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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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*)

* As of 24 April 2012
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

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

US$bn

CAGR 16%
CAGR 21%

FY 02 FY 03 FY 04 FY 05 FY 06 FY 07 FY 08 FY 09 FY 10 FY 11

Income
Profit before tax
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 Value Generation

Value = Analytic Solution

× Actionability

× Business Willingness
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
- Business Dashboard & Trend Analyses
- Customer Life-stage & Value Segmentation
- Behavior Analytics & Prediction
- Stand Alone Action-Effect Predictive Model

Tactical
- Action-Effect Predictive Model System
- Optimisation

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

2. **Predictive**
   - Statistical approach
   - Predictive modeling
   - Forward looking
   - Input to decision making
   - Act effectively on analytics

3. **Optimizing**
   - Systematic predictive modeling
   - Optimization subject to constraints
   - Recommend business decisions
   - Push the edge

A Continuous Journey to Transform a Bank into True Analytics-Driven Organization
Decision Science / Analytics Vision

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

Implement World Class Analytic COE

- Data
- Tools & Systems
- Methods & Standards

People
Leverage Advanced Analytics to Build Profitable Customer Relationship

1. New Customer
   - Acquire customers with higher value potential
   - Bundled Offer / automated marketing

2. Activation
   - Activation & X-sell
   - Insurance Penetration

3. Revolving/Up Sell/Cross Sell
   - Usage / spending
   - Revolving & CLIP
   - X-sell / NBO / Bundle
   - Re-pricing
   - More needs met
   - Upgrading
   - Insurance penetration

4. Attrition
   - Increase stickiness
   - Proactive retention

5. Reactivation
   - Win-back
   - Focus on high potential valued customers

20% of Customers Generate 80% of Profit
Align Business Actions to Value Drivers

**Value**

- **Total customer lifetime value**
  - Average customer lifetime value

**Drivers**

- # Customers
- Average product revenue
- Cost / Loss
- # products per customer
- Average customer lifetime

**Actions**

- Acquisition / Upgrades
- Up-selling / CLI
- Spend Promo, Debt Consol
- Pricing Strategy & Optimization
- PD, LGD, EAD
- Reduction in Cost to Serve
- Cross-selling
- Activation & Re-activation
- Retention
- CASA Stickiness

**Focus and Prioritization in Line with Expected Impact on Business Value**
## Development of Analytics Solutions to Guide Business Actions

<table>
<thead>
<tr>
<th>Business Actions</th>
<th>Sample Programs</th>
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<tbody>
<tr>
<td>Acquisition/Upgrading</td>
<td>• Insights on customer behavior and needs to drive CVP development</td>
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<tr>
<td></td>
<td>• Propensity modeling / triggers for upgrades</td>
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<td>• U/W policies and scorecard cut-offs</td>
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<td>Up-selling</td>
<td>• Loan top-ups</td>
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<td>• Cards spending promotion</td>
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<td>• Income indexation &amp; CLI</td>
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<td>Pricing Strategy &amp; Optimization</td>
<td>• Risk based pricing</td>
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<td>• Relationship pricing</td>
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<td>• Price elasticity modeling</td>
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<td>Cost to Serve</td>
<td>• Alignment of customer needs complexity with RM experience and skills</td>
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<tr>
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<td>• Branch effectiveness peer benchmark</td>
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<tr>
<td>Cross-selling</td>
<td>• Product bundling, next best offer, lending product penetrations</td>
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<td>• Risk criteria and credit score cut off for x-sell</td>
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<tr>
<td>Retention</td>
<td>• Event triggers for anti-attrition</td>
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<td>• Proactive retention</td>
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Strategic Value Segmentation

Defining Customer Segment by Net Worth and Size of Profit Pool
Operational Value Segmentation

- Retention
- Cross Sell
- Up-sell
- Rewards

- RBP Credit Mgmt
- Cross Sell
- Activation
- Pricing/Fees

1. Up-sell
2. Cross Sell
3. RBP Credit Mgmt
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

Setting a minimum price by risk

Pricing Elements

- Funding Cost
- Marginal Operating Cost
- Risk Cost
- Capital Cost
- Margin

- Business margin (to be optimized)
  * consider competition, customer price sensitivity, contribution, etc
- Cost of capital = f (EC, RC)
  By risk grade
- Expected Loss = PD * EAD * LGD
  * By risk grade
- Incremental direct cost of acquiring & maintaining the account
- Cost of liquidity and funds
# Advanced X-sell Process Optimization

## Price Test

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## Modeling

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

## Behavior Profiling

- Balance pay down
- Revolve Rate

## Campaign Selection

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

- Capture all incremental revenue,
- Achieve maximum P&L impact
- Reduce 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!