

# Big Data in Retail Banking

*Leverage Analytics to Meet Customer Needs & Drive Business Values*

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Standard Chartered Bank

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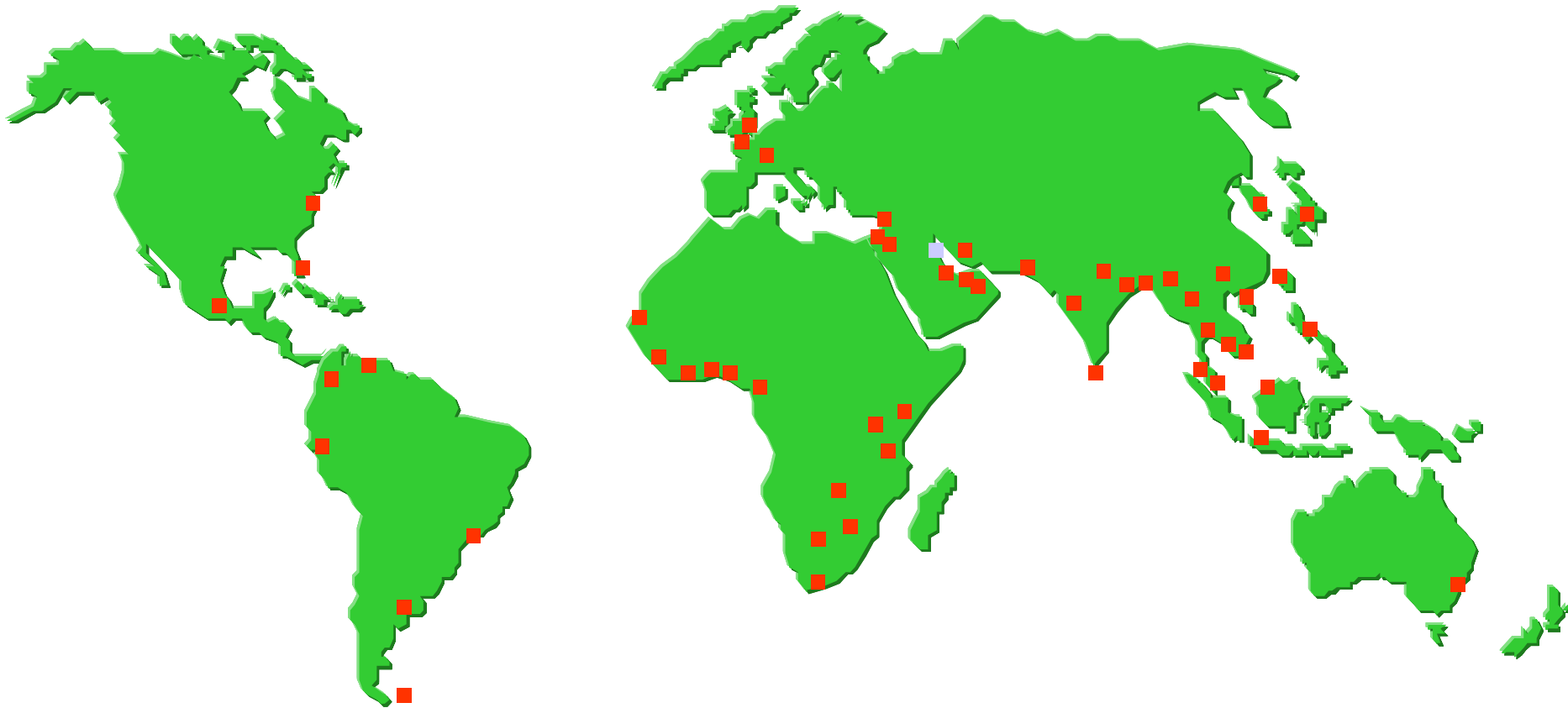
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## Standard Chartered today

- Footprint covering over 70 countries and territories
- Nearly 87,000 employees, with 130 nationalities represented, 46% women
- Listed in London, Hong Kong & India
- Regulated by UK FSA and local regulatory bodies
- 150+ year heritage; founded in China and India in 1850's
- Ranks among top 20 companies on FTSE 100 by market capitalization (USD58.2bn\*)
- Named Best Retail Bank in Asia Pacific (Asian Banker, 2012), Gallup Great Workplace (2011, 2012), World's Best Consumer Internet Bank (Global Finance, 2011), Global Bank of the Year and Bank of the Year in Asia (The Banker, 2010)



## Our Global Footprint



- Global network of over 1,700 branches in over 70 countries and territories
- More than 90% of income and profits from Asia, Africa & Middle East

## Standard Chartered Bank (Hong Kong) Ltd.

- One of 3 note-issuing banks in HK
- Rotating chairmanship of HK Association of Banks (HKAB) – Chairman in 2010
- Around 6,000 employees, 27 nationalities
- Named 'Best Retail Bank in Asia Pacific' and 'Best Retail Bank in HK' (The Asian Banker 2012), 'Best Bank in HK' (Euromoney Awards for Excellence 2011), Best SME Bank in HK (The Asset, 2011)
- Recognized globally as a Gallup Great Workplace (2008-2010) and locally 'Employer of Choice' (2008, 2009), Best Corporate & Employee Citizenship (2010)

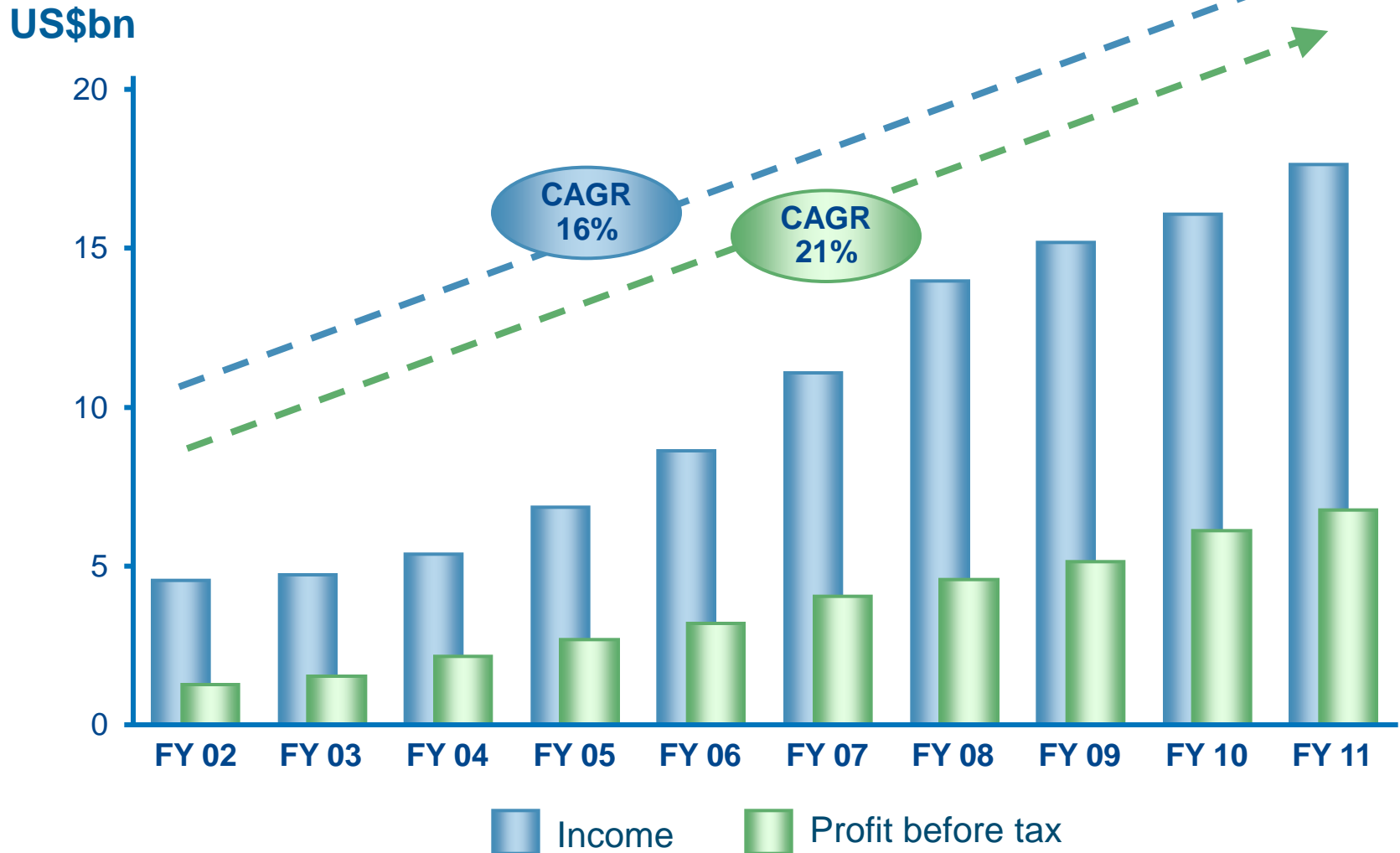
### Key Dates in Our History

- 1859** Established in HK
- 2002** First FTSE 100 company to launch new dual primary listing in HK
- 2004** Local incorporation
- 2009** 150th Anniversary



## Consistent Delivery

- 9 consecutive years of record income and profit



# Consumer Banking Transformation

- CB vision
- 3 Pillar Strategies
- Here For Good
- Customer Charter
- SCB Way – needs based conversation
- Culture Development & Reinforcement
- **Become analytics-driven organization**
- Sustainable financial performance

# Big Data In Retail Banking

- Volume:
  - millions of customers
  - measured in terabytes
- Velocity:
  - source data updated daily or real-time
- Variety:
  - socio-demo
  - bureau
  - multi-products (asset / liability)
  - multi-channel
  - multi-years
  - financial
  - trading
  - behavioral
  - payment
  - transactional
  - text / comment ..... etc.

Where to Focus in Turning Data into Relevant Insight and Business Actions?



# Analytics vs. Competitiveness

Top performing organizations 2X as likely to use analytics than low performers in

- Guiding future strategies
- Guiding day-to-day operations

- \* (1) Based on a 2010 global executive survey across 30 industries in 100 countries
- (2) Top performer = “substantially outperform industrial peers”  
Low performer = “somewhat or substantially underperform industrial peers”

**Analytics: Not a Question of WHY but When & HOW**

# Analytics Value Generation

$$\begin{aligned} \text{Value} = & \text{Analytic Solution} \\ & \times \text{Actionability} \\ & \times \text{Business Willingness} \end{aligned}$$

## Some Guiding Principles in Applying Analytics

1. Focus on what are important to business
2. Start with low hanging fruits for early wins
3. Solutions are actionable & timely
4. Engaging business stakeholders for buy-in
5. Principle of parsimony
6. Test & learn before rolling out
7. Embed analytic solutions in E2E business processes
8. Closed-loop: regularly track outcome and adjust as needed
9. Standardized value measure to assess impact

Analytic Solutions Need to be Relevant, Timely, Actionable & Sustainable

# What Business Wants to Know?

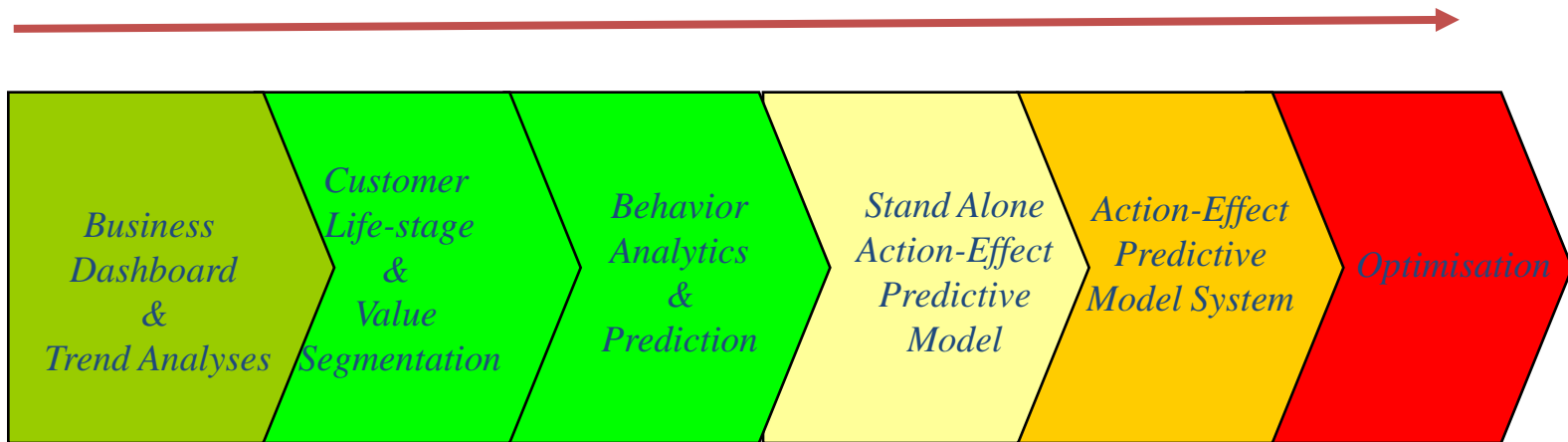
1. How is my portfolio performing and what are the dynamic trends?
  2. Who are the customers I am serving and what are their needs?
  3. How should I deepen relations with valuable customers and what to do towards low value or value-destroying ones?
  4. How can I tailor value proposition to different customers?
  5. What a customer needs next?
  6. Who is likely to spend more and what they mainly spend on?
  7. Who is likely to attrite and how to retain him/her?
  8. Whose application should I approve and what pricing should I charge to optimize risk-reward equation?
  9. What will be the effect if I take action X?
  10. What is the optimal action I can take to maximize the business objective subject to business constraints?
  11. How can I make sure the bank has sufficient capital to survive the credit crunch?
  12. How can I use the limited capital efficiently to optimize returns?
- Etc. ....

Different Analytic Solutions Required to Address Different Questions

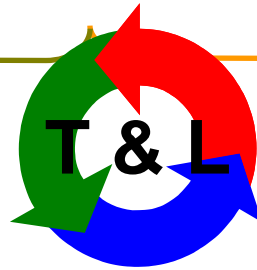
# Analytic Solutions: Fit for Purpose

Strategic

Tactical



Strategy Development  
(Do Right Things)



Process Improvement  
(Do Things Right)

## 3 Levels of Analytics Capability

### 1. Basic

Data analysis  
MI and dashboard  
Backward looking  
Basic segmentation & profiling  
Yet to experience advanced analytics

Some

### 2. Predictive

Statistical approach  
Predictive modeling  
Forward looking  
Input to decision making  
Act effectively on analytics

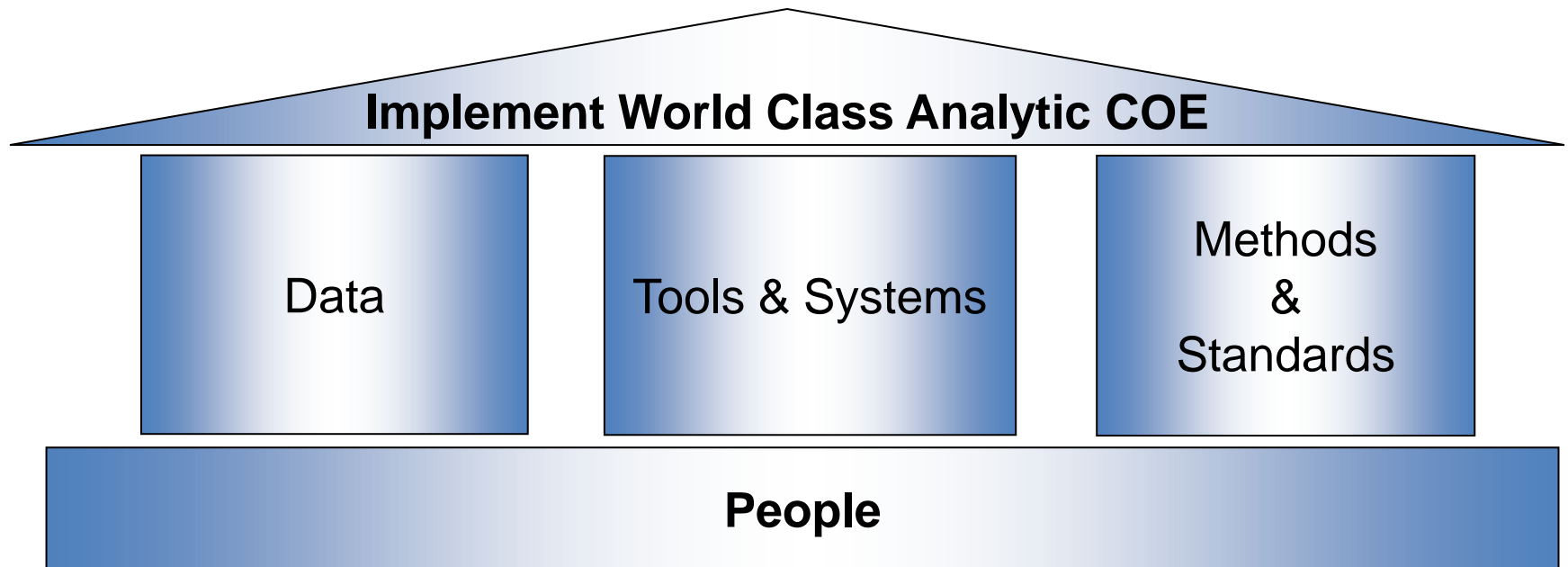
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### 3. Optimizing

Systematic predictive modeling  
Optimization subject to constraints  
Recommend business decisions  
Push the edge

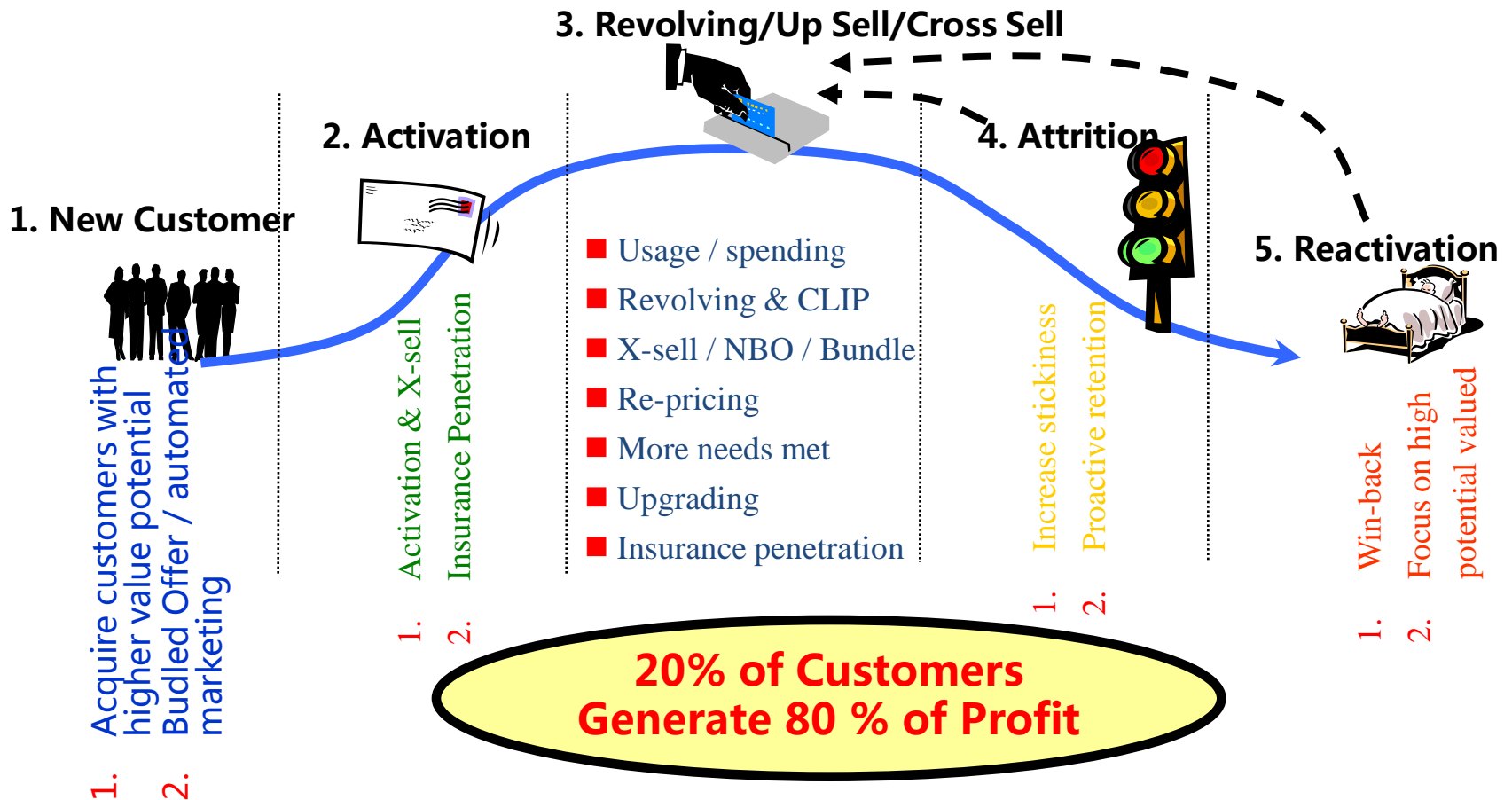
Few

## Decision Science / Analytics Vision



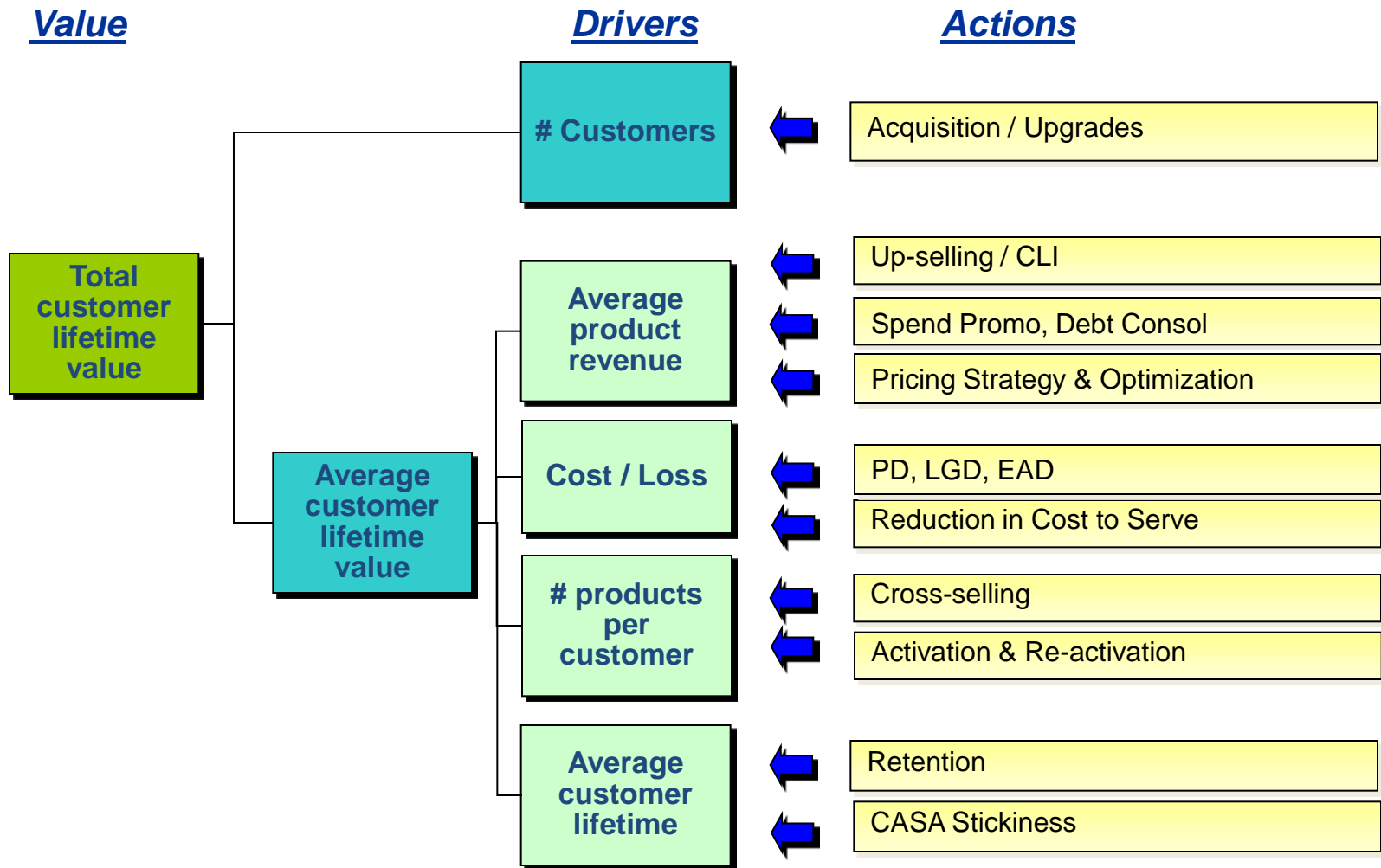
- Grow & protect revenue
- Improve customer service
- Balance risk and reward
- Maximize marketing dollar effectiveness
- Improve capital efficiency (RoRWA)

# Leverage Advanced Analytics to Build Profitable Customer Relationship





## Align Business Actions to Value Drivers

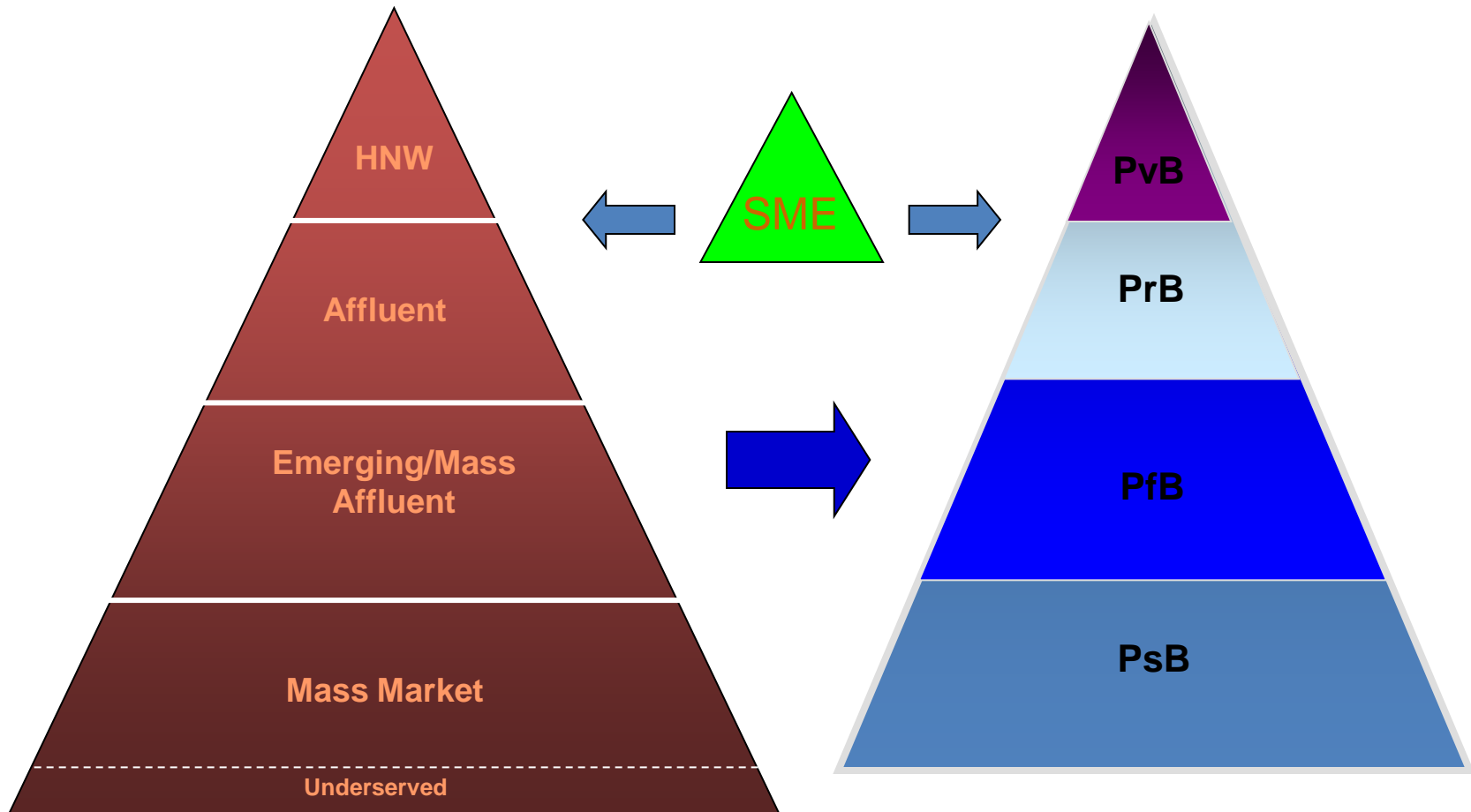


**Focus and Prioritization in Line with Expected Impact on Business Value**

## Development of Analytics Solutions to Guide Business Actions

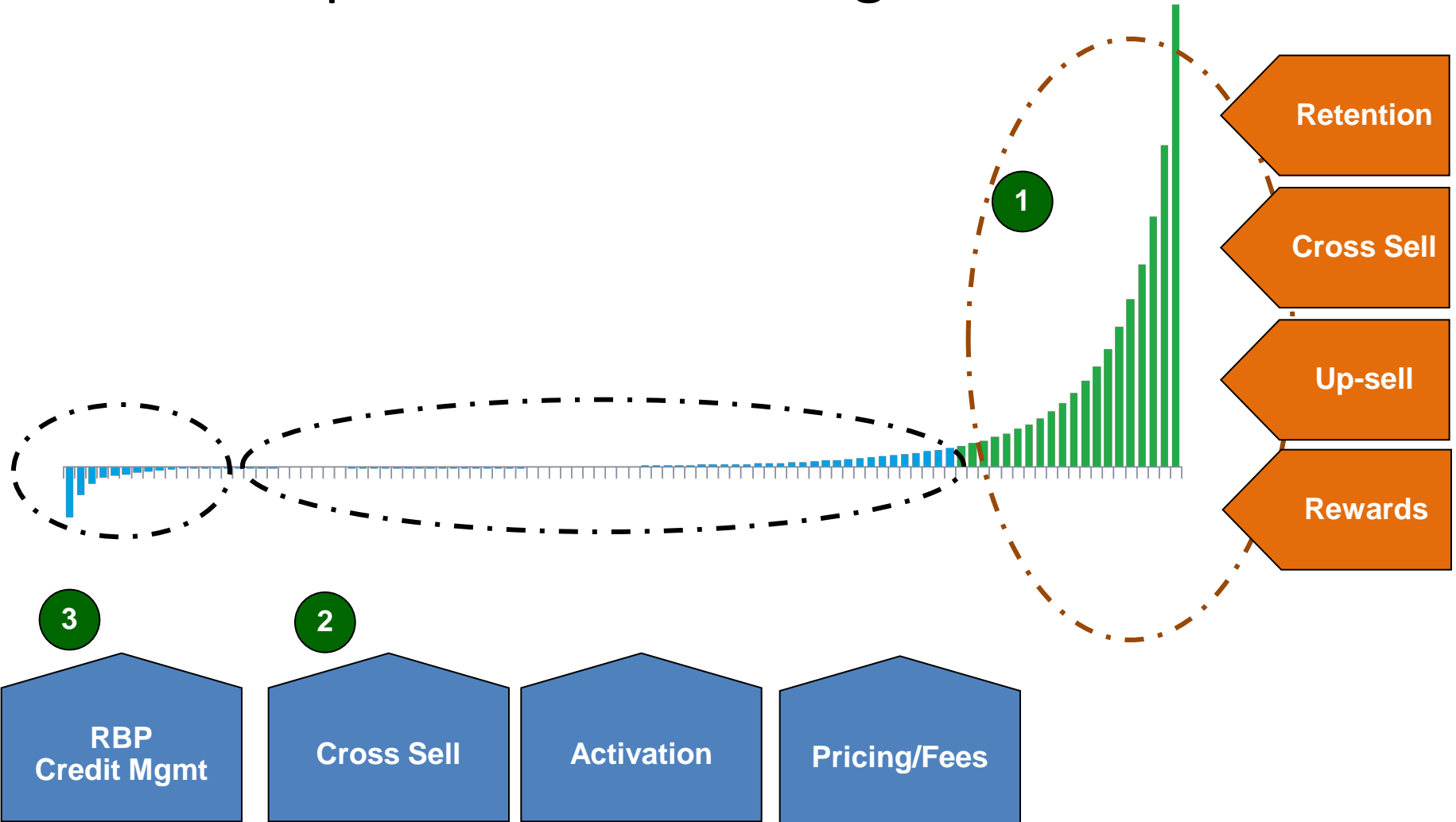
Business Actions	Sample Programs
Acquisition/Upgrading	<ul style="list-style-type: none"><li>• Insights on customer behavior and needs to drive CVP development</li><li>• Propensity modeling / triggers for upgrades</li><li>• U/W policies and scorecard cut-offs</li></ul>
Up-selling	<ul style="list-style-type: none"><li>• Loan top-ups</li><li>• Cards spending promotion</li><li>• Income indexation &amp; CLI</li></ul>
Pricing Strategy & Optimization	<ul style="list-style-type: none"><li>• Risk based pricing</li><li>• Relationship pricing</li><li>• Price elasticity modeling</li></ul>
Cost to Serve	<ul style="list-style-type: none"><li>• Alignment of customer needs complexity with RM experience and skills</li><li>• Branch effectiveness peer benchmark</li></ul>
Cross-selling	<ul style="list-style-type: none"><li>• Product bundling, next best offer, lending product penetrations</li><li>• Risk criteria and credit score cut off for x-sell</li></ul>
Retention	<ul style="list-style-type: none"><li>• Event triggers for anti-attrition</li><li>• Proactive retention</li></ul>

# Strategic Value Segmentation



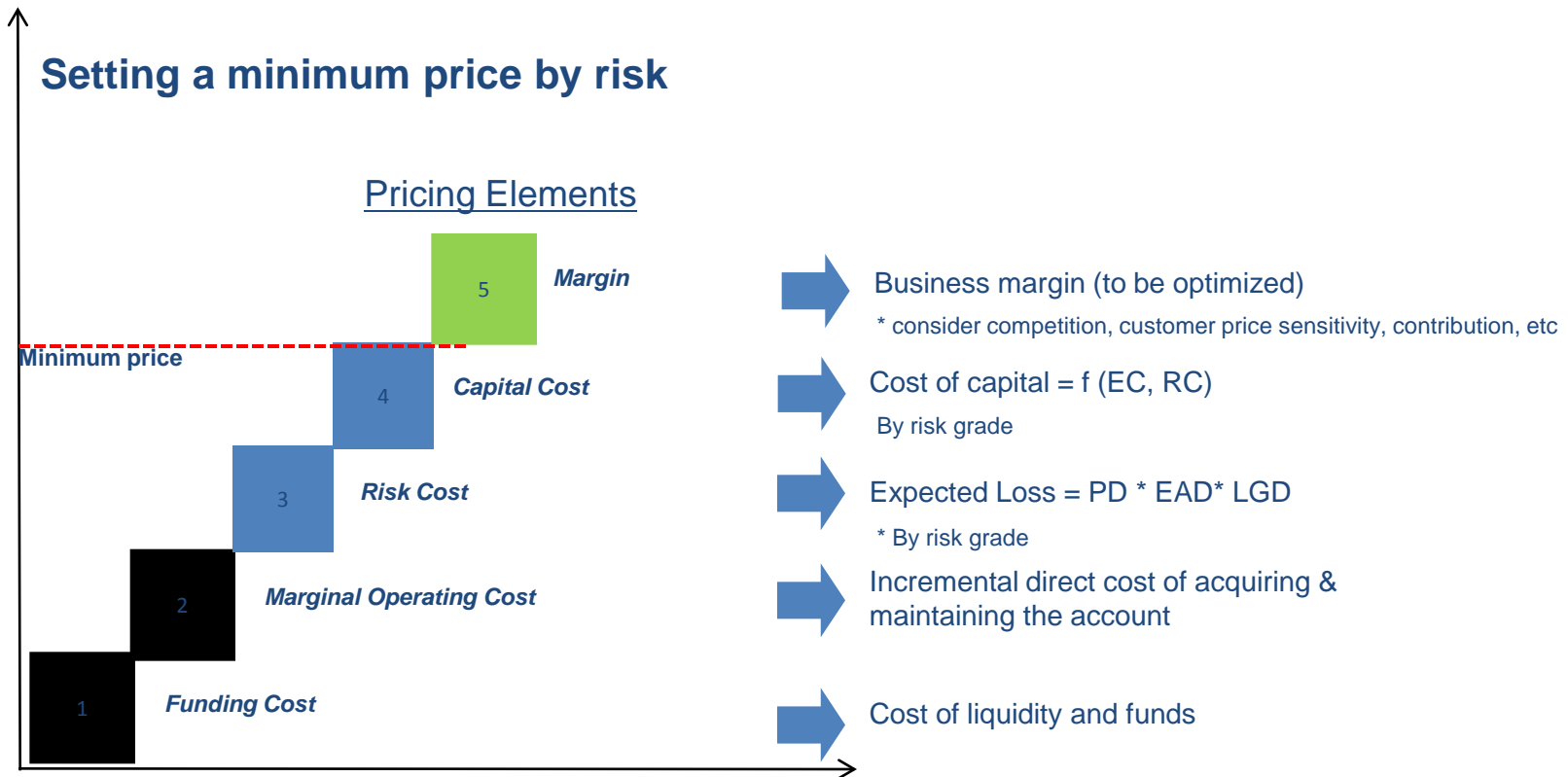
Defining Customer Segment by Net Worth and Size of Profit Pool

# Operational Value Segmentation



# Risk Based Pricing vs. Pricing Optimization

- Risk based pricing set as minimum price for a borrower
- Optimize pricing based on test & learn for sweet spot



# Advanced X-sell Process Optimization

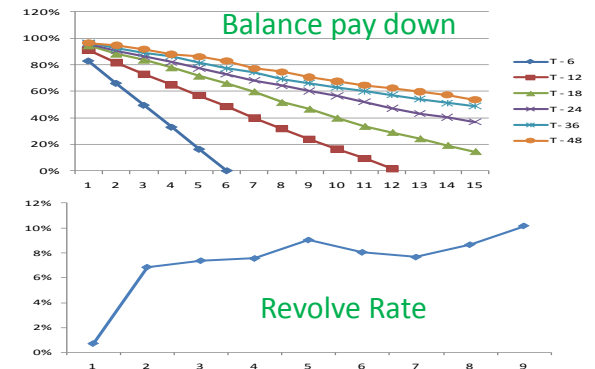
## 1 Price Test

Decile	Offered interest rate						Tot Cust
	P1%	P2%	P3%	P4%	P5%	P6%	
1			X13	X14	X15	X16	
2			X23	X24	X25	X26	
3		X32	X33	X34	X35		
4		X42	X43	X44			
5	X51	X52	X53				
6	X61	X62					
7	X71	X72					
8	X81	X82					
9	X91	X92					
10	X101	X102					
<b>Tot Cust</b>							

## 2 Modeling

**Price Elasticity Modeling**  
**Product Choice Modeling**  
**Loan Volume Prediction**

## 3 Behavior Profiling

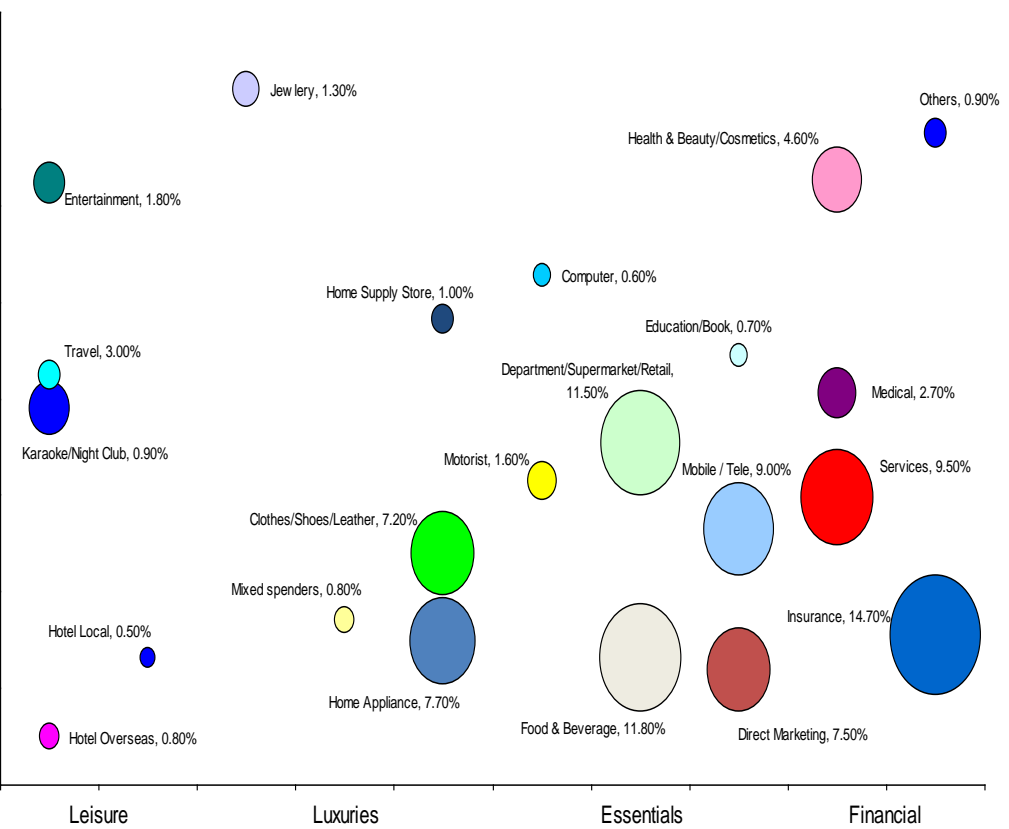
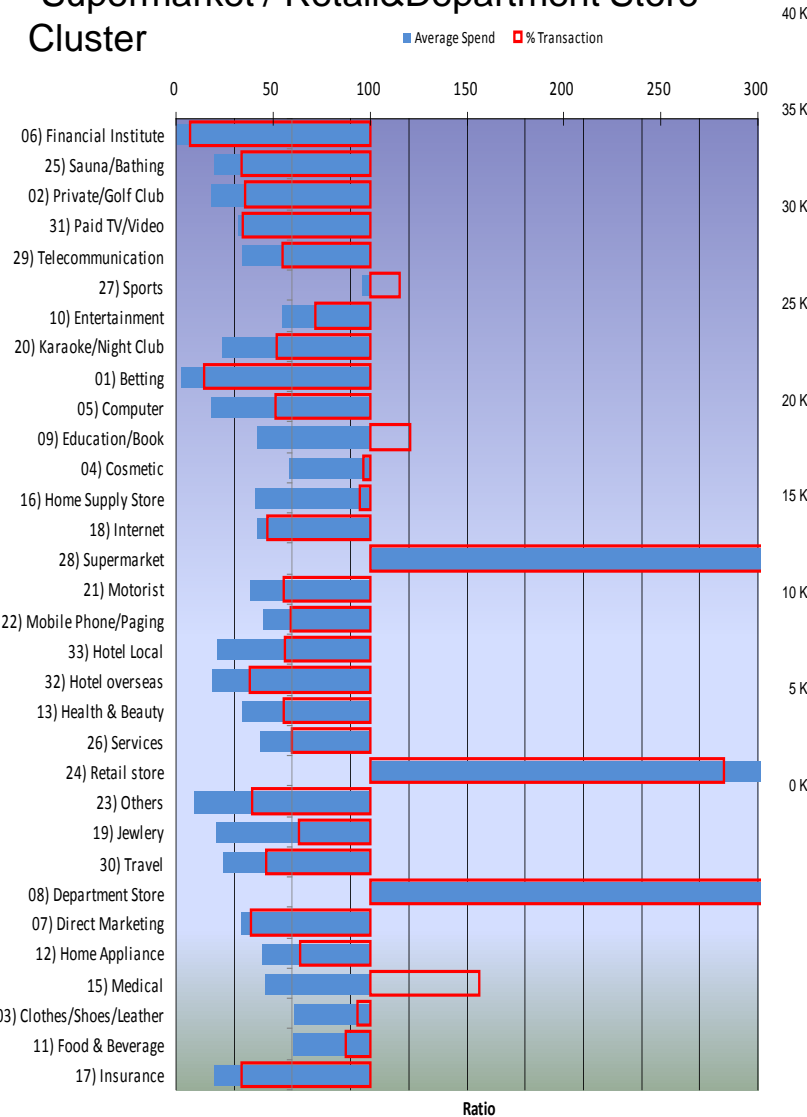


## 4 Campaign Selection

- ✓ Optimal pricing @ customer level
- ✓ Targeting profitable customers
- ✓ Reflecting business objectives

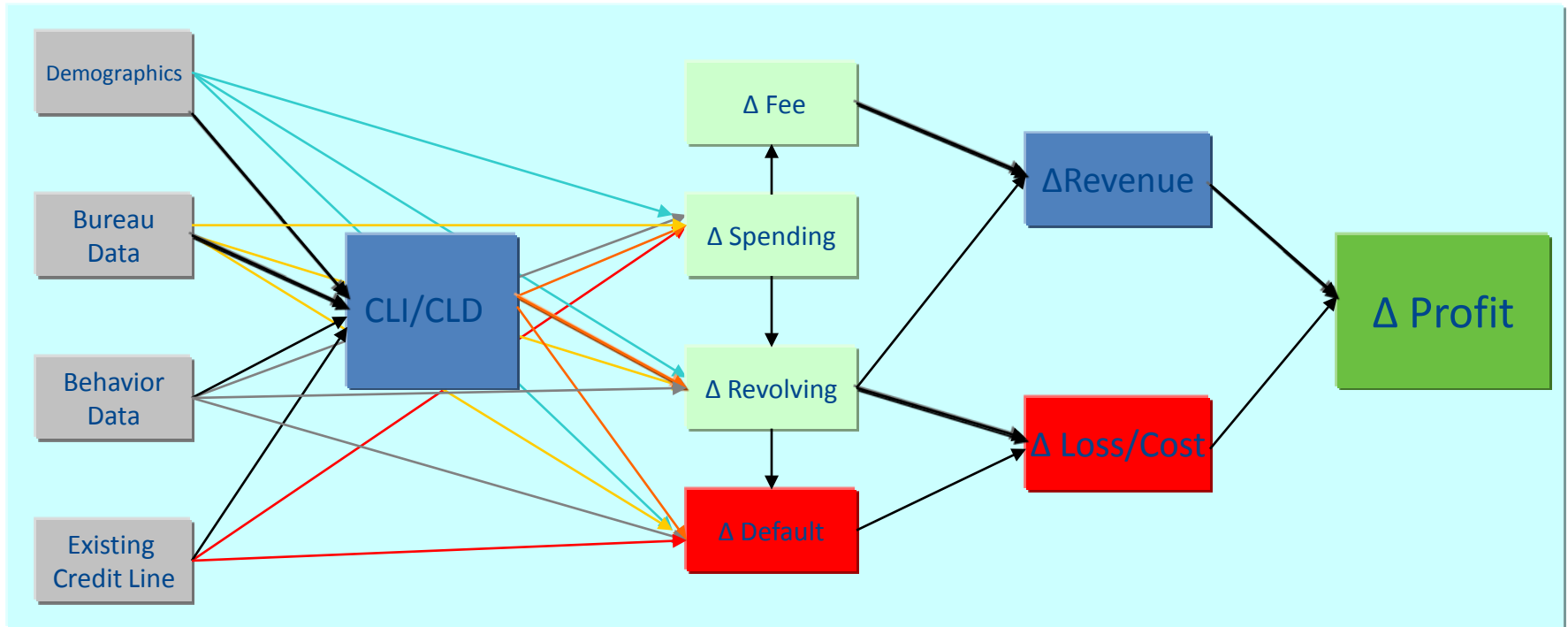
# MCC Transaction Clusters for Tailored Campaigns

## “Supermarket / Retail&Department Store” Cluster



- Customers' spending habits and life styles differ
- Usage / retention campaigns can be tailored based on customers' needs by using MCC profiles

# Credit Line Optimization Approach



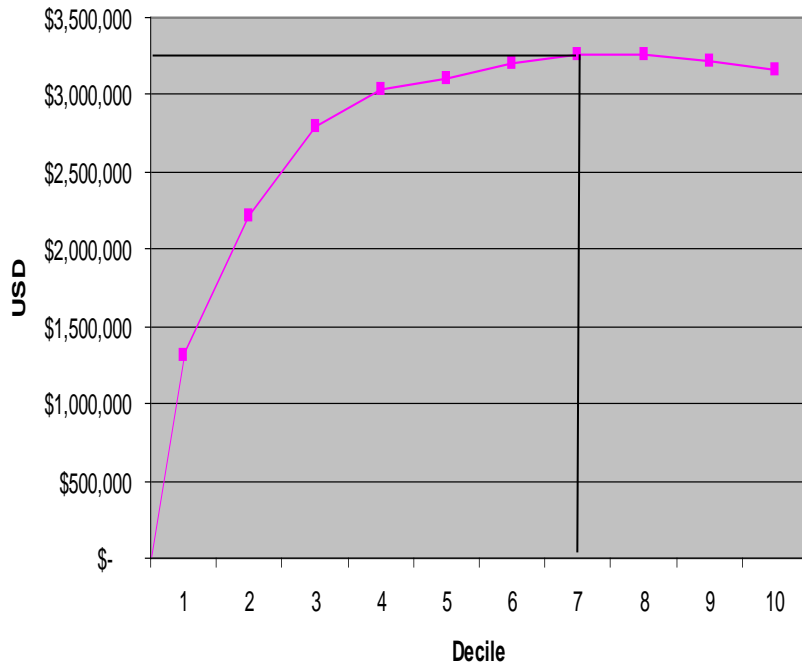
- ❑ CLI strategy requires prediction of profitability driver dynamics, and then optimize across portfolio subject to portfolio level and individual level constraints, including risk appetite.
- ❑ It requires substantial behavioral samples for driver model building, which usually is a challenge
- ❑ It requires advanced modeling expertise and significant investment. But can start with quick wins.

**20/80 Rule: Focus on Quick Win Solutions for Significant Business Impact, Easy to Implement**



## CLI Needs Modeling

Cumulative P&L Impact



- Capture all incremental revenue,
- Achieve maximum P&L impact
- Reduce of incremental capital cost
- Reduce incremental loan impairment
- Reduce communication/marketing cost
- Boost capital efficiency: RoRWA

Offer CLI to Those Who Will Bring in Incremental Revenue to Offset Cost

## Summary

1. Take Big Data as opportunities not burdens
2. Start with business challenges to determine analytics focuses
3. Analytic solutions must be actionable
4. Embed analytic solutions in E2E business process post test & learn
5. Advancing analytics from basic analysis to predictive modeling, and to optimization..... Grab quick wins!