensitivity sheets, QA log, and change history.
- Evidence registry mapping deck numbers to data-room files.
- Risk register, Cash-VaR heat-map, triggers, and mitigation playbooks.
- Value-capture roadmap and integration gates; TSA scope if relevant.
- Term sheet and mark-ups; covenant math; 13-week cash view if produced.
- Meeting decision log, Q&A log, red-flag cards, and RAID items.

## Post-mortem agenda (copy this flow)

### 1. Outcomes vs. thesis

- What we recommended (buy/price/terms), the dollars underwritten, and the required conditions precedent.
- Where we landed: price and terms variation, headroom, reserves, and client/credit committee feedback.

### 2. Model accuracy and forecast quality

- Reconciliation of first forecast month to last actuals and LTM.
- Scenario weights vs. observed reality; sensitivity coverage vs. sources of variance.
- Break-even thresholds and whether decisions respected them.

### 3. Evidence quality and data room hygiene

- Reproducibility checks ( $\leq 3$  clicks from driver cell to data row).
- Missingness, duplicates, and referential integrity issues; impact on ranges/haircuts.
- Clean-team boundaries and whether they slowed or distorted analysis.

### 4. Insight quality and story spine

- Which insights changed the decision; which were expensive but non-decisive.
- Proof density per insight (triangulation) and falsification attempts.
- Read-out control: time, Q&A drift, page utility.

### 5. Risk governance

- Early-warning indicators that fired (or didn't), trigger-to-action execution time, VaR actually removed.
- Residual risk accuracy and reserve sufficiency.

### 6. Execution and governance mechanics

- Cadence adherence; decision latency; critical path slips; hand-offs; escalation paths.
- Tooling and version control issues (model, deck, VDR).

### 7. Client and counterparty experience

- NPS or qualitative feedback; trust markers (access, speed, clarity).
- Term-sheet dynamics: protections won/lost and why.

### 8. Integration feasibility realism

- Gate acceptance tests (billing/entitlement accuracy, certifications, SLO headroom) vs. promises in the deck.
- TSA scope realism and exit plans.

## 9. People, capacity, and health

- Skill-to-task fit; coverage gaps; rework; burnout signals; learning needs.

## 10. Decisions and actions

- Start/stop/continue list; owners; dates; acceptance tests; updates to the playbook.

# Metrics library and formulas (compute these the same way every time)

## Model & forecast quality

- **WAPE** (weighted absolute percentage error) on Year-1 **ΔCash** and **ΔCM2**: sum of absolute errors divided by sum of actuals.
- **Bias** (mean error) for top five drivers: average of (forecast – actual) at the driver unit (e.g., bps, \$/unit, pp).
- **Scenario hit rate**: percent of cases where realized macro/channel conditions matched the chosen base/downside trigger rules.
- **Sensitivity coverage index**: share of top-five tornado drivers tested with ± standardized shocks before IC.

## Evidence & reproducibility

- **Proof density**: average independent sources per P0 insight (e.g., VoC + invoice audit + parcel bill).
- **Reproducibility rate**: share of sampled numbers that a second person reproduces from model cells in ≤3 clicks.
- **Data readiness SLA**: percent of evidence requests met within 48 hours; average days to reconcile last actuals to GL.

## Story and decision efficiency

- **Page utility**: share of spine pages that changed a decision (P0/P1 vs. P2).
- **Decision velocity**: hours from red-flag sighting to haircut in the model; hours from trigger to playbook launch.
- **Read-out control**: deviation from agenda time; count of parked topics resolved within 72 hours.

## Risk & reserves

- **Cash-VaR delta:** pre- vs. post-mitigation VaR; ROI of mitigations (VaR reduction divided by mitigation cost NPV).
- **Headroom-at-Risk (HaR):** minimum quarterly headroom at p10 vs. buffer; breach probability.
- **Coverage index:** share of portfolio Cash-VaR protected by drilled playbooks with tested triggers.

## Value capture & integration

- **Dollar realization ratio:** underwritten dollars with gates that cleared inside the planned window divided by total underwritten dollars.
- **Gate pass rate:** percent of cutovers meeting acceptance tests on first attempt (billing  $\geq 99.5\%$ , DR tested, SLO headroom).
- **TSA exit performance:** exits on or before plan; cost variance.

## Client & team health

- **Client NPS or proxy:** decision maker satisfaction on clarity and speed.
- **Rework ratio:** hours on redo divided by total hours; root cause tags (scope, data, model, story).
- **Capacity adherence:** squads with  $\leq 3$  concurrent initiatives; overtime or burnout signals.

## Root-cause analysis—use this standard method

- **Facts timeline:** reconstruct dated events, decisions, and artifacts; avoid retrospective assumptions.
- **Five Whys (bounded to 3–5):** push beyond the first-order cause to the process/assumption/tool level.
- **Ishikawa/Bow-Tie:** categorize causes under Data, Scope, Assumptions, Method, Governance, Tools, People, Client, Legal/Policy; pair **preventive** with **responsive** controls.
- **Countermeasure design:** for each root cause, specify a control that (i) prevents recurrence, (ii) detects early, or (iii) reduces severity—with owner, budget, and acceptance test.

## **Taxonomy for tagging findings (pick one primary and one secondary)**

- Data/VDR, Definitions, Modeling, Scenarios, Pricing/VoC, GTM/Funnel, CTS/Ops, Tech/FinOps, Regulatory/ESG, Risk/Reserves, Integration/TSAs, Governance/Cadence, Story/Read-out, Terms/Negotiation, Legal/Compliance, People/Capacity, Client/Stakeholder.

## **Copy-ready templates (paste these into your workspace)**

### **A) Post-Mortem Agenda & Roles**

- Purpose and scope; date; attendees and roles (Sponsor, Engagement Lead, Model Owner, Workstream Leads, Risk/Treasury, Legal, Client/IMO, Independent Reviewer).
- Decision log number and model version stamp.
- Time blocks: Outcomes vs. thesis; Model & evidence; Risk; Execution; Client; Decisions & actions.

### **B) Facts Timeline Card**

- Event/date/time; artifact (deck/model/VDR/Q&A); decision taken; trigger/threshold crossed; owner; immediate effect on **ΔCM2**, **ΔCash**, or headroom.

### **C) Findings Card (one per issue or win)**

- What happened and why it matters (driver and dollar impact).
- Root cause(s) tagged using the taxonomy.
- Evidence links (model cells, VDR files, exhibits).
- Countermeasure (prevent/detect/respond), owner, budget, acceptance test, due date.
- Confidence label (H/M/L) and residual risk.

### **D) Metrics Summary Sheet**

- Populate the metric set above for this deal; list exceptions and data gaps; include a one-paragraph interpretation.

**E) Start/Stop/Continue List**

- Start (new practices), Stop (wasteful or risky behaviors), Continue (worked well).
- Owners and dates for each Start/Stop item.

**F) Playbook Update Ticket**

- Section and subsection (e.g., 9.1 Funnel Diagnostics).
- Current guidance vs. proposed update.
- Triggering finding and evidence.
- Impact on future **ΔCM2/ΔCash** or risk.
- Owner and due date; cross-references to templates/checklists.

**G) Knowledge Pack Index**

- Reusable assets to archive: survey guides, interview scripts, pricing waterfall SQL, parcel/cloud audit notebooks, scenario sheets, integration gate checklists, term-sheet clause library.
- Storage path and version tag; data privacy review completed; anonymization status.

**Checklists by phase (use during the review)****Kick-off and scope**

- Were initial hypotheses tied to model drivers and decision thresholds?
- Did the scope align to the buyer's mandates and legal guardrails from day one?

**Workplan and governance**

- Did the cadence (stand-ups, risk reviews, IC pre-wires) run on time?
- Did critical path items slip, and how early did we see it?

**Data & VDR**

- Was the evidence registry complete and fresh?
- Could a second person reproduce headline numbers in ≤3 clicks?
- Clean-team scope clear and followed?

**Market & sizing**

- Were TAM/SAM/SOM definitions consistent with the go-to-market and model segmentation?
- Did we reconcile bottom-up and top-down and publish a variance note?

**VoC & pricing**

- Did we test elasticity bounds and realized price fences with invoice audits?
- Was the interview/survey sample representative of the revenue mix?

**GTM & channels**

- Were funnel definitions standard; did CAC payback meet guardrails in base and downside?
- Marketplace policies and penalties fully costed?

**CTS & operations**

- Did we quantify returns, freight, payment fees, support minutes/contact and tie them to CM2 bridges?
- Capacity rungs booked; SLO floors respected?

**Tech & digital**

- FinOps savings modeled as unit drivers; reliability/SLA credits reflected?
- Security/privacy posture verified; no adjacent surprises (e.g., data residency)?

**Financials, scenarios, and risk**

- First forecast month equals last actuals; LTM tied to GL; working-capital logic consistent.
- Scenario fans, tornado, and break-even thresholds published; risk triggers and playbooks drilled.

**Synergies & integration**

- Dollars contingent on gates labeled upside-only until acceptance tests passed.

- TSA scope priced with exits; stranded cost plan explicit.

### Storylining & read-out

- One-page executive summary answer-first; page titles with numbers and verbs.
- Decision capture and conditions precedent recorded live.

### Red flags—and what to do when you find them

- **No GL tie-out or ARR roll-forward that doesn't foot.** Document, downgrade confidence, widen ranges, and add a mandatory reconciliation step to the template; create a SQL view or script and store it in the knowledge pack.
- **Dependency on unproven integration gates.** Move dependent dollars to upside-only; add gate acceptance tests to the integration template; update the “terms asks” library with conditions precedent.
- **Risk triggers without KRIs.** Add the KRI to the dashboard, define persistence rules, and drill the playbook; update the risk template.
- **VDR full of PDFs and screenshots.** Require machine-readable extracts; update the seller-side VDR checklist; add enforcement language to the NDA.
- **Overlong deck that doesn't change decisions.** Enforce the one-page-one-message rule; add a page utility metric to the read-out checklist.

### 72-hour post-mortem sprint plan

- Day 0:** Convene the rapid debrief; fix the facts timeline; lock model and deck version IDs; assign owners for metric computation and root-cause threads.
- Day 1:** Populate the Metrics Summary Sheet; draft top five Findings Cards (wins and misses); list immediate countermeasures with owners and dates.
- Day 2:** Complete root-cause analysis for the top issues; write Start/Stop/Continue; open Playbook Update Tickets; package the Knowledge Pack.
- Day 3:** Issue the one-page post-mortem memo, action log, and updated templates; schedule 30-day deep dive if material risks remain.

## One-page post-mortem memo (structure you can copy)

- **Headline:** what changed cash/headroom, positively or negatively, in one sentence.
- **Three takeaways:** each with a number ( $\Delta CM2/\Delta Cash$  or  $VaR/HaR$ ) and a countermeasure.
- **Two process fixes:** governance/tooling or data improvements with owners and dates.
- **Terms implication:** clauses to carry forward (indexation, reserve caps, certification CPs, earnouts).
- **Links:** model version, evidence registry, action log, updated templates.

## Acceptance criteria for a decision-grade post-mortem

- Metrics computed and explained for model accuracy, evidence quality, story efficiency, risk coverage, and value capture; numbers traceable to driver cells and VDR files.
- Root-cause analysis completed for all material wins/misses with countermeasures (prevent/detect/respond), owners, budgets, and acceptance tests.
- Action log issued with Start/Stop/Continue; playbook update tickets opened; knowledge assets archived and accessible.
- One-page memo circulated; client feedback captured; any term-sheet learning documented.
- Within 30 days (if invoked), deep dive closes out complex causes; templates and training updated.
- A second person can reproduce any cited number in ≤3 clicks, and legal guardrails were observed throughout.

Use this template to make every diligence better than the last: the same drivers, the same math, the same disciplined storytelling—plus a tighter system of evidence, risk control, and execution that converts analysis into repeatable value.

# Chapter 19 Ethics, Compliance, and Confidentiality

Commercial due diligence is performed under intense time pressure and with unequal access to information. That combination makes **professional ethics** non-negotiable. Your credibility—and your client's legal exposure—hinge on how you collect data, what you ask people to disclose, how you store and analyze evidence, and how you present conclusions. This chapter codifies the rules of the road: independence and objectivity; antitrust and pre-close restrictions; privacy and data-protection; anti-bribery and sanctions; treatment of material non-public information (MNPI); responsible use of vendors and expert networks; and the security and confidentiality practices that protect clients and sources.

We write these standards to be **practical**. They map directly to how you scope work, run primary and secondary research (Chapter 4), handle data rooms (Chapter 18.2), structure integration feasibility (Chapter 15.3), and compose decision-grade deliverables (Chapter 18). Treat this as a living checklist: what you sign up to at kick-off, what you monitor daily, and what you attest to before any page goes to a committee.

## 19.1 Professional Standards Checklist

Use this checklist at **engagement kick-off**, during **weekly governance**, and at **final sign-off**. Every line should be either clearly “Yes” or “Not applicable—with rationale.” If any box is “No,” **stop the line** and escalate to the Engagement Lead and Legal/Compliance.

### A. Engagement acceptance, independence, and scope

#### Independence & conflicts cleared

- Formal conflict check complete across the firm and relevant affiliates.
- Financial interests disclosed (team and immediate family); personal trading restrictions acknowledged.

- No advisory roles or fee structures that bias conclusions; success-fee components (if any) disclosed and approved.

#### **Mandate & legal instruments executed**

- Signed engagement letter with scope, deliverables, timing, and liability limitations.
- Mutual NDA and **Data Processing Agreement** (DPA) covering roles (controller/processor), purpose, retention, and security controls.
- Clean-team protocol** approved by counsel, including rosters, data classes, and collaboration boundaries.

#### **Regulatory footprint understood**

- Applicable regimes identified (e.g., antitrust/competition, privacy, sector rules such as HIPAA/PCI/FedRAMP, export controls/sanctions).
- Outside counsel assigned for antitrust and pre-close conduct; escalation path documented.

### **B. Antitrust, pre-close (“gun-jumping”) and fair-competition guardrails**

#### **No joint operations or pricing pre-close**

- No joint setting of prices, discounts, customer allocation, supplier terms, production, or marketing plans with the target.
- Integration planning limited to **what-if** and **clean-team** analysis; no direction to the target’s business.

#### **Clean-team mechanics in force**

- Competitively sensitive data (customer-level pricing, margins, future plans) accessible only to cleared clean-team members; outputs aggregated/obfuscated per protocol.
- Meeting agendas/materials pre-cleared by counsel where sensitive topics may arise; minutes kept.

### Information-exchange discipline

- Use third-party or clean-team aggregation for market data; avoid contemporaneous competitors-specific forward-looking details.
- Any joint customer, supplier, or channel interactions are pre-cleared with counsel and scripted.

## C. Anti-bribery, corruption, sanctions, and trade compliance

### Zero tolerance for improper inducements

- No facilitation payments, improper gifts, or contingent compensation to public officials or counterparties.
- Gifts/hospitality within firm policy; pre-clear exceptions.

### Third-party due diligence

- Expert networks, market-research vendors, and intermediaries screened for ABAC violations, sanctions, and adverse media.
- Contractual clauses include anti-corruption, sanctions, and audit/cooperation provisions.

### Sanctions and export controls observed

- No engagement with sanctioned individuals/entities or restricted geographies; data transfers/export classified where relevant.

## D. Handling material non-public information (MNPI) and insider-trading controls

### MNPI identification and controls

- Team trained to recognize MNPI; “if in doubt, treat as MNPI and escalate.”
- Restricted list** and personal-trading blackout acknowledged; wall-cross events logged with date/time and roster.

**Need-to-know access**

- MNPI and highly sensitive materials limited to essential staff; separate storage/workspaces where policy requires.

**E. Data privacy, confidentiality, and information security****Data minimization by design**

- Collect only data needed to answer the hypotheses (Chapter 2.1); avoid PII/PHI unless strictly necessary and covered by DPA.
- Prefer anonymized/pseudonymized datasets; hash IDs for customers, employees, and individuals.

**Lawful basis & cross-border transfers**

- Lawful basis documented (contract, legitimate interests, consent).
- Cross-border transfers are protected (e.g., SCCs or equivalent) and recorded.

**Security controls in place**

- Approved firm systems only (no personal email, consumer cloud drives, or unauthorized LLMs).
- Encryption in transit and at rest; strong authentication (SSO + MFA); role-based access and least-privilege permissions.
- VDRs configured per 18.2 (watermarking, download controls, audit logs); breach-response plan with 24-hour internal escalation.

**Retention & destruction**

- Retention schedule set at kick-off; legal hold respected if applicable.
- Secure destruction of client data at project close; certificates retained.

## F. Primary research ethics (interviews, surveys, mystery shopping)

### Transparent and lawful outreach

- Identity and purpose disclosed unless **documented** mystery-shop exception is legal and approved by counsel.
- Consent for interviews/surveys obtained; call-recording complies with local consent laws; opt-out respected.

### No solicitation of prohibited information

- Do not request others' confidential information, trade secrets, or MNPI.
- Current employees of competitors only questioned on public/personal opinions and non-confidential processes.

### Compensation and incentives

- Reasonable, pre-set honoraria aligned with market-research norms; no outcome-contingent payments.
- No payments to public officials without counsel review; adhere to anti-gift policies.

### Expert networks

- Use approved networks; comply with their compliance prompts; avoid restricted topics; log expert IDs and attestations.

## G. Secondary research, IP, and license compliance

### Respect terms of use

- Use licensed databases and publications; no scraping behind paywalls or violating robots/ToS.
- Cite sources; preserve evidence of license/usage rights in the workpapers.

### Attribution and fair use

- Quote minimally; transform and analyze rather than reproduce; mark third-party charts and trademarks appropriately.

## H. Responsible analytics and AI use

### Approved tools only

- Client or firm-approved AI/analytics platforms; no client data in public LLMs or unapproved tools.
- Document prompts and outputs that materially influence conclusions; human review mandatory.

### Model risk management

- Treat AI outputs as hypotheses; verify with primary sources (invoices, settlement files, GL, VoC).
- Avoid generating or fabricating citations; maintain an audit trail.

## I. Evidence integrity and reporting standards

### Reproducibility

- Every number in the deck reproducible from named model cells in **≤3 clicks** (Chapter 18.1); evidence registry maintained (18.2).

### Balanced presentation

- Separate **passive vs. managed** outcomes; cost the response; show scenario ranges and confidence labels.
- State limitations and assumptions clearly; no cherry-picking or selective omission.

### No investment, legal, or tax advice

- Include appropriate disclaimers; route legal interpretations through counsel; keep to commercial analysis.

## J. Communications, marketing, and disclosure

### Client confidentiality

- No external sharing or marketing use of client name, data, or results without written consent.
- Sensitive calls/meetings held in private spaces; screen-sharing hygiene enforced (no unintended windows).

### Document classification

- Mark materials (Confidential/Attorney-Client Privileged/Attorney Work Product) per counsel instruction.

## K. Team conduct, inclusion, and safety

### Professional conduct

- Zero tolerance for harassment, discrimination, or retaliation; inclusive interviewing and outreach practices.
- Reasonable working hours and psychological safety norms; encourage “speak-up” on risk/ethics concerns.

## L. Governance, escalation, and incident response

### Issue logging and escalation

- Red flags (Chapter 16.2) logged within 24 hours; severity assessed; Engagement Lead and Legal informed.
- Data incidents/MNPI concerns trigger immediate containment, counsel notification, and client notice per contract/law.

### Decision rights

- Only named approvers can release deliverables, change scope affecting legal exposure, or authorize exceptions to policy.

## M. Final sign-off (no deliverable leaves without these)

### Compliance attestation

- Engagement Lead and Compliance sign off that: (i) conflicts and clean-team rules were observed; (ii) privacy/security controls applied; (iii) ABAC/sanctions screens are clean; (iv) MNPI handled under policy.

### Workpaper archive

- Model, evidence registry, and key exhibits archived with version stamps; retention clock started; access locked down.

### Practical “stop-the-line” triggers (call Legal immediately)

- Request to share or discuss **current/future** pricing, discounts, customer allocation, or production plans between deal parties pre-close.
- Any team member receives or suspects they have received **MNPI** or a competitor's non-public confidential information.
- Pressure to alter a conclusion, omit a material caveat, or misstate uncertainty.
- Instruction to put client data into non-approved tools, personal email, or consumer cloud storage.
- Proposed payments, gifts, or benefits that could be construed as inducements.
- Data breach indicators (unexpected access, lost device, misdirected email with sensitive attachments).

### Red-flag checklist for primary research (fast screen before every call)

- Have we disclosed our identity and purpose (unless a counsel-approved mystery-shop)?
- Are we avoiding prohibited topics (confidential info, MNPI, future pricing, trade secrets)?
- Is the incentive reasonable and pre-cleared?
- Do we have consent to record, and are we complying with local laws?
- Are we logging the call and the expert/network attestations in our evidence registry?

## 72-hour compliance sprint (what “good” looks like by Day 3)

- Day 0:** Execute NDA and DPA; publish clean-team protocol and roster; stand up secure VDR and access model; conflict/MNPI attestations signed.
- Day 1:** Configure evidence registry; set retention/destruction schedule; load template consents and survey scripts; brief the team on antitrust and MNPI rules.
- Day 2:** Vet and contract expert networks/vendors; stand up approved AI/analytics workspace; test breach-response drill.
- Day 3:** Hold a compliance checkpoint; clear any open exceptions; lock the sign-off workflow for deliverables.

## Acceptance criteria for compliance-ready due diligence

- All **A–M** checklist items are **Yes** or **N/A with rationale**; no “No”s outstanding.
- Clean-team, privacy, and security controls verified; access logs demonstrably active.
- Evidence registry complete; every headline number in the deck is traceable in ≤3 clicks.
- Red-flag and incident-response playbooks ready; team trained; escalation paths tested.
- Final compliance attestation signed before any client or lender read-out.

Hold yourselves to this standard and you protect not just your client and counterparties—but also your judgment. Ethical discipline is a competitive advantage: it preserves access, accelerates decisions, and ensures the dollars you underwrite can stand up to scrutiny long after the deal closes.

## 19.2 Conflict-of-Interest Screening Guide

Conflicts of interest (COIs) erode trust faster than analytical errors. In commercial due diligence they can also create legal exposure—particularly around antitrust, MNPI, and pre-close conduct. This guide gives you a practical, repeatable way to **detect, assess, mitigate, and document** COIs before they compromise independence or delay a decision. Use it at three moments: **(1) before proposal, (2) at engagement kick-off, and (3) as a standing weekly control** through close.

### What counts as a conflict—working definitions

- **Actual conflict:** a current relationship or incentive that a reasonable person would conclude biases judgment (e.g., advising the target's closest competitor on pricing strategy this quarter).
- **Potential conflict:** a circumstance that could mature into a conflict with new facts (e.g., active proposal to the seller while pitching the buyer).
- **Perceived conflict:** appearance of bias even if controls are effective (e.g., senior advisor holds a visible board seat in a related company).
- **Direct vs. indirect:** direct = you/your firm; indirect = immediate family/household, controlled entities, subcontractors, expert networks engaged on your behalf.

### Scope of screening (always check all five)

- **Entity relationships:** current, recent (lookback 36 months), and planned work with the **buyer, target, seller, top competitors, top customers, key suppliers, lenders, and co-investors**.
- **People relationships:** board seats, advisory roles, employment history in the last 24 months, immediate family ties with decision makers or materially relevant employees.
- **Financial interests:** personal and household holdings (public and private), carried interest, co-invests, side letters, success-fee arrangements, earnouts, tokens/convertibles.
- **Information exposure:** MNPI wall-crosses, clean-team memberships, access to competitively sensitive data, prior NDAs with scope overlaps.
- **Third parties:** expert networks, subcontractors, data providers, law/accounting firms working on both sides, and any vendor paid contingent on deal success.

## Step-by-step COI process (use this sequence every time)

### 1) Pre-proposal screen (same day)

- Run a **firmwide engagement search** for the last 36 months across buyer, target, seller, top 10 competitors, top 10 customers, lenders, and co-investors.
- Query the **restricted list** and **insider list** for all named entities; record any wall-cross dates and rosters.
- Check the **fee model**: prohibit or pre-clear any success-contingent elements; document how incentives are neutralized.
- Draft a **pre-proposal COI note**: list hits, preliminary risk rating (High/Medium/Low), and proposed mitigations.

### 2) Kick-off clearance (within 24–48 hours of LOE/NDA)

- Collect **team attestations** (personal holdings, board/advisory roles, immediate family conflicts, prior employment, gifts/hospitality over policy).
- Confirm **clean-team protocol** (roster, data classes, aggregation rules) and that access controls match the protocol.
- Screen **subcontractors/expert networks** (ABAC, sanctions, independence, MNPI policies); embed contractual COI reps and audit rights.
- Obtain **client disclosures** on any exclusivity, multi-track processes, club deals, or lender overlays; align on whom else they've engaged.

### 3) Weekly COI refresh (15 minutes)

- New names check (accounts added, alternate bidders, lenders, regulators, marketplace/platform owners).
- Team changes: backfill → re-run attestations; recuse as needed.
- Review **MNPI events** (new wall-cross, expanded clean-team scope); verify information barriers and logs.

### 4) Close-out (before any external deliverable)

- Re-affirm attestations; document recusals; archive the COI register with the model version and deliverable list; issue a **COI clearance memo** signed by Engagement Lead and Legal/Compliance.

## COI materiality rubric (how to rate what you find)

- **Proximity:** same decision (High), same company different decision (Med), adjacent market (Low).
- **Recency:** <6 months (High), 6–24 months (Med), >24 months (Low).
- **Information sensitivity:** MNPI/clean-team (High), confidential but not sensitive (Med), public/aggregated (Low).
- **Economic incentive:** success fee/equity or carry (High), fixed fee (Low).
- **Control effectiveness:** no barrier (High), ring-fenced with audit (Med), separate firm entity/fully independent team (Low).

### Decision rule:

- **High** → decline or obtain written client waivers **and** run full separation (dual teams + monitored barriers) with independent QA.
- **Medium** → disclose and mitigate; Legal/Compliance sign-off required before work.
- **Low** → document and monitor; included in the COI register.

## Mitigation toolbox (pick the smallest control that works)

- **Ring-fencing:** separate physical/IT workspaces, repositories, and collaboration tools; dedicated channels; no cross-staffing; access at least privilege.
- **Dual-team structure:** independent leadership chains; separate QA; independent financial review; mandatory delay between personnel moving sides.
- **Recusals:** remove specific individuals; document start/end dates; scrub notes/devices/archives.
- **Independent review:** third-party or separate internal reviewer validates deliverables against scope and COI plan.
- **Scope limits:** no pricing advice if counterpart work exists; clean-room analytics using anonymized/aggregated data only.
- **Disclosure and consent:** written client acknowledgment of the conflict and chosen mitigations; renewal of scope changes.
- **Compensation neutralization:** remove success fees; separate billing centers; cap variable comp tied to close.
- **Audit trail:** immutable logs for access, exports, and barrier breaches; quarterly audit of multi-month.

## Red flags and stop-the-line triggers (escalate immediately)

- Simultaneous or near-simultaneous advice to **buyer and seller** on the same asset.
- Team member with **board seat, carry, or side letter** in the target, buyer, or a principal competitor.
- **MNPI wall-cross** plus overlapping staffing without effective barriers.
- **Success-contingent** fee tied to the transaction closed without explicit Legal approval and client disclosure.
- Instruction to share **competitor pricing, customer lists, or future plans** across parties pre-close.
- Expert, subcontractor, or data provider **engaged by both sides** with unclear access controls.
- Personal relationship (immediate family/intimate partner) with a decision maker **on either side** of the deal.
- Legal or compliance pushback on **documenting** the conflict and mitigations.

## Special contexts (raise the bar)

- **Private equity with portfolio conflicts:** check portfolio company overlaps by **market, customer, and supplier**; watch co-invests and sidecar funds; ensure carry alignment disclosed.
- **Lenders/credit funds:** if preparing both equity and **lender cases**, maintain dual-team separation and distinct deliverable scopes; avoid sharing borrower-sensitive covenants.
- **Public sector/regulated:** stricter procurement ethics; cooling-off periods for former officials; **gift** and **lobbying** rules; segregation of pre-decisional documents.
- **Platform/marketplace owners:** policy enforcement and listing decisions create latent conflicts; prohibit pre-close strategy sharing that could be seen as coordination.
- **Audit/assurance affiliates:** independence rules may restrict consulting; confirm whether any affiliate provides audit/attest services to entities in scope; obtain independence clearance.
- **Sanctions/export controls:** any party on a watchlist is a hard stop without Legal approval.

## COI register—required fields (keep one list, not many)

- Engagement identifiers; buyer/target/seller and counterparties (competitors, customers, suppliers, lenders, co-investors).
- Conflict description; **type** (actual/potential/perceived); **source** (firm/personal/third-party).
- Materiality rating and rationale; information sensitivity (public/confidential/MNPI).
- Mitigation plan (barriers, recusals, scope limits, disclosures); effective date and owner.
- Approvals (Engagement Lead, Legal/Compliance, Client acknowledgments); renewal dates.
- Incident log (breaches, escalations, remediations); final disposition at close.

## Team attestation—what every member signs

- No undisclosed financial interests (equity, options, carry, tokens) in named entities; no side letters or finder fees.
- No board/advisory roles or immediate family ties that create bias; disclose outside employment in relevant markets.
- Agreement to **MNPI**, clean-team, and information-barrier policies; no use of unapproved systems.
- Commitment to report **gifts/hospitality**, political contributions that could create perceived bias, and any new conflicts within 24 hours.

## Vendor and expert network screening (don't skip the plumbing)

- Written **ABAC/sanctions** warranties and MNPI policies; audit/cooperation clause; immediate termination for breach.
- Expert eligibility checks (no current employees of restricted competitors unless under compliant topics); logs of **network attestations**.
- Payment terms that are **not** contingent on deal outcome; clear scope of permissible topics.

## Fee structure guardrails (keep incentives clean)

- Default to **fixed or time-and-materials**; prohibit fees contingent solely on close.

- If performance-based elements exist (e.g., tied to milestones), disclose and **cap**; ensure they reward **work quality** not transaction outcome.
- Never take **equity/equivalents** in the buyer, seller, or target while providing diligence.

## Communications do's and don'ts (reduce perceived conflicts)

- Do **disclose early** and in writing; use consistent language in proposals, SOWs, and read-outs.
- Do identify **who is on which side**; share ring-fence diagrams if dual teams exist.
- Don't joke about "both sides of the table"; don't imply outcome dependence; don't share anecdotes that could expose client strategies.

## Decision tree (accept, mitigate, or decline)

- **Accept** only if materiality is Low and controls are inherent (no MNPI, no overlapping staffing, no success fees).
- **Mitigate** if materiality is Medium and mitigations are practical, measurable, and auditable; require written client acknowledgment.
- **Decline** if materiality is High, MNPI overlaps exist, or mitigations would be performative (barriers in name only).

## COI Questionnaire (issue at kick-off; update on role changes)

- List all **financial interests** (you and household) in named entities; include options, carry, tokens, SAFEs, side letters.
- Current/last-24-month **employment**, board, advisory, or consulting roles related to entities in scope.
- **Family/close personal relationships** with executives, directors, key managers, or deal team members at named entities.
- **Gifts/hospitality** over policy thresholds received from or provided to named entities in the last 12 months.
- Prior **clean-team/MNPI** access and dates; current restricted-list status.
- Outside income sources that could intersect (expert calls, teaching, paid writing) with entities in scope.
- Acknowledgment of **policies** (antitrust, MNPI, privacy/security, ABAC, sanctions) and agreement to report changes within 24 hours.

## 72-hour clearance sprint (from blank page to decision-grade COI file)

- Day 0:** Run firmwide search and restricted-list checks; draft preliminary COI map; propose mitigations; decide proposal go/no-go.
- Day 1:** Collect team attestations; set clean-team roster and barriers; screen vendors/experts; align fee model.
- Day 2:** Obtain client disclosures; finalize mitigations (ring-fences, recusals, scope limits); secure Legal/Compliance sign-off.
- Day 3:** Publish the **COI register** and **clearance memo**; embed a 15-minute weekly COI checkpoint in governance.

### Acceptance criteria for a conflict-clean engagement

- A **single COI register** exists, current, and approved by Legal/Compliance; all team members have signed attestations.
- Any Medium/High issues are **disclosed in writing** to the client with explicit consent and dated mitigations.
- Information barriers and clean-team mechanics are **operational** (separate repositories, access controls, logs).
- Compensation structure is **independent** of deal outcome (or explicitly approved and neutralized).
- Vendors/experts are screened and contracted with COI, MNPI, ABAC, and sanctions clauses.
- A **close-out memo** confirms no barrier breaches and archives the register with the final deliverables and model version.

Run this checklist with rigor and your work remains defensible: the team is independent, the analysis is trusted, and the record shows you identified, mitigated, and documented conflicts before they could compromise the deal—or your reputation.

## 19.3 Information Security Protocol Template

Information security in commercial due diligence is not an IT add-on; it is a **deal enabler**. Clients, lenders, counterparties, and regulators expect the same controls you would use to protect production systems—applied to the VDR, the model, primary research, clean-team work, and every deliverable. This template gives you a complete, copy-ready protocol you can adopt at kick-off, monitor weekly, and attest to before any read-out. It aligns to widely used control frameworks (e.g., NIST CSF, ISO 27001, SOC 2) and to this playbook’s mechanics (data room in 18.2, risk in 16, story and model in 17–18).

### Purpose and scope

This protocol protects the **confidentiality, integrity, and availability** of diligence data and work products across their lifecycle—**ingest → store → analyze → share → archive/destroy**—covering people, processes, and technology used by the engagement team and approved vendors. It applies to all formats (structured data, documents, recordings, notes), all environments (VDR, modeling workspace, collaboration tools), and all participants (client, target, advisors, third-party experts), with additional restrictions for **clean-team** handling of competitively sensitive information.

### Roles and accountability

Name people, not functions. Each role has explicit authorities and daily routines.

- **Engagement Lead (EL):** owns protocol adoption; signs final compliance attestation.
- **Security Officer (SO):** configures access, monitors logs, runs incident response; escalation owner.
- **Clean-Team Lead (CTL):** enforces segregation and aggregation rules; approves outputs that leave the clean room.
- **Data Steward (DS):** curates the evidence registry, validates source lineage, tracks retention/destruction.
- **Model Owner (MO):** keeps the model in a secured repo; maps driver cells to sources; controls model exports.
- **Vendor Manager (VM):** screens expert networks and processors; ensures DPAs and sub-processor lists are current.

Publish the names and backups on Day 0; no analyst should be uncertain who to call for a security decision.

## Data classification and handling rules

Classify every artifact when you ingest it; the label travels with the file and governs storage, sharing, and destruction.

- **Public:** already public; no restrictions
- **Internal:** playbook methods and non-sensitive notes; share within the firm only.
- **Confidential:** client or target information with business sensitivity; store in VDR or approved workspace; share on a **need-to-know** basis.
- **Restricted (Clean-Team):** competitively sensitive data (customer-level pricing, forward plans, detailed margins); accessible only to clean-team roster; outputs must be **aggregated/anonymized** before leaving the clean room.

Handling rules that apply to **Confidential/Restricted**:

- **Minimize:** collect only what is necessary to test hypotheses (Chapter 2).
- **Pseudonymize:** hash or tokenize customer, employee, or individual identifiers; avoid raw PII/PHI unless strictly required and contractually covered.
- **Label & watermark:** every file carries sensitivity label, source code, extract date, perimeter, and currency.
- **No shadow IT:** never move data to personal email, consumer cloud drives, or unapproved devices.

## Access control and authentication

Grant the **least privilege** needed, review weekly, and revoke immediately on role change.

- **SSO + MFA** mandatory for all systems (VDR, code repos, modeling workspace, chat, file shares).
- **Role-based access** with explicit groups for Clean-Team vs. Non-Clean-Team; deny by default.
- **JML (Joiner-Mover-Leaver) process:** access provision within 4 hours of joining; review on every role change; removal within 2 hours of departure.

- **Just-in-Time access (JIT):** temporary elevated rights expire automatically after the task window.
- **Device posture:** only managed devices with full-disk encryption, EDR/anti-malware, host firewall, and screen-lock ≤10 minutes idle. USB storage disabled by policy.

## Secure environments

Use only **approved** and **logged** systems; configure each per the checklist.

- **VDR (primary store):** watermarking; download/print controls per role; IP allow-listing when feasible; activity logs with user, file, action, timestamp; weekly log review.
- **Modeling workspace:** version-controlled repository; protected branches; signed commits; secrets kept outside spreadsheets; model exports tagged with **model version ID** and perimeter notes.
- **Collaboration tools:** project-scoped channels; external guests gated; file previews only for Restricted data; no forwarding outside the workspace.
- **Primary research tools:** survey and interview platforms with consent capture and data residency options; recording defaults off unless consented.
- **Secure sandboxes:** open untrusted files (e.g., macro-enabled spreadsheets) in isolated viewers; never enable macros by default.

## Encryption and key management

- **In transit:** TLS enforced for all endpoints; reject weak ciphers; prefer modern TLS configurations.
- **At rest:** server-side encryption (AES-256 or better) for VDR and sanctioned stores; full-disk encryption on endpoints.
- **Keys:** managed by the platform or the firm's KMS; access limited to SO; rotation at least annually or on compromise; never embed secrets in files or code.

## Logging, monitoring, and audit trail

What you do not log, you cannot defend. Maintain a single **security logbook** with:

- **Access logs:** who viewed, downloaded, exported, or shared which files and when; kept ≥1 year or per contract.
- **Administrative actions:** changes to permissions, group memberships, clean-team rosters.
- **Data lineage:** evidence registry entries linking deck numbers and model drivers to exact source files/rows and extract dates (Chapter 18.2).
- **Alerting:** failed logins, abnormal download volumes, access from unexpected geographies, disabled EDR.
- **Reviews:** SO reviews weekly; escalates anomalies within 24 hours; documents outcomes in the logbook.

## Third-party and vendor controls

No third party touches data without screening and a contract.

- **Due diligence:** ABAC/sanctions screening, security posture review, privacy policy and breach history, data residency and sub-processor list.
- **Contracts:** NDAs + DPAs with purpose limitation, retention/destruction, incident-notice windows, audit rights, and sub-processor transparency.
- **Access:** least-privilege, time-boxed; vendor accounts segregated and labeled; logs retained alongside internal logs.
- **Expert networks:** require expert eligibility attestations (no MNPI, no current employer confidentials), topic guardrails, and recorded consent.

## Clean-team protocol (segregation and outputs)

- **Segregated stack:** separate VDR workspace, channels, and model branch; Non-Clean-Team cannot access or search within it.
- **Roster & training:** named CTL approves membership; every member completes antitrust/clean-team training before access.
- **Outputs:** only **aggregated/anonymized** analyses may exit the clean room; CTL signs off, and legal retains a copy.
- **Audits:** barrier tests run weekly (attempted cross-access checks); incidents escalate immediately.

## Primary research security

- **Consent first:** inform identity and purpose (unless counsel-approved mystery shop); obtain recording consent; honor opt-outs; comply with local recording laws.

- **Sanitize notes:** remove names and contact details; replace with hashed IDs; store transcripts in approved systems only.
- **Prohibited topics:** do not solicit trade secrets, MNPI, or forward-looking competitor plans; stop the interview if such topics arise and note the incident.

## AI and analytics safeguards

- **Approved tooling only:** use firm-approved analytics/AI platforms; **no client or target data** in public LLMs or unsanctioned tools.
- **Prompt hygiene:** redact sensitive fields before analysis; keep prompt/output logs where material to conclusions; human review required for any AI-assisted output.
- **Provenance:** AI-generated insights must be verified against primary sources (invoices, settlement files, GL, VoC) before inclusion in the deck.

## Incident response (IR)

Write this section like a runbook. When a control fails, seconds count.

- **Severity levels:**
  - **S1:** confirmed leakage of Restricted data, MNPI exposure, or suspected criminal compromise.
  - **S2:** unauthorized access to confidential data, malware on a managed device, or failed barriers.
  - **S3:** policy violations without evidence of access (e.g., attempted export blocked).
  - **S4:** false positives and routine exceptions.
- **The first hour (all severities):**
  - **Contain:** disable affected accounts; revoke tokens; quarantine devices; freeze VDR sessions.
  - **Assemble:** EL, SO, CTL, Legal, VM; open an IR case; assign a scribe.
  - **Preserve:** snapshot logs; do not delete artifacts; note exact timestamps.
  - **Assess:** severity; impacted data classes; jurisdictions; notification requirements.
- **Next 24–72 hours:**
  - **Eradicate:** remove malware; rotate keys; reset credentials; patch vulnerabilities.

- **Notify:** client and affected parties per contract/law; coordinate with counsel on regulator notifications.
- **Recover:** restore from known-good backups; re-enable access gradually; monitor closely.
- **Root cause:** five-whys; document control gaps; open corrective actions with owners and dates.
- **Close-out:** post-mortem (18.4), updated risk heat-map (16.1), and protocol adjustments.

## **Business continuity (BC) and disaster recovery (DR)**

- **Backups:** versioned, encrypted backups for model, evidence registry, and critical workpapers; test restores quarterly; define **RPO ≤24 hours** and **RTO ≤24 hours**.
- **Loss scenarios:** stolen laptop, VDR outage during read-out, cloud identity provider failure; pre-baked workarounds (spare managed devices, read-only deck copies, alternate identity fallback).
- **Vital records:** store engagement roster, contacts, escalation trees, and acceptance criteria in a separate, replicated location.

## **Retention and destruction**

- **Retention plan:** declare periods at kick-off (e.g., 12–24 months unless contract specifies otherwise); hold exceptions documented by Legal.
- **Destruction:** cryptographic wipe or platform delete; destroy local caches and working copies; revoke shared links; obtain **certificates of destruction** from vendors; DS logs completion.
- **Archival set:** minimal set retained for defensibility (final deck, model version, evidence registry, decision log, COI register, clean-team charter, IR records).

## **Secure deliverables**

- **Packaging:** watermark “Confidential”; include **model version ID**, perimeter, currency, and extract dates for key sources.
- **Transmission:** share only via VDR or secure link with expiry; no email attachments for Restricted data.
- **Content hygiene:** no PII/PHI, named customer pricing, or competitor-sensitive details in the main deck; anonymized samples for appendix if counsel permits.

## Daily and weekly operating rhythm

- **Daily:** JML updates; review overnight security alerts; validate any new data ingest have labels and registry entries.
- **Weekly:** access reviews; VDR log scan; clean-team barrier test; vendor sub-processor list check; risk/incident review with open actions and owners.
- **Pre-read-out gate:** run the “Final Sign-off” checklist below; no exceptions without EL + Legal approval.

## Copy-ready artifacts (drop into your SOW or kickoff pack)

### **Security Statement (SOW language)**

“We maintain role-based, least-privilege access; SSO + MFA; encryption at rest and in transit; clean-team segregation for competitively sensitive data; logging and weekly review of access; approved tools only (no client data in public LLMs); incident response with 24-hour escalation; and retention/destruction per contract.”

### **Clean-Team Charter (excerpt)**

“Restricted data is accessible solely to the Clean-Team roster in segregated environments. Outputs leaving the clean room are aggregated/anonymized and must be approved by the Clean-Team Lead and counsel. Attempts to bypass barriers trigger immediate incident escalation.”

### **Incident Notification Clause (client-facing)**

“We will notify Client’s Security and Legal contacts of any confirmed or reasonably suspected unauthorized access to Confidential or Restricted information within the earlier of 48 hours or the contractual requirement, providing scope, timeline, mitigations, and next steps.”

### **Certificate of Destruction (template language)**

“We certify that on [date], all Client-provided Confidential/Restricted information and derivatives in our possession or control were securely destroyed, except for archival records retained under legal hold. Methods: [method]. Covered systems: [systems]. Signed: [SO/EL].”

## Day-0 to Day-3 spin-up checklists

### Day 0 (before data lands)

- Execute NDA and DPA; publish Clean-Team roster and charter.
- Stand up VDR with labels, MFA, watermarking, and logs enabled; create role groups.
- Configure modeling repo and collaboration channels; restrict external sharing; disable downloads for Restricted by default.
- Post the protocol and roles; schedule the weekly security review.

### Day 1

- Provision users via SSO; validate device posture; confirm JML workflow.
- Load the evidence registry shell; align source codes and extract date format.
- Screen vendors/experts; execute contracts with DPAs and audit rights.
- Run a breach-response drill (table-top) for a plausible scenario.

### Day 2

- Ingest first data drops; apply labels and watermarks; complete lineage entries.
- Turn on alerts for abnormal downloads and fail MFA; run a clean-team barrier test.
- Publish retention schedule; tag any legal holds.

### Day 3

- Perform the first weekly access review; fix access drift; document outcomes.
- Verify backup and restore of the model and evidence registry; record RPO/RTO test.
- Issue a short “security status” note with open actions and owners.

## Final sign-off checklist (no deliverable leaves without these)

- Roles named; protocol posted; JML running; device posture confirmed.
- VDR logs enabled, reviewed, and archived; modeling repo protected; collaboration channels scoped.

- Data classified and labeled; evidence registry complete for all deck numbers; reproducibility in **≤3 clicks** from model to source.
- Clean-team segregation proven by a barrier test; outputs approved by CTL and legal.
- Vendors screened and contracted; DPAs on file; sub-processors listed.
- IR runbook tested; contact tree verified; no open S1/S2 incidents.
- Retention/destruction plan published; archival set identified; certificate language readied.
- EL and SO sign the **Compliance Attestation**.

## Acceptance criteria for an information-secure engagement

- Every artifact is labeled; every access is logged; every number can be traced to a source; every sensitive flow has a named owner and a tested control.
- Clean-team rules are operational, not theoretical; barriers tested; outputs aggregated.
- Only managed devices and approved tools touch data; encryption is enforced end-to-end.
- Incidents are contained and escalated within defined windows; post-mortems close gaps.
- Retention is deliberate; destruction is certified; archives are minimal but defensible.

Adopt this protocol as written and you make security **predictable**: clear roles, visible controls, short feedback loops, and auditable evidence—so diligence can move at deal speed without putting clients, counterparties, or your reputation at risk.

## 19.4 Anti-Bribery & Corruption Checklist

Anti-bribery and corruption (ABAC) is not a side policy—it is a deal-gate. Diligence teams operate under high time pressure, interact with third parties (expert networks, intermediaries, survey vendors), and often touch government-adjacent sectors. This checklist turns principles into **operating controls** you can run on Day 1 and attest to at sign-off. It is designed for three use cases: (1) running your own engagement ethically, (2) diligencing a target's ABAC program, and (3) translating residual ABAC risk into **terms, reserves, and post-close actions**.

Use this as a living document: complete at kick-off, review weekly in governance, and certify before any external read-out. When in doubt, **stop the line and call counsel**. This guidance is commercial and operational; it is not legal advice.

### How to use this checklist

- Mark each item **Yes / N/A (with rationale)**.
- If **No**, assign an owner and a date; pause any dependent activity.
- For target-company items, record **evidence paths** (policy, logs, samples) and **exceptions** priced into the case.

#### A. Tone, governance, and scope (engagement team)

- Engagement acceptance includes **ABAC risk screen** (country/sector exposure, state-owned enterprise (SOE) customers, tenders, permits, customs).
- ABAC accountability named:** Engagement Lead owns decisions; Compliance contact listed; escalation path visible to the team.
- Team trained** on ABAC do's/don'ts, gifts & hospitality (G&H), interactions with public officials, and red-flag recognition; attestations signed.
- Policy set:** zero tolerance for bribery and kickbacks; **no facilitation payments**; clear rules for G&H, donations, sponsorships, political activity, and lobbying.
- Clean-team & antitrust** boundaries reinforced (no pre-close operational direction; aggregated outputs only).

## B. Third-party due diligence (TPDD)

Applies to expert networks, survey panels, country “fixers,” interpreters, local consultants, intermediaries, channel partners used for research, and any subcontractor.

- Identity & ownership verified:** legal name, registration, beneficial owners, government ties, PEPS/relatives.
- Screening:** sanctions, adverse media, enforcement history, debarment lists; recency ≤ 12 months.
- Risk rating:** Low/Med/High based on country, sector, government touchpoints, compensation structure, and scope.
- Contract clauses present:** compliance with applicable anti-corruption laws; audit/cooperation; books-and-records; no facilitation payments; right to withhold/terminate; sub-contractor approval; conflict-of-interest disclosure.
- Compensation controls:** fees commensurate with market; **no success-only payments; no cash** or crypto; bank account in vendor's **own name** in country of incorporation unless pre-cleared; itemized invoices tied to deliverables.
- Training & certification:** High-risk third parties complete ABAC training/attestation before work starts.
- Ongoing monitoring:** re-screen on scope change; log and review exceptions.

## C. Gifts, hospitality, travel (G&H) controls

- Prohibited:** cash or cash-equivalents (gift cards), per diems in cash, personal travel, “social” events with no business purpose, lavish venues, spousal/guest travel, anything linked to an active decision.
- Public officials & SOEs:** treat employees and board members of SOEs as public officials; **pre-approval** from Compliance for any spend; keep stricter thresholds.
- Pre-approval thresholds:** set per person/per event caps; aggregate by calendar year; document business purpose, attendees, and value.
- Transparency:** enter all G&H in a **register** within 5 business days; receipts required; management review monthly.
- Symmetry test:** would you be comfortable seeing this on the front page with names and amounts? If not, do not do it.

## D. Payments, books & records

- No off-book accounts; no slush funds;** no “miscellaneous” expense codes for High-risk countries or activities.
- Invoice quality:** detailed description, dates, locations, rate cards; match to SOW; three-way match where feasible.
- Banking rules:** pay only to the contracted entity’s account; no third-country or personal accounts; no splitting invoices to dodge thresholds.
- Approvals:** dual approvals for High-risk vendors/geographies; exception logs maintained.
- Reimbursements:** original receipts required; round-sum and duplicate claims rejected; per-diem cash discouraged.

## E. Donations, sponsorships, and community projects

- Prohibited if** requested by or linked to a decision-maker or a public official.
- Due diligence:** charity legitimacy, beneficial owners, ties to officials; use the same TPDD rigor.
- Control:** written agreement, defined outcomes, payment to organizational account, verification of impact; log in a **donations register**.
- Political contributions & lobbying:** prohibited unless explicitly permitted by policy and counsel; never via third parties.

## F. Interactions with public officials

- Definition:** includes officials, candidates, party officials, **SOE employees**, and employees of public international organizations.
- Meeting hygiene:** agenda, business rationale, two-person rule for meetings when feasible; keep minutes; log any offered or requested items of value immediately.
- Permits/tenders/customs:** no “expedite fees”; use approved brokers with TPDD; document timelines and fees.

## G. Red-flags (and first responses)

If any trigger appears, **freeze related spend**, open an **exception case**, and escalate to Compliance within 24 hours.

- Unusually high commissions or unexplained success fees; vague SOWs for “consulting” or “marketing support.”
- Requests for payment in cash, to personal accounts, or to accounts in a third country; split-billing.
- Intermediary has close ties to a public official or decision maker; refuses to disclose beneficial owners.
- Pressure to move quickly “before decision day”; insistence on secrecy; refusal to include ABAC clauses.
- Charity/sponsorship “suggested” by a decision maker; selection of a charity with opaque ownership.
- Hospitality invites during an active tender; travel upgrades or spousal travel requests.
- Off-invoice credits or rebates tied to “approval,” “permit,” or “listing.”  
First response: suspend the transaction, collect documents (SOW, emails, invoices, bank details), preserve messages, and notify Legal/Compliance.

## H. Target-company ABAC diligence (what to request and test)

- Policy & governance:** ABAC policy; G&H, donations, sponsorships, political activity; third-party standard; investigation procedure; board oversight.
- Training & attestations:** coverage in the last 24 months, role-based modules, completion rates, refresher cadence.
- Third-party files:** due-diligence records, risk ratings, contracts with ABAC clauses, payment terms, renewal reviews.
- Registers & logs:** G&H, donations/sponsorships, conflicts of interest, hotline cases (anonymized), investigations and outcomes.
- Books & records tests** (sample 25–50 High-risk entries across 24 months): “consulting/marketing” expenses, customs/broker fees, facilitation flags, cash accounts, rebates/credit notes, petty cash, year-end journal entries, and round-sum payments; tie to contracts and deliverables.

- Sector-specific:** samples around tenders, listing/placement fees, formulary decisions, certifications/inspections, licensing and permitting.
- Culture & speak-up:** hotline availability, non-retaliation policy, case cycle times, remediation discipline.

## I. Contractual protections (deal terms and vendor SOWs)

- Reps & warranties:** compliance with anti-corruption laws; no violations in look-back period; accurate books & records; no undisclosed government relationships.
- Covenants:** maintain ABAC program; immediate notice of investigations; audit rights; training obligations for High-risk third parties; right to withhold/suspend/terminate on suspicion.
- Conditions precedent:** high-risk third parties replaced or re-papered; training completed; investigation close-outs provided.
- Earnouts/bonuses:** tie to clean KPIs, not regulatory or listing events; include clawbacks for ABAC breaches.

## J. Investigations and incident response

- Intake channels:** visible reporting email/line; anonymous hotline for target employees during diligence if appropriate.
- Preservation:** legal hold on relevant data; stop automatic deletion; secure images of key devices where feasible.
- Triage:** severity rubric; immediate containment (stop payments); counsel-led investigation; documented findings and remediation.
- Disclosure:** follow counsel on regulator and counterparty notifications; never self-disclose without coordination.

## K. Post-close integration (100-day ABAC plan)

- Issue Day-1 ABAC policy; roll out training to all in-scope employees and high-risk third parties.
- Refresh third-party due diligence; re-paper with ABAC clauses; rationalize intermediaries.
- Stand up **G&H and donations registers**; close petty-cash loopholes; harmonize expense codes.

- Forensic review of High-risk accounts (last 24 months); investigate outliers; remediate root causes.
- Launch **speak-up** campaign; confirm non-retaliation; track case handling SLAs.

## L. Roles, records, and attestations (engagement team)

- Named ABAC owner; escalation contacts (Legal, Compliance) posted; **24-hour** response expectation.
- Registers maintained: third-party screening, G&H, donations/sponsorships, exceptions, investigations, training.
- Final **ABAC attestation** signed by Engagement Lead before any external deliverable: confirms screening, controls, exceptions, and escalations.

## Copy-ready artifacts (use verbatim)

- Third-party ABAC clause (short-form):**  
“Counterparty represents and warrants compliance with all applicable anti-corruption laws, has not and will not offer, promise, give, request, or accept anything of value to improperly influence any act or decision, and maintains accurate books and records. The counterparty agrees to audit and cooperation rights, prohibits facilitation payments, and permits immediate suspension or termination for suspected breach.”
- Gifts & hospitality approval note (fields):** business purpose; counterparties and affiliations; event/date/venue; itemized value per attendee; prior YTD amount to same recipient; approver; register entry ID.
- Red-flag incident card (fields):** trigger observed; party and scope; payments halted (Y/N); documents preserved; counsel notified date/time; next actions; owner.

## 72-hour ABAC sprint (engagement and target)

- Day 0:** name ABAC owner; brief the team; publish zero-tolerance and G&H rules; load template registers; start TPDD on all vendors/experts; insert ABAC clauses into SOWs.
- Day 1:** collect target ABAC policies, registers, top-50 High-risk payments and vendor list; pull 25–50 sample transactions; stand up incident intake.

- Day 2:** complete screenings; review samples; log red flags and exceptions; draft deal-term asks (reps, audit rights, CPs); pre-approve any unavoidable G&H with counsel.
- Day 3:** finalize ABAC section of risk pack: findings, residual risk, mitigations, terms; obtain Legal/Compliance sign-off.

## Acceptance criteria for an ABAC-clean diligence

- All third parties screened, risk-rated, contracted with ABAC clauses, and paid via compliant channels; no cash or success-only fees.
- G&H and donations registers are active; no public-official spend without pre-approval; all items documented.
- No unresolved red flags in sampled payments; exceptions documented with actions and owners.
- Target program assessed with evidence; residual ABAC risk translated into **terms and a 100-day plan**.
- Engagement ABAC attestation signed; escalation path tested; team trained; records complete.

## Stop-the-line triggers (escalate immediately)

- Request for cash, off-book payment, third-country account, or split invoices.
- Any payment or favor tied (explicitly or implicitly) to a decision, listing, permit, or inspection.
- Third party refuses ABAC clauses or disclosure of beneficial owners.
- Hospitality or donation requested by a public official or decision-maker.
- Evidence of falsified invoices, duplicate reimbursements, or “consulting” with no deliverables.

Run this checklist and ABAC becomes a **management control**, not a compliance afterthought: clear rules, named owners, documented proofs, and fast escalation—protecting your client, your counterparties, and the integrity of the deal.

## Chapter 20. Playbook Toolkit

The toolkit turns the playbook into muscle memory—ready-to-use checklists, templates, and runbooks you can drop into any diligence and get to a decision fast. Everything in this chapter is **practical, driver-anchored, and cash-first**. Use it to set up the work in hours, keep scope under control, and ship an underwritable recommendation with the right protections and Day-1 actions. Each tool mirrors the structure of the playbook and uses the same language—**ΔCM2, ΔCash, headroom**, named drivers, passive vs. managed outcomes, residual risk, MOVE scoring, and answer-first storylines.

### 20.1 Master Checklist: End-to-End CDD

This master checklist is your single source of truth from origination to post-mortem. Run it as a living document: every line has a status (Yes/No/N.A.), an owner, and a date. If anything material is “No,” stop the line, assign an action, and set a time box. Where you see “acceptance test,” treat it literally—a clear condition that must be met before you move on.

#### How to use this checklist

- Keep one owner for the list (Engagement Lead) and named owners for each section.
- Log decisions inline; link to the model cell(s), exhibit(s), and data-room file(s).
- Apply “Yes/No/N.A.” strictly; “In progress” is **No** until the acceptance test is met.
- Review daily during spin-up (Days 0–3) and weekly thereafter in governance.

#### 1) Pre-engagement and acceptance (before proposal)

- Mandate clarity: buyer type, decision date, acceptable outcomes (buy/reprice/restructure/re-sequence/pass).
- Conflict-of-interest screen run; mitigation/recusals documented; client disclosures captured; Legal sign-off.

- NDA + DPA drafts prepared; clean-team need identified; privacy and sector rules mapped (e.g., HIPAA/PCI).
- Fee model independent of close (or explicitly disclosed and approved).
- Initial hypotheses framed as **driver changes** (price bps, attach, conversion, returns %, \$/shipment or \$/API call, take-rate bps, DSO/DIO/DPO).
- Acceptance test: proposal includes scope, deliverables, timeline, governance cadence, and compliance posture.

## 2) Day-0 to Day-3 spin-up (kick-off done right)

- Contracts executed (NDA/DPA); clean-team protocol and roster published.
- Stakeholder alignment workshop held; decision thresholds agreed (valuation, headroom, reserves).
- Scope locked; workstreams chartered; **RACI** and escalation paths published.
- Governance set: stand-ups, weekly risk review, IC pre-wires, red-team slot.
- Security live: VDR provisioned (labels, MFA, logs); modeling repo protected; collaboration channels scoped.
- Evidence registry shell created; source codes and extract-date format standardized.
- Data request pack issued (invoices/credits, ARR/NRR, CRM, returns/RMA, parcel/carrier, processor, support, cloud/CUR, supplier/PO, GL/TB, AR/AP agings, inventory, licenses/certifications, marketplace settlements).
- Primary research plan approved (VoC targets, scripts, consent/recording rules, incentives, expert networks).
- Driver-based model shell stood up with segmentation keys and units; FX and perimeter policy set; last-actual month tied.
- Acceptance test: all logins working; first evidence files land in the VDR; model opens with baseline scaffolding and a labeled revenue/CM2 bridge.

### 3) Week-1 data intake and definitions

- Definitions signed: realized price, CM1/CM2, unit cost metrics, cohorts, active logo, CAC/payback, churn/migration rules.
- GL and LTM reconciliation completed; first forecast month equals last actuals.
- Price waterfall sample audit loaded (list → pocket → realized); invoice and settlement samples checked.
- CRM and pipeline extracts landed; win/loss reasons and competitor tags populated.
- Returns/RMA, chargebacks, processor reserves, and deduction codes mapped.
- Parcel/carrier invoices, cloud CUR, API usage, support tickets, and minutes/contact ingested.
- AR/AP agings and inventory ledgers reconciled; borrowing-base mechanics (if relevant) understood.
- Regulatory/ESG/licensing packet posted; platform/marketplace policy dashboards captured.
- Acceptance test: **first market cut** (exposure by segment/channel) and **baseline model run** complete; data QA log open with issues and owners.

### 4) Research execution (Days 4–10)

- VoC interviews launched; sample covers ≥70% of revenue mix segments; consent captured; notes anonymized.
- Surveys fielded (if used); response quotas by segment/channel met or rebalanced.
- Expert calls scheduled via approved networks; MNPI and competitor-sensitives avoided; attestations filed.
- Competitive scan complete; share/momentum proxy and disruptor list built; policy and fee changes monitored.
- Acceptance test: VoC/market/competitor memos issued with **explicit ties to drivers** (elasticities, attach, conversion, take-rate/pricing power).

### 5) Market size and growth (Days 7–14)

- TAM/SAM/SOM defined; bottom-up and top-down methods reconciled; variance note documented.

- Growth drivers decomposed (penetration, adoption, usage, price/mix); base and downside ranges set.
- Scenario fan drafted (base, recession, stagflation; exposure-specific as needed); trigger rules defined.
- Acceptance test: market page draft shows **bands** with p10/p90 and named triggers.

## 6) Customer and demand mechanics

- Segmentation finalized (product × route-to-market × region × customer tier); revenue/CM2 coverage ≥95%.
- Elasticities bounded from VoC + cohort math; price fences and willingness-to-pay evidence banked.
- Cohort and retention analysis completed; NRR and decay ladders reconciled to invoices/usage.
- Acceptance test: demand pages show **ΔCM2** impact for ± price/attach/retention bands by segment.

## 7) Competitive position and differentiators

- Market share estimated with at least two methods; disruptor scenarios quantified (share/mix shifts).
- Differentiation scorecard built (product, ecosystem, data, brand, switching costs); moats evidenced.
- Acceptance test: competitive section states **where we win/lose** and the \$ impact if share shifts 1–2 pp.

## 8) Product, pricing, and unit economics

- Pricing architecture mapped (list, fences/DOA, promos, rebates, off-invoice items, fees/penalties).
- Pricing waterfall and realized price distribution validated; leakage sources quantified.
- Unit economics template filled (CM1→CM2; CTS by driver: returns, parcel/cloud, payment fees, support minutes/contact).
- Acceptance test: **unit-economics bridge** reconciles to GL; pricing page shows evidence-based **bps** moves and churn bounds.

## 9) Go-to-market and channel effectiveness

- Funnel diagnostics (stage conversion, cycle time, win rate) by segment/channel; CAC/payback tested.
- Channel mix economics (direct/partner/marketplace) with policy thresholds and penalties visible.
- Marketplace settlement and fee stack validated; paid placement dependence quantified.
- Acceptance test: page shows **ΔCM2/ΔCash** from conversion/attach/mix changes, with CAC guardrails.

## 10) Operational capacity and cost-to-serve

- Capacity ladder documented (rungs, lead time, throughput, SLO impact); DR and error-budget policy understood.
- Cost-to-serve benchmark filled (returns %, parcel \$/shipment, cloud/API \$/unit, minutes/contact, processor take).
- Working-capital levers mapped (DSO/DIO/DPO; processor reserves/holdbacks).
- Acceptance test: CTS plan quantifies **driver deltas** and timing; constraints enforced in the model.

## 11) Technology and digital maturity

- Digital capability framework scored; reliability/SLA and incident history reviewed; FinOps baselines set.
- Tech stack competitiveness checked; cybersecurity/data-privacy risks logged with mitigations.
- Innovation pipeline assessed; gates and hit-rates realistic.
- Acceptance test: tech section states **what capability unlocks which \$** and when, with risk posture visible.

## 12) Regulatory, ESG, and external factors

- Regulatory mapping completed (licenses, certifications, consents, novations); expiry and gaps logged.
- ESG risks assessed (material topics, EPR/fees, supply-chain exposures) with commercial impacts.

- Macroeconomic scenarios linked to drivers (rates, FX, fuel/energy, unemployment).
- Acceptance test: policy watchlist with **flip rules** embedded in scenarios and risk dashboard.

### 13) Financials, bridges, and working capital

- Revenue bridge (price, volume, mix) and CM1→CM2 bridge by segment/channel complete.
- Margin decomposition reconciled to GL; one-offs isolated; constant-currency and organic scope clear.
- Working-capital diagnostic finished; 13-week cash (if lender case) built.
- Acceptance test: first **ΔCash** view ties to model and AR/AP/inventory rolls.

### 14) Forecast model and scenarios

- Driver-based model built; baselines and cases wired; toggles for mitigations and gates live.
- Sensitivity tornado and break-evens for top five drivers; passive vs. managed outcomes separated with **cost of action**.
- Quarterly covenant headroom computed; first breach month (if any) identified.
- Acceptance test: scenario fan and headroom path render from the model in ≤3 clicks.

### 15) Synergy and value creation (deal context)

- Revenue synergy candidates sized (attach, cross-sell, re-rating); proof tests and gates defined.
- Cost/CTS synergy events costed (run-rate vs. in-period cash) with one-time spend.
- Value-capture roadmap drafted (owners, dates, acceptance tests); Day-1 controls identified.
- Acceptance test: only **underwritable** dollars remain in base; upside gated and labeled.

## 16) Risk identification, mitigations, and residuals

- Commercial risk heat-map built (probability × severity, **Cash-VaR**); KRIs and flip rules set.
- Mitigation playbooks written (trigger-to-action, D-0/D+7, owners, budgets); drills run for top five.
- Residual risk quantified (**Cash-VaR**, **CVaR**, **Headroom-at-Risk**); reserves and liquidity buffer sized.
- Acceptance test: risk page shows VaR removed per \$ of mitigation; reserves funded in the plan.

## 17) Synthesis and storylining

- Insight harvesting completed; MOVE scores applied; P0/P1 list locked (8–10 insights).
- Pyramid storyboard drafted; one-page-one-message rule enforced; numbers in titles.
- Executive summary written (buy/price/terms; **ΔCM2/ΔCash**; headroom; three reasons; risks/terms; 90-day plan).
- Acceptance test: a second person can walk from each title number to the model cell and VDR row in ≤3 clicks.

## 18) Deck, model, and QA

- Deck spine (10–12 pages) complete; appendix organized by **driver**; exhibits stamped with sources and extract dates.
- Model integrity QA run (reconciliation, scenario/FX/perimeter checks; version stamped).
- Legal/privacy review passed (no PII; clean-team outputs aggregated; antitrust guardrails observed).
- Acceptance test: **Model vX.Y** and deck share the same stamp; slide-build checklist passes; red-team comments closed.

## 19) Read-out facilitation

- Run-of-show set (60/90/30-minute variants); roles assigned (Presenter, Navigator, SMEs, Scribe, Timekeeper, Legal).

- Back-pocket exhibits loaded (waterfall, CM2 bridge, scenario fan, tornado, risk heat-map, gates, terms grid).
- Opening/closing scripts rehearsed; parking lot ready; decision capture template live.
- Acceptance test: dry run hits time boxes; three toughest objections answered with driver math.

## 20) Decision and term-sheet translation

- Recommendation validated (triangulated valuation; reverse DCF; headroom path; cost of action).
- Terms mapped 1:1 to residual risks (indexation/surcharges, reserve caps, certification CPs, inventory/service covenants, indemnities/escrows, earnouts on realized price/NRR, TSA exits).
- Alternatives prepared (reprice, restructure, re-sequence, pass) with impact on IRR and headroom.
- Acceptance test: decision note issued with price/terms, **ΔCM2/ΔCash**, headroom path, conditions precedent, owners, and dates.

## 21) Close-out and hand-off

- Compliance attestation signed (conflicts, clean-team, privacy/security, ABAC, MNPI).
- Evidence registry finalized; workpapers archived; retention/destruction schedule started; certificates of destruction planned.
- Handover to IMO/operators: value-capture roadmap, risk playbooks, KRIs/alerts, 13-week cash (if applicable), TSA scope.
- Acceptance test: operators confirm Day-1 controls and 90-day actions are ready; monitoring dashboards live.

## 22) Post-mortem and continuous improvement (within 10 business days)

- Rapid debrief ( $\leq 72$  hours) completed; structured post-mortem scheduled; metrics computed (forecast WAPE/bias, proof density, decision velocity, VaR delta, reserve sufficiency).
- Root causes documented; countermeasures (prevent/detect/respond) assigned with budgets and acceptance tests.

- Playbook update tickets opened; knowledge pack archived (scripts, SQL/notebooks, survey guides, clause library).
- Acceptance test: one-page post-mortem memo issued; actions dated and tracked to closure.

### Fast-start “green light” subset (use when time is brutally short)

- Signed NDA/DPA + clean-team roster; governance cadence posted.
- VDR live with invoices/credits, GL/TB, CRM, returns, parcel/carrier, processor, cloud CUR, support tickets.
- Model shell tied to last actual; first revenue/CM2 bridge; baseline + downside switch; headroom math on.
- Two VoC interviews per top segment completed; pricing waterfall sample audit done.
- Risk heat-map draft with top five KRIs; three mitigation playbooks written and costed.
- Ten-page spine skeleton with answer-first titles; executive summary draft populated with placeholders.
- Acceptance test: you can state a **provisional** buy/price/terms with ranges and named evidence gaps.

### Final readiness gate (ship or hold)

- Every section above is **Yes** or **N.A. with rationale**; no **No** remains on deal-critical items.
- Executive summary and deck reconcile to **Model vX.Y**; numbers reproduce in ≤3 clicks; FX/perimeter noted.
- Residual risk funded; term-sheet asks aligned to residuals; 90-day actions owned and dated.
- Legal confirms compliance with clean-team/antitrust, privacy, ABAC, and MNPI policies.
- Sponsor confirms the ask and decision window; read-out booked with the right audience.

Run this checklist with discipline and you will finish with a decision-grade recommendation—not a data tour. It keeps the team aligned on **drivers**,

**dollars, headroom, and protections**, and it makes the path from analysis to cash explicit, owned, and dated.

## 20.2 Repository of Templates

This repository is the **ready-to-use kit** that turns the playbook into execution. Every template mirrors the language and logic you've used throughout—**driver-based, cash-first, and answer-first**—so teams can stand up a diligence in hours, not weeks. Store the repository in a version-controlled workspace with read-only “gold” files and working copies per engagement. Each artifact follows the same conventions: model driver names, units, segmentation keys (product × route-to-market × region × customer tier), FX/perimeter notes, extract dates, and confidence labels. Every template ends with an **acceptance test** so you know when it is truly ready.

### Where these live and how to manage them

- Folder structure (top level): **00\_Admin, 01\_Kick-Off, 02\_Workplan, 03\_Data\_Research, 04\_Market, 05\_Customer, 06\_Competition, 07\_Product\_Pricing\_UnitEcon, 08\_GTM\_Sales, 09\_Operations\_CTS, 10\_Regulatory\_ESG\_External, 11\_Tech\_Digital, 12\_Financials, 13\_Forecast\_Scenarios, 14\_Synergy\_ValueCapture, 15\_Risk, 16\_Synthesis\_Story, 17\_Reportng\_Deliverables, 18\_Ethics\_Compliance, 99\_Toolkit\_Master.**
- File naming: **{Area}\_{TemplateName}\_v{major.minor}\_{YYYYMMDD}.{ext}** with a one-line “What this is” in each file header.
- Versioning: maintain a **CHANGELOG.md** in each folder; promote only after peer review.
- Locks & lineage: the **evidence registry** holds the mapping from every deck number to a source file and a model driver; update it whenever you edit a template.

Below is the **catalog**—what's in the repository, why it exists, what you need to fill, and the acceptance test that makes the decision-grade.

## 01\_Kick-Off

### **Initial Hypotheses Canvas (DOCX)**

Purpose: capture deal-specific hypotheses in **driver language** (price bps, attach, conversion, returns %, unit costs, take-rates, DSO/DIO/DPO).

Fill: hypothesis, driver(s), direction/size, evidence you expect, how you'd falsify it, owner, date.

Acceptance test: each hypothesis ties to **one or more model cells** you can change in ≤3 clicks.

### **Stakeholder Alignment Workshop Pack (PPTX + DOCX)**

Purpose: run the alignment session; collect decision thresholds (valuation guardrails, minimum headroom, reserve policy), scope edges, and legal guardrails.

Fill: participant list and roles, agenda, “what must be true,” risks to decide early, unresolved terms.

Acceptance test: signed **alignment note** with thresholds and open questions, owners, and dates.

### **Scope Definition Checklist (DOCX)**

Purpose: fix the perimeter before analysis.

Fill: included geographies, products/SKUs, channels, time windows, currency and constant-FX policy, organic vs. total, TSA assumptions.

Acceptance test: scope is explicitly mirrored in the model and the data requests.

### **Workstream Charter Template (DOCX)**

Purpose: turn scope into actions and owners.

Fill: problem statement, outputs, acceptance tests, RACI, cadence, dependencies, risks.

Acceptance test: every charter lists at least one **decision it will change** and the exhibit that proves it.

## 02\_Workplan

### **Critical Path & Timeline Mapper (XLSX)**

Purpose: week-by-week view of milestones that unlock decisions.

Fill: tasks, dependencies, earliest start/finish, float, owner, risk, mitigation.

Acceptance test: the **IC date** and lender date are on the path and all upstream deliverables are dated.

**Role & Responsibility Matrix (RACI) (XLSX)**

Purpose: keep hand-offs crisp.

Fill: tasks vs. names; mark Responsible, Accountable, Consulted, Informed; escalation path.

Acceptance test: no task has more than one **Accountable** or zero **Responsible**.

**Governance Cadence Checklist (DOCX)**

Purpose: lightweight operating system.

Fill: meetings, inputs, outputs, time boxes, attendees; red-flag and “stop-the-line” triggers.

Acceptance test: cadence calendar issued and visible for the team and client.

**Risk Management Plan (DOCX)**

Purpose: identify project-execution risks separate from commercial risks.

Fill: risks, probability, impact, owner, mitigations, review cadence.

Acceptance test: top three execution risks have **dated mitigations** and budgets.

**03\_Data\_Research****Data Request Pack (DOCX)**

Purpose: ask once, ask right—aligns with the evidence registry.

Fill: invoice/credit fields, CRM pipeline, ARR/NRR, returns/RMA, parcel/carrier, payment processor, support, cloud/CUR, AR/AP agings, inventory, GL/TB, regulatory/ESG, marketplace settlements.

Acceptance test: first drop lands with **≥80% of fields**; gaps logged with owners and dates.

**Primary Research Plan (DOCX)**

Purpose: ethical, targeted VoC and expert work.

Fill: target segments and quotas, screener, discussion guides, consent language, incentive grid, anti-MNPI topics, clean-team rules.

Acceptance test: legal signs off; sample covers **≥70% of revenue mix segments**.

**Survey & Interview Guide (DOCX)**

Purpose: reproducible instruments with skip logic and quant anchors.

Fill: hypotheses tested, scales, willingness-to-pay cards, alternatives, verbatim prompts.

Acceptance test: each question maps to a **MOVE Insight Card** field (materiality/evidence).

**Data Quality Assurance Checklist (DOCX)**

Purpose: catch data issues early.

Fill: referential integrity, missingness, duplicates, GL tie-outs, date/FX/perimeter, unit definitions.

Acceptance test: last actuals and LTM reconcile to GL; known gaps labeled in the model.

**04\_Market****TAM/SAM/SOM Workbook (XLSX)**

Purpose: one place to house both top-down and bottom-up logic.

Tabs: assumptions, bottom-up build, top-down indices, reconciliation, variance note.

Acceptance test: both methods are within a **reasoned range**, with a written variance explanation.

**Bottom-Up Sizing Sheet (XLSX)**

Purpose: build from customers/units × price.

Fill: segment-level volumes, prices, penetration, adoption; sources linked.

Acceptance test: sum equals TAM/SAM roll; assumptions trace to sources in the registry.

**Top-Down Sizing Sheet (XLSX)**

Purpose: start with trusted externals; adjust to target's perimeter.

Fill: market totals, target exposure shares, filters (geo/segment), triangulation links.

Acceptance test: sensitivity to each filter is explicitly shown.

**Growth Driver Decomposition (DOCX)**

Purpose: clarity on what actually grows—penetration, usage, mix, price.

Fill: current and projected drivers with units and evidence.

Acceptance test: drivers tie into the forecast model toggles.

**05\_Customer****Segmentation Framework Canvas (DOCX)**

Purpose: lock the analysis segmentation that matches the model.

Fill: segment definitions, inclusion rules, key needs/jobs, economic weight.

Acceptance test: ≥95% of revenue assigned; no customer lives in two segments.

**VoC Field Pack (DOCX)**

Purpose: ready scripts and consent language.

Fill: outreach email, screener, interview guide, incentive policy, legal do/don't list.

Acceptance test: five pilot calls yield **quotable evidence** tied to drivers.

**Cohort & Retention Workbook (XLSX)**

Purpose: quantify logo/gross/net retention and decay.

Tabs: cohort inflow/outflow, NRR/GRR, survival curves, retention drivers, reconciliation to invoices.

Acceptance test: cohort curves reconcile to ARR and invoices within tolerated variance.

**Demand Elasticity Stress-Test (XLSX)**

Purpose: see how price or macro moves affect volume and churn.

Fill: elasticity bounds by segment, triggers, channels; outputs roll to ΔCM2.

Acceptance test: break-even points appear on the tornado chart.

**06\_Competition****Competitor Identification Checklist (DOCX)**

Purpose: ensure you do not miss the real reference set.

Fill: direct, adjacent, substitute, platform/marketplace, new entrants; sources used.

Acceptance test: the share estimation includes all meaningful players.

**Share Estimation Toolkit (XLSX)**

Purpose: triangulate share and momentum with at least two methods.

Fill: reported numbers, scraped indicators, proxy metrics; weightings and rationale.

Acceptance test: two methods within a tolerance band; momentum labeled H/M/L.

**Competitive Advantage Assessment (DOCX)**

Purpose: score differentiation that customers pay for.

Fill: capabilities, evidence, customer proof, ease of imitation, durability.

Acceptance test: top three moats link to realized price or retention.

**Disruptor Threat Scenarios (DOCX)**

Purpose: codify plausible shifts (policy, platform, tech).

Fill: scenario definitions, leading indicators, dollar effects, playbooks.  
 Acceptance test: each scenario is wired to a model switch and a risk trigger.

## **07\_Product, Pricing, Unit Economics**

### **PMF Assessment Guide (DOCX)**

Purpose: test problem, fit, and willingness to pay.  
 Fill: must-have signals, usage patterns, buyer jobs, alternatives, mode of failure.  
 Acceptance test: a go/no-go call on each segment with supporting evidence.

### **Pricing Architecture Workbook (XLSX)**

Purpose: map list → pocket → realized price; identify leakage.  
 Tabs: fences/DOA, on-invoice, off-invoice, fees/penalties, realized price distribution, elasticity bounds.  
 Acceptance test: realized price bps change drops into the model and the **CM2 bridge**.

### **Unit Economics Template (XLSX)**

Purpose: CM1→CM2 decomposition with CTS drivers.  
 Fill: returns %, parcel/carrier \$/shipment, cloud/API \$/unit, payment fees bps, support minutes/contact; utilization.  
 Acceptance test: unit deltas reconcile to GL and CM2 bridge.

### **Differentiation Scorecard (DOCX)**

Purpose: condense what actually makes you different.  
 Fill: attributes, proof, economic lift (price, conversion, retention), risk of erosion.  
 Acceptance test: scorecard aligns with VoC and the tornado ranking.

## **08\_GTM & Sales**

### **Funnel Diagnostics Workbook (XLSX)**

Purpose: quantify stage conversion, cycle time, win rate, and constraints.  
 Fill: pipeline by stage, cohorts, reasons, rep/partner/segment cuts.  
 Acceptance test: CAC payback meets guardrails by channel.

### **Channel Mix Evaluation (XLSX)**

Purpose: direct vs. partner vs. marketplace economics.  
 Fill: take-rates, MDF, paid placement, service levels, penalties; CAC and

payback.

Acceptance test: recommended mix shows  **$\Delta CM_2 / \Delta Cash$**  vs. base.

### **Marketing ROI Benchmarks (DOCX)**

Purpose: compare efficiency and returns by tactic.

Fill: spend, reach, conversion, CAC, marginal ROI; benchmarks.

Acceptance test: list of 2–3 cuts to test in-market with dates.

### **CAC Calculator (XLSX)**

Purpose: consistent, segment-level CAC and payback.

Fill: spend classes, attribution rules, conversion rates, LTV/NRR.

Acceptance test: payback aligns with funnel diagnostics and cohort math.

## **09\_Operations & Cost-to-Serve**

### **Supply-Chain Resilience Checklist (DOCX)**

Purpose: stress-test supply risk and continuity.

Fill: single-points of failure, alt sources, inventory/expedite policy, SLAs, risk costs.

Acceptance test: top 3 continuity risks have dated mitigations.

### **Capacity & Scalability Model (XLSX)**

Purpose: quantify rungs, throughput, SLO impact, and cost.

Tabs: current run, rung adds, lead times, constraints, SLO budget.

Acceptance test: growth plan is **capacity-constrained** in the model.

### **Service-Level Performance Template (DOCX)**

Purpose: SLO tracking and penalty ladders.

Fill: metrics, thresholds, credits, remedies, governance.

Acceptance test: SLO headroom  $\geq$  policy floor in target scenarios.

### **Cost-to-Serve Benchmark Pack (DOCX)**

Purpose: compare unit costs vs. peers.

Fill: returns %, parcel \$/shipment, chargebacks bps, cloud \$/unit, minutes/contact; context.

Acceptance test: two prioritized CTS levers with owner and date.

## **10\_Regulatory, ESG, External**

### **Regulatory Mapping (DOCX)**

Purpose: licenses, certifications, consents/novations, audits.

Fill: items, status, expiry, owner, mitigation.

Acceptance test: no open “must-have” without an owner and date.

### **ESG Risk Assessment (DOCX)**

Purpose: commercial materiality of ESG topics.

Fill: topic × impact grid, EPR/fees history, supply-chain exposure, customer demand effects.

Acceptance test: only material items make it to the deck.

### **Macroeconomic Scenario Guide (DOCX)**

Purpose: translate macro to drivers.

Fill: rates, FX, fuel/energy, unemployment; conversion to price/volume/CTS; triggers.

Acceptance test: macro switches in the model change **ΔCash and headroom** visibly.

### **Policy Change Watchlist (DOCX)**

Purpose: early-warning of platform/regulatory shifts.

Fill: watchdog sources, indicators, thresholds, owner.

Acceptance test: KRIIs and flip rules wired to the risk dashboard.

## **11\_Tech & Digital**

### **Digital Capability Framework (DOCX)**

Purpose: assess product, data, GTM tech, ops tech, and governance.

Fill: capabilities, maturity, gaps, unlockable dollars.

Acceptance test: at least one capability → one **cash** lever.

### **Tech Stack Competitiveness (DOCX)**

Purpose: cost, agility, vendor risk.

Fill: system list, contracts, lock-in, extensibility, costs/unit.

Acceptance test: concrete “keep/change” with timing.

### **Cybersecurity & Privacy Risk Guide (DOCX)**

Purpose: map security posture to commercial risk.

Fill: incidents, controls, certifications, gaps, data-processing maps.

Acceptance test: top issues are costed and in the risk pack.

### **Innovation Pipeline Assessment (DOCX)**

Purpose: tie roadmap to dollars and probabilities.

Fill: stage gates, hit rates, spend, expected value; acceptance tests.  
 Acceptance test: only items with gates appear in the base case.

## **12\_Financials**

### **Revenue Bridge Workbook (XLSX)**

Purpose: last actual → Year-1/Year-2 by price, volume, mix.  
 Fill: segment bridges, reconciliation to GL, constant-FX overlays.  
 Acceptance test: bridges foot to the model and deck.

### **Margin Decomposition Template (XLSX)**

Purpose: CM1→CM2 with CTS drivers.  
 Fill: unit costs, overhead allocation, one-offs.  
 Acceptance test: ties to CM2 tree and unit-economics sheet.

### **Working Capital Diagnostic (XLSX)**

Purpose: DSO/DIO/DPO, processor reserves, borrowing-base.  
 Fill: AR/AP/inventory rolls, policies, disputes, write-offs.  
 Acceptance test: 13-week cash reconciles when required.

### **KPI Benchmark Dashboard (XLSX)**

Purpose: compare performance vs. peers.  
 Fill: growth, NRR, CM2%, CAC/payback, CTS, SLOs.  
 Acceptance test: three red cells → three actions.

## **13\_Forecast & Scenarios**

### **Driver-Based Model Scaffold (XLSX)**

Purpose: the living source of truth for **ΔCM2, ΔCash, headroom**.  
 Tabs: drivers, assumptions, cases, scenarios, sensitivities, covenant math, reserves, toggles.  
 Acceptance test: each title number in the deck reproduces from this file in ≤3 clicks.

### **Scenario Definition Checklist (DOCX)**

Purpose: mental model for base/downside/exposure cases.  
 Fill: macro inputs, demand, price power, CTS, working capital, actions and costs.  
 Acceptance test: passive vs. managed paths are separate and costed.

**Sensitivity Analysis Template (XLSX)**

Purpose: tornado and break-even points for top five drivers.

Fill: standardized shocks; spider plots; break-even thresholds.

Acceptance test: rank order of drivers is stable across cases.

**Model Integrity QA (DOCX)**

Purpose: no surprises in numbers.

Fill: reconciliation, range checks, FX/perimeter notes, named ranges, audit steps.

Acceptance test: second reviewer signs; no “hard-typed” links.

**14\_Synergy & Value Capture****Revenue Synergy ID Guide (DOCX)**

Purpose: attach, cross-sell, re-rating.

Fill: TAM within customers, attach rates, price fences, proofs.

Acceptance test: gates and owners exist before dollars enter base.

**Cost Synergy Estimation (XLSX)**

Purpose: procurement/logistics/FinOps events and CTS levers.

Fill: events, timing, one-times, run-rate, in-period cash.

Acceptance test: synergy math reconciles to bridges.

**Integration Feasibility Checklist (DOCX)**

Purpose: reality check on the path to value.

Fill: cutovers, acceptance tests (billing/entitlement  $\geq 99.5\%$ ), dependencies.

Acceptance test: no critical dollar without a gate.

**Value Capture Roadmap (PPTX)**

Purpose: the 90-day plan and beyond.

Fill: actions, owners, dates, acceptance tests, dashboards.

Acceptance test: operators sign the Day-1 control list.

**15\_Risk****Commercial Risk Heat-Map (XLSX)**

Purpose: probability  $\times$  severity by driver; **Cash-VaR** view.

Fill: risks, drivers, mitigations, KRIs, triggers, owners.

Acceptance test: top-10 list feeds IC directly.

**Red-Flag Recognition Checklist (DOCX)**

Purpose: pattern recognition for deal killers.

Fill: data, pricing, channel, platform, regulatory, financial flags.

Acceptance test: any red flag changes ranges or terms.

**Mitigation Strategy Guide (DOCX)**

Purpose: trigger-to-action playbooks with costs and lags.

Fill: triggers, actions D-0/D+7, budgets, capacity, side effects.

Acceptance test: drill results logged; playbooks are executable.

**Residual Risk Quantification (XLSX)**

Purpose: residual **Cash-Var/CVaR/Headroom-at-Risk** and reserves.

Fill: pre/post mitigation series, hedge/insurance effects, lags, basis risk, reserve rules.

Acceptance test: reserves and term-sheet asks sized from this file.

**16\_Synthesis & Story****Insight Card (DOCX)**

Purpose: each P0/P1 on one page with MOVE score.

Fill: headline,  $\Delta CM2/\Delta Cash$ /headroom, proof, risk/sensitivity, owner, timing, confidence.

Acceptance test: can stand alone in IC.

**Pyramid Storyboard (PPTX)**

Purpose: answer → reasons → proof flow.

Fill: page titles (numbers + verbs), exhibit stubs, transitions.

Acceptance test: ten-page spine reads as a narrative without notes.

**Executive Summary Template (PPTX)**

Purpose: the only page many will read.

Fill: recommendation, price/terms, three reasons, bridges, scenarios/headroom, residual risk/terms, 90-day plan, conditions precedent.

Acceptance test: reproduces to model cells in ≤3 clicks.

**Recommendation Validation Pack (DOCX)**

Purpose: pass/fail stress-test before IC.

Fill: traceability, reconciliations, scenarios, sensitivities, valuation triangulation, residual risk, terms, alternatives, sign-offs.

Acceptance test: all checkboxes green or N/A with rationale.

## 17\_Reporting & Deliverables

### **Deck Structure Template (PPTX)**

Purpose: consistent, decision-grade deck.

Fill: answer-first titles; exhibits; footers with model version, FX/perimeter, sources.

Acceptance test: slide-build checklist passes.

### **Data-Room Documentation Checklist (DOCX)**

Purpose: VDR that's analysis-ready and clean-team safe.

Fill: taxonomy, file naming, metadata, provenance, QA, change control, Q&A SLA.

Acceptance test: two deck numbers can be tied to raw rows in ≤3 clicks.

### **Read-Out Facilitation Guide (DOCX)**

Purpose: run the meeting to a decision.

Fill: roles, run-of-show (60/90/30), scripts, parking lot, model navigation protocol, legal guardrails.

Acceptance test: dry run hits time boxes; answers the three hardest questions.

### **Post-Mortem Review Template (DOCX)**

Purpose: turn outcomes into improvements.

Fill: metrics (WAPE/bias, proof density, decision velocity, VaR delta), facts timeline, root causes, countermeasures, playbook updates.

Acceptance test: one-page memo with Start/Stop/Continue and dated actions.

## 18\_Ethics & Compliance

### **Professional Standards Checklist (DOCX)**

Purpose: independence, antitrust, privacy, ABAC, MNPI—operationalized.

Fill: A–M sections, stop-the-line triggers, attestations.

Acceptance test: no “No” on deal-critical items.

### **COI Screening Guide (DOCX)**

Purpose: detect/mitigate conflicts before they bite.

Fill: firmwide search, attestations, register, mitigations, client disclosures.

Acceptance test: clearance memo signed by Legal.

### **Information Security Protocol (DOCX)**

Purpose: VDR/model security and clean-team segregation.

Fill: roles, classification, access control, logging, IR, DR, retention/destruction.  
 Acceptance test: barrier test passed; logs active and reviewed.

### **Anti-Bribery & Corruption Checklist (DOCX)**

Purpose: third-party controls, G&H registers, red-flags, investigations.  
 Fill: TPDD, payments/books, public-officials interactions, target program tests, post-close plan.  
 Acceptance test: high-risk items have mitigations or change deal terms.

### **99\_Toolkit\_Master (meta-assets)**

#### **Master Checklist: End-to-End CDD (DOCX)**

Purpose: the single list you run from origination to post-mortem.  
 Acceptance test: every decision-critical item is **Yes** or **N.A.** with rationale.

#### **Evidence Registry (XLSX)**

Purpose: reproducibility in ≤3 clicks.  
 Fill: deck number, model cell(s), source code, file path, extract date, owner, QA checks.  
 Acceptance test: two people reproduce numbers independently.

#### **Glossary & Units (DOCX)**

Purpose: remove definitional fights.  
 Fill: realized price, CM1/CM2, ARR/NRR, CAC/payback, CTS metrics, SLOs, VaR/HaR.  
 Acceptance test: glossary terms appear verbatim in the deck and model.

#### **Clause Library (DOCX)**

Purpose: term-sheet translations aligned to residual risks.  
 Fill: indexation/surcharges, reserve caps, certification CPs, inventory/service covenants, indemnities/escrows, earnouts; TSA exit milestones.  
 Acceptance test: each clause maps to a risk card.

### **How to customize templates without breaking the spine**

- Keep **segmentation** constant across templates and the model. If you change it, change it everywhere and restamp.
- Do not hard-type numbers in templates meant to pull from the model. Use named ranges or copy/paste values from a stamped export and note the **model version**.

Never add a dollar to the base case without an **owner, gate, and date**.  
 Put the rest on the upside with acceptance tests.

- When you narrow scope, keep the original template sections but mark **N.A.** with rationale—do not delete; it protects you in IC.

## Acceptance criteria for the repository itself

- Every template has a header: purpose, inputs, outputs, **acceptance test**, owner, and last update date.
- The repository **boots a new diligence in ≤24 hours**: working copies, aligned segmentation, first data requests out, model scaffold open.
- Two analysts unfamiliar with the case can reproduce one deck number using the **evidence registry** without asking for help.
- Security and compliance are inherent: clean-team variants exist where needed; no template asks for prohibited data.

With this repository, you don't start from zero—you start from **decision-ready**. Each file enforces discipline: one language of drivers, one model of cash and headroom, one set of gates and terms. Plug in the target's evidence, run the play, and ship a recommendation the committee can underwrite.

## 20.3 Glossary of Key Terms

### Acceptance test

A clear, observable condition used to declare a gate passed (e.g., “Billing accuracy ≥99.5% for SKUs X/Y/Z in pilot”). No gate, no dollars in the base case.

### ACV / TCV

Annual Contract Value / Total Contract Value. ACV is the annualized value of a contract's recurring components. TCV includes the full value over the term, including one-time fees.

### Advance rate (borrowing base)

The percentage of eligible receivables or inventory a lender will fund. Example: 85% of eligible AR, net of reserves.

**AHT / FRT**

Average Handle Time / First Response Time. Service metrics are often used to estimate minutes per contact and support cost-to-serve.

**Answer-first**

Communication rule: every page and headline states a decision and a number (e.g., “Buy at \$X with Y terms;  $\Delta$ Cash \$A in Year-1”). Opposite of “lead-up.”

**ARR / MRR**

Annual/Monthly Recurring Revenue in subscription businesses. **NRR** and **GRR** are derived from ARR (see below).

- ARR roll-forward: *Start ARR + New + Expansion - Contraction - Churn = End ARR.*

**Attach rate**

Share of primary units sold with an add-on (e.g., percent of carts with protection plan). Driver in revenue synergy or cross-sell models.

**Basis points (bps)**

One one-hundredth of a percentage point (0.01%). 150 bps = 1.50%.

**Borrowing base**

A lender's formula for maximum revolver availability based on eligible assets (AR, inventory), less eligibles and reserves. Drives liquidity headroom.

**Bridge (revenue or cash)**

A chart (and calculation) decomposing change between two periods into drivers. Standard bars: **price, volume, mix, cost-to-serve, opex, working capital**.

**Capacity rung**

A discrete expansion step (people, lines, data plane, carrier lanes, support pods) with a cost, lead time, and throughput. The capacity ladder is the sequence of rungs.

**Cash ( $\Delta$ Cash)**

Change in cash generated within the forecast window, including working-capital effects and one-time costs (integration, inventory builds, severance), net of mitigation costs.

**Cash-VaR / CVaR**

Cash Value-at-Risk is the loss at a chosen percentile (e.g., p10 downside) over a

horizon. Conditional VaR is the **average** loss given you are in that tail. Used for reserves.

### **CAGR**

Compound Annual Growth Rate over a period:  $(End/Start)^{(1/years)} - 1$ .

### **CAC / Payback**

Customer Acquisition Cost and months to recover it from contribution dollars. Define payback at CM2 level unless agreed otherwise.

- *Payback (months) = CAC / (monthly CM2 per new customer).*

### **Cohort (by acquire month/quarter)**

A group of customers acquired in the same period, tracked over time for spend, churn, expansion, and unit costs. Cohort analysis reveals true retention and LTV.

### **CM1 / CM2**

Contribution layers used throughout this playbook.

- **CM1:** Revenue minus direct product/service costs (COGS or delivery costs tightly tied to units).
- **CM2:** CM1 minus **cost-to-serve** (returns/chargebacks, shipping/parcel, cloud/API, payment processing, customer support minutes/contact, other variable or semi-variable servicing costs). CM2 is the core profitability driver in this playbook.

### **Clean-team**

A segregated group and environment that can access competitively sensitive target data pre-close. Outputs must be aggregated/anonymized before sharing.

### **Constant currency / Organic scope**

Constant currency removes FX rate changes; organic scope excludes acquisitions/divestitures outside the perimeter. Both must be footnoted on all exhibits.

### **CPs (Conditions Precedent)**

Contractual conditions that must be satisfied before closing or before specific value-capture steps begin (e.g., certifications, consents, debt paydown).

**CUR (Cloud cost & usage report)**

Provider-level detailed usage/billing file. Basis for FinOps analysis (on-demand vs. reserved coverage, egress, unit \$/API call or \$/compute hour).

**Customer churn (logo vs. revenue)**

- **Logo churn:** percent of customers lost.
- **Revenue (gross) churn:** revenue lost from existing customers, excluding expansion.
- **NRR (Net Revenue Retention):**  $(Start\ ARR + Expansion - Contraction - Churn) / Start\ ARR$ .
- **GRR (Gross Revenue Retention):**  $(Start\ ARR - Churn) / Start\ ARR$ .

**CV (Coefficient of Variation)**

Standard deviation divided by mean; used to describe volatility of drivers (e.g., weekly order volumes).

**Data Processing Agreement (DPA)**

Contract allocating privacy/security roles (controller/processor), lawful bases, retention, sub-processors, and breach-notification windows.

**Deal perimeter**

The entities, products, geographies, and channels included in scope. Must match the model, data requests, and deck.

**Decision tree (buy/reprice/restructure/re-sequence/pass)**

The explicit set of alternative outcomes shown to IC, each with valuation, headroom, residual risks, and terms.

**Delta ( $\Delta$ )**

Change relative to a baseline (e.g., Year-1 vs. LTM). Always specify units:  $\Delta CM2$  (\$),  $\Delta Cash$  (\$),  $\Delta Price$  (bps),  $\Delta Conversion$  (pp).

**Disaster Recovery (DR)**

Ability to restore systems after failure. Measured by **RPO** (Recovery Point Objective—how much data you can lose) and **RTO** (Recovery Time Objective—how quickly you restore).

**DOA (Delegations of Authority)**

Policy defining who can approve pricing exceptions, credits, write-offs, and contracts. Critical for price fence enforcement.

**Egress (cloud)**

Outbound data transfer that often carries premium pricing; a key CTS lever in data-heavy businesses.

**Elasticity (price or income)**

Sensitivity of demand to a 1% change in price or income. Estimated by segment through VoC, tests, and cohort math. Expressed as a negative number for price elasticity.

**Earnout**

Deferred purchase price contingent on achieving agreed milestones, often tied to realized price, NRR, or headroom-safe growth.

**Evidence registry**

The index that maps every headline number in the deck to (a) a model cell/range and (b) the specific data-room file, row, and extract date.

**EV, Enterprise Value**

Firm value including equity and net debt. Basis for EV/Revenue, EV/CM2, EV/EBITDA multiples and DCF triangulation.

**FBA / Take-rate (marketplace)**

Fulfillment by platform fees and percentage of GMV the platform keeps. “Take-rate” is a critical channel driver alongside paid placement and policy penalties.

**FinOps**

Financial operations discipline to optimize cloud spend through rightsizing, reserved coverage, and architecture choices; outputs are unit costs (e.g., \$/API call).

**Funnel (stages)**

The standard path from awareness to close (e.g., MQL → SQL → Opportunity → Win). Track conversion, cycle time, and win rate by segment/channel.

**Gate**

A non-negotiable dependency that unlocks dollars (e.g., “Certification X live,” “Entitlement system parity,” “Capacity rung #1 booked”). Tied to an acceptance test.

**GRR / NRR**

See “Customer churn.” Report by segment; averages can hide risk.

**HaR (Headroom-at-Risk)**

Minimum quarterly covenant headroom at p10 downside after mitigations. Expressed in bps and months to breach.

**Headroom (covenant)**

Distance between a covenant threshold and forecast metric. Example: if net leverage covenant is 5.0× and forecast is 4.4×, headroom is 60 bps or 0.6×—state units.

**H/M/L confidence**

Qualitative label attached to an insight or assumption based on evidence density and falsification attempts survived.

**IC (Investment Committee)**

Decision body for buy/price/terms. Your audience for the ten-page spine and executive summary.

**Insight (P0/P1/P2)**

A decision-relevant claim that changes valuation, terms, or execution. **P0** = deal-critical; **P1** = decision-shaping; **P2** = context.

**Integration posture (Fuse / Federate / Interface)**

Three archetypes for combining capabilities after close: full integration, partial with shared services, or API-level linkage. Drives timetable and risk.

**Interchange / MDR (payments)**

Card network fees (interchange) plus processor markup (Merchant Discount Rate). Modeled as bps of gross processed value.

**IRR / MoIC**

Internal Rate of Return and Multiple on Invested Capital. Report both on base and downside; show sensitivity to top drivers.

**KRI (Key Risk Indicator)**

A measurable early-warning signal (e.g., p95 latency, chargeback ratio, return rate by SKU) tied to triggers and playbooks.

**Ladder (capacity)**

See “Capacity rung.”

**Lender case**

A more conservative scenario and deck variant emphasizing passive downside, 13-week cash, covenant math, and collateral.

**LTM**

Last Twelve Months. For seasonality, also present trailing 3/6/9 months where informative.

**LTV (lifetime value)**

Present as **realized cohort contribution**, not a theoretical formula. If a proxy is required:  $LTV \approx (ARPA \times CM2\% \times Expected\ Lifetime\ in\ months) - Support\ on-boarding\ one-time\ costs$ , but prefer cohort curves.

**Margin tree (CM1→CM2)**

The decomposition from revenue to CM2, showing each CTS driver as a separate branch (returns, parcel, cloud/API, payment fees, support, etc.).

**Materiality threshold**

The economic size required for airtime (e.g.,  $\geq 2\%$  revenue,  $\geq 100$  bps CM2, or  $\geq 50$  bps headroom over the hold period).

**MDF (Market Development Funds)**

Channel spend used to promote partner activity; appears as off-invoice or contra-revenue and must be captured in the price waterfall.

**Model version ID**

A unique stamp (e.g., v1.3, date) that must appear on every page with numbers. Guarantees reproducibility.

**MOVE score**

Prioritization rubric for insights: **Materiality (40%), Operability (15%), Velocity (20%), Evidence (25%)**. Used to rank P0/P1 items.

**MRR / ARR**

See “ARR / MRR.”

**MNPI**

Material Non-Public Information. Triggers insider-trading and information-barrier controls; treat conservatively.

**Net / Gross retention**

See “Customer churn.”

**OTIF (On-Time, In-Full)**

Key marketplace/platform metric. Falling below thresholds often triggers penalties and organic search downgrades.

**P95 latency / SLI / SLO / SLA**

- **SLI:** the measured indicator (e.g., p95 latency, uptime).
- **SLO:** the target (e.g.,  $p95 \leq 300$  ms).
- **SLA:** contractual promise/credit ladder.  
Used to assess reliability and the risk of credits and churn.

**Paid placement (marketplace)**

Sponsored search or shelf placement spend. Treat as part of CAC or as a reduction to realized price depending on mechanics; be explicit.

**Passive vs. Managed response**

In scenarios, **passive** is the unmitigated path; **managed** includes pre-approved actions and their costs. Always show both.

**Payback guardrail**

Policy that CAC payback must be  $\leq$  a fixed number of months by channel/segment for growth to be underwritten.

**Perimeter (deal)**

See “Deal perimeter.”

**p10 / p90**

Percentile bounds in scenario bands. p10 downside means only 10% of outcomes are worse.

**Pocket price / Realized price**

- **Pocket price:** List minus on-invoice discounts and off-invoice rebates/promos.
- **Realized price:** Cash received per unit after **all** deductions—pocket price minus chargebacks, post-invoice credits, returns/refunds, penalties; plus surcharges—aligned to invoice/settlement cash. Realized price feeds the CM2 bridge.

**Price fence**

A rule limiting discounting to a defined segment or condition (e.g., EDU, volume tier). Effective fences increase realized price without raising churn.

**Pricing waterfall**

The stepwise walk from list to realized price, showing leakage by type (on-invoice, off-invoice, post-invoice, penalties, returns). Anchor pricing analyses to actual invoices and settlements.

**Pyramid Principle**

Story logic: answer → reasons → proof. One page, one message, with numbers in the title.

**QBR (Quarterly Business Review)**

Partner/customer governance meeting; a source for policy changes, penalties, and recovery plans. Summaries often reveal upcoming risk.

**RACI**

Responsible, Accountable, Consulted, Informed. Assign **one** Accountable per task.

**Range / Band**

Low–Base–High view presented for drivers under uncertainty. Always pair with confidence labels and scenario names.

**Real-world evidence (RWE)**

In regulated sectors, observed outcomes data supporting claims. In CDD, treat as proof for product efficacy and reimbursement risk where relevant.

**Rebate / Contra-revenue**

Post-invoice reductions. Ensure booking policy matches GAAP/IFRS and that the waterfall captures the timing and cash effects.

**Residual risk**

Risk remaining after mitigations and terms; expressed as **residual Cash-VaR/CVaR** and **HaR**. Fund with reserves or structure with terms.

**Reverse DCF**

Valuation method that infers the operating performance implied by a price (e.g., realized price bps improvements, CTS/unit reductions) and checks feasibility against evidence and capacity.

**RMA / Return rate**

Return Merchandise Authorization process and metric. Model returns as both volume and CTS (reverse logistics, refurb, write-down).

**ROAS / ROMI**

Return on Ad Spend / Return on Marketing Investment. Normalize to CM2, not revenue, for underwriting.

**Savings Plans / Reserved Instances (cloud)**

Commitment mechanisms that lower unit cost for predictable workloads. Track coverage (%) and break-even months.

**Scenario fan**

A banded chart of base and downside cases (e.g., recession, stagflation), usually 8–12 quarters, with triggers to switch cases.

**Sensitivity tornado / Spider**

A chart ranking drivers by absolute impact on  $\Delta\text{CM2}/\Delta\text{Cash}$  (tornado) and a plot showing response curves vs. a driver (spider). Use standardized shocks.

**Service credits**

Contractual remedies for SLO misses. Model as reductions to revenue or as CTS depending on mechanics; be explicit.

**SLA / SLO / SLI**

See “P95 latency / SLI / SLO / SLA.”

**SLO headroom**

The margin between current performance and the SLO threshold. Protect it as you scale.

**SPIF**

Sales Promotion Incentive Fund—a short-term incentive to reps/partners. Model as CAC or as price leakage based on how it’s paid.

**SSO / IAM**

Single Sign-On / Identity and Access Management. Needed for secure integrations and Day-1 access control.

**Stagflation scenario**

Low/negative real growth combined with high inflation. Stress price power, wage and input inflation, and rate-sensitive working capital.

**TAM / SAM / SOM**

Total, Serviceable, and Serviceable Obtainable Market.

- **TAM:** the broadest relevant market.
- **SAM:** the reachable portion given your scope (geo/segment/channel).
- **SOM:** the share you can plausibly capture within the plan horizon.

### **Take-rate**

Platform or processor percentage of transaction value. Include all fee components, tiering, and penalties.

### **Term-sheet translations**

Clauses that convert residual risks into protections: indexation/surcharges, reserve caps/settlement SLAs, certification CPs, inventory/service covenants, indemnities/escrows, earnouts, TSA exits.

### **13-week cash**

Weekly cash forecast highlighting receipts, disbursements, revolver availability, and minimum cash. Standard for lenders and liquidity risk.

### **TSA (Transition Services Agreement)**

Contract under which seller provides temporary services post-close. Must have scope, SLAs, pricing, and exit milestones to avoid stranded costs.

### **Unit economics**

Profitability per unit/customer before fixed overhead: a CM2-level view including CTS. Unit drivers include realized price, returns %, parcel \$/shipment, cloud/API \$/unit, payment bps, support minutes/contact.

### **Uplift / Re-rating**

Increasing realized price by migrating customers to higher value packs or tightening fences without changing list price.

### **Velocity (MOVE)**

How quickly an initiative converts to cash (e.g., ≤90 days vs. ≥1 year). Used to prioritize insights and actions.

### **VoC (Voice of Customer)**

Structured interviews/surveys yielding evidence on needs, alternatives, switching costs, price power, and service expectations. Must comply with clean-team and privacy rules.

### **WACC**

Weighted Average Cost of Capital used in DCFs. In diligence, state assumptions explicitly; scenario-test WACC in sensitivity work.

**WAPE (forecast error)**

Weighted Absolute Percentage Error. Use to judge forecast accuracy for  $\Delta$ Cash and  $\Delta$ CM2:  $\sum |Error| / \sum Actual$ .

**Waterfall (pricing)**

See “Pricing waterfall.”

**Working capital (DSO/DIO/DPO)**

Days Sales Outstanding / Days Inventory Outstanding / Days Payables Outstanding. Specify treatment of processor reserves/holdbacks and borrowing-base limits.

**Write-offs / Bad debt**

Uncollectible AR. Ensure waterfall and working-capital modeling capture write-offs and reduce realized price where appropriate.

## **Notation and unit conventions (used throughout the playbook)**

- **$\Delta$**  indicates change vs. baseline (e.g.,  $\Delta$ CM2 \$m,  $\Delta$ Price bps).
- **bps** = basis points (0.01%); **pp** = percentage points.
- **\$ / unit** clearly states currency and unit (e.g., \$ per shipment, \$ per API call).
- Time base: months for 8–12 quarters, then annual.
- All reported numbers carry **model version ID**, perimeter, and constant-currency notes.

This glossary is practical by design. If a term here clashes with a client’s house definition, choose one standard for the engagement, document it on Day-1, and use it consistently in the model, deck, and data room.

## 20.4 Quick-Reference Benchmark Metrics Guide

Benchmarks are not answers; they are **guardrails** and **sanity checks** that tell you where to look harder and what to underwrite with caution. This guide gives you a decision-grade “health zones,” directional ranges, and quick formulas to pressure-test a target’s performance without slowing the team down. Use it to frame hypotheses, set thresholds for green/amber/red, and spot where mix, policy, or physics—not motivation—explain variance. Because categories and geographies differ, treat every range as **contextual**: segment first, normalize carefully, and triangulate against local comps and the target’s own history.

### How to use benchmarks responsibly

Normalize before you compare. Use constant currency and organic scope; align on units (per **order**, **shipment**, **seat**, **API call**, **\$ of GMV**, or **customer**); and keep time bases consistent (monthly for 8–12 quarters, then annual). Segmentation must match your model: **product × route-to-market × region × customer tier**. Always reconcile to the GL and last actuals. For each metric, anchor to three points: (1) **internal trend** (best/worst quartiles), (2) **peer corridor** (like-for-like mix), and (3) **physics of the business** (e.g., parcel zones, interchange schedules, cloud egress). Use “bands,” not single points, and attach confidence labels (H/M/L).

### Market growth and exposure

- **Category growth (real terms):** mature staples often **0–3% CAGR**; cyclical durables **2–5%**; digitizing workflows **8–15%**; disruptive niches can exceed **20%** but are mix- and policy-sensitive. Green if target growth  $\geq$  category by **+300–500 bps** for two years; amber if flat; red if  $\geq -500$  bps below category without share logic.
- **Share momentum (12–24 months):** stable categories show  **$\pm 50–150$  bps** shifts; anything beyond that demands a cause (pricing events, channel changes, supply shocks, platform penalties).
- **Volatility (CV of monthly orders):** B2C retail seasonal **0.3–0.6**; B2B replenishment **0.15–0.35**; new product launches frequently **>0.6**—model safety stocks and capacity rungs accordingly.

## Customer retention and expansion

- **SaaS GRR/NRR (by segment):** SMB **GRR 80–90% / NRR 95–110%**; Mid-market **GRR 85–92% / NRR 105–120%**; Enterprise **GRR 90–95% / NRR 110–130%**. Green when NRR  $\geq 110\%$  with churn concentrated in tails; amber if NRR 100–110%; red if GRR  $< 85\%$  or NRR  $< 100\%$  without product/packaging fixes.
- **Logo churn (monthly):** SMB **1.0–2.5%**, Mid-market **0.6–1.2%**, Enterprise **0.2–0.8%**.
- **Cohort decay half-life:** healthy mid-market/enterprise cohorts often retain **50% of original CM2** at **24–36 months** without heavy upsell; red if half-life  $< 12 \text{ months}$  for non-transactional businesses.
- **Repeat purchase rate (physical goods):** core replenishment **60–80% within 12 months**; fashion/occasion **25–45%**; consider returns when computing true repeat value.

## Pricing power and realized price leakage

- **Realized price uplift from fence tightening (no list change):** **+50–150 bps** over 6–12 months in fragmented markets; green if elasticity shows neutral churn and VoC confirms low willingness-to-pay risk.
- **On-invoice discounts (as % of list):** B2B negotiated **5–15%** typical; B2C promo-heavy **10–25%** episodic; red if evergreen promos are  $> 30\%$  without lift.
- **Off-invoice (rebates, MDF, billbacks):** **1–5% of revenue**; ensure accruals match policy and cash timing.
- **Post-invoice leakage (returns, credits, penalties):** low-complexity goods **3–8%**; fashion/fit **15–30%**; electronics **5–12%**; marketplaces add claim/penalty layers—model separately.
- **Payment costs (effective):** domestic card **2.0–3.0%** of processed value; ACH/real-time **0.1–1.0%**; cross-border card **3.0–5.0%**; red if chargebacks  $> 1.0\%$  of transactions or reserves rising.

## Unit economics (CM1→CM2)

- **CM1 (product/service margin):** software delivery **70–85%**; marketplaces on take-rate **nearly 100% at CM1** (before ops); first-party retail **20–45%**; consumer subscriptions with content **40–65%**.

- **CM2 (after cost-to-serve):** asset-light B2B software **65–80%**; usage-heavy platforms **40–65%**; D2C physical **10–30%**; red if CM2 structurally < **10%** without scale or mix path.
- **Cost-to-serve mix (as % of revenue or per-unit):**
  - Returns/chargebacks: see above; watch fraud write-offs.
  - Shipping/parcel (retail): **6–12% of revenue** for standard baskets; heavy/bulky varies (model per zone/weight/DIM).
  - Cloud/API: healthy FinOps shows **40–70% reserved/commit coverage**; egress **5–20% of bill**; red if unit costs rise with scale.
  - Support: **minutes/contact 6–15** (simple B2C), **15–45** (B2B/technical); green when digital deflection > **30%** of contacts.

## Go-to-market and channels

- **CAC payback (to CM2):** product-led/self-serve **6–12 months**; sales-assisted SMB **9–18**; sales-led mid-market **12–24**; enterprise **18–36**. Red if payback exceeds guardrail by **>6 months** in base and downside.
- **Funnel health (weighted average by segment):** MQL→SQL **10–25%**; SQL→Opp **30–50%**; Opp→Win **20–35%** (lower in competitive RFPs). Cycle times: SMB <**45 days**, mid-market **60–120**, enterprise **120–240**.
- **Channel mix economics:** partners typically take **15–30%** of new ACV or margins; marketplaces **take-rate 5–20%** plus fulfillment/ads; red if paid placement  $\geq$  **8–10% of GMV** persistently to sustain rank.

## Operations and cost-to-serve

- **On-time, in-full (OTIF) / SLOs:** retail platforms commonly require  **$\geq 95\%$  OTIF**; B2B logistics SLOs often  **$\geq 97\%$** . Cloud-backed apps: p95 latency **<300 ms** consumer, **<1 s** business workflows; uptime **99.9–99.99%**.
- **Capacity rungs:** small to mid scale adds typically **8–16 weeks** for physical, **2–6 weeks** for cloud/data planes; plan SLO headroom  **$\geq 15\%$**  before step-ups.
- **Warehouse/fulfillment cost (as % of revenue):** light parcels **4–8%** excluding freight; bulky and value-added services vary—model directly.
- **Inventory health:** weeks of supply aligned to lead times  $\times$  safety factor; red if obsolete/slow-moving > **10%** of on-hand value.

## Technology, cloud, and reliability

- **FinOps coverage:** reserved/commit **40–70%** of steady workloads; spot/savings coverage incremental **5–15%**; red if commit coverage < **30%** without burst justification.
- **Cost per API call / compute hour:** treat as trend rather than absolute; green when **unit costs fall** with scale and architecture changes; red if cost curves slope upward after traffic normalization.
- **Security posture (commercial lens):** SOC 2/ISO in force; critical vulns remediated **≤30 days**; red if repeat incidents with SLA credits or regulator touch.

## Financial performance and working capital

- **Growth vs. rule-of-40 (SaaS):** growth % + CM2% **≥40** is a common quality corridor; red if < **20** unless in purposeful transition.
- **DSO / DPO / DIO (typical):** Enterprise SaaS **DSO 30–60**; wholesale **DSO 30–75**; B2C e-comm **DSO 0–3** (processors settle weekly); **DPO 30–60** with negotiated terms; **DIO** varies—replenishment **30–90 days**, fashion seasonal **90–150**.
- **13-week cash:** red if minimum liquidity < **8–10 weeks** of fixed cash burn without committed revolver; lenders often expect **headroom buffer 10–20%** above covenants.
- **One-timers vs. run-rate:** green when one-timers are disclosed and <**10%** of Year-1 ΔCash.

## Marketplace and platform specifics

- **Take-rate corridors:** horizontal generalist **5–15%**; specialized verticals **10–25%**; add fulfillment (FBA-like) **+8–15%** and ads **+2–8%** of GMV for true economics.
- **Policy/policy metrics:** late ship/claim ratios should be <**1%**; defect rate thresholds often <**1–2%**; red if policy metrics deteriorate alongside paid placement increases.
- **Brand/search dependence:** if top-5 keywords or placements drive >**35%** of sales, scenario-test bid inflation and rank decay.

## Risk and scenario guardrails

- **Downside bands:** base  $\pm 10\text{--}20\%$  on sensitive drivers; recession cases apply **-100–300 bps** to price power and **+10–30%** to returns/claims and contact rates; stagflation adds wage/input inflation and rate-driven WC drag.
- **Residual risk appetite:** set **Cash-VaR** tolerance per sponsor; common near-term buffers are **10–20%** covenant headroom and funded reserves for p10 shocks on top-three risks.
- **Mitigation ROI:** target  $\geq 3 \times \text{VaR removed per \$}$  of mitigation cost NPV for operational levers; for terms, show VaR shift per clause.

## Quick converters and sanity formulas (keep these handy)

- **Monthly churn from GRR:**  $\text{monthly churn} \approx 1 - (\text{GRR})^{(1/12)}$ .
- **Payback (months at CM2):**  $\text{CAC} \div \text{monthly CM2 per new customer}$ .
- **Rule-of-40 (CM2):**  $\text{growth \%} + \text{CM2\%}$ . Prefer CM2, not EBITDA, during scale.
- **Cash conversion cycle:**  $\text{CCC} = \text{DSO} + \text{DIO} - \text{DPO}$ .
- **Realized price:**  $\text{list} - \text{on-invoice} - \text{off-invoice} - \text{post-invoice} + \text{surcharges}$  (cash-timed).
- **Headroom buffer:**  $\min \text{quarterly headroom} \geq \text{buffer}$  (e.g., 10–20% of covenant) in p10 with mitigation cost included.

## Red/amber flags triggered by benchmarks

- **Pricing:** realized price uplift claims **>150 bps** without invoice audits/VoC; evergreen promos **> 30%** with no lift.
- **GTM:** CAC payback beyond guardrails **and** rising; free-trial conversion decays while paid placement rises.
- **Operations:** returns trending up with declining AOV; parcel \$/shipment rising faster than fuel and DIM policy changes.
- **Cloud:** unit costs increasing with scale; egress **> 20%** of bill with growing cross-region traffic.
- **Working capital:** DSO rising **>15 days** YoY; processor reserves/holdbacks increasing without mix explanation.
- **Marketplace:** claim/defect ratios near platform thresholds and paid placement dependence **> 10% of GMV**.

## Using benchmarks in your model and deck

Convert every benchmark into a **driver band** with a named toggle and a confidence label. Run sensitivities (standardized shocks) and show break-even thresholds on the tornado. When the target is outside a green zone, you have three options: (1) **prove the exception** (physics or policy), (2) **price the risk** (haircuts, reserves), or (3) **structure it** (indexation, caps, CPs, earnouts). Never present a benchmark without the **unit, time base, and segmentation**; and never let a single point replace evidence.

**Acceptance test for benchmark use:** for any metric cited in your deck, you can (i) show the **unit and segmentation**, (ii) reproduce the target's number from the model and data room in **≤3 clicks**, and (iii) demonstrate a **base-downside band** with sensitivity and confidence. If you cannot do all three, strip the benchmark from the spine or relegate it to a clearly labeled appendix note.