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Advanced Analytics in Banking & Finance

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Agenda

- Why has Advanced Analytics become a CEO topic?
- How to build and embed Advanced Analytics at scale?
- How are we helping customers achieve value out of Advanced Analytics?
- Key takeaway



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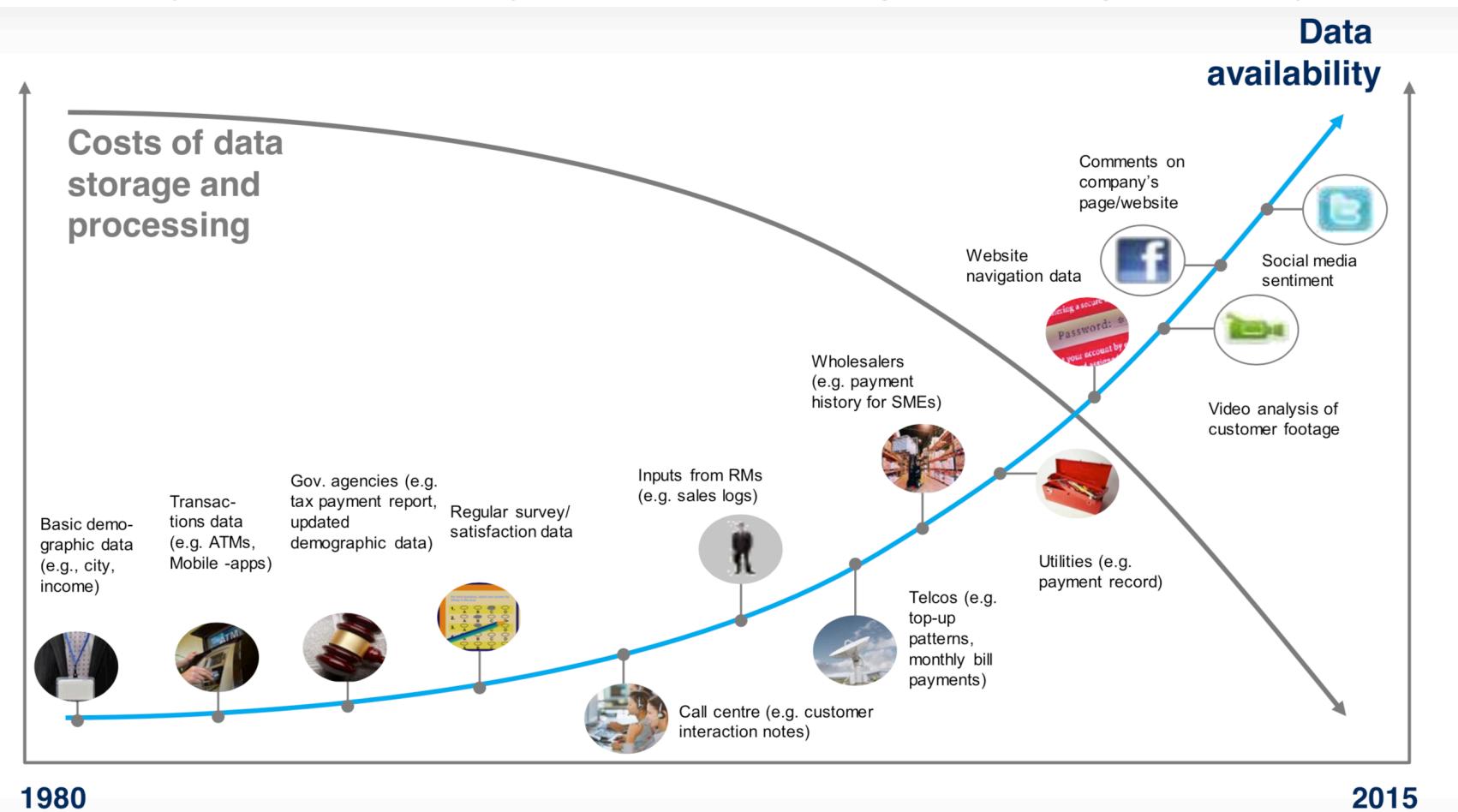
Why has Advanced Analytics become a CEO topic?





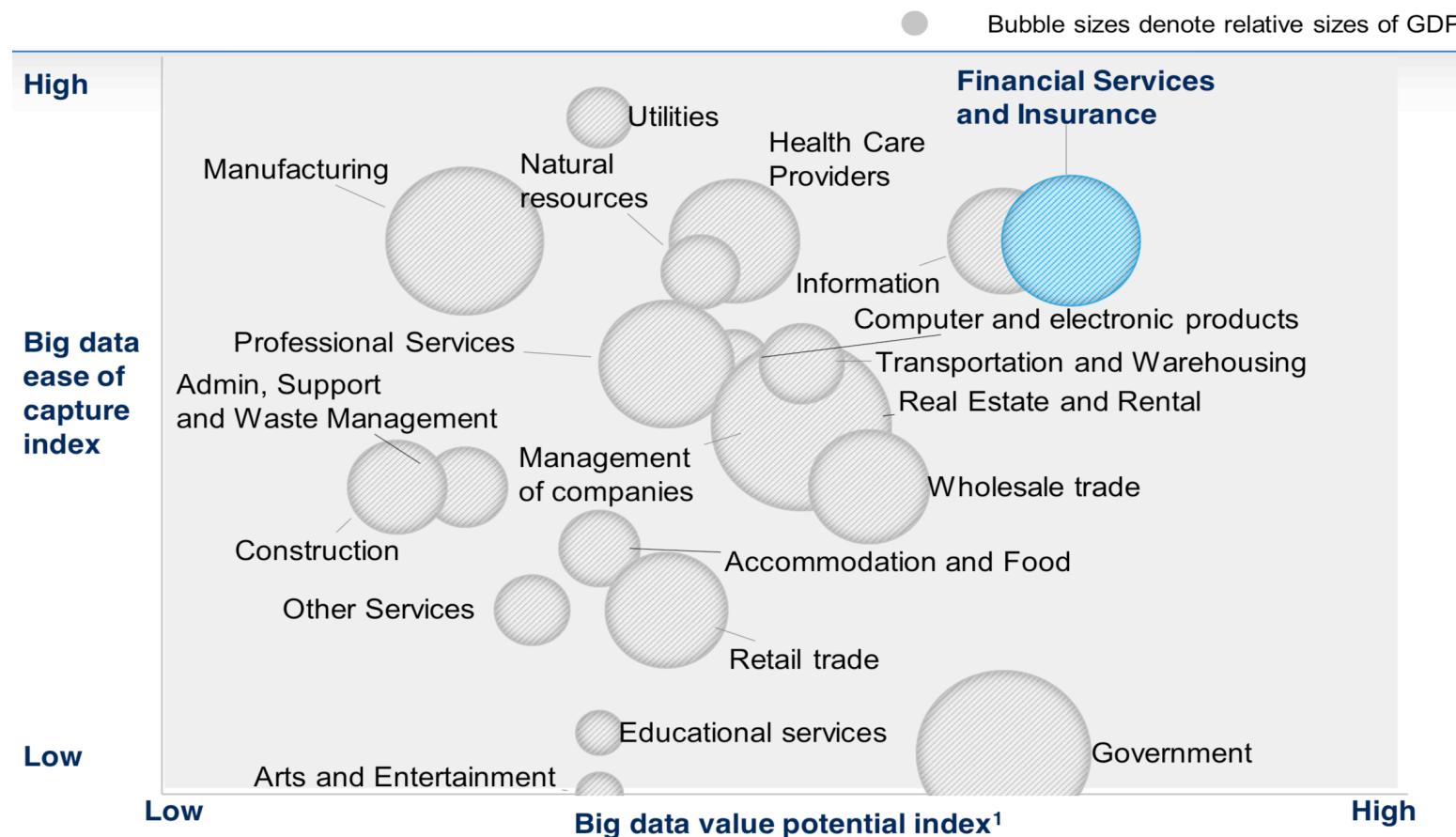
Why has Advanced Analytics become a CEO topic?

Data availability has boomed in the past years while the cost of storage and processing has drastically decreased



Why has Advanced Analytics become a CEO topic?

Financial services has higher ease of data capture and big data potential relative to other industries



¹ Determined by industry average of transaction intensity, amount of data per firm, variability in performance, customer & supplier intensity, and turbulence

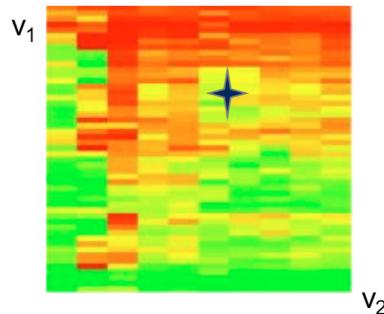
Source: McKinsey Global

Why has Advanced Analytics become a CEO topic?

AA techniques have emerged which can surface insights within complex and unstructured data

█ Full payment
 █ Partial payment
 + Case In-point
 █ Full default

**The actual phenomenon
(real historical data)**

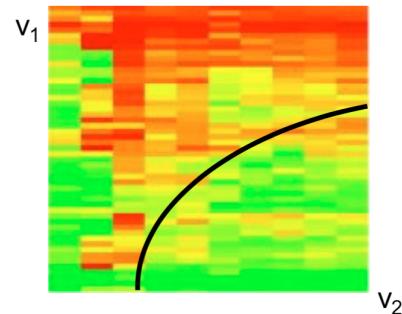


Real life phenomena exhibit complex non-linear patterns

Example: Decision to provide a mortgage to a specific client:

- 25 years old, with master degree
- Variable remuneration
- Fashion industry employee
- Rich family

How traditional rules see this

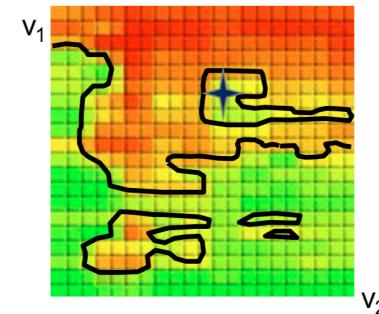


Traditional analysis fits “rules” into the phenomenon

Example: the client is wrongly identified as high-risk client through Traditional stats

✗ No mortgage provided

How Machine Learning sees it



Machine learning algorithms simultaneously run all over the data spotting & recording subtle patterns

Example: the client is correctly identified as low-risk client through Machine Learning

✓ Mortgage provided

These algorithms learn with every bit of additional information as they identify new business patterns

Why has Advanced Analytics become a CEO topic?

From business intelligence...

Structured internal data Analysis based on limited amount of readily available internal structured data (e.g., what is in the claims data warehouse)

Linear statistics Multivariate (typically regression) techniques based in traditional statistics that require significant human manipulation and oversight

Batch analysis Analysis completed in advance, sometimes with long delays between analysis and application

Local access Access restricted by physical location or device (e.g., home/ office desktop applications)

Data management Data treated as a by-product of a transaction



... to Advanced Analytics

Unstructured and external data Analysis based on a variety of internal & external and structured & unstructured data sources (e.g., social media sentiment, text and voice)

Nonlinear machine learning Nonlinear approaches (e.g., support vector machines, gradient boosting) stemming from computer science and leveraging today's computing power

Real time analytics Analysis completed in real-time and available for immediate deployment in decision making (e.g., data driven underwriting)

Ubiquitous data access On demand mobile access: any location, any time, any device (e.g., mobile)

Data & Analytics monetization Data treated as a core business asset to be monetized both internally and externally

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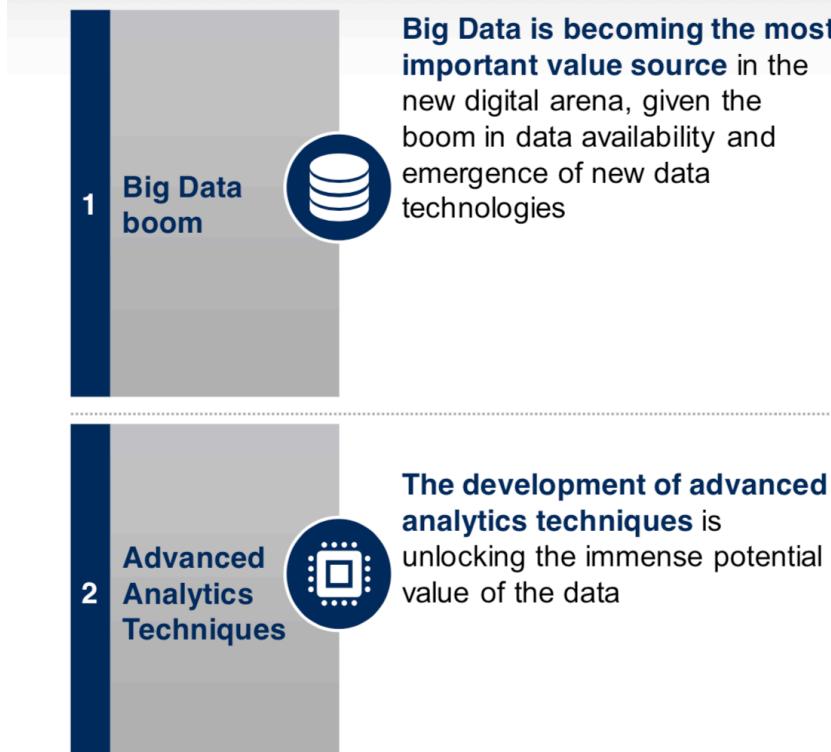
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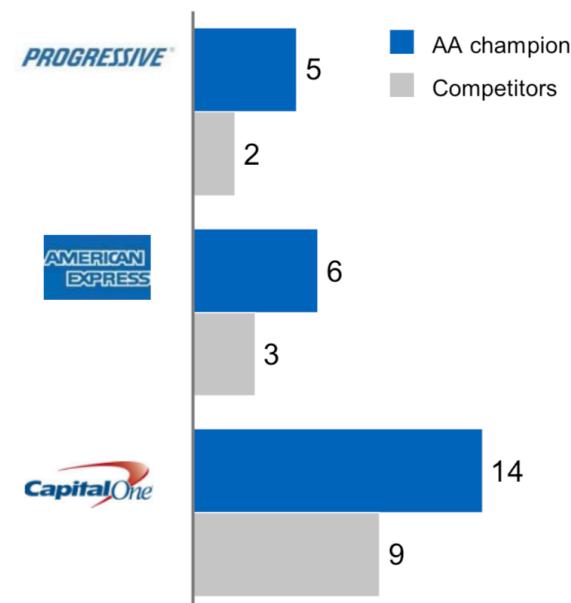
Advanced analytics can be an advantage or can leave a bank as a dinosaur if not leveraged properly

Advanced analytics context



Revenue Growth of Advanced Analytics leaders vs. Competitors

10 year CAGR (%) of companies that lead in data compared to competitors



Why has Advanced Analytics become a CEO topic?

Leading banks have a clear roadmap for AA journey and are making it their core competitive edge



Start small to create excitement

- Identify and prioritize **use cases** that directly impact **main business drivers**
- Run **pilot on 1-2 use cases** to demonstrate **value** and **create "pull"**
- Define **roadmap** along business strategy, technical feasibility and organizational acceptance



Expand and Institutionalize

- Launch additional **application** across various business units
- Establish **organizational capabilities** and **governance** (e.g., build analytics center of competence)
- Develop data and analytics **technology blueprint**
- Improve data **quality** and data **lifecycle management** processes

Leading banks are here

Make it a core competitive edge



- Run systematic scan of **new business opportunities** and discuss it at **Board level**
- Expand into "**non-core**" business opportunities (e.g., selling data as wholesale, deploying proprietary tools/services)
- **Scale-up** analytical capabilities, including
 - New data sources
 - Attracting talent
 - Continuously improving modeling techniques

What's today focus?

7 archetypes / focus areas of Analytics Transformation Programs

Focus for today



Analytics Vision, Strategy & Diagnostic

Align client leadership around vision, strategy & road map for ATP



Analytics Value Targeting/ Use Case Factory

Develop and sustain value from series of high-impact use cases



Analytics Operating Model/CoE Buildup

Scale up central or distributed capabilities to support multiple business units! use cases



Data, Tech & Platform Architecture

Setting up client data strategy and platform arch to scale capturing value from investments



Data Monetization & Ecosystems

Partner with clients to develop new products or businesses



Design Thinking, Visualization & Consumption

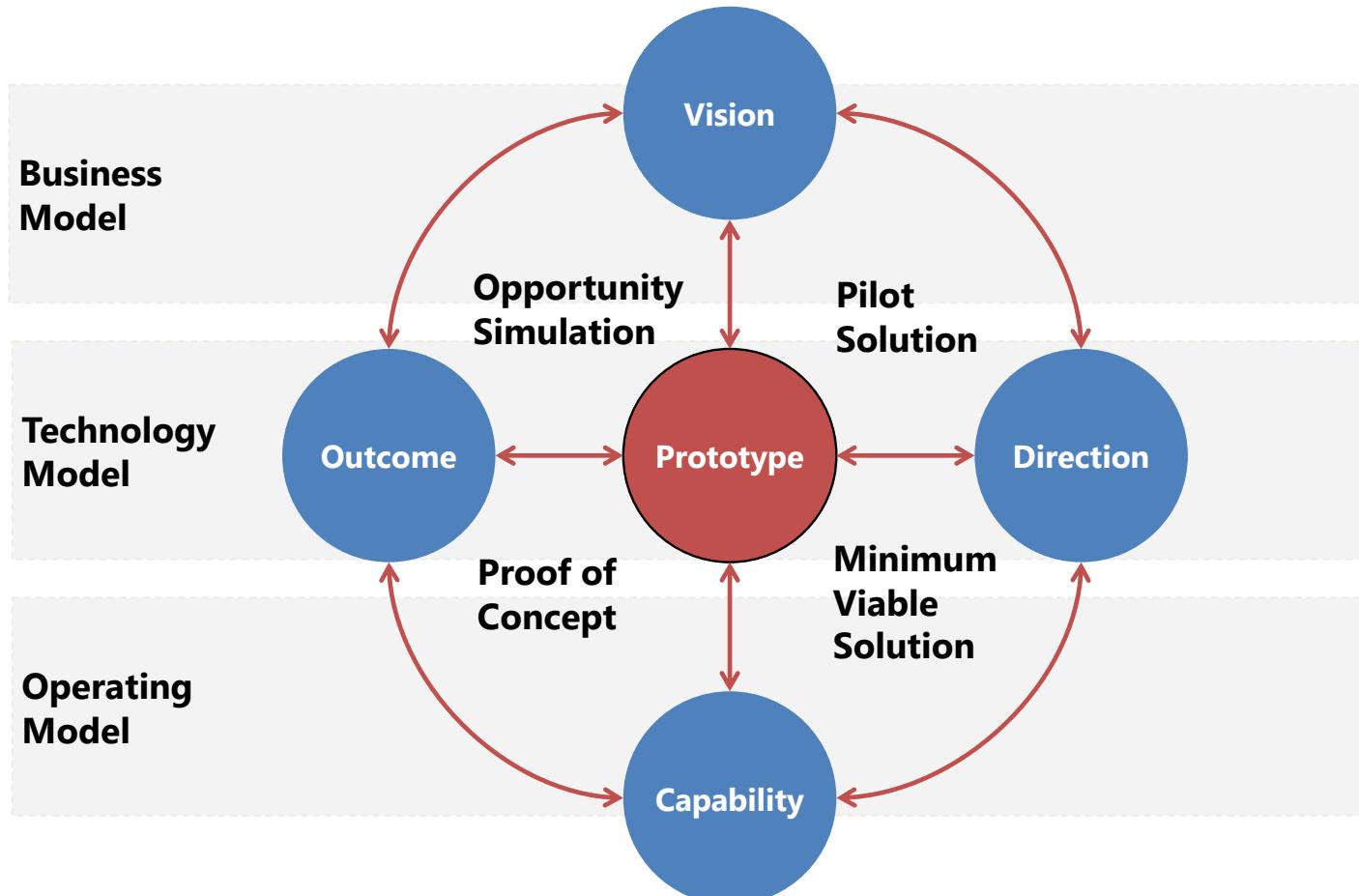
Design role-based decision cockpit to scale how insights are consumed



Analytics Change Adoption & Value Assurance

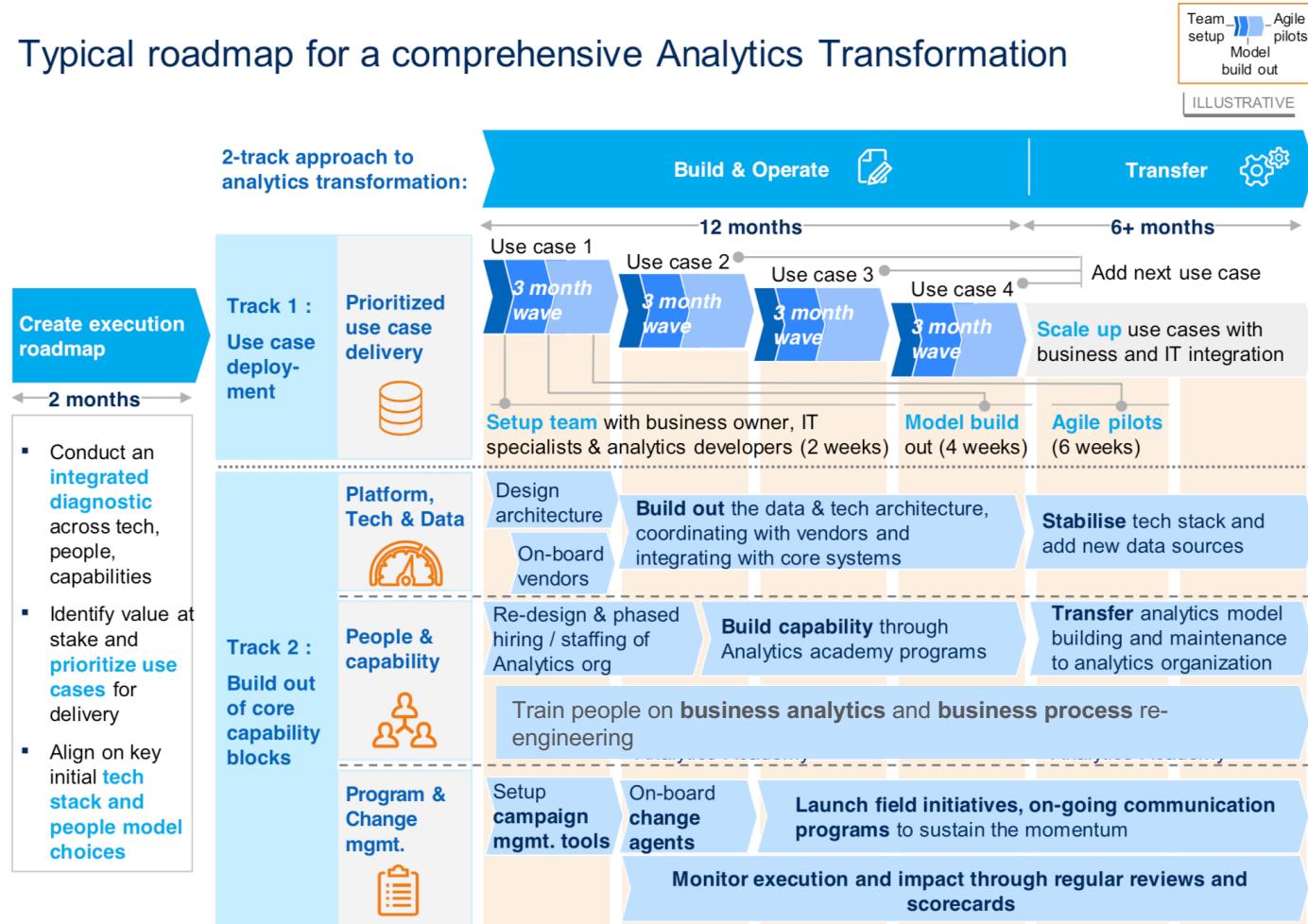
Addressing under-delivered value, often due to 'last mile problem'

A proposed approach to adopt AA organization



A proposed approach to adopt AA organization (an example)

Typical roadmap for a comprehensive Analytics Transformation



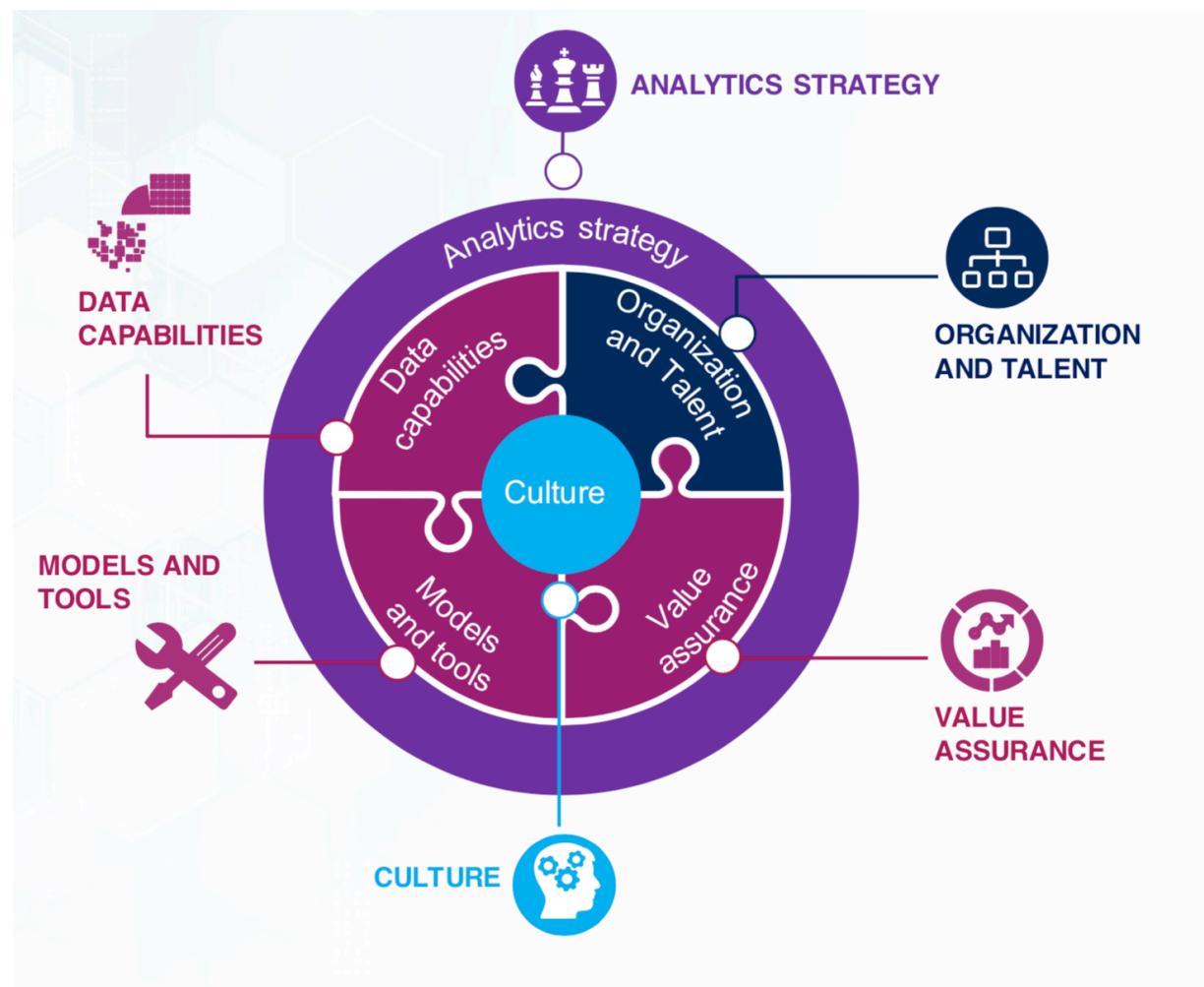


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How to build and embed Advanced Analytics at scale ?



Assess to create state-of-the-art Analytics capability



From business use cases with top down approach

1

Starts with the business case: Starts with the business value and not from the data; the data already available is typically sufficient to build well-performing models

2

Is “End-to-End”: Achieves impact through comprehensive translation of business case to data strategy, modeling, work flow integration and adoption

3

Emphasizes on cross-functional execution: Brings together multiple parts of the bank and bank ecosystem to achieve the excellence

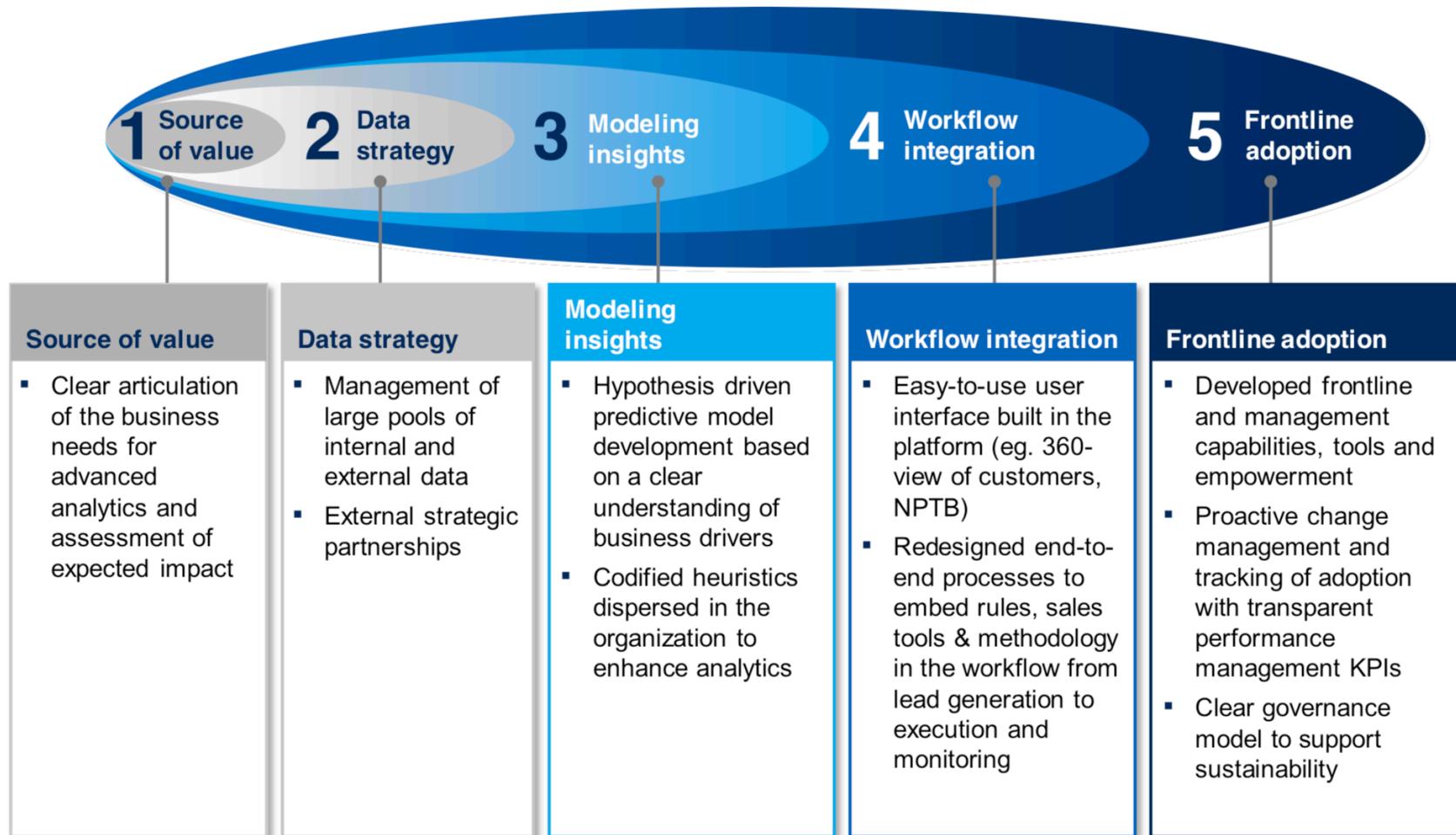
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Fails early to win big later: starts small, pilots through an interactive approach and builds scale later as business value becomes more clearer

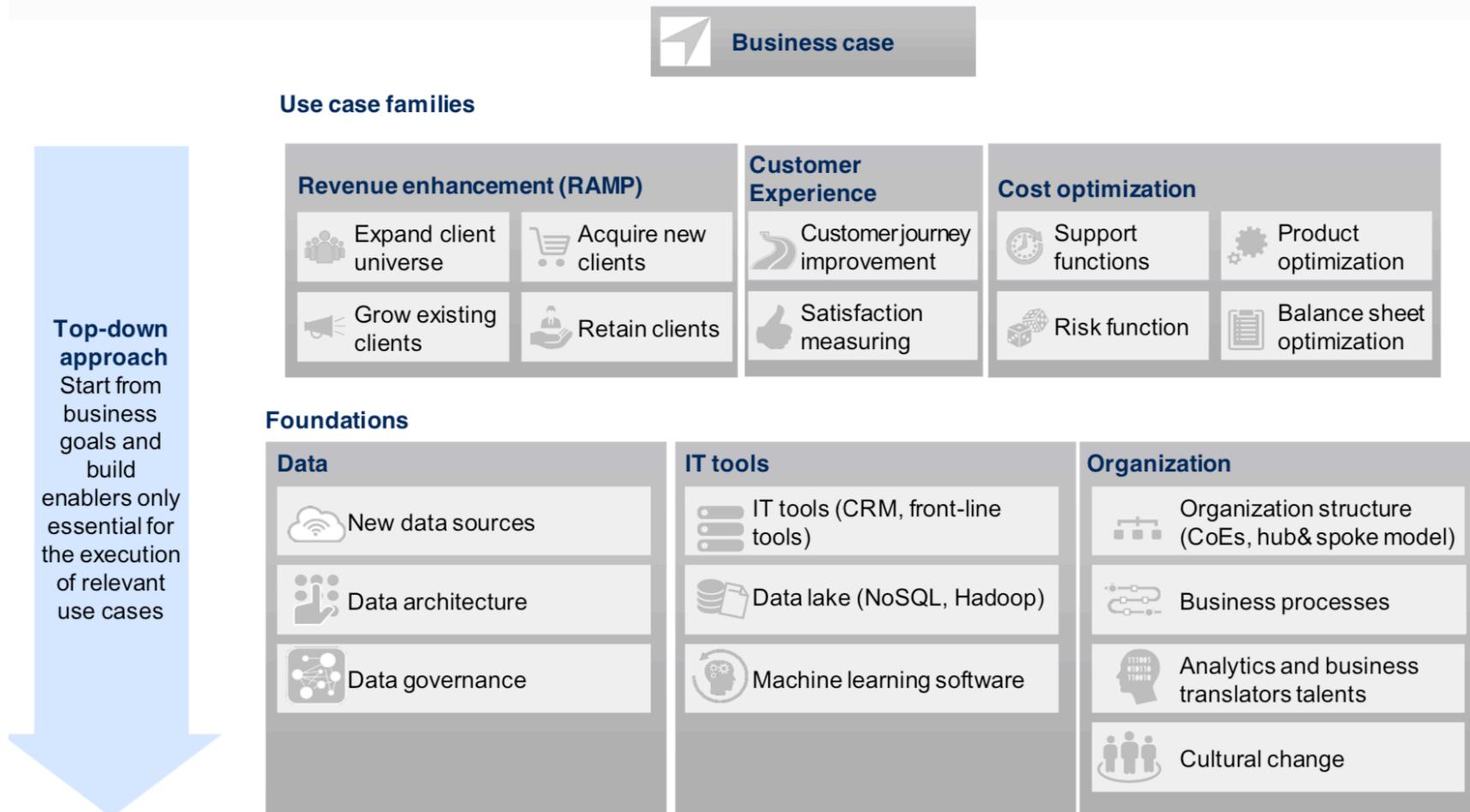
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Does not over invest in IT or data management: develops long-term technical infrastructure only when the business case is clear

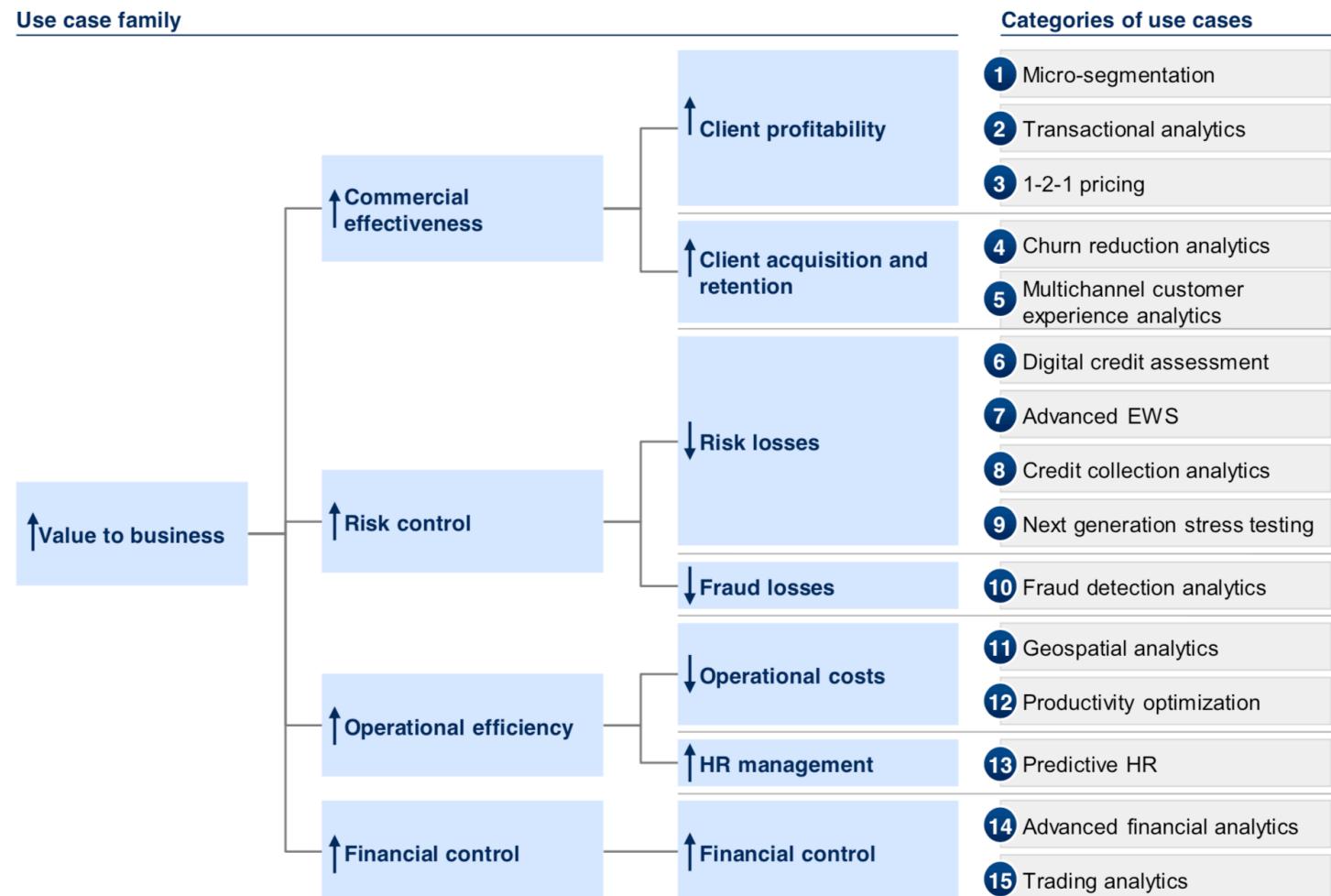
From source of value to end-to-end



From business goals to execution



Use Cases References



Use Cases References

Use case family	Categories of use cases	Objective	Expected impact
↑ Commercial effectiveness	① Micro segmentation	Carry out a very granular segmentation of clients (retail & corporate), based on their actual needs, in order to provide a customized product offer per client	10-15% increase in average revenues per client
	② Transactional analytics (merchandising program)	Increase customer (retail and merchant) transactionality leveraging their transactional data	5-10% increase in transactionality of clients
	③ 1-2-1 pricing	Identify the optimal price for every single client/transaction , based on customer response to pricing changes	5-10% increase in average price for client (with limited impact on volumes)
	④ Churn reduction analytics	Reduce client churn rate and identify root causes for client attrition	10-15% churn rate reduction
	⑤ Multichannel customer experience analytics	Identify and analyze the root causes for customer satisfaction for each customer journey, in order to develop actions plans in the context of a multichannel strategy	10-15% increase in customer satisfaction index and 10-25% reduction in service cost
↑ Risk control	⑥ Credit assessment	Significantly improve speed and accuracy of credit decisions , especially through digital channels	10-15% cost of credit reduction and few minutes to make credit decisions online
	⑦ Advanced EWS	Significantly enhance predictive power of traditional Early Warning Systems in order to reduce cost of credit	30-35% reduction of gross inflows to NPL and 15-20% reduction in RWA
	⑧ Credit collection analytics	Identify customized collection/ restructuring strategies for each client (Retail and Corporate), based on behavioral information	35-40% reduction in bad debt provisions



CMC SI

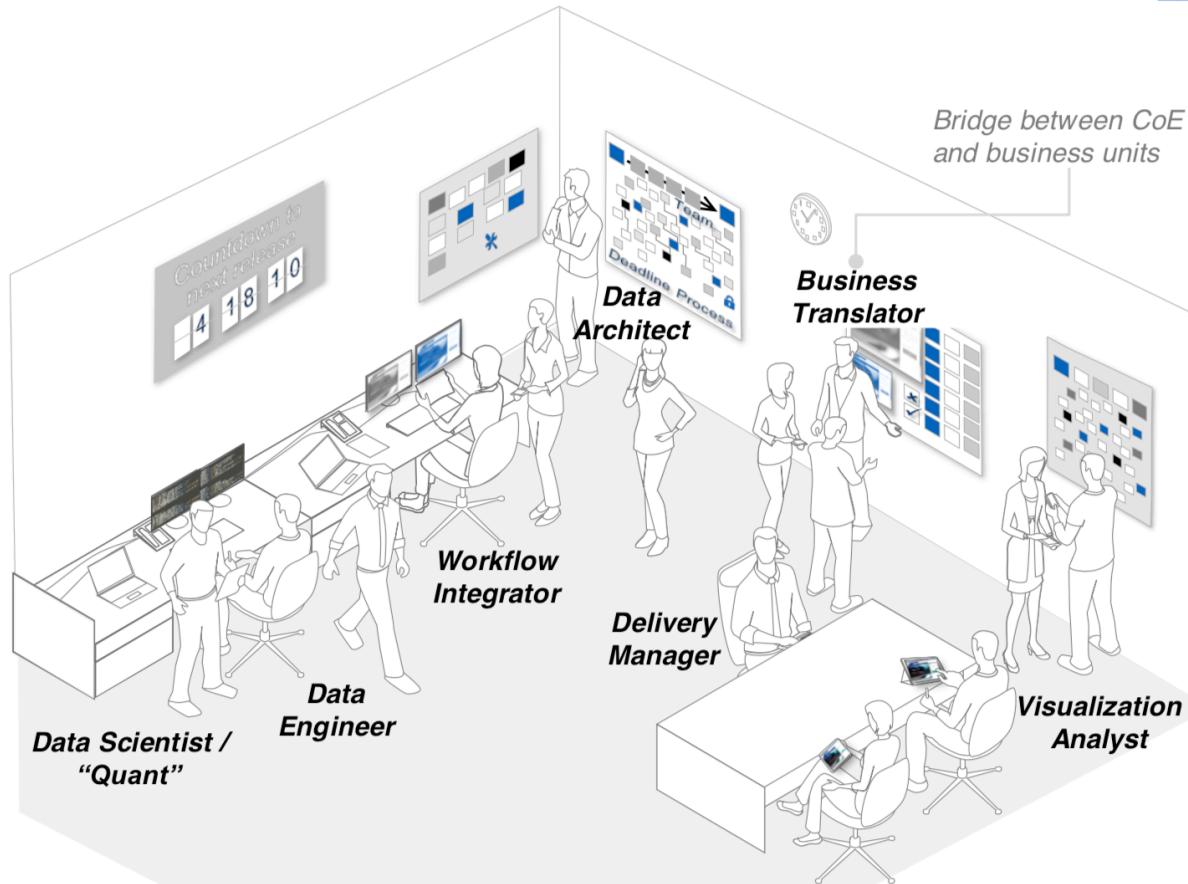
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Use Cases References

Use case family	Categories of use cases	Objective	Expected impact
Risk control	⑨ Next generation stress testing	Support in building stress testing excellence through better data, models, governance and stress testing usage	» Fast and seamless stress test calculations
	⑩ Fraud detection analytics	Identify high fraud risk client and transactions and define optimal action plan	» 15-20% increase in fraud detection
Operational efficiency	⑪ Geospatial analytics	Optimize location and operating model of ATMs and branches , based on customer need and behaviors and geo-location potential	» 20-25% reduction and branched related costs and investments
	⑫ Productivity optimization	Enhance back office and front office productivity based on transaction data and demand forecast	» 20-25% reduction in back office costs and 10-15% front office capacity improvement
	⑬ Predictive HR	Improve talent retention and motivation and optimize personnel costs	» 2x motivation score, 40-50% improvement in talent churn rate and reduction of bonus pool
Financial control	⑭ Advanced financial analytics	Enhance and optimize the full P&C process (strategic planning, capital allocation, performance management) and support advanced analysis on financial and capital markets performance	» 10-15% reduction of CFO related costs , significant optimization of risk-return profile (up to 2x increase in ROE potential)
	⑮ Trading analytics	Enhance trading methodologies and techniques through advanced modelling	» 5-10% increase in revenues from trading activities

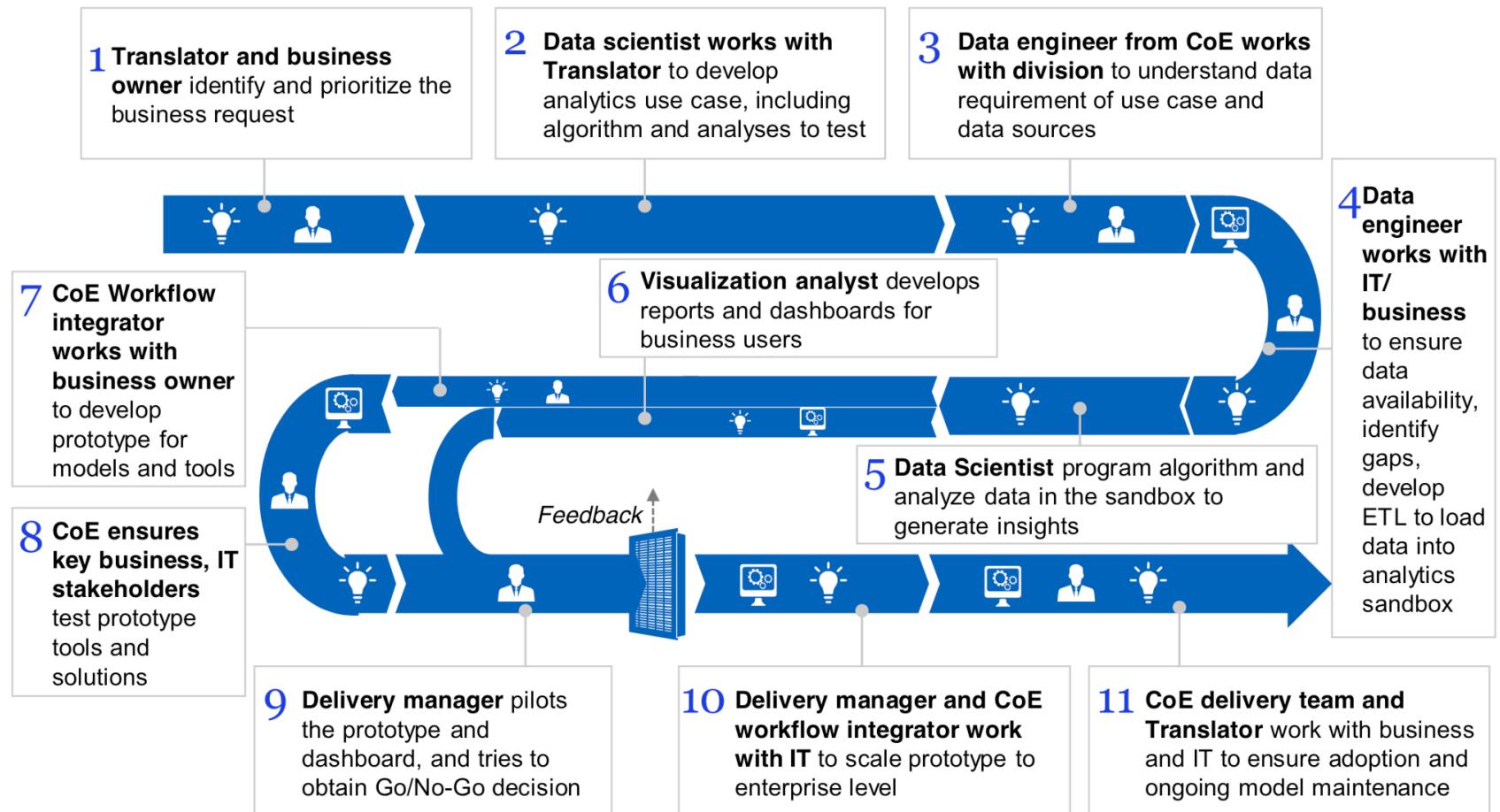
AA Centre of Excellence (CoE)

Analytics Centre of Excellence to drive AA-led initiatives and change

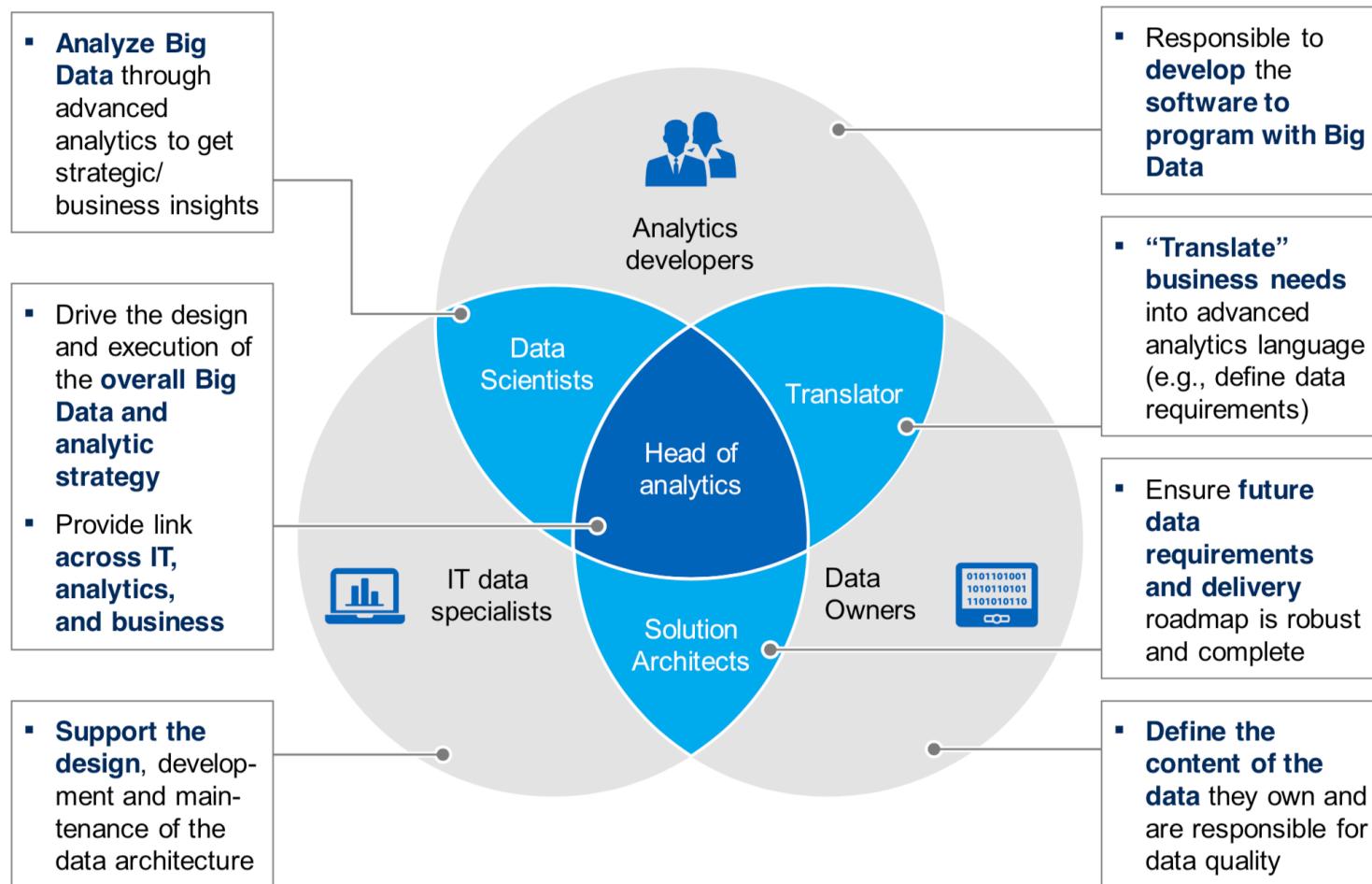


- **Co-locates with business** functions, in flexible working spaces
- **Supports multiple problems** for each function
- **Trains people on-the-job**, in addition to seminars
- Prioritises cases where value is created and **outcome is measurable**
- Spreads **ideas and innovative practices** to the entire organisation
- Brings **cultural change** within the organisation

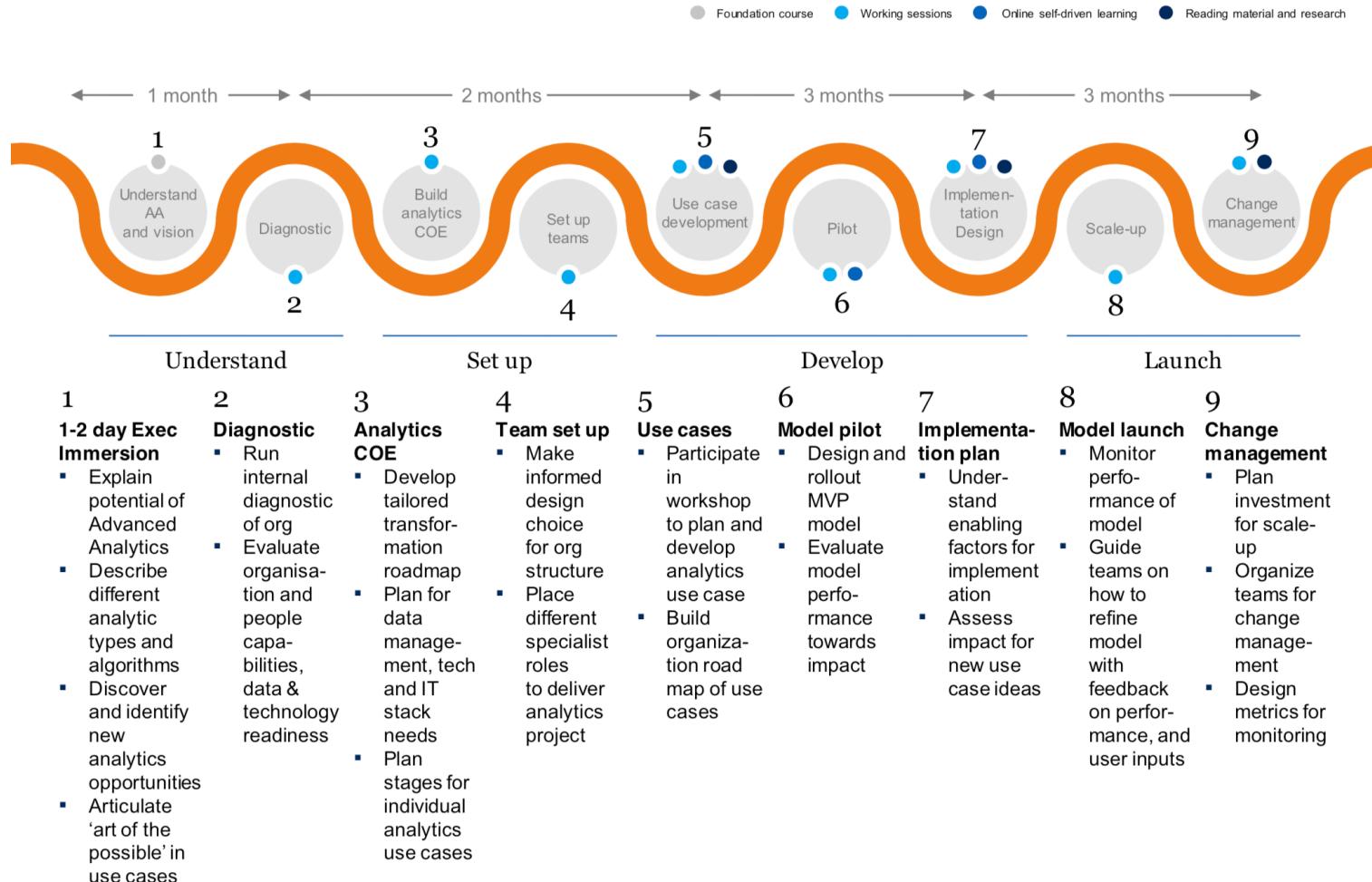
AA Use Case Implementation



Roles & Responsibilities in AA CoE



The transformation journey





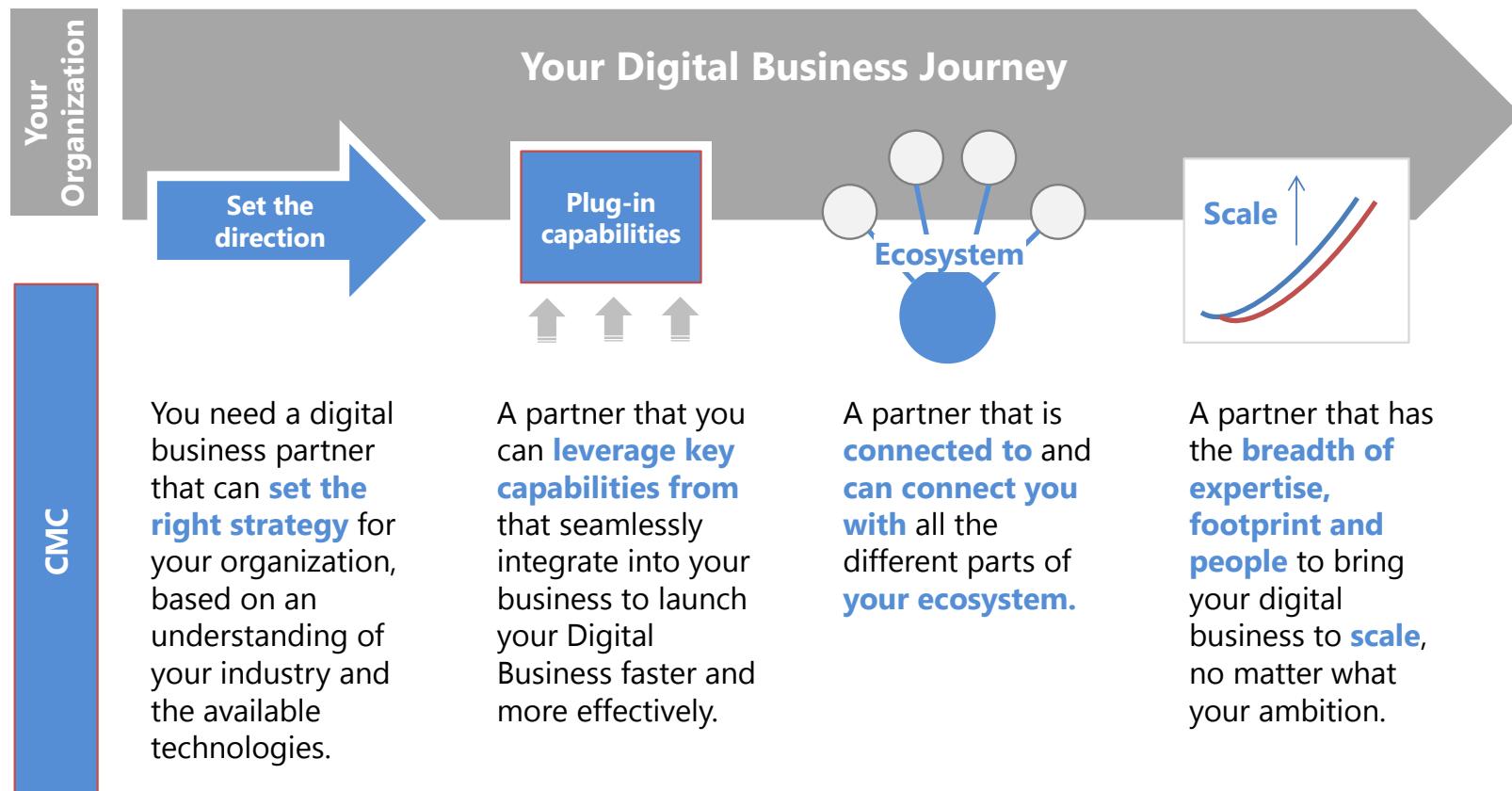
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How is CMC helping customers achieve value out of Analytics?



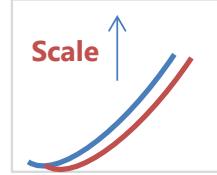


CMC SI's Value Proposition





CSI's assets to accelerate the AA transformation

How CSI can help		CSI's capabilities
	<ul style="list-style-type: none">CMC & SI provides actionable recommendationsCMC & SI is a trusted partner with senior leadership from strategy design to detailed execution- transformation	<p>Join force with CMC Soft, Infosec, Global and Corp to build the total solution of transformation</p>
 	<ul style="list-style-type: none">Dedicated practices that provide comprehensive offeringsHistory of successful partnerships in the marketplace with clients	<p>Our Integration Suite and other solutions cover all aspects of SI and we can go further by incorporate with InfoSec on Security; CMC Soft on AI, Big Data.</p>
	<ul style="list-style-type: none">As one of the largest system integrators and technology consulting firms in VN, CMC & SI has relationships across almost every industry's ecosystem that can be leveraged for optimized strategy, execution and ongoing operations	<p>Relationships across almost every industry's ecosystem</p>
	<ul style="list-style-type: none">Presence in nearly all industries and markets.CMC has started global presence	<p>Top 2 in system integration service. Helps enterprise to expand in VN market as well as global.</p>



Key takeaways

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THANK YOU!

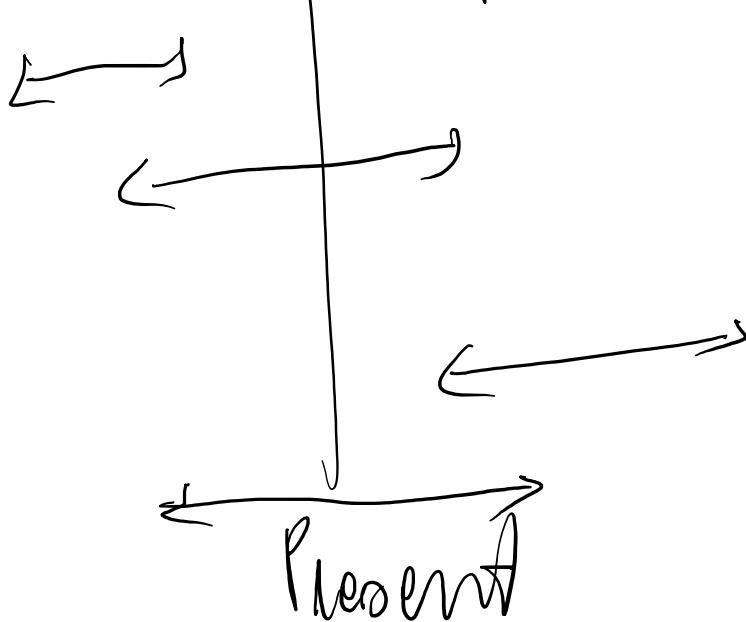
Let's do an exercise.





$$CLV = \overline{\text{Profit}}(p) \times T \quad \text{Expected customer tenure}$$

Past Future



- Predict
- Based on group
- Population-based
in unit time / customer



Customer Lifetime Value

