Team Lernaean Collective

VaccineCo Growth Strategy for Africa's Vision 2040

A Quantitative & Qualitative approach towards growth strategies built on bankable demand base, import-parity corridor pricing and blended financing

Executive Summary

A three-pillar strategy to scale VaccineCo for Africa's Vision 2040

Accelerated Manufacturing Pathway

- Deliver early doses fast: fill & finish in ~15 months, API in ~24 months
- Maximize capital efficiency: $10M to ~3× more doses vs API-first
- Secure anchor demand: UNICEF pooled tenders, then selective bilateral

Tender-Winning Economics

- Price with transparency: indexable import-parity corridors hedge FX/freight
- Cut the true cost driver: validated yield gains, dual-sourcing, optimized packaging
- Differentiate on reliability: cold-chain partnerships for >95% OTIF

Bankable Growth Architecture

- Make scenarios financeable: AMCs + base-volume agreements lenders underwrite
- Lower WACC: pensions/DFIs blend to ~11.5% (from ~13.8%)
- Free cash sooner: receivables programs cut WC cycle 50 to 40 days

→ **Builds capacity, ensures affordable reliable supply, and creates a bankable growth platform for Vision 2040.**

Simple Strategy I: How we built the case (Data, Method, and Context)

Market context that matters

Demand is rising, supply is imported.

Africa consumes nearly a quarter of global vaccines yet imports the vast majority, creating a resilience gap and local-content opportunity.

Procurement is pooling and shifting to value.

Regional demand pooling and 'Buy African' preferences are growing; advance purchase commitments are being explored.

Reliability wins.

High unemployment and public-debt pressure in South Africa constrain fiscal space, so buyers favor predictable total cost and on-time supply.

Where VaccineCo starts from

We are uniquely positioned to execute due to:

- **Established Production:** we operate a >10M dose fill-and-finish facility with the use of technology transfers.
- **Proven Market Access:** We are an established supplier for government tenders and private channels in South Africa.
- **Regulatory Head-Start:** Our South African headquarters provide the fastest vaccine approval pathway on the continent.

Our method

- **Data Intake**
  - Demand, cost & operations datasets of various vaccines with various channels to at least 6+ countries consolidated into model
- **Cost & Value Engine**
  - Landed cost vs. local cost per product and country; profitability and cash impact
- **Uncertain**
  - Bear / Base / Bull paths for demand and financing & Speed to first lots

Primary objective

Secure financeable, resilient local vaccine capacity delivering pooled-contract volumes toward Africa's Vision 2040.

Secondary objective

Lower unit cost and capital cost through API and yield gains, corridor pricing, and last-mile reliability.

What went into the model

Demand by Program & country	• Historical awards and forward views by UNICEF, pooled African procurement, bilateral government orders
Import Landed cost per dose	• Freight, duty, value-added tax, inland logistics, and expected spoilage.
Local Production & Capacity	• Active ingredient, fill and finish, packaging, energy, cold-chain handling and capacity+
Operations & Finances	• Utilization, working capital days, profit and loss, and interest burden.

Secondary Research

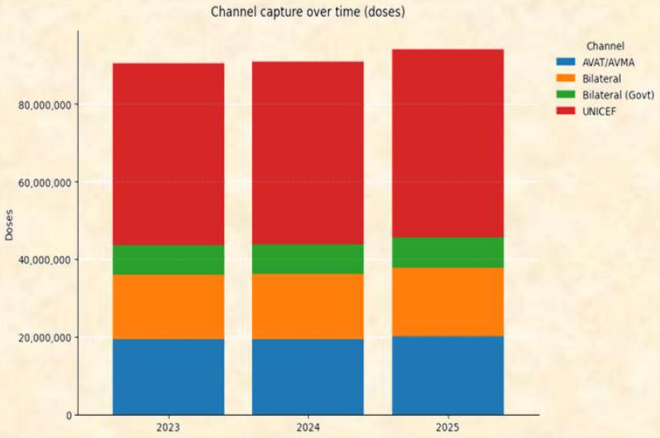
We synthesized UN births, WHO coverage, UNICEF awards, CIF tariffs, tender data into Excel formulas validating demand, pricing, financing, corridors.

Simple Strategy II: Where the doses are (buys and scale)

Pooled procurement gives dependable base demand and big birth cohorts at high coverage convert fastest.

- The United Nations Children's Fund anchors the base volume each year, with African pooled procurement as the second growth engine.
- The largest birth cohorts with high vaccination coverage are the fastest wins because programs are stable and forecasting is reliable. Entering through pooled tenders first and then add targeted bilateral tenders where delivery schedules and funding are dependable.
- Our first three product types are aligned with these routine immunization pools to maximize line utilization and tender win-rate.

Tender timing and budget slippage + Exchange-rate shocks + Coverage can fall below averages = Challenges

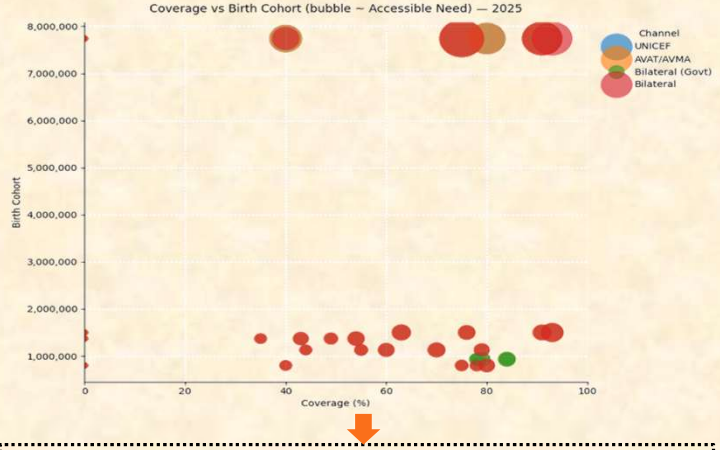


- **Each stacked bar shows total doses by channel**. The red layer (United Nations Children's Fund) is the largest every year; blue (African pooled procurement) grows; orange and green (bilateral) are smaller.
- The height proves scale; the layers show why we build our offtake around pooled demand.

Taking a scientific deep dive into money making with pinpointing exact vaccines;

Stacked bars show which product types pay the bills. Pneumococcal conjugate and the combined diphtheria-tetanus-pertussis-hepatitis B-Haemophilus influenzae type b vaccine dominate revenue.

This could be a focal point that the first three products types mirror routine immunization demand.



- Each **bubble is a country cell**. Right and high means high coverage and big birth cohort. The largest bubbles in that quadrant are our 'go-first' cells because programs are stable and volumes lock in quickly.

Simple Strategy III: Import Price Baseline

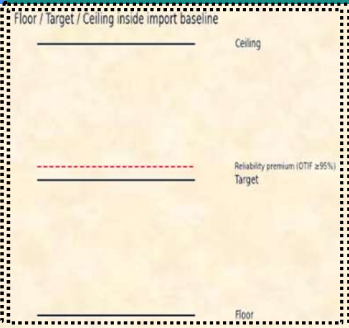
Sequence Markets by Difficulty

Example:

First wave: Ethiopia, Uganda, Nigeria, South Africa, where import costs are high to mid-high and parity is achievable. *Second wave:* Kenya, Angola, Zambia

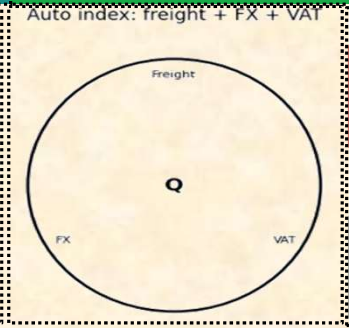
Publish a transparent corridor for each country × product type.

We will show a floor, target, and ceiling tied to the country's import number, plus a small premium for guaranteed delivery



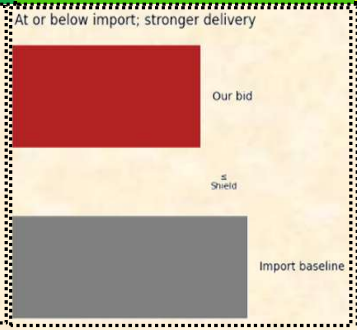
Make the corridor bankable.

Every corridor will carry automatic quarterly indexation (freight benchmark, exchange-rate band, and value-added tax updates)



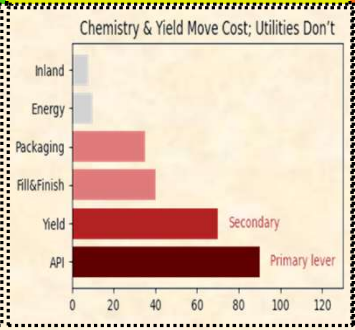
Use the baseline in negotiations.

In pooled tenders we will say plainly: "Our local offer is at or below your proven import cost, with stronger delivery performance and no currency risk on the government side."



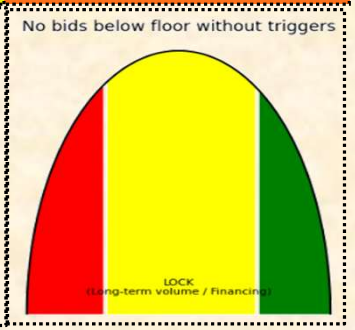
Focus the cost program where it changes outcomes.

Because inland transport barely moves the number, we put effort into active-ingredient sourcing and yield to reduce local cost.



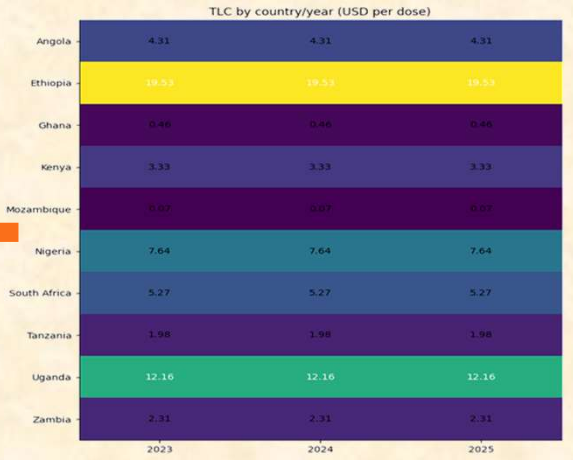
Create internal guardrails.

We will not bid below the corridor floor unless (a) a long-term volume guarantee is signed, or (b) a financing instrument .



Relative positions matter for entry strategy. High-cost countries are easier to win at parity; very low-cost countries require a stronger value case or later entry.

- **Import cost varies widely across countries**. Most of the cost sits at the border rather than inland. Freight value at the border and value-added tax drive the number.
- This cross-country picture is the reference for "fair price" corridors.

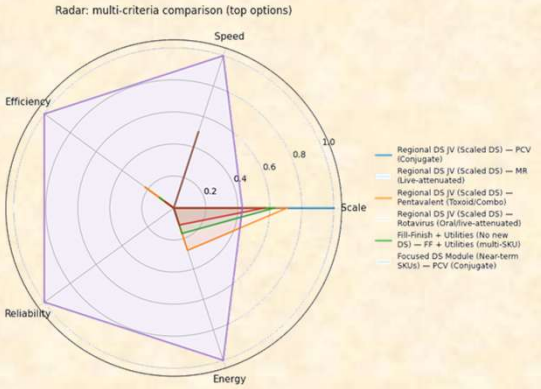


Quantitative Strategy I: Two-speed capacity, Deliver Now, Localize next

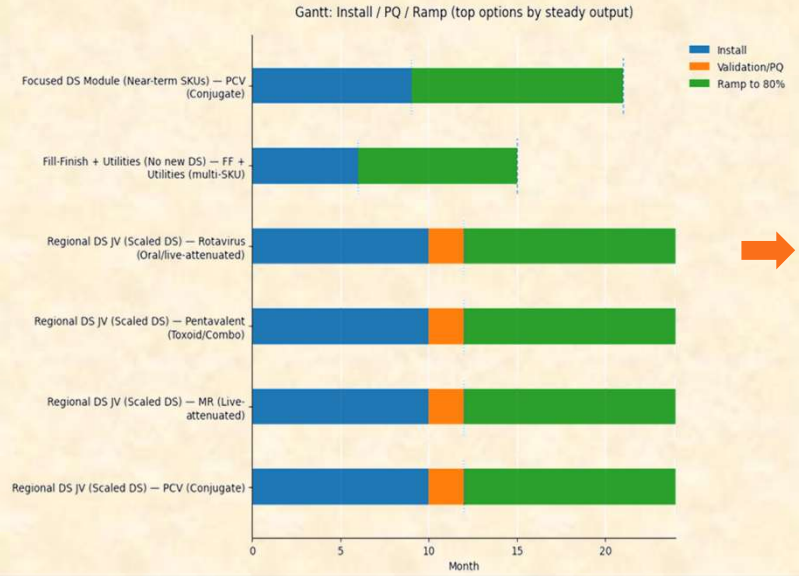
How we build: quick start now, full localization next

Strategy

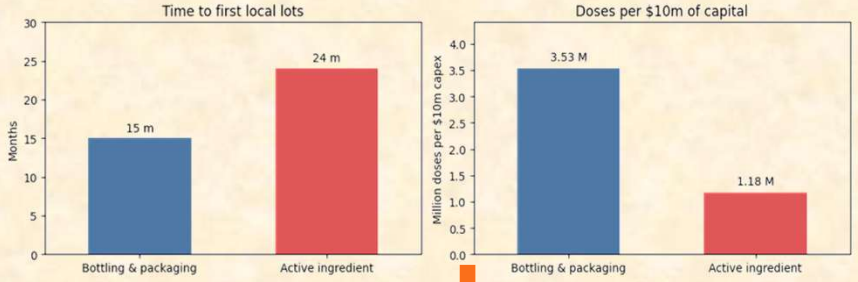
- We begin with bottling and packaging, so first local lots are released in about 15 months.
- Example: Start making the active ingredient for the measles–rubella vaccine once two conditions are met: regulator approval and signed purchase commitments.
- Start now with bottling and packaging and trigger the first active-ingredient module after qualification and pre-qualification are achieved and offtake is signed.



- **Bridge capacity wins on speed and cost:** Bottling and packaging scores highest on speed and capital efficiency while remaining reliable, ideal for getting doses out early.
- **Second-phase plays:** Pneumococcal and other complex vaccines bring bigger scale but slower timing and higher energy needs, plan them after the first module is running.



- **Fastest path:** Bottling and packaging reaches first local lots in ~15 months, then ramps quickly to steady output.
- **Deeper build takes longer**: Adding active-ingredient production through a regional joint venture adds ~6–9 months but delivers larger long-term capacity.



- **Time:** 15 months to first lots for bottling and packaging vs ~24 months for the first active-ingredient module.
- **Capital productivity:** Each $10 million builds ~3.5 million doses with bottling and packaging vs ~1.1–1.2 million doses with active-ingredient production.
- **Implication:** Lead with bottling and packaging to deliver fast, low-cost doses, while preparing the active-ingredient module

Quantitative Strategy II: Our Cost Position and the Path to Parity

Why local cost is high today and exactly how to close the remaining gap

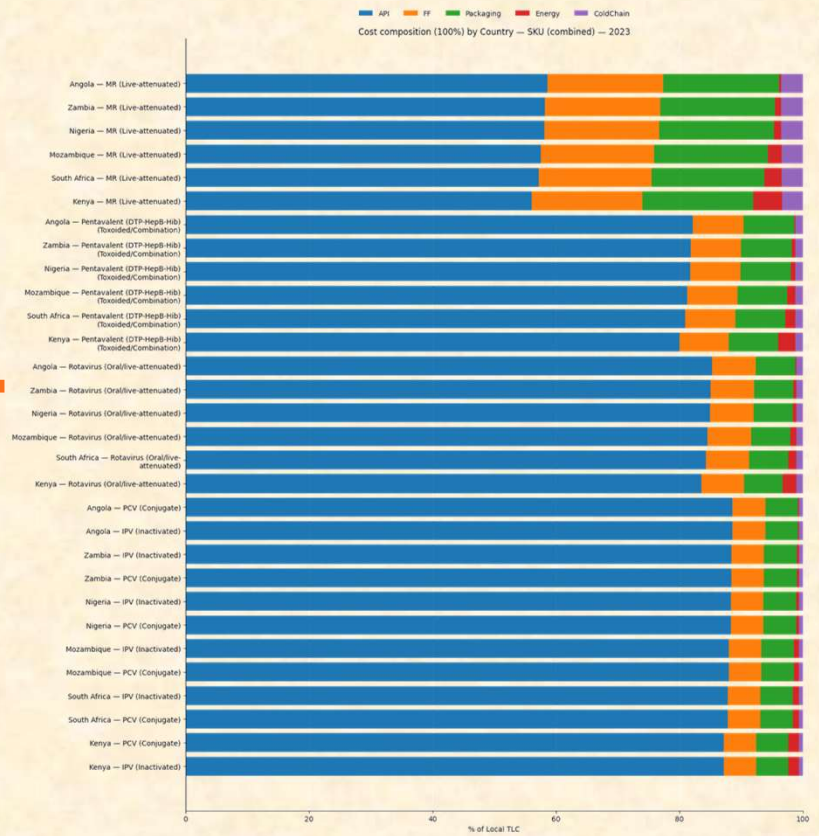
Strategy

The active ingredient drives our unit cost; electricity and cold chain are small shares. Savings must come from chemistry and yield

To speak scientifically, Measles–rubella is our first parity target; the combination vaccine follows once yields step up. Conjugate and inactivated products move later when the economics improve.

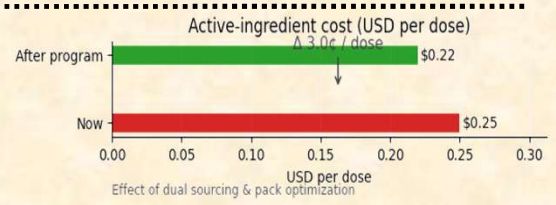
Securing two qualified suppliers for the active ingredient, with volume commitments, right-sized pack formats, and delivery windows that cut waste.

Running lines at ninety percent or higher utilization and standardize materials as our goal is to reduce cost of sales



Yield program:

- Batch-size upgrades, setup-time reduction, and statistical in-process controls (in-line analytics, tighter acceptance bands).
- Validation gates every wave; no quality shortcuts, each gain is locked before moving up.

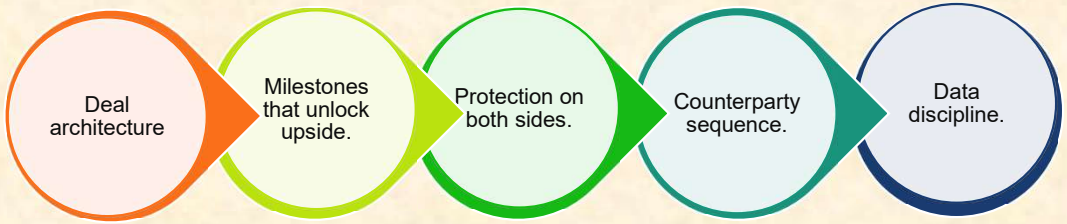


Quantitative Strategy III: Turn uncertainty into contracts (base, bear, bull)

Turning a probabilistic demand picture into contracted, financeable volume

Strategy

- We sign base-volume agreements with the United Nations and African pooled procurement that match our first-phase capacity and release purchase schedules quarterly.
- Adding advance-market-commitment clauses that unlock additional volume when we meet on-time-delivery and local-content milestones.
- We keep bilateral tenders as a controlled top-up where demand forecasting is dependable, and payment terms are bankable.
- This layered approach converts uncertainty into a clear P50 base and a staged upside, which lenders can underwrite.
- Volumes and prices are refreshed annually using the corridor rules so budgets and contracts remain fair when freight or currency move.

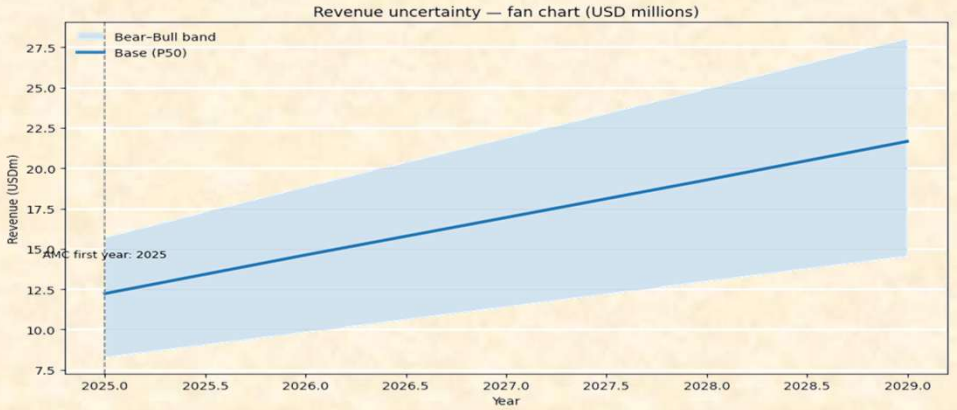


One master agreement per channel; country addenda list corridor prices, indexation rules, and milestone triggers.

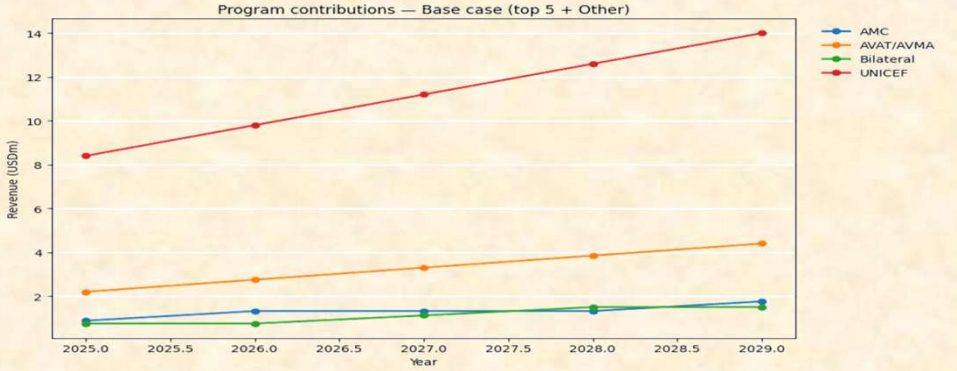
On-time-in-full service level, certified fill-and-finish capability, and validated active-ingredient batches

Corridors are indexed to freight and currency so neither the buyer nor VaccineCo is exposed to external shocks

Lead with the United Nations for scale and payment certainty



The revenue fan chart highlights how layered contracts and corridor indexation narrow downside risk while preserving upside from milestone-triggered volume. The P50 trajectory demonstrates predictable growth that lenders can underwrite, while the bear–bull band reflects market volatility exposure.

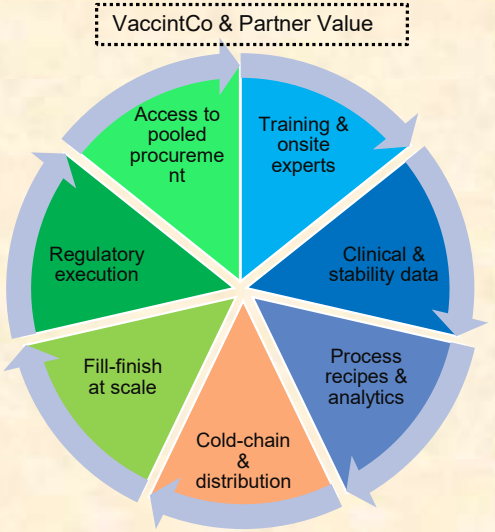


Revenue distribution across procurement programs shows UNICEF as the anchor buyer, with AMC and pooled African channels gradually expanding. This diversification strengthens resilience, reduces dependency on a single buyer.

Qualitative Strategy I: Pathway Reverse Transfer & Philanthropic Warrant

Strategy

- We will form a joint venture with a technology owner where VaccineCo contributes local distribution, public-buyer access, and quality systems in exchange for regional manufacturing and commercial rights.
- Rights are ring-fenced to Africa with clear royalty sharing and a buy-down path as local-content milestones are achieved..
- Philanthropic grantors fund targeted research with a warrant that pays out only if a product succeeds, keeping today's cash needs low.
- The near-term focus is process know-how that cuts active-ingredient cost and raises yield on measles–rubella; the medium term adds a novel platform candidate.



Royalty share declines as local content rises (starts higher → steps down at 30% / 50% / 70% local) Indicative: ~6–8% → ≈3%

Territory: Africa only. Governance: joint steering committee Data: reciprocal access for continuous improvement

Sequence innovation

First, lift measles–rubella yields and cut scrap to drop cost per dose.

Next, scale batch size and shorten changeovers on the combination vaccine.

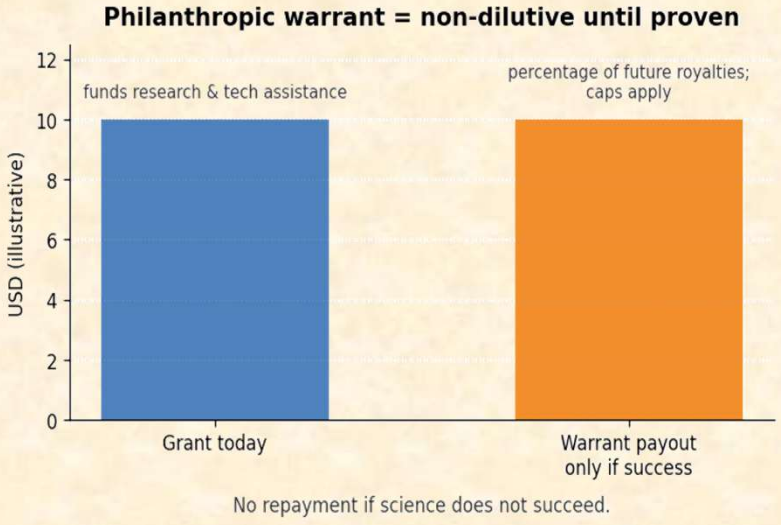
Later, license one platform candidate with regional rights

Now — MR process uplift (yield ↑, scrap ↓, cost/dose ↓

Next — combo vaccine yield wave (batch ↑, changeover ↓)

Later — one platform candidate (license & regional rights)

From process uplift now to a platform candidate later



Donor funds arrive now as a grant that pays for research and technical help.

If the program works, a capped warrant pays donors a small share of future royalties.

If it fails, there is no repayment, dilution, or debt.

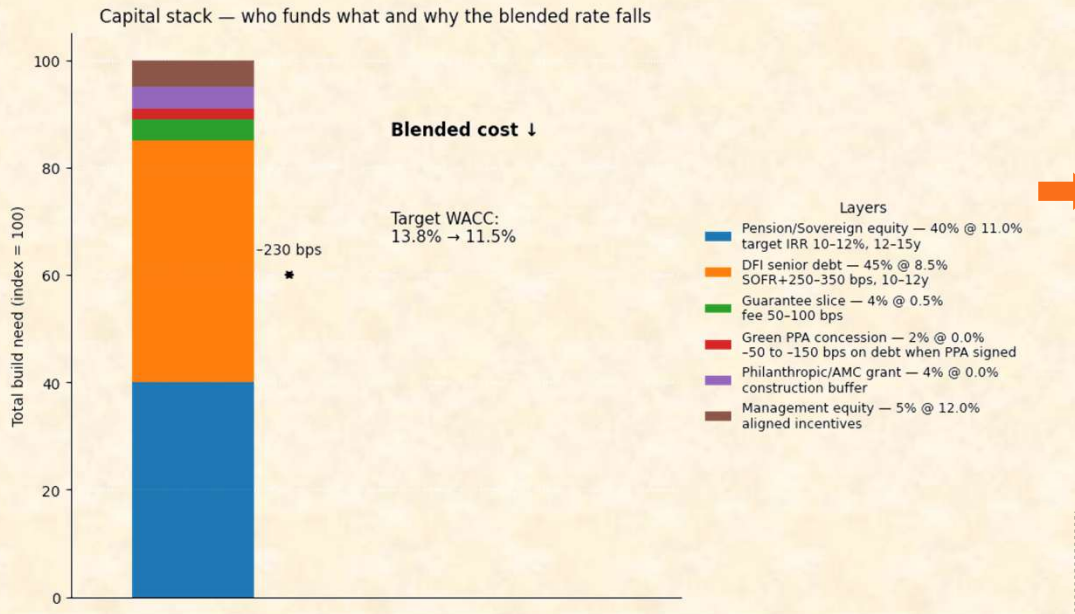
Qualitative Strategy II & III: Sovereign & Pension Anchor with Last-Mile Equity, Health-Economic

Strategy II Sovereign & Pension Anchor

- We will pitch African sovereign wealth funds and national pension funds as infrastructure investors in health security with steady, long-dated returns.
- Their capital anchors a blended stack with development-finance debt and guarantees; returns are matched to corridor-indexed offtake from public buyers.
- A revenue escrow and hard covenants on on-time delivery protect investors and lower the risk price.
- A green power purchase agreement cuts outages and helps reduce the cost of debt from development lenders.

Strategy III Last-Mile Equity, Health-Economic

- We will acquire a minority stake in a specialist cold-chain company serving the Southern African region, with service-level guarantees tied directly to our on-time, in-full delivery target.
- The stake secures transport and storage capacity in peak months, reduces spoilage, and creates an additional earnings stream from logistics services.
- In tenders we will use a total-cost-of-ownership model that counts foreign-exchange risk, import duties, shipping and insurance, and the real cost of stock-outs to clinics.
- **Last Mile Equity & Health Economic further analysis in Appendix 5**



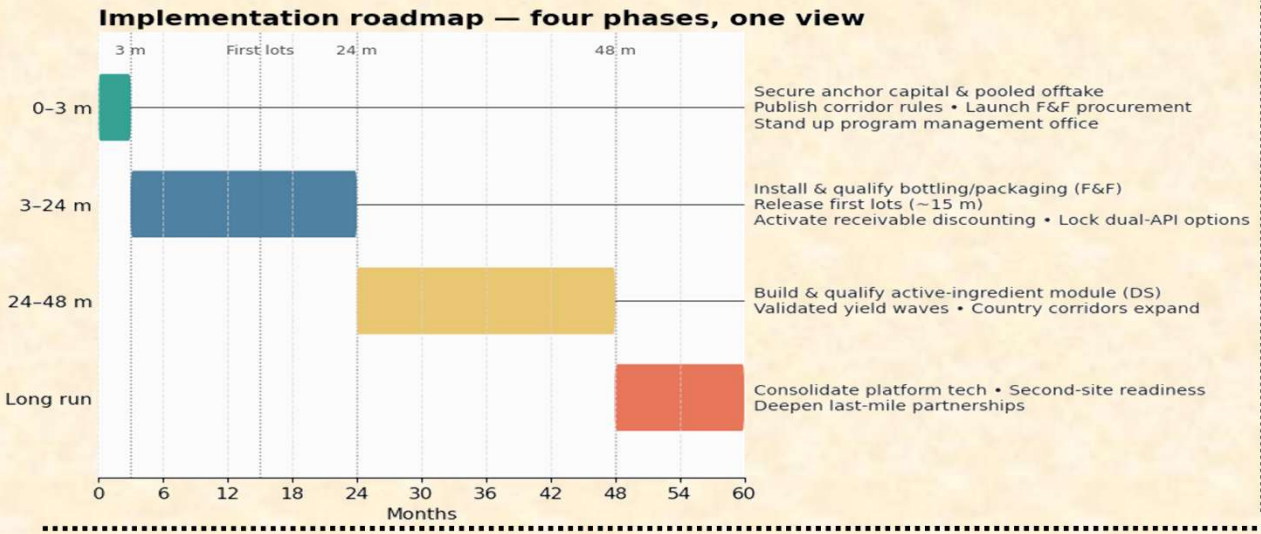
Key Takeaways

- This waterfall explains who funds the build and why the blended financing rate falls.
- The base is domestic pension and sovereign wealth equity, about forty percent of the need, targeting an internal rate of return near eleven percent on twelve- to fifteen-year horizons.
- Long-tenor senior debt from development finance institutions supplies roughly forty-five percent at about eight and a half percent.
- A guarantee layer of around four percent reduces the risk premium on that debt. A green power purchase agreement adds a small concession that further lowers borrowing cost.

Working-capital days 50 - ≤40 → **Cash released** → **Interest saved**

We free cash and cut interest drag while ramping. Cash released = (10 days ÷ 365) × annual cost of sale. Interest saved = cash released × average borrowing rate

Implementation and plan of action



- Months zero to three secure anchor capital and pooled offtake, publish corridor rules, launch procurement for bottling and packaging, stand up program management office.
- Months 3 to 24 install and qualify bottling and packaging, release first lots, activate receivable discounting, lock dual active ingredient options.
- Months 24 to 48 build and qualify active ingredient module, scale yields through validated waves, expand country corridors.
- Long run consolidate platform tech, add second site readiness, deepen last mile partnerships.
- Key risks and mitigations demand shortfall with AMC triggers, regulatory delay with early engagement, currency shocks with indexation, supply shocks with dual sourcing, outages with green power agreements, working capital strain with vendor managed inventory and escrow.

Final Overall Strategy & Recommendations

Build fast, localize next

Commission fill and finish for first lots within fifteen months while engineering drug substance modules to follow once yields and procurement confirm volumes enabling a staged path to full localization and earlier impact.

Price fairly, win reliably.

Publish transparent corridors per country and product anchored to import landed cost with automatic indexation and add a small earned premium for verified on time in full performance to lower total program cost.

Turn Demands into contracts

Convert probabilistic demand into bankable offtake by signing base volumes with pooled buyers then layering advance commitment triggers tied to delivery and local content milestones so lenders underwrite the ramp confidently.

Cost engine: active ingredient and yield

Attack unit cost through dual sourced active ingredient contracts pack size optimization and validated yield improvements with statistical controls and setup reductions locking each gain before scaling batch sizes and utilization.

From probability to paper

Institutionalize corridor rules payment security and purchase schedules through memoranda of understanding that refresh annually ensuring budget certainty for buyers while transforming scenarios into enforceable agreements financiers recognize and fund.

Domestic capital as foundation

Invite sovereign wealth and pension funds as anchor equity alongside development finance debt and guarantees aligning national missions with stable returns while reducing currency exposure and lowering the blended cost of capital.

Cash conversion while we ramp

Discount receivables from United Nations agencies and regional pooled programs and operate vendor managed inventory in two hubs to reduce working capital days to forty or less saving interest and funding operations internally.

Leapfrog through reverse technology transfer

Partner with a technology owner through a joint venture where VaccineCo provides distribution regulatory execution and fill finish capability in exchange for regional rights and milestone-based royalties supported by philanthropic research warrants.

Own the last mile and sell total cost

Take a minority stake in a specialist cold chain operator to secure peak capacity cut spoilage and guarantee service levels then win tenders using total cost models proving lower overall program expense.

Appendix 1 Corridor math (country × SKU) The Numbers “fair price”

Our bids sit inside each country’s import total landed cost and automatically update for cost, insurance, and freight, foreign exchange, and value-added tax. A two to three cents per dose reliability premium is added only when on-time-in-full delivery is at least ninety-five percent.

Country	Product (SKU)	Year	Import total landed	Local total landed cc	Headroom (Import -	Corridor floor (USD/c	Corridor target (USC	Corridor ceiling (USI	Indexation
Ethiopia	Measles-rubella	2025	0.65	0.3	0.35	0.62	0.64	0.65	CIF • FX • VAT
Uganda	Rotavirus (oral, live-	2025	0.84	0.3	0.54	0.8	0.82	0.84	CIF • FX • VAT
Nigeria	Pentavalent (DTP-He	2025	0.84	0.28	0.56	0.8	0.82	0.84	CIF • FX • VAT
South Africa	Measles-rubella	2025	0.65	0.25	0.4	0.62	0.64	0.65	CIF • FX • VAT
Zambia	Pentavalent (DTP-He	2025	0.84	0.32	0.52	0.8	0.82	0.84	CIF • FX • VAT
Kenya	Pneumococcal conju	2025	2.1	0.3	1.8	2.0	2.06	2.1	CIF • FX • VAT
Ghana	Measles-rubella	2025	0.65	0.28	0.37	0.62	0.64	0.65	CIF • FX • VAT
Mozambique	Measles-rubella	2025	0.65	0.34	0.31	0.62	0.64	0.65	CIF • FX • VAT

Formula Box

Import total landed cost = *(cost, insurance, and freight per kilogram × dose weight in kilograms × (1 + value-added tax rate)) + inland logistics cost*

Local total landed cost = *active ingredient + fill-and-finish + packaging + energy + cold-chain handling − subsidy + benefit*

Headroom = *Import total landed cost − Local total landed cost*

Corridor = *Floor (three to five percent below import) · Target (one to two percent below import) · Ceiling (equal to import)*

We publish the corridor and its indexation rules in every tender. The reliability premium of two to three cents per dose is charged only when on-time-in-full delivery is at least ninety-five percent; otherwise it is not charged.

Appendix 2 Model formulas and data dictionary

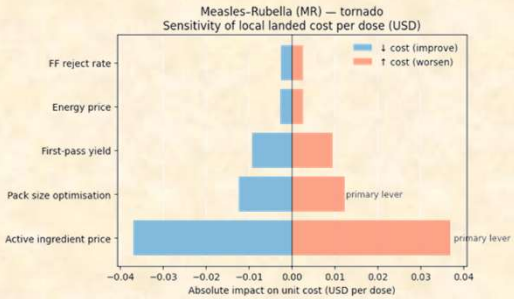
Formulas

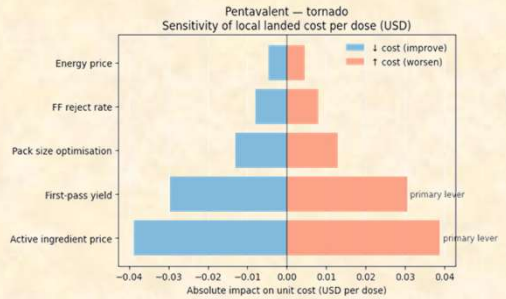
- Accessible need (doses) = Birth cohort × Doses per schedule × Coverage rate
- Channel doses (doses) = Accessible need × Channel share
- Revenue (United States dollars) = Channel doses × Net price (United States dollars per dose)
- Import total landed cost (United States dollars per dose) = Cost-insurance-freight per kilogram × Dose weight in kilograms × (1 + Value-added tax rate) + Inland logistics cost (United States dollars per dose)
- Local total landed cost (United States dollars per dose) = Active ingredient cost + Fill-and-finish cost + Packaging cost + Energy cost + Cold-chain handling cost − Subsidy + Benefit (rebate)
- Headroom (United States dollars per dose) = Import total landed cost − Local total landed cost
- Corridor floor (United States dollars per dose) = Import total landed cost × (1 − 0.03 to 0.05)
- Corridor target (United States dollars per dose) = Import total landed cost × (1 − 0.01 to 0.02)
- Corridor ceiling (United States dollars per dose) = Import total landed cost
- Cash released from net working capital (United States dollars) = (Change in working-capital days ÷ 365) × Cost of sales
- Interest saved (United States dollars) = Cash released × Average borrowing interest rate Weighted average cost of capital (percent) = Σ [Capital weight × Capital cost] across: equity, development-finance-institution debt, guarantee effect, and power-purchase-agreement concession

Section	Field	Definition
Demand and revenue	Country	Country name
Demand and revenue	Year	Calendar year
Demand and revenue	Product (SKU)	Vaccine or presentation
Demand and revenue	Channel	Procurement pathway (United Nations, pooled, etc.)
Demand and revenue	Delivery cadence	Award frequency (annual, multi-year, rolling)
Demand and revenue	Birth cohort	Live births in year
Demand and revenue	Doses per schedule	Doses per child required
Demand and revenue	Coverage rate	Share of cohort vaccinated
Demand and revenue	Theoretical need (doses)	Cohort × schedule
Demand and revenue	Accessible need (doses)	Theoretical need × coverage rate
Demand and revenue	Channel share	Portion of accessible need by channel
Demand and revenue	Channel doses	Accessible need × channel share
Demand and revenue	Net price	Unit price used for revenue
Demand and revenue	Revenue	Channel doses × net price
Import baseline (total landed cost)	Cost-insurance-freight per kilogram	Border price basis (CIF incoterm)
Import baseline (total landed cost)	Dose weight	Packed weight per dose
Import baseline (total landed cost)	Value-added tax rate	VAT applied at border
Import baseline (total landed cost)	Inland logistics cost	Inland transport and handling
Import baseline (total landed cost)	Import total landed cost	All-in import cost per dose
Local cost ladder (per dose)	Active ingredient cost	Active pharmaceutical ingredient
Local cost ladder (per dose)	Fill-and-finish cost	Vialing and packaging operations
Local cost ladder (per dose)	Packaging cost	Vials, stoppers, labels, cartons
Local cost ladder (per dose)	Energy use (kWh per 1,000 doses)	Process energy intensity
Local cost ladder (per dose)	Power tariff	Electricity price
Local cost ladder (per dose)	Energy cost	Energy use × tariff
Local cost ladder (per dose)	Cold-chain handling cost	Cold storage and handling
Local cost ladder (per dose)	Subsidy	Unit subsidy received
Local cost ladder (per dose)	Benefit (rebate)	Other per-dose credits
Local cost ladder (per dose)	Local total landed cost	Sum above (with signs)
Local cost ladder (per dose)	Headroom	Import total landed cost − Local
Operations and cash	Revenue (financial table)	Recognized sales
Operations and cash	Cost of sales	Direct costs of goods
Operations and cash	Net working-capital days	Days of cash tied in operations
Operations and cash	Capacity (doses)	Annual rated output
Operations and cash	Actual production (doses)	Realized output
Operations and cash	Utilization rate	Actual ÷ capacity
Operations and cash	Average borrowing interest rate	Cost of short-term borrowing
Operations and cash	Cash released from net working capital	From formula above
Operations and cash	Interest saved	From formula above
Capacity stage-gates	Installation months	Months to install equipment
Capacity stage-gates	Performance-qualification months	Months to validate and qualify
Capacity stage-gates	First-lot month	Month of first commercial lots
Capacity stage-gates	Ramp-to-eighty-percent month	Month hitting 80 percent utilization
Capacity stage-gates	Steady-state capacity (doses per year)	Rated annual output when stable
Capacity stage-gates	Process yield	Good output ÷ total output
Capacity stage-gates	Batch size	Doses per batch
Capacity stage-gates	Target utilization	Planned long-run utilization
Capacity stage-gates	Power consumption	Kilowatt-hours per 1,000 doses
Capacity stage-gates	Incremental operating expenditure	Added annual operating expense
Capacity stage-gates	Cold-chain specification	Temperature band requirement
Procurement and	Program	Buyer or program name

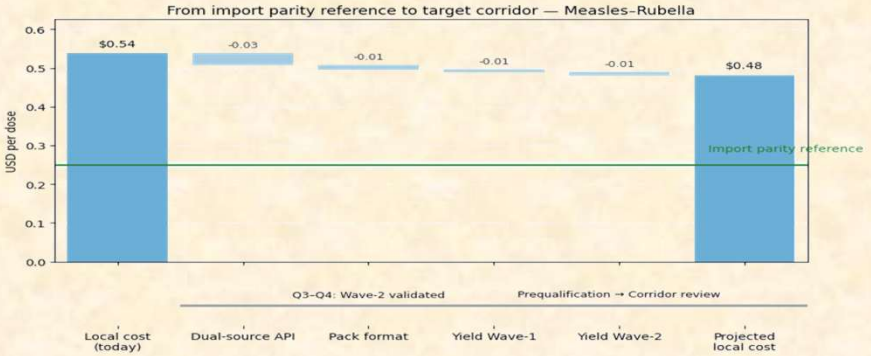
Appendix 3 Active-ingredient & Data sources

The waterfall steps our local cost down through three practical levers. We dual source the active ingredient and right size pack formats to cut open vial waste. Running two validated yield waves with one to one and a half percentage point gains each. These steps permanently lower scrap and improve unit economics. The two tornado charts quantify sensitivity and we can see unit cost is driven mainly by the active ingredient. First pass yield is the next strongest lever. Fill and finish rejects and energy prices have smaller effects. We apply the same playbook to the combination vaccine next to cross parity.





Driver	Baseline (example)	Test range used in charts	Why it matters
Active ingredient price per dose	from Local Cost	± 0.03 United States dollars	Dominant share of unit cost for both exemplars
First-pass yield	from Operations	± 1.5 percentage points	Converts fixed/labour into output; reduces scrap
Fill-and-finish reject rate	from Quality logs	± 0.5 percentage points	Direct scrap and rework driver
Pack format (dose per vial)	current mix	effect ± 0.01 United States dollars	Components and open-vial wastage
Energy price	tariff today	± 20 percent	Reliability issue > cost issue



Data sources we rely on

- **Immunization coverage and cohorts**: World Health Organization / United Nations Children's Fund Estimates of National Immunization Coverage (WUENIC) and United Nations World Population Prospects (births and population).
- **Import reference (cost, insurance and freight values; definitions)**: World Integrated Trade Solution (World Bank) and United Nations Comtrade guidance.
- **Taxes and value-added tax rates**: KPMG Indirect Tax rates by country (and equivalent professional tax summaries).
- **Vaccine prices and procurement context**: United Nations Children's Fund Supply publications and vaccine price datasets.
- **Wastage and effective cold-chain practice**: World Health Organization guidance on monitoring vaccine wastage and Effective Vaccine Management.
- **Advance Market Commitment precedent and blended finance context**: Gavi Pneumococcal Advance Market Commitment, Afreximbank financing notes, and International Finance Corporation press releases on health and local-currency financing.

Appendix 4 Financing term-sheet and Cash Engine

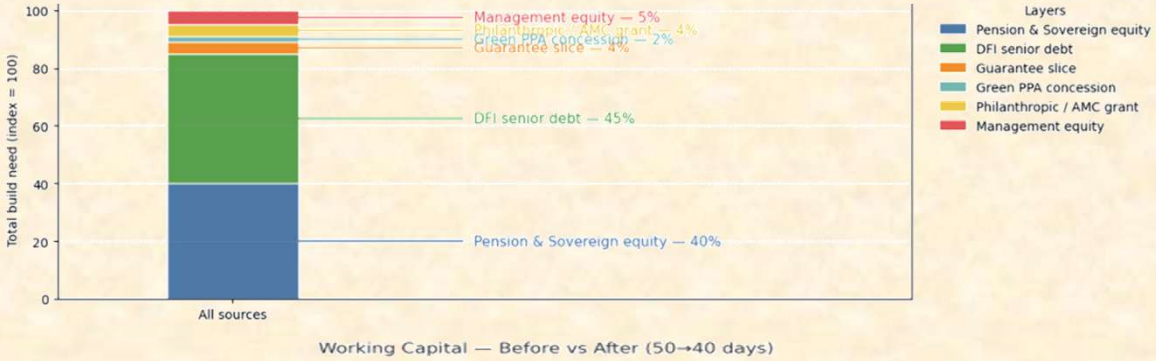
Capital stack that truly lowers the price of money

We anchor equity with domestic pension and sovereign funds at about forty percent targeting ten to twelve percent returns over twelve to fifteen years because they view the facility as essential health infrastructure. We add development finance institution senior debt at about forty five percent and roughly eight- and one-half percent interest with ten to twelve year tenor so debt duration matches public offtake.

Layer	Share of funding	Cost/return	Tenor	Purpose
Pension and Sovereign equity	40%	10–12%	12–15y	Domestic anchor; stability
Development finance institution senior debt	45%	~8.5%	10–12y	Long-dated debt
Guarantee slice	4%	0.5% fee	n/a	Risk reduction
Green power purchase agreement concession	2%	0.00%	n/a	Rate shave via availability
Philanthropic or Advance Market Commitment grant	4%	0.00%	n/a	Buffer for milestones
Management equity	5%	~12%	long	Alignment

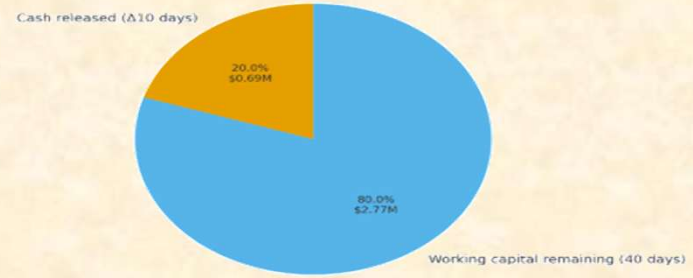
Why the blended rate falls and stays bankable

This mix is designed to move the weighted average cost of capital from roughly thirteen point eight percent toward about eleven point five percent which is a reduction of about two hundred and thirty basis points. The fall comes from cheaper domestic equity expectations, development finance pricing, and the guarantee effect, then the green power purchase agreement increases availability which further improves lender terms. Corridor indexation to freight exchange and value added tax creates predictable cash flows.



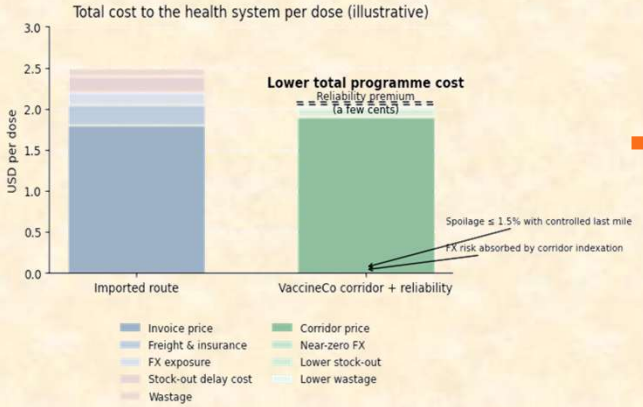
How cash is freed while the lines scale

Using the latest operations sheet the cost of sales in twenty twenty four is about twenty five point two five two million dollars. Cutting working capital from fifty days to forty days releases about zero point sixty nine million dollars because ten divided by three hundred sixty five multiplied by twenty five point two five two million equals that result. At a twelve percent borrowing rate this saves roughly zero point zero eight three million dollars per year. We achieve the reduction through receivable discounting from United Nations and pooled programs



Appendix 5 Last Mile Equity

Trendlines show the operational effect of taking an equity stake in last-mile delivery. After month zero, on-time-in-full rises from about eighty-six percent to at least ninety-five percent as control capacity, telemetry, and pre-positioning. Spoilage falls from roughly three percent to near one-and-a-half percent, meeting our reliability targets consistently.



Stacked bars compare the real programme cost per dose. Imports include invoice price, freight and insurance, foreign-exchange exposure, stock-out delay costs, and wastage. Corridor price adds a small reliability premium but removes currency risk and spoilage.

Thank you !