

Technology readiness of Indian banks

A CII-PwC Research Report*

- Released at Banking Tech Summit 2007





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1. Executive Summary

PwC-CII Research Report on Technology Readiness of Indian Banks

This research report based on a survey, conducted jointly by PwC and CII, examines the technology readiness of Indian Banks and serves as a backdrop to the Banking Tech Summit 2007: “Expanding Horizons through Technology”. There is consensus amongst the senior executives in the banking industry that there exists significant opportunities for the Banking Industry to leverage Technology as an enabler for gaining competitive advantage. At the same time, there are significant challenges that need to be addressed.

For technology to drive the competitive advantage in a sustainable fashion, banks need to have clearly defined strategic goals and translate them into appropriate IT goals. To support the IT goals, banks would need to invest in building architectures, infrastructure, processes, IT organizations and governance frameworks. This means,

- Ensuring business benefits expected from IT are clearly identified
- Having governance structures in place including
 - Policies and procedures around data quality, metadata management, disaster recovery, business continuity planning et al
 - Ensuring governance has enterprise-wide coverage
- Ensuring core transactional applications are in place
- Having a plan and solution in place for Infrastructure management, and finally,
- Having a clearly defined IT organization with appropriate skill sets

The Banking Tech Summit will be taking a look at these issues in greater detail. The purpose of this study is to understand if Banks in India have the right foundations in place to leverage technology to its maximum potential. Do they have scaleable infrastructure, architecture frameworks, governance frameworks, policies, processes and organization structures to leverage the new business models, growth opportunities and new customer channels? These are the factors that would help them to drive top line growth and optimize bottom line costs, in turn increasing profits to their shareholders.

The research comprised of face to face interviews with senior IT executives at Indian Banks, and was further supplemented with PwC research covering industry sources as well as PwC Global Best Practices.



Executive Summary continued

Some key highlights of the survey analysis, grouped under the possible impact areas, are:

- **Operational Efficiencies:** In terms of existing transactional systems, multi-branch level packages are significantly higher in number as compared to standalone branch packages signifying bank's focus in standardizing systems across branches. All surveyed banks had core banking systems in place and the systems covered more than 80% of branches in terms of business. In terms of data volume and growth, existing data size has been in area of ten's of terabytes and banks are expecting growth in the range of 30-40% annually. All the banks had enterprise wide Governance and Architecture frameworks in place; albeit coverage in areas such as metadata management and data quality was significantly lower than others.
- **Revenue Growth and Performance Measurement:** Around two thirds of respondents either have business intelligence system in place or are in process of implementing one. This would serve as the key information infrastructure for providing the needed Analytics on Corporate Performance Management as well as Customer and Market Growth
- **Governance, Risk and Compliance:** All the banks had enterprise wide Governance and Architecture frameworks in place; albeit coverage in areas such as metadata management and data quality was significantly lower than others. Sixty three percent of the banks have an external solution to help with regulatory compliance. The remaining banks have a homegrown solution. All the banks surveyed are planning to build/procure a solution that will help with regulatory compliance.

Banking leaders of tomorrow would focus on establishing the following technology foundations to deliver the business benefits:

1. **Flexible and scalable IT organizations** – to support organic and inorganic growth options.
2. **An architectural framework to enable flexibility in anticipation of customer needs** – to aid banks in gaining market share and increasing profitability from a more demanding customer base
3. **Technology Infrastructure to support multiple delivery channels** – Enabling increasing distribution capabilities while reducing costs,
4. **Ensuring security to protect reputation and operational risks**, and
5. **IT systems to support effective management of risk**



This survey and analysis attempts to incorporate the above. The survey and analysis has been categorized the into four dimensions:

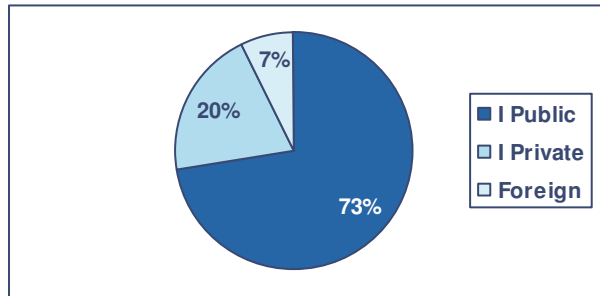
1. **Infrastructure & Data** – This dimension examines some critical issues with regard to size of enterprise data, volume of historical and future growth, factors driving this growth and models used by banks for vendor management.
2. **Organizational structure & IT spend** – This dimension examines IT organization structure, team size, degree of centralization in IT decision making, IT budgets and distribution amongst various budget heads.
3. **Governance & Architecture** – This dimension examines various questions such as what are the types of governance frameworks within a bank, whether they have been defined clearly, which team is responsible for maintaining data accuracy and what is the degree of centralization maintained by the banks.
4. **Applications** – This dimension examines different applications present in the bank and their coverage focusing specifically on degree of coverage under core banking applications. Going forward it also examines presence of business intelligence platforms within banks and regulatory compliance initiatives.



2. Current Indian banking Scenario

The Indian Banking industry has witnessed an 18.4% growth in its assets in the fiscal year 2005-2006. A sustainable overall economic growth has laid the foundation of a robust banking sector. The Industry has been largely classified on the basis of its origin & ownership into Indian Public Sector Banks, the Indian Private Sector Banks and the Foreign Banks. Their respective size and coverage as on March 2006 is as illustrated below.

Assets (Rs. 27,878,916 mn)

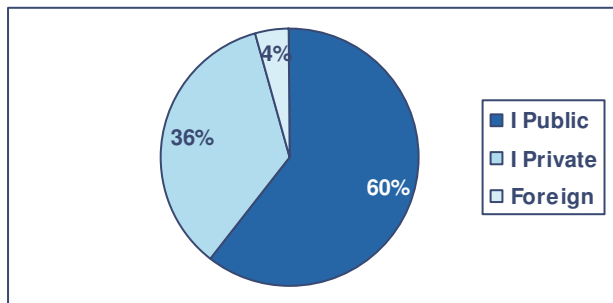


Assets Composition

The total asset size is approximately Rs. 27,878,916 mn of which 72.3 % is controlled by the Indian Public Sector Banks. The Indian Private Sector Bank

segment continues to grow and at present holds 20.5% of the assets (*18.2% of the entire asset base in 2005*) while the foreign banks hold 7.2%.

ATMs (21,523)



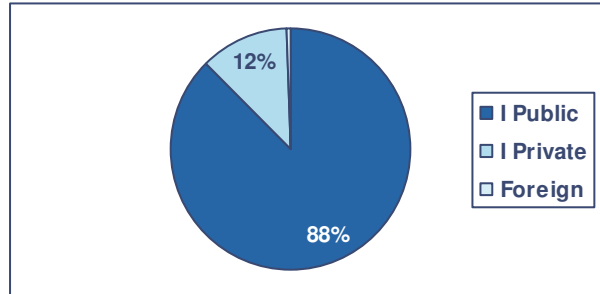
ATMs

The total ATM network of the banks in the country is 21,523. Nationalized banks accounted for the largest share of installed ATMs, followed by the

new private sector banks, SBI group, old private sector banks and foreign banks. While SBI group, new private sector banks and foreign banks had more off-site ATMs, nationalized and old private sector banks had more on-site ATMs.



Branches (54,791)

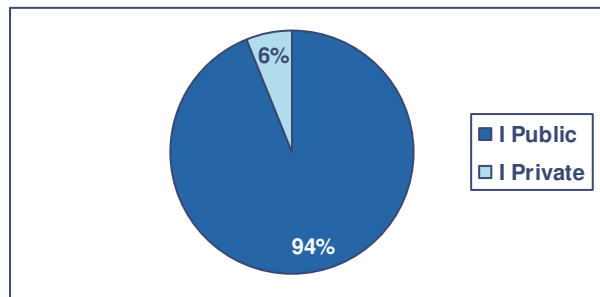


Branches

The total number of branches of Schedule Commercial Banks at end-March increased to 54791, comprising 19,254 rural branches, 12,933 semi-urban branches and

22,604 urban and metropolitan branches.

Intl. Branches (112)



International Branch Coverage

As on September 30, 2006, eighteen Indian banks had overseas operations spread over 47 countries with a network of 112 branches (including

offshore units), 6 joint ventures, 18 subsidiaries and 35 representative offices. Bank of Baroda had highest overseas presence with 39 branches, 7 subsidiaries, one joint venture bank and 3 representative offices in 20 countries, followed by State Bank of India with 30 branches, 5 subsidiaries, 3 joint venture banks and 7 representative offices in 29 countries and Bank of India with 20 branches, 1 subsidiary, 2 joint venture banks and 3 representative offices in 14 countries

Information Technology

The financial sector has been a large user of information technology (IT). Banks, in particular, have been increasingly using IT in their day to day operations. Over the years, banks have

- extended the reach of core banking solutions (CBS) to more branches so as to facilitate anywhere banking;
- introduced technology based products and services such as mobile banking;
- and expanded the internet banking facilities



The Reserve Bank continued to function as a business facilitator for developing new products and services by banks. Some of the systems developed by the Reserve Bank for use by banks are NDS, RTGS, CFMS and SFMS over the INFINET.

The RTGS system has stabilized and the use of the facility for transfer of funds, especially for large value and for systemically important purposes, has been on the rise. The number of members using the system has gone up to 110 with nearly 25,000 bank branches offering RTGS based fund transfers to their customers

Over the past few years, the banking sector has witnessed a large increase in the use of IT based delivery channels and internet banking activity. Some of the new facilities provided include:

- funds transfer options to cover third party customer accounts within the same bank;
- funds transfer across banks;
- utility bill payments and other regular periodical payment facilities; and
- integration with 3rd parties for transactions such as for booking of tickets for rail and air.

Mobile banking is another activity, which is gaining ground. Many customer-friendly facilities from short messaging service (SMS) alerts to action based on mobile instructions, are being incorporated. These technological advances could have far reaching implications for the financial sector.

As per the recent RBI report, the public sector banks incurred an expenditure of Rs.10,676 crore on computerization and development of communication networks between September 1999 and March 2006. It also mentions that more than 95% branches of public sector banks at end-March 2006 were fully or partially computerized. Out of 27 public sector banks, branches of as many as 10 public sector banks were 100% computerized, while branches of another 12 banks were more than 50% computerized. Branches of only five PSBs were less than 50% computerized.



3. Technology Readiness Dimensions

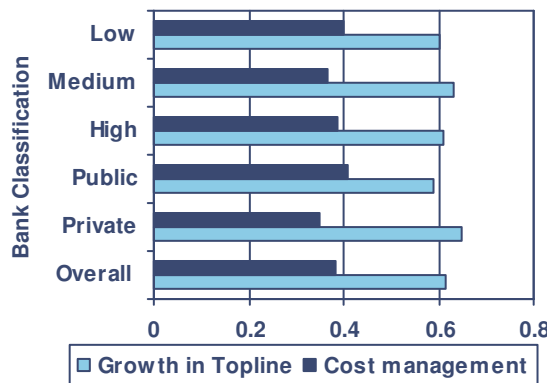
How ready is technology in Indian banks to support the strategic goal of the enterprises?

This study attempts to answer this question by evaluating technology in banks across four broad dimensions. They are:

1. **Infrastructure & Data** – This dimension examines some critical issues with regard to size of enterprise data, volume of historical and future growth, factors driving this growth and models used by banks for vendor management.
2. **Organizational structure & IT spend** – This dimension examines IT organization structure, team size, degree of centralization in IT decision making, IT budgets and distribution amongst various budget heads.
3. **Governance & Architecture** – This dimension examines various questions such as what are the types of governance frameworks within a bank, whether they have been defined clearly, which team is responsible for maintaining data accuracy and what is the degree of centralization maintained by the banks.
4. **Applications** – This dimension examines different applications present in the bank and their coverage focusing specifically on degree of coverage under core banking applications. Going forward it also examines presence of business intelligence platforms within banks and regulatory compliance initiatives.

Business Strategy

The section aims to understand the focus area for the organization in strategy and the business benefits expected out of IT.



The banks in India are on a growth path as is apparent from the organization strategy which is focusing towards building topline growth while managing costs. The banks have responded that around 60% of the organization's focus is on building topline and



around 40% is for managing costs. The scenario is consistent across all classifications of the banks.

Around 95% of firms have mentioned that retaining customers is critical and 88% of firms feel the same about acquiring new customers while only 53% of firms said that cutting costs will be a top priority this year. This is in line with International trends.¹

In conformance with the expressed plans for growth, banks have mentioned the following top 5 benefits expected from leveraging IT for business. This is again in conformance with global trends where Regulatory pressure around Governance, Risk and Compliance and increasing Global Competition in terms of Markets and Customers, are seen as the two key drivers for the adoption and use of technology

- New Customer Acquisition
- Leveraging Cross- Sell Opportunities
- Increasing Process Efficiency
- Increasing Customer Service Levels, and
- Adherence to Compliance

Top 5 Business Benefits out of IT	No of Responses					Total
	Rank -1	Rank -2	Rank - 3	Rank - 4	Rank - 5	
New Customer Acquisition	3		2	1	1	7
Leveraging Cross-Sell Opportunities	1	2	3		1	7
Multi-Channel Customer Management	2	1		3		6
Better Cost Management			1	3	2	6
Increasing Process Efficiency	1	5	3			9
Increased customer service levels	2	2	2		2	8
Adherence to Compliance	2	2	2		2	8
Better Risk Management			2		2	4

¹ Forrester Research for 2006



DIMENSION 1: Infrastructure and Data

Background and overview

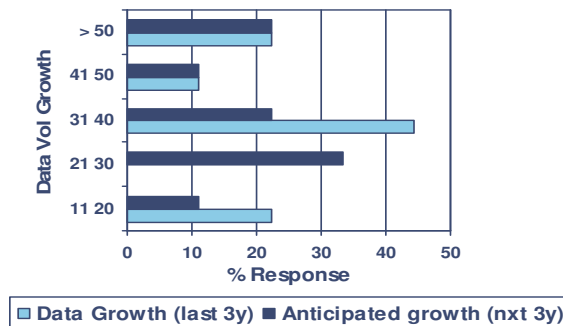
IT Infrastructure today is the back-bone of the banking industry. It is becoming extremely critical with the growing business pressures of managing explosive data volume and transaction growth along-with high uptime needs. The core banking infrastructure for a bank typically consists of business application software, systems software, delivery channels, hardware, networks, security, office equipment, communication systems, storage, power back-up, helpdesks and contact centres, and various other evolving elements.

In the Indian context, banks appear to have skipped out on the mainframe-driven trend of computing, owing to a dearth of skilled resources, costs, and being a comparatively late adopter of technology. The technology adoption by the Indian banking industry has assumed a big-bang approach. This has resulted in the replacement of disparate systems to the state-of-the-art core banking solutions and appropriate infrastructure to go along with it.

In this section, we are trying to assess the current data size and data volume growth, the anticipated future data volume growth, the drivers for growth in data volumes and the current infrastructure management model.

Key survey findings

Fig. 1-1.1 Data Volume Growth



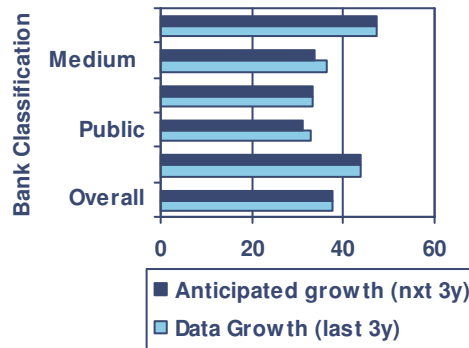
Private sector banks have a higher data volume growth in the range of 43.75%

Data Volume

During our discussion with the technology leaders in banking, we found that most of the banks have seen explosive data volume growth in the past 3 years and foresee similar trends in the next 3 years.



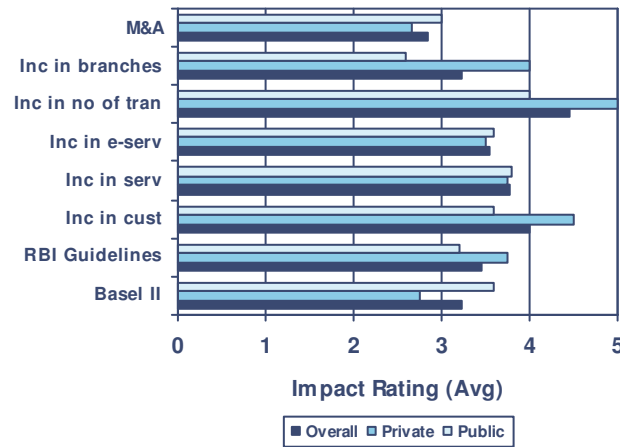
Fig. 1-1.2 Data Volume Growth



The average overall data volume growth has been in the range of 37.5% and is expected to be in similar range for the next 3 years. Private sector banks have a higher data volume growth in the range of 43.75% while the public sector banks anticipate a growth of around 31.25% in their data volume. The

public sector and the medium asset category banks expect lower growth over the current levels in the next 3 years while other categories continue at the same level. (See fig. 1-1.1 & 1-1.2).

Fig. 1-1.3 Drivers for Data Volume Growth



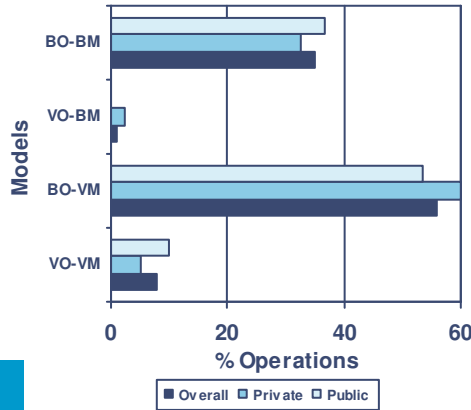
Some of the key reasons cited by the banks for anticipated increase in data volumes is increase in customer base, higher number of transactions per customer, more services being provided, increase in service channels such as, internet banking and RBI guidelines. While private sector banks anticipate

opening up of newer branches and increase in number of transactions as the key drivers for data volume growth; the public sector banks believe Basel-II will be one of the top drivers for growth in data volumes. (See fig. 1-1.3)

The public sector banks believe Basel-II will be one of the top drivers for growth in data volumes



Fig. 1-2.1 Current Infra Mgt (Type)

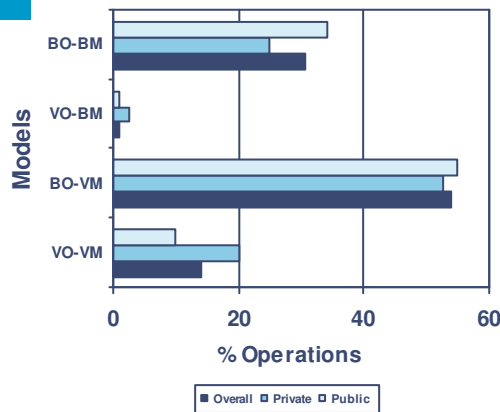


Infrastructure Management

Currently most of the infrastructure is owned by the banks themselves. The models being followed are 'bank owned – bank managed' and 'bank owned- vendor managed' with the private sector taking a lead in the vendor managed operations (See fig. 1-2.1).

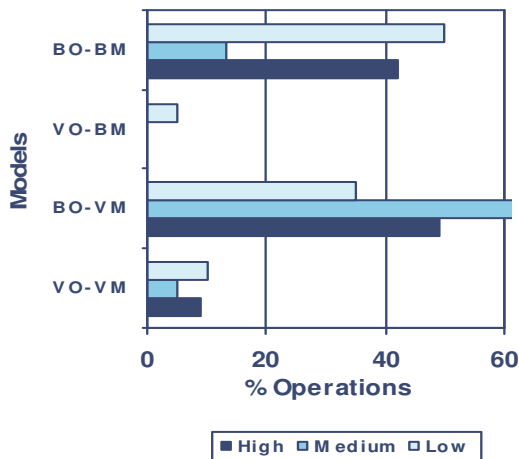
There will be a movement towards 'vendor owned-vendor managed' operations, in the private sector.

Fig. 1-2.2 Future Infra Mgt (Type)



Going forward, banks believe that their infrastructure management model will change a lot. There will be a movement towards 'vendor owned-vendor managed' operations, particularly in the private sector. 'Bank owned-bank managed' operations are expected to reduce (See fig. 1-2.2).

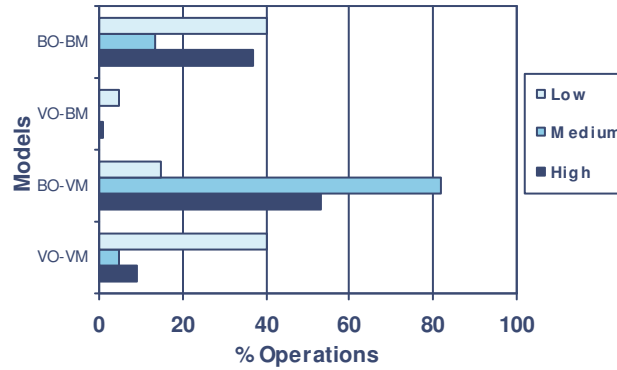
Fig. 1-2.3 Current Infra Mgt (Assets)



If we look at the infrastructure management from the size of the assets, we see that the medium sized banks have high bank ownership-vendor managed configuration while the bigger banks have substantially high bank owned-bank managed configuration (See fig.1-2.3).



Fig. 1-2.2 Future Infra Mgt (Assets)



But the smaller banks plan to shift to a vendor owned – vendor managed model while the others will continue to maintain their current positions (See fig. 1-2.4).

Smaller banks plan to shift to a vendor owned – vendor managed model

International trends & Best Practices

1. The infrastructure should be able to sustain 24 x 7 operations, have scalability for future expansion, and follow defined international standards of data centre management processes and governance as embodied in norms such as ITIL and CoBIT
2. Well established SLAs with vendors for infrastructure management clearly stating the following:
 - a. Availability – Addressing uptime and downtime, network throughput,
 - b. Performance – Transaction per second (TPS) and turnaround times of software, hardware and network infrastructure
 - c. Quality – Number of defects per thousand lines of code.
3. Many European banks are spending millions to modernize their ATM channel and equip their machines with more functionality to drive routine interactions away from the teller, Using cash machines to top up mobile phones has also caught on in Europe. (As per Forrester Research 2006 Survey, 16% of all Europeans add credit to their prepaid account directly through ATMs)



DIMENSION 2: Organization Structure and IT Spend

Background and overview

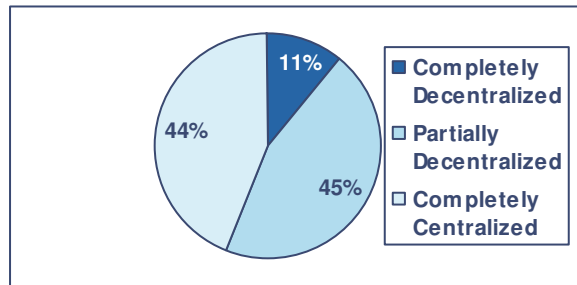
IT spend has been growing in the banking sector but at the same time there has been identification of areas of cost improvement in the non-core areas through outsourcing.

In this section we have assessed the IT organization decision making structure, the IT budgets, their sub-heads and the spend drivers, as well as the current In-House IT team structure and the outsourcing plan for the banking industry.

Around 86% of the IT organizations are decentralized by geography

Key survey findings

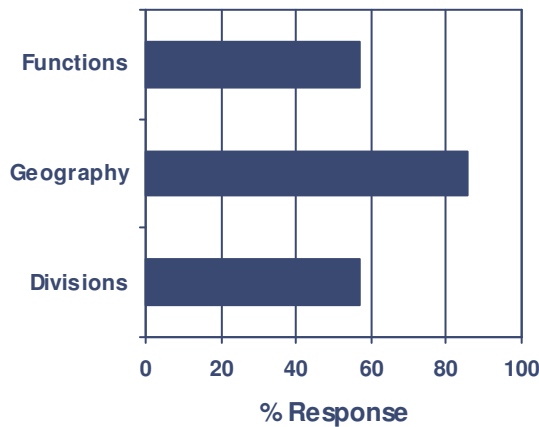
Fig. 2-1.1 IT Decision Making



IT Decision Making

The IT decision making in around 45% of the banks is completely centralized while around 45% of the banks have the decision making partially centralized (See Fig. 2-1.1).

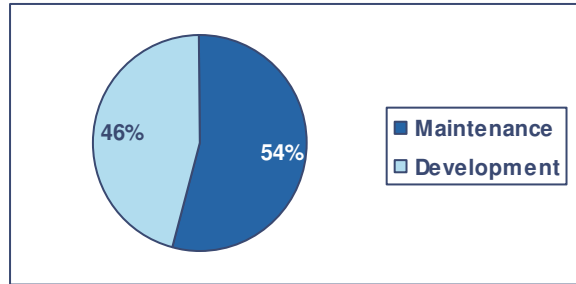
Fig. 2-1.2 IT Decision Making (Decentralized)



Around 86% of the IT organizations are decentralized by geography and around 57% is decentralized by functions and divisions in the organization (See Fig. 2-1.2).



Fig. 2-2.1 IT Budget



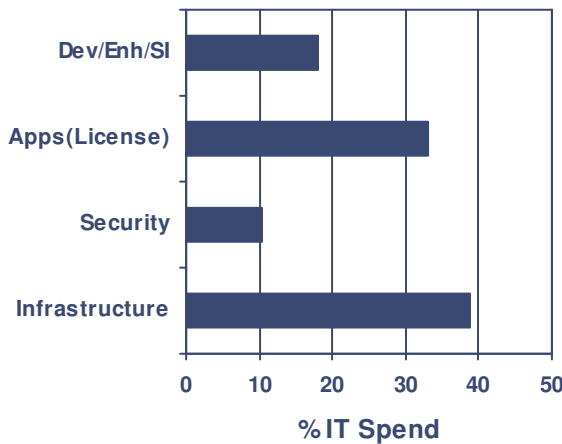
IT Budget & Spend

IT Budgets have an almost equal divide amongst maintenance and development at an aggregate level. There exists very high variances in maintenance to development

The IT budget at an aggregate level constitutes of around 39% for Infrastructure & 35% for Applications (license)

budget ratios between banks based on their IT Maturity in terms of applications and the future IT road-map. The maintenance budget forms 53.75% of the overall budget at an aggregate level (See Fig. 2-2.1).

Fig. 2-2.2 Overall IT Budget



The IT budget at an aggregate level constitutes of around 39% for Infrastructure, 35% for Applications (License), around 10% for Security and around 16% for New IT Developments & Enhancements (See Fig. 2-2.2).

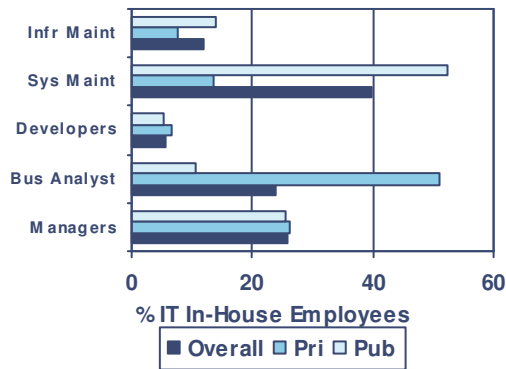
The IT Spend will be driven by applications license for new developments and Infrastructure maintenance and development for the banking industry (See Fig. 2-2.3).

Fig. 2-2.3 Top 3 IT Spend drivers

Rank	Overall	Private	Public
Infrastructure-Maintenance	1	1	2
Infrastructure-Development	2	2	1
Security-Maintenance	7	5	4
Security-Development			
Applications-Maintenance	4	3	4
Applications-Development	3		3
IT Development/Enhancements/SI-Maintenance	5		6
IT Development/Enhancements/SI-Development	5	4	



Fig. 2-3 IT Organization



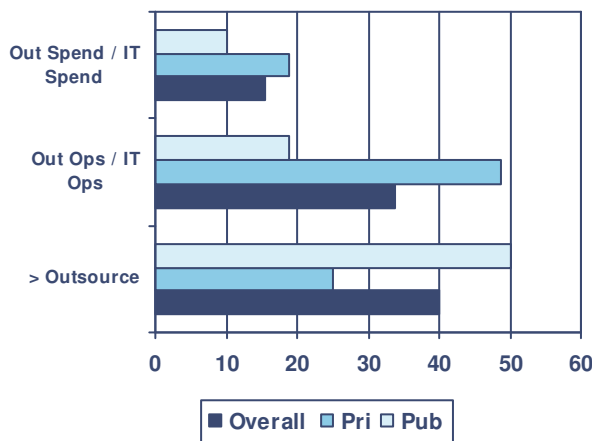
IT Organization

The IT Organization structure in private sector banks has a major chunk of Business Analyst / Domain Experts which is not the case in the public sector banks. This is a trend which will catch up at an aggregate level as well with the growing importance of understanding business within the IT department. The private sector has been early adopters of Outsourcing for support and maintenance

operations which reflects in the vast difference in the number of people hired by the Public Sector in Support and Maintenance as compared to the private sector. Also, due to higher number of legacy systems in the public sector banks; there exists a greater number of support and maintenance staff (See Fig.2-3).

50% of the respondents in the public sector have responded that they seem to be keen to increase their current outsourcing levels

Fig. 2-4 IT Outsourcing Trends



IT Outsourcing

The IT operations outsourcing in the private sector is at a high level of 49% of their total IT operations. This amounts to 19% of the total IT spend. The public sector has been a laggard in it with only 19% of the total IT operations outsourced corresponding to around 10% of the total IT spends. Though both the sectors have outsourced the low value add services only, 50% of the respondents in the public sector

have responded that they seem to be keen to increase their current outsourcing levels (See Fig. 2-4)

International trends & Best Practices

1. European banks' are not increasing their IT spending. Long-term-oriented banks have moved to contain costs while some banks are still cutting costs.
2. IT investments for managing regulatory requirements are capturing a significant slice of IT budgets for the European Banks lead by the Basel – II initiatives.



DIMENSION 3: Governance & Architecture

Background and overview

In context of technology readiness, this dimension would cover policies and processes that provide the framework within which IT organization functions in the organization. Governance and architecture in a bank have been viewed under different perspectives such as existence of policies and procedures to support governance initiatives, responsibility for data quality, degree of centralization of governance initiatives and coverage of business under IT governance framework

These perspectives establish maturity of policies and frameworks to support a sustainable technology strategy.

Key survey findings

Data quality frameworks and definition of metadata are key missing pieces in the governance structure.

All survey respondents had governance structure present. Amongst plans and policies, business continuity plan, disaster recovery plan, data security, IT infrastructure management and IT development standards and procedures were more clearly defined than ownership of master data and enterprise architecture framework.

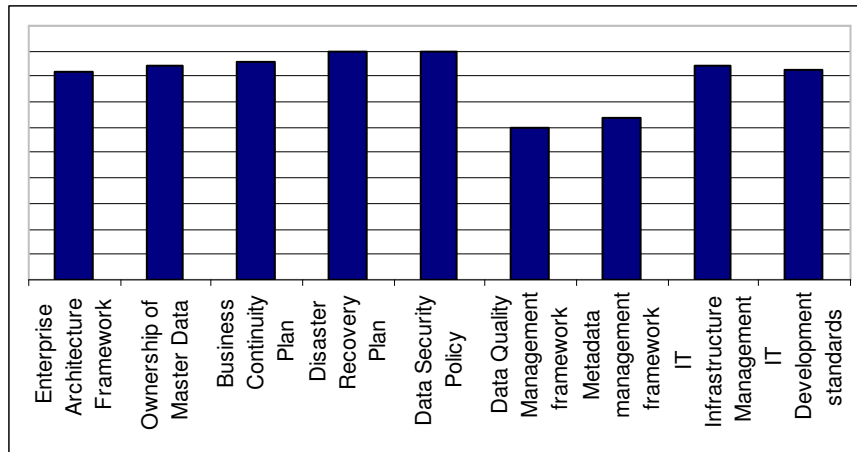
This indicates the fact that, within governance and architecture, Indian banks have covered ground on hygiene factors of setting the foundations and going forward would need to focus on issues such as master data, data quality and metadata frameworks for supporting systems which would fuel business insights.

Furthermore, with regard to data quality, all the banks surveyed agreed that business units would have the responsibility for maintaining quality of data. Some of the banks had cross functional special teams for defining, implementing and monitoring data quality systems and processes.

Data quality frameworks and definition of metadata are key missing pieces in the governance structure.

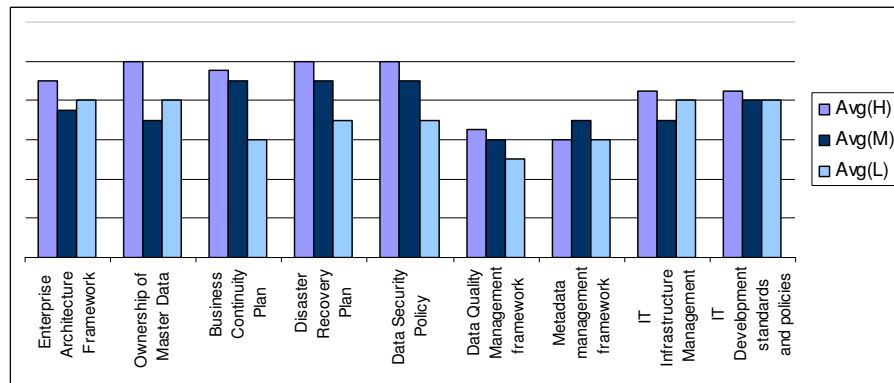


Fig. 3-1.1 Governance Policies and Procedures



All the banks have basic policies in place; however, data quality frameworks and metadata management are two areas where clear definition is lagging with regard to others.

Fig. 3-1.2 Governance Policies and Procedures – Asset Classification

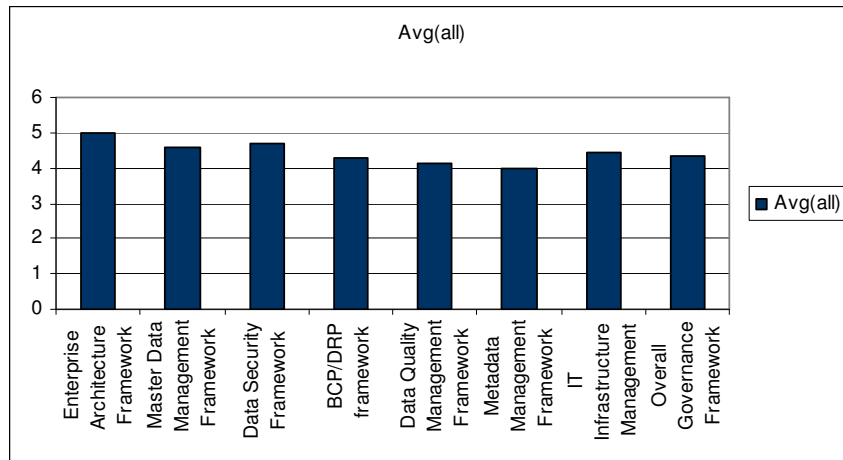


High asset banks have more clearly articulated governance policies than medium and low asset banks

Comparing average scores for definition of policies and procedures amongst high, medium and low asset banks, high asset banks have more clearly articulated governance policies than medium and low asset banks.

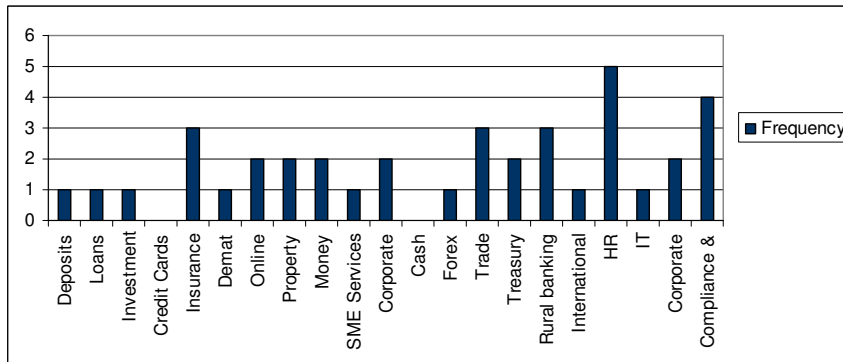


Fig. 3-2 Degree of centralization in rolling out governance initiatives



All the survey respondents have indicated high degree of centralization for governance and architecture related initiatives.

Fig. 3-3 Coverage of IT governance initiatives within functions



Nearly 50% of the respondents had HR function partially covered in their IT governance initiatives. Other functions which had lesser coverage included compliance & risk, rural banking, trade services and insurance.

All the respondents have indicated high degree of centralization for governance & architecture initiatives

International trends & Best Practices

1. Raise process ownership to an executive level, and establish IT steering committees that cross lines of business.
2. IT governance must operate at a business-process level
3. Adopt an integrated view of governance, risk and compliance
4. Cost management in IT needs a methodology and a well-defined basis; and Architecture coherence & governance are touted to move into the center of architecture initiatives in the next-generation.
5. Future IT architecture must capture business designs as explicit definitions of process flow and business policy — better known as business metadata — that both humans and IT infrastructure can access, understand, and manipulate. Metadata needs to cover all three architectural building blocks: multichannel enablement; business services layer; and banking backbone. Business services, for example, are spread across all layers: Key examples of business metadata in a banking platform include multiple account formats, calendars, and business hours; authorization and structural organization; account relationships; product/channel allocation; pricing; and business process specifications.



DIMENSION 4 : Applications

Background and overview

In the backdrop of a rapidly growing Indian economy and international dynamics, banks would be under pressure on two fronts:

1. From regulatory compliance requirements
2. From the need to perform against competitive forces

The overall technology landscape of the banks thus should be driven by the requirement for efficient and reliable regulatory compliance applications as well as a strong transaction coverage as well as analytics bandwidth to ensure Customer Centricity, Performance Management and Revenue Growth.

This section focuses on the prevailing situation vis-à-vis transaction systems and business intelligence and regulatory compliance setups.

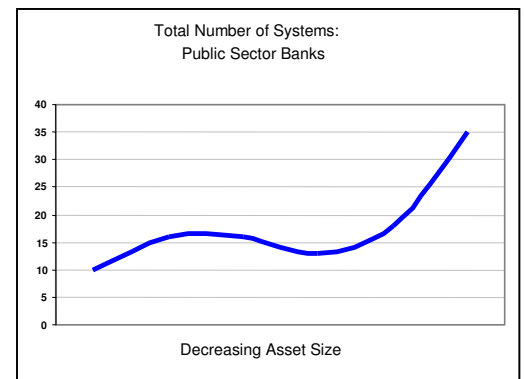
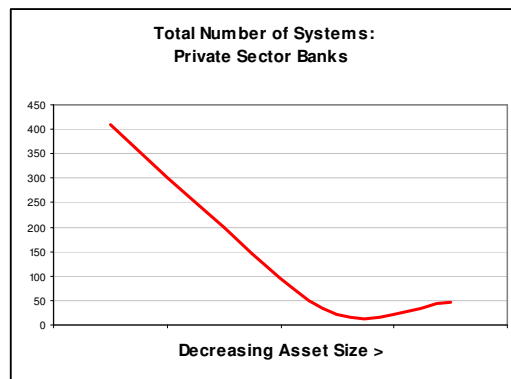
Key survey findings

Total number of systems

There is a clear distinction in the total number of systems between private sector as well as public sector banks as shown in the table below:

NUMBER OF SYSTEMS	AVERAGE	MAXIMUM	MINIMUM
Public Sector Banks	18	35	10
Private Sector Banks	170	411	22

Fig. 4-1 Number of Systems



Private sector banks have much higher number of systems than the public sector banks



If one goes by the graphs shown above, there is a striking difference in the way asset size influences the total number of systems for both public and private sector banks. While in the case of private sector banks, the number total number of systems goes down with decreasing asset size, quite the opposite behavior is seen with the public sector banks.

It seems on first glance that private sector banks have been dabbling with technology for a longer time resulting in a larger number of systems. Public sector banks being later entrants seem to be either moving steadily or consolidating their systems from ground up. This observation is strengthened by the fact that the private sector banks that have the largest number of systems are the ones that have a large asset base and have been around for a longer time.

Private sector banks have much higher number of transaction systems than the public sector banks

On the face of it a larger number of systems extant could be an indicator of greater readiness with respect to technology. However, a question that remains to be answered however is whether a large number of systems are a temporary phase that will ease out in time. Banks that are moving towards increased automation and spending on IT might want to keep this in mind.

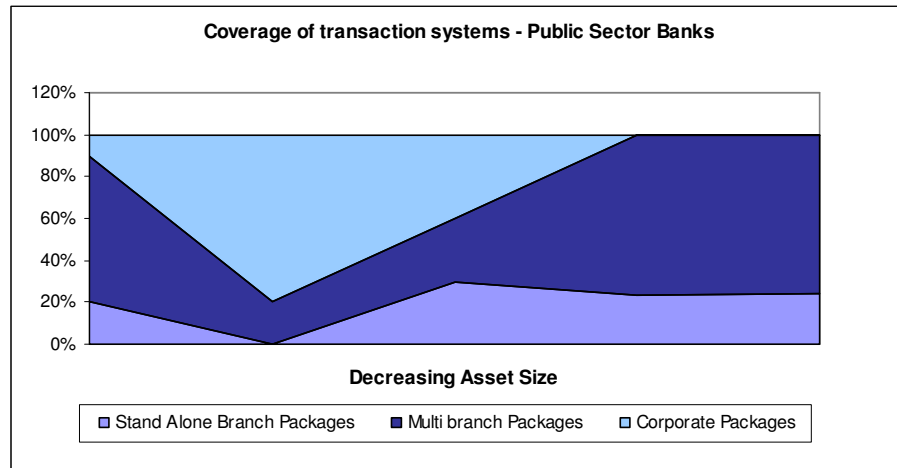
Transaction Systems

Quite unsurprisingly the behavior demonstrated earlier is reflected in the number of transaction systems:

NUMBER OF TRANSACTION SYSTEMS	AVERAGE	MAXIMUM	MINIMUM
Public Sector Banks	12	35	4
Private Sector Banks	54	150	8



Fig. 4-2.1 Coverage of Transaction Systems – Public Sector

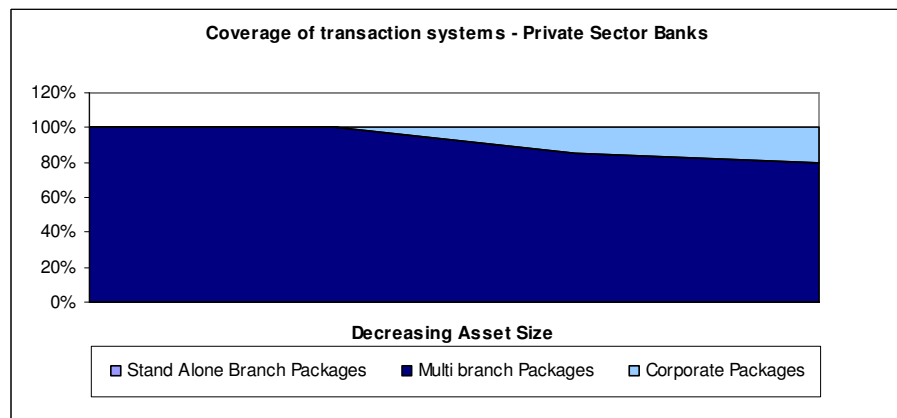


In terms of coverage too, there are some interesting variations if we consider the private sector and public sector banks separately.

In the case of public sector banks it seems that is still some way to go with respect to rolling out multi branch transaction systems. There seems to be heavy corporate side consolidation and processing as well. In the case of private sector banks however, there seems to be very little corporate side processing. The consolidation seems to be taking place with the help of the multi branch packages.

In the case of public sector banks it seems , there is still some way to go with respect to rolling out multi branch transaction systems

Fig. 4-2.2 Coverage of Transaction Systems – Private Sector



Public sector banks seem to be well covered with respect to transaction systems that support the following functional areas:

1. Rural banking.
2. Investment services
3. IT



In the case of the private sector banks that are not covered on rural banking it was seen that these are smaller and newer banks. However private sector banks seem to cover the following functional areas more than the public sector banks vis-à-vis transaction systems:

1. Treasury operations
2. Online banking services
3. Compliance and Risk
4. SME services

Coverage	% of Private Banks Surveyed			% of Public Sector Banks Surveyed		
	Partial	Full	None	Partial	Full	None
Investment	0%	75%	25%	17%	83%	0%
Credit Cards	0%	50%	50%	0%	33%	67%
Property Services/Real Estate	0%	25%	75%	0%	0%	100%
SME Services	0%	75%	25%	17%	50%	33%
Forex Services	0%	100%	0%	33%	67%	0%
Treasury Operations	0%	100%	0%	33%	67%	0%
Rural banking	0%	50%	50%	17%	67%	17%
International Banking	0%	75%	25%	50%	50%	0%
IT	0%	50%	50%	17%	83%	0%
Corporate Finance	0%	100%	0%	0%	83%	17%
Compliance & Risk	0%	75%	25%	50%	33%	17%



Both private and public sector banks are missing out on the following functions:

1. Credit Cards
2. Property/Real Estate Services

In a growth economy, these could be big business drivers.

All banks surveyed have a core banking solution. However there seems to be some variation with respect to functional coverage. Large asset size banks seem to have all functional areas covered by the CBS. In terms of branch coverage however there is again a clear distinction between the private sector as well as public sector banks. In the case of the latter there is full coverage while in the case of the former an 80-20 rule seems to have been followed wherein the branches that generate the largest business volume are covered by a CBS. Care should be taken to consider the rural focus of public sector banks while looking at branch wise coverage of public sector banks. However it must also be stressed at this stage that the rural market might very well be the next battleground and banks should aim at greater coverage.

Common complaints about disintegrated applications were –

1. Issue of hand off of data
2. Data not being up to date or on time
3. Duplication of data and business logic

That being the case 4 out of the 9 banks surveyed stated that they were planning to go in for an SOA system/architecture in the next 24 months.

Business Intelligence

In the case of business intelligence, all private sector banks surveyed stated that they have a BI function. Only 1 out of 5 public sector banks stated that they have a BI function in place. Most of the banks surveyed stated that there are no silos in the BI function/solution. However where there were, these silos seem to be on the basis of functional line.

In the case of private sector banks that were planning to build or procure a BI solution in the next two years, the focus seemed to be on Customer Intelligence, Banking Operations and Corporate Performance. In the case of the public sector banks, the investment in BI seemed to be on Banking Operations and Risk Management.

Regulatory Compliance

Save one bank, all banks surveyed have a system or database that supports regulatory compliance. Most banks surveyed also seemed satisfied with the

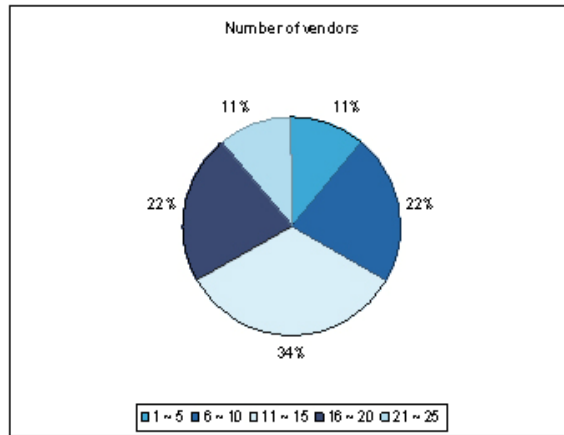
While all private sector banks have a BI function in place, only 1 out of 5 public sector banks stated that they have a BI function in place.



effectiveness of the regulatory compliance solution. Sixty three percent of the banks have an external solution to help with regulatory compliance. The remaining banks have a homegrown solution. All the banks surveyed are planning to build/procure a solution that will help with regulatory compliance. These systems will help in the areas of:

1. Basel II compliance
2. Anti Money Laundering

Fig. 4-3 Number of Vendors



Number of Vendors

There is a wide variance in the number of vendors that a bank employs. Private sector banks show a tendency for more vendors – this is in line with the larger number of systems that private banks maintain.

Of the banks surveyed, only three were planning to rationalize the vendor set. Two of the banks had the number of vendors in the range 11~15 while the third had 22 vendors.

Private sector banks show a tendency for more vendors – this is in line with the larger number of systems that private banks maintain.

International trends & Best Practices

1. Most financial services firms don't invest deliberately in software applications that support processes that cross lines of business — a sign of the strong silos within these institutions. Before making IT investments in Services Oriented Architecture and Business Process Management platforms for the business, firms need to make sure that they have developed governance structures that promote planning across lines of business.
2. Ensuring Data Quality is the most important aspect of successful Basel II implementation



Concluding Remarks

The final area of query for the participants in the survey was about pain areas in the day to day operations of the technology function.

Around 44% of survey respondents touched upon the need to hire, retain and motivate people. According to them it was comparatively easy to hire people and train them. However it is becoming increasingly difficult to retain people with the desired skill set as there is heavy attrition.

Nearly half the banks surveyed had issues with vendors (both products and services) with regard to:

1. Inability of vendors to develop software that matched business needs
2. Difficulty in enforcing and achieving SLAs
3. Overall management of vendors

On the analytics side, banks were very concerned about the following:

1. How to manage the growth in data volumes
2. How to manage the quality of data in order to facilitate good decision making (56% of survey respondents)
3. How to better understand the customer and implement proper identity management
4. How to ensure Metadata and Master Data Management
5. How to obtain a good Business Intelligence setup

Some banks were also concerned about their ability to match regulatory requirements on time. Other areas of concern were Security, Business Continuity Planning and Disaster Recovery.

Conclusion

The Indian Banking Industry is witnessing significant double digit growth. The sector is also slowly emerging into a market that is becoming increasingly regulated in keeping with global trends and practices.

Some of the early growth areas within the banking sector; like private banking, wealth management and investment banking are showing potential to become significant businesses in the coming years. The huge rural sector at the bottom of the pyramid will lead the next wave of retail banking. With India witnessing an increased demand from the west for raw and finished goods in addition to its own rapidly growing consumption levels, significant investments are pouring into the manufacturing, infrastructure and services sectors, leading to high growth in corporate banking

With this high growth activity leading to increased competition in the banking sector, technology has emerged as the key differentiator in the marketplace.



The purpose of this CII-PwC survey and research report has been to ascertain if Banks in India have the right foundations in place to leverage technology. Through the course of our survey and subsequent analysis we have arrived at the conclusion that Indian banks have worked on 'hygiene' factors such as having the right set of transactional applications, infrastructure, broad governance and architecture in place. It is in the areas of managing data quality and data volumes, analytical applications, streamlining vendor management and sorting IT team skills and retention issues that the next set of challenges would lie.

In future, we foresee that, in addition to the regular organic growth plans, it is inorganic growth activity that would lead to banks wanting to spread their geographic reach globally. Herein well architected technology solutions would become extremely crucial to ensure ease of integration and to manage scalability.

Technology in Indian banking has surely emerged from being "reactive" to "proactive" and the need of the hour is to enhance the foundation on which applications of future can safely stand if a bank is to lead through the next wave of growth in banking.



Appendix: Survey Methodology and Approach

Choosing the sample population

While deciding the banks chosen for the survey, the following factors were considered:

1. Type of bank
 - a. Indian Public Sector
 - b. Indian Private Sector
 - c. Foreign Banks
2. Asset size of banks
3. Deposit size of banks

An initial cut off was done to remove banks that had very low assets and deposit values from each of the bank types. In the next step of selection, the short-listed banks were divided into three further categories –

1. High Asset
2. Medium Asset
3. Low Asset

The aim of the final shortlist was to have two banks from each type and from each asset class in the survey – a sample size of 18 which might have provided a good snap shot of the entire sector. However, in several cases, survey results were not obtained. One important facet that did not get covered due this reason is the scenario vis-à-vis foreign banks



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