Managing 21st Century Business and Technology Innovation: Core Banking Transformation with System z

The wake-up call

Bank CEOs are faced with the challenge of increasing earnings in the midst of extremely difficult business conditions. Non traditional banking competitors have entered the market and are blurring industry boundaries, while banking products and services face commoditisation. Competition and commoditisation mean that growth and financial performance require differentiation and innovation.

Reaction to the market pressures is apparent – CEOs are making fundamental changes to the business to innovate and differentiate. Results of the IBM Global CEO Study 2006 show that almost three-quarters of bank CEOs expect extensive or moderate changes to the banking industry during the next two years.¹

BANK CIOs’ WAKE-UP CALL

Gartner’s EXP CIO survey reveals that many bank CIOs recognise that the future will be much different, and will be focusing on items such as global competition and business restructuring.² Banking CIOs are making investments in initiatives such as core banking renewal and enterprise architecture that provide a stable, scalable, reliable and secure environment for the future. Banking CIOs are highly focused with proving the value of IT by bringing forth innovative technology solutions with the goal of supporting the business.

How does the mainframe platform help to solve business problems? Key takeaway: Recognise that technology will be a critical element of success.

“A wise man built his house on a rock.”

¹This paper reflects IBM’s general view of various forces affecting the banking industry and their relationship to IT investment. It was produced and developed by members of IBM’s Global Banking community.
CEO PERSPECTIVES

BANKING GROWTH DRIVERS

Consolidation and new competition

CEOs are challenged to achieve growth and increase shareholder value in a commoditised market that continues to consolidate in order to achieve scale. The top 25 global banks are increasing their share of the top 100 banks’ assets. The top 25 banks worldwide all run on System z.

Today, banking customers have unprecedented options. Universal banks, niche players and nontraditional sources such as BMW Bank, Sony Bank, MU Finance, Merrill Lynch, Fidelity and Vanguard, as well as indirect banks such as ING Direct (that offer bank-like products and services) severely encroach on the position of traditional banks and markedly impact bottom-line results. The United States Federal Deposit Insurance Corp. (FDIC) reports that the total number of banks in the US declined to 7,842 in 2003 and projects that this number will decline to 6,480 by 2013.

Customer-centricity

To increase wallet share with customers and to achieve profitable growth, more and more banks are turning to innovative customer-centric business models and relationship-building strategies. To support these objectives, banks are pursuing relationship-building strategies through initiatives such as offset accounts, relationship loyalty, dynamic relationship pricing and configuration/negotiation.

Although banks are starting to place more emphasis on individual customers, they have not offered customers economic incentives to consolidate to one bank. Banks need to offer pricing models that align with their customer-centric approach.

Retail banks plan to expand explicitly relationship-based pricing models after 2009. The banks’ interest in expanding wallet share through single and cross-line-of-business loyalty programs remains high and will continue to dominate through 2012. Eventually, banks will offer more personalised products, rather than generalised mass offerings, that will help to secure customer loyalty over time.

Globalisation

In industrialised countries, banks are globalising by ensuring that they can support the needs of multinational companies that have offices around the world. In Europe, a cohort of extremely competitive global banks has set off on a global race to capture financial assets not only in industrialised countries, but in the emerging economies as well.

In emerging economies, the next few years will drive massive expansion of banking services to serve the developing class of the mass affluent and even the unbanked, because of robust manufacturing and professional services industries in Brazil, Russia, India and China.

An innovative approach to products and services in the global market will help to drive faster penetration rates.

Case in point – a large European bank is improving the effectiveness and efficiency of core banking functions with a single “engine room” – a single back office for independently operating group companies – which spurs efficiency and enables white labeling, and has driven its cost/income ratio from 58.1 per cent (1996) to 42.4 per cent (2005).

Unbanked and underbanked

Fast-moving competition is aggressively targeting opportunities to build financial relationships with the unbanked and underbanked. Banks are harnessing new technologies to cost-effectively serve more than two billion underbanked and unbanked adults in emerging and developed markets. Innovations include e-banks, remittance, microfinance and credit extension.

Case in point – Bank of America will begin offering credit cards to customers without US social security numbers, typically temporary workers or illegal immigrants who have held a checking account with the bank for three months without an overdraft.

Figure 1. Consumer interest in building a relationship with their bank

Consumers indicate interest in consolidating business with one bank ...

Strongly disagree | How much do you agree with | Strongly agree
--- | --- | ---
1 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5
Interested in dealing with FSPs that offer loyalty programs like airlines
Interested in consolidating products/services with one bank
Would do more business with FSP if lower fees and interest rates for holding more than one account

Base: All US adults in higher income households who carry debit/credit cards – 4Q05

...but with few economic incentives to consolidate, consumers "shop around"
COO PERSPECTIVES
BANKING RESILIENCE DRIVERS

Banks are focused on finding innovative ways to minimise operational risk while reducing operational costs and complying with regulatory mandates. The increasing speed of change in the business, technology and regulatory environments challenges bank management to increase control of operational and risk compliance. Despite the fact that most bank executives are taking the responsibility for protecting their customers quite seriously today, customer confidence in a bank’s ability to protect them is quite low. Therefore, banks must find innovative ways to gain the trust of their customer base via improved resilience, security, privacy, asset protection and adherence to government regulations.

Regulation

Governmental and industry compliance initiatives, such as Basel II and Sarbanes-Oxley, should help drive business efficiencies over the long term. As examples, credit quality could be improved, capital requirements could be reduced and operational controls might be strengthened in the interrelationships between banks and their customers. Adhering to government regulations also helps to protect a bank’s reputation. Avoidance of penalties and bad press due to inability to comply with regulations can lead to improved public confidence. Direct economic impact and long-term protection of brand equity are the tangible benefits of effective compliance.

Resilience

Given all the recent news on bank losses due to risk-related exposures, improving risk position is an imperative to gaining the trust of banking customers. McKinsey reports that, from 2001 to 2005, risk-related losses in financial services at the top US banks represented 4 per cent to 5 per cent of their net income – and considerably more, if unpublicised events were added to the total.

To protect themselves and their customers, banks are focusing on resilience, or “minimising risk,” which represents the level of certainty that a transaction will be executed within the core banking system. Many banks are turning toward comprehensive Enterprise Risk Management (ERM) strategies.

Security, privacy and asset protection

A breach in security can put assets at risk and cause serious damage to a bank’s reputation and the trust customers have in their bank. Banks have the responsibility to protect monetary assets (i.e. through customer identification), to conduct authentication and proactive account monitoring, and to protect

---

IBM case examples – growth

**IBM System z’s value for virtualisation**

*Case in point* – First National Bank of Omaha (FNBO) is a subsidiary of First National of Nebraska, the largest privately held banking company in the U.S. FNBO leveraged virtualisation and consolidated the following onto a single IBM System z mainframe:

- 30 UNIX® servers
- 500 Applications
- 560 Microsoft® Windows® servers

The results:

- 70 per cent improvement in hardware utilisation
- Average savings: $2 million per year

“It’s revolutionary. It paid for itself in a year.”  
– Ken Kucera, Senior Vice President, First National Bank of Omaha

---

**IBM System z’s value for scalability**

*Case in point* – Bank of China. In 2007, IBM and Financial Network Services (FNS), a subsidiary of Tata Consulting Services, announced the results of the world’s largest banking scalability benchmark. IBM and FNS worked with Bank of China, one of Asia’s largest and most innovative banks, to produce this record-breaking performance. The benchmark was powered by an IBM System z9™ Parallel Sysplex mainframe running DB2 database software.

Bank of China’s System z benchmark was the biggest in IBM’s history. It delivered a record scalability test of more than 380 million accounts with three billion transaction histories.

---

**IBM System z’s value for customer-centricity**

*Case in point* – key executives at a large regional bank (US$88 billion in assets, 13 million customers, 40 million accounts) recognised a revenue plateau facing their bank. Rampant market consolidation and nontraditional competitors were causing margin compression. There was little chance the bank could remain competitive with its siloed and product-centric approach toward its customers. The bank needed to dramatically improve its time to market for developing, testing and launching new products and services. Evolutionary change was not working and there was no time for trial and error; the bank would need to fundamentally transform its business with a more customer-centric and customer relationship-based approach. The bank sought to boost revenue growth by accelerating speed-to-market for new banking products, especially new deposit and loan-based offerings.

IBM helped deliver:

- Differentiated banking products constructed in a competitive way to respond to market pressures.
- Consistency of information across multiple channels with personalised and customised service.
- More complex, multidimensional management information and reporting requirements on a truly real-time basis

The implementation helped the bank move from a siloed, product-centric approach to a customer-centric alignment. This bank was able to shrink product development cycles from 64 days to less than one day. The bank launched 168 new products in six months, generating an immediate $120m+ in new revenue and $3 billion in new deposits. Furthermore, it successfully implemented a branch-sharing partnership with a government-owned postal bank. Bottom line: 1.7 year payback.
consumer data (i.e. secure customer data from online threats, hacking and phishing) and to provide compliance with privacy laws. Threats are not always from external sources. Intended or unintended privacy operator, user error and unauthorised access are mounting.

Case in point – In 2007, TJX, the US parent company of T.J. Maxx and other retailers, admitted in a Securities and Exchange Commission (SEC) filing that more than 45.7 million credit and debit card numbers had been stolen. The security breach of customer records has been reported as the largest in US history. A report from Javelin Strategy & Research shows that 77 per cent of the 2,750 consumers polled said they would stop shopping at stores that suffer data breaches.

IBM System z

IBM System z acts as an Enterprise Business Resilience Manager by offering capabilities designed to help banks adhere to regulatory requirements, governance and risk management strategies. Designed for up to 99.999 per cent availability, combined with a reduction in back-office complexity, it is designed to help reduce a bank’s risk exposure.

System z is designed to deliver 99.999 per cent application availability in a coupled configuration which is important in industries like banking, where massive amounts of transactions are processed in real time, 24/7, all around the world.

CIO PERSPECTIVES

Banking Efficiency and Agility Drivers

Successful CIOs are able to respond quickly to the needs of the business by providing the technology foundation necessary to drive rapid delivery of products and services. There is now a tighter linkage between business and IT, with the CIO and other IT executives playing an integral role in enabling and driving core business strategies. To succeed in this new environment, CIOs must seek not only to keep IT running, but also to bring innovation into IT. In addition, CIOs must evaluate service-oriented architecture (SOA) and introduce innovative ways to increase the value of IT to the business.

IBM case examples:

IBM System z’s value for security

Case in point – HSBC Mexico, a subsidiary of one of the largest banking and financial services organisations in the world, used IBM System z as part of an overall IBM solution to consolidate a complex server architecture to improve stability, increase functionality and maintain high levels of security.

The results:

- Replaced eight servers at four data centers with two IBM System z servers and two IBM TotalStorage® Servers.
- Fewer data centers and servers means low maintenance costs and can help increase security.
- By consolidating servers onto one mainframe, you can experience immediate energy and space savings, including the potential to lower costs to power and cool your data center.

Operational Innovation

There are a number of challenges facing a bank’s IT department, including an increasing need to link IT to business needs, increasing complexity, growing compliance needs, increasing rate of change, success increasingly based on integrating processes outside of IT operations, pressure to outsource, pressure on cost, and increasing requirements for 24/7 availability. IT must balance the need to keep IT running while implementing innovative solutions that meet the needs of the business. IT must exploit new technologies such as business intelligence, grid computing, video/multimedia and security for business advantage.

Services-oriented Architecture

CIOs face critical technology options and decisions in their desire to select architectures and infrastructures to support their banks’ evolving business process requirements. SOA is an architectural
style in which certain discrete functions are packaged into modular, shareable, distributable elements ("services") that customers can invoke in a loosely coupled manner.²⁵

Service-oriented architecture (SOA) offers the promise of improved agility and enhanced flexibility, which will enable IT to assist the bank with a faster and better response to changing business conditions and requirements for customer-centricity.

ON REFLECTION

Core systems transformation is not an easy decision, but should be considered if you have any of the following questions:

**Growth**
- How do I reduce time to market for new products, services and segments while also reducing cost/income ratio?
- How do I create a customer-centric view?
- How do I ensure that my systems can support my anticipated business growth?
- How do I truly differentiate in the consolidating and highly competitive banking market?

**Resilience**
- How do I minimise my bank’s risk to protect my bank’s reputation and brand?
- How do I protect customer and investor confidence through a high degree of security?
- How do I build an evolutionary architectural framework that enables control and supports growth during the next 10 years?
- How do I efficiently adapt to regulatory-driven change?

**Efficiency/Agility**
- How can I effectively leverage SOA within my bank? How can I help bring products and services to market faster?
- How can I shift from running IT to innovating within IT?

Figure 3. **Increasing fusion between business and IT²⁶**

<table>
<thead>
<tr>
<th>Year</th>
<th>CIO and IT Executives</th>
<th>Line of Business and Non-IT Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>2000</td>
<td>57%</td>
<td>43%</td>
</tr>
<tr>
<td>2004</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>2006</td>
<td>52%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Figure 4. **Core, back-office systems migrate to service-oriented architecture²⁷**

- Modular
- Distributable
- Shareable
- Loosely Coupled
How do I reduce IT maintenance costs (often up to 70% of total IT spend) while accelerating new solution development results?

How do I reduce infrastructure duplication?

How do I simplify products and processes?

Environmental impact

IBM is also making a positive environmental difference. In 2006, IBM processed over 100 million pounds of end-of-life products and/or product waste, and sent less than 1 per cent of that to landfill.24 Today, the largest global financial services organisations generate about 500,000 metric tons of CO₂ per year. IT electricity consumption accounts for up to 65 per cent of it.

NOTES

1 "Dare To Be Different". IBM Institute for Business Value, 14 November, 2006.
3 IBM Institute for Business Value.
4 "Five Reasons Core Banking Renewal In North America Might Be Closer Than You Think," Don Fee/ Kristin Romberg Moyer, Gartner, 8 March, 2007.
5 "Five Reasons Core Banking Renewal In North America Might Be Closer Than You Think," Don Fee/ Kristin Romberg Moyer, Gartner, 8 March, 2007.
9 IBM Institute for Business Value.
11 "Five Reasons Core Banking Renewal In North America Might Be Closer Than You Think," Don Fee/ Kristin Romberg Moyer, Gartner, 8 March, 2007.
14 IBM Institute for Business Value.
20 "Three of Four Say They Will Stop Shopping at Stores That Suffer Data Breaches," Sharon Gaudin, InformationWeek, 12 April, 2007.
21 IBM Institute for Business Value.
23 "Worldwide Server Power and Cooling Expense 2006-2010." Document #203598, Sept. 2006. Potential savings depend on many factors, including, but not limited to, the specific customer environment; the existing customer environment and staff, and the consolidation potential. Will vary by customer. Individual results depend on many factors, including, but not limited to, specific customer environment and types of workloads deployed on System z. Power and cooling costs are projected to increase by as much as 54%.
26 IBM Institute for Business Value.
28 4Q2006 Product Stewardship Quarterly Report, published by CEA, Ricardo Gonzalez section, "Product End of Life Management".