

Harun R Khan: IT governance and IT strategy – Board's eye view

Valedictory address by Mr Harun R Khan, Deputy Governor of the Reserve Bank of India, at the seminar on IT Governance for Directors of Banks at the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad, 28 July 2015.

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1. Dr. A. Ramasastry, Director, Institute for Development and Research in Banking Technology (IDRBT), Prof. Sivakumaran, co-ordinator of the programme, participating Directors from banks, faculty of IDRBT, ladies and gentlemen. I am glad to be in the midst of this distinguished gathering to take part in the valedictory session on the programme on 'IT Governance for Directors of Banks'. I thank IDRBT for arranging this topical seminar, which I believe, will greatly contribute to improved IT governance in banks under the guidance of their Board members.

2. I am sure the experts who have addressed and interacted over the last one and a half day have shared their thoughts on the changes that banking in India and globally is undergoing and the challenges lying ahead. The basic underlying theme that runs through this changing landscape is the ever increasing reliance on technology to cater to the needs of faster, accurate, and efficient banking operations, both in volume and value terms, across the entire spectrum from routine backend operations to the data intensive computing for regulatory compliance to sophisticated front end multimedia interface with the customers. Before I come to the central theme of the just concluded seminar, let me begin with a brief outline of the adoption of IT by the banks in India.

Banking sector and the information technology

3. As is known to the participants while the foreign banks operating in India led the way in IT adoption in the beginning, the new generation private sector banks aggressively started pursuing technology-based service offering in a big way in the Indian banking sector in the 90s. Indeed, early adoption of technology by the new private sector banks leapfrogged them in customer acquisition and business expansion while protecting their margin. For the public sector banks and, also to certain extent, the old generation private sector banks the transition was, however, not easy mainly due to legacy issues. The technology adoption by these banks was largely driven by regulatory roadmap, recommendations of various committees, such as Rangarajan, Saraf and Vasudevan Committees and also the instructions of the Central Vigilance Commission (CVC), rather than as a proactive strategy to further business interests. The poor communication infrastructure and the staff issues of the era also did not help the cause either. Increasing competition from the tech savvy new generation private sector banks, rapid innovations in the ICT sector, particularly internet as well as nudgings from the Reserve Bank, however, enabled these banks to catch up with the leaders in the banking sector as far as IT adoption in banks was concerned. Establishment of IDRBT by RBI in March 1996 can be considered as a major milestone in this regard and the IDRBT has been playing a significant role in adoption of technology in the Indian banking sector since then.

4. In the recent times, almost all the business activities in the banking industry have undergone rapid changes due to various factors with IT being the most significant. The banking products, services, processes, delivery channels, etc, have largely moved from physical to electronic. So we have come to a stage in banking, where IT is an enabler, one of the most important business drivers and also a crucial component of the business process itself. In a way a large part of the 'Internal Transformation' of banking organizations could be attributed to IT adoption. Further, as all the stake holders for banks, including the regulators,

are adopting more and more technology platforms, banking sector has got an ideal IT ecosystem to flourish, so to say. Resultantly, now we are in a situation when not only the digital assets constitute a significant portion of a bank's assets in comparison to the physical assets, its share is also growing day by day.

Corporate governance and IT governance

5. Before I dwell upon the core issues of IT governance and IT strategy, let me briefly highlight the importance of corporate governance in the banks and recent developments in this area. Participants may recall that, in the recent past, the Reserve Bank and the Government have taken a number of steps to strengthen corporate governance, particularly in the public sector banks, as recommended by the Committee on Governance of Banks (Chairman Shri P. J. Nayak) (Nayak Committee). Very recently, in May 2015, Reserve Bank has done way with calendar of review for banks' boards and instead advised boards to focus on seven critical themes suggested by the committee, namely, business strategy, financial reports and their integrity, risk, compliance, customer protection, financial inclusion and human resources. If one looks in to these seven areas, one would notice that IT plays a very significant role for achieving strategic goals in all these areas of focus. Therefore, IT governance and IT strategy by themselves also need to be a major responsibility of the board. Unfortunately while the concept of corporate governance is well appreciated for long, the IT Governance has started getting the rightful attention by banks only recently.

Why and what of IT governance

6. In one way IT governance can be defined as the decision rights and accountability framework for encouraging desirable behavior in the use of IT¹. The IT governance provides a framework for ensuring that the information technology decisions take into consideration the business goals and objectives of an organization. As is the case with corporate governance which aids an organization to ensure that major decisions are in alignment with the organizational vision, mission and strategy, IT governance ensures that IT-related key decisions match the organization-wide objectives over a long term horizon.

7. The IT governance exists within corporations to guide IT initiatives and ensure that the performance of IT meets the corporate objectives. A well placed IT policy and structured IT governance set-up along with corporate managers combine to ensure that IT is synchronized with the business and delivers value to the firm. In the IT governance framework, issues and strategic importance of IT need to be clearly understood so that the organization can implement its strategies effectively to face the growing market competition on a sustained basis. A bank's vision for IT governance must incorporate ideas and information about the way it executes its business strategy. It is about how one operationalises the strategy and subsequently capitalizes on market opportunity. It is only at the lower levels of framework that the IT governance is about decision rights, compliance with regulations, setting standards, etc. And while I do not intend to minimize the importance of these operational elements in the IT governance, I do feel that if a bank's IT governance is primarily about being compliant and secondarily about business execution, then banks' business is not likely to benefit strategically from the IT. One would then miss out on the larger opportunity that IT governance offers.

¹ Weill, P. & Ross, J. W., 2004, *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*, Harvard Business School Press, Boston.

Board driven IT strategy

8. IT strategy being a part of corporate strategy, should be driven by the board. All the aspects of technology management, namely, cost, human capital, hardware and software, vendors and service providers, risk management including disaster recovery should be factored in the IT strategy of the bank. The Chief Information Officer (CIO) in a bank needs to work in close coordination with business, finance and legal departments as well as with other user groups within the bank.

9. While a bank's IT strategy can be a codified document, it must have enough flexibility to accommodate emerging circumstances, business priorities, budgetary constraints, regulatory requirements, skill sets, etc. Banks should look at technology adoption as a core business driver rather than a compliance requirement. Better IT adoption can not only be leveraged to achieve balance sheet growth but also to protect margins and provide seamless customer service across different geographies. If one can summarise what could be the key elements of an effective IT strategy, then it may comprise seven **C's**: **Codification** (of IT policies and practices with flexibility built into it), **Control** (over systems and processes), **Continuity** (of services and facilities), **Confidence** (about the robustness of the system), **Convenience** (to the customers and the staff), **Cost** (implying optimisation of investments made and **Confidentiality** (meaning protection of customer information and organizational data safety).

ICT and financial inclusion

10. It is well understood that ICT could provide a major opportunity in reaching out to hitherto financially excluded segment of customers, thereby tapping the enormous opportunities at the Bottom of the Pyramid (BOP) by bridging the urban-rural digital divide. As we, from the Reserve Bank, have always been emphasizing, the moot point is how can banks leverage technology to offer hitherto excluded customers products which are simple, safe, low-cost and easy to use. With the ubiquitous presence of mobile phones, the potential for mobile banking as a delivery channel for financial services is a huge opportunity in India. Banks may have to strive to deepen mobile banking penetration to existing (including PMJDY) and new customers. Putting into practice the policy pronouncements on JAM (Jan-Dhan accounts, Aadhar identity numbers and Mobile phone availability) has to be a major focus area of banks, if the large number of accounts opened under PMJDY has to become operational and remunerative. Entry of a sizable number of new-generation customers to the banking fold is a great opportunity in this regard. While new customers can *ab initio* be on boarded to mobile banking, efforts may be made to bring a certain minimum percentage of existing customers to the fold of mobile payments. Banks may run customer education and awareness campaigns focused on mobile banking including its security aspects. The rural branches in a sense have to become learning centers for ICT based banking. Here the role of staff, particularly the frontline staff, of the banks and the field staff of the Business Correspondents/agents is very critical in handholding the new generation customers as they transit from assisted mode to self service mode of digital banking. This would also require partnering with merchants for acceptance of mobile payments. The key to cheap and universal payments and remittances will be if we can find a safe way to allow funds to be freely transferred between bank accounts and mobile wallets as well as cashed out of mobile wallets through a wide spread network of business correspondents. Leveraging technology for remittance assumes criticality when a new set of players in the form of Payment Banks will emerge sooner than later.

IT Infrastructure and governance: supervisory perspectives

11. As the regulator and supervisor of banks, let me focus a bit on our perspectives on the IT infrastructure and governance. As key areas of focus, I would like to list a few of the unfinished agenda items which banks need to pursue more vigorously:

- a. Quality of returns generated by the Core Banking Solution (CBS) of the banks is not up to the mark in many cases and it is not able to provide the data in customised formats as required by the regulator / supervisor. Banks have to examine the need for making their CBS systems capable of meeting, *inter alia*, not only all their internal MIS requirements but also of generating regulatory/supervisory returns on a real time basis.
 - b. System driven identification of NPAs has not been found robust enough in certain banks. Though banks are taking remedial actions in such cases, it does not alleviate the supervisory discomfort with this kind of situation.
 - c. Automated Data Flow (ADF) application is yet to get fully implemented in all the banks. In absence of full ADF implementation, MIS reports are open for manual intervention and operational errors apart from delay in submission. The system also needs to address the integration issues of the legacy data in the centralised data server for a robust MIS. To test the accuracy of returns generated through ADF system around 3000 unique data elements covered in the returns already under XBRL process, Reserve Bank will forward to banks for generation of values for these elements from their ADF system. As is well known, XBRL system adopted by the Reserve Bank in 2008 is already benefitting the banks as well as the Reserve Bank as an online single point data submission/dissemination platform following the international standards. So far 97 out of total 267 returns have been taken up in XBRL system. Banks have to gear up to meet the requirements in this regard as fast as possible.
 - d. Recently released guidelines of Basel Committee on Banking Supervision (BCBS) on corporate governance principles for banks highlights the board members having knowledge, *inter alia*, relating to role of information technology in risk governance. The guidelines also prescribe that the degree of sophistication of a bank's risk management infrastructure – including, in particular, a sufficiently robust data infrastructure, data architecture and information technology infrastructure – should keep pace with developments such as balance sheet and revenue growth. Realising that banks' information technology and data architectures were inadequate to support the broad management of financial risks during the global financial crisis that began in 2007, BCBS released the "Principles for effective risk data aggregation and risk reporting" in 2013. The Principles, *inter alia*, highlight that improving banks' risk data aggregation capabilities would lead to improvements in terms of strengthening the capability and the status of the risk function to make judgments and in turn to gain in efficiency, reduced probability of losses and enhanced strategic decision-making, and ultimately increased profitability. Banks in India, therefore, have to strengthen the IT systems for creating a robust compliance infrastructure to meet the international and national regulatory best practices. Boards of banks, especially of the Public Sector Banks, will have a critical role to play in this regard.
12. Banks should also enable an adequately skilled people in the Audit Committee to manage the complexity of the IS Audit oversight. A designated member of the Audit Committee needs to possess the relevant knowledge of information systems, IS controls and audit issues. The designated member should also have relevant competencies to understand the ultimate impact of deficiencies identified in IT internal control framework by the IS Audit function. The Board or its Audit Committee members could seek training to fill any gaps in the knowledge related to IT risks and controls. Where needed in the interregnum period services of an outside expert may be taken as a special invitee.

Information security and cyber threats

13. Banks face a difficult challenge in the area of security management. With a growing population of internal and external users accessing an increasing number of applications, the need has grown exponentially for banks to always deploy the latest security tools that can help them secure their digital assets, prevent data theft and ensure better compliance with regulations. In addition, security management is ever changing. The security measures must be highly responsive, quickly deployable and adaptable to new threats and emerging risks. Moreover, it should be capable of satisfying a new generation of customers who want more personal and customized experiences that match their lifestyles. In other words, convenience of the customer has to be balanced with the confidence in the robustness of the system.

14. Human factor continues to be the single most important security management challenge, which also needs to be addressed effectively. The core mitigant in this regard is imparting customer education and creating awareness. In recent times, **SMAC** (Social, Mobile, Analytics and Cloud) is the concept which is driving innovation worldwide, making the security even bigger challenge. Besides, other related developments like virtualisation, big data, mobile and working from home as well as globalisation of markets and other demographic changes with their concomitant security implications have all added to the significance of IT security. In this age, banks cannot afford to leave IT security to chance and assume that its vulnerability will not be known to outsiders, the so called “security through obscurity”. While banks should be conscious of the external threat, the internal threats from within the organization should also be given due attention.

15. Any model of IT security implemented by banks must be able to respond to the three known core attributes that an information system needs to maintain. These are Confidentiality, Integrity and Availability (CIA). While it is essential that the digital data/information are not made available or disclosed to un-authorised individuals or entities, it is also required to be ensured that the accuracy and completeness of the digital assets are maintained. At the same time the data/information should be accessible and usable upon demand by every authorised person or entity.

16. The incidents of cyber frauds, *inter alia*, could bring disrepute to the technology led banking services delivery channels. In the recent past, the volume of electronic based retail payments as a percent of total non-cash retail payments has been going up steadily, from 47% to 55% and further to 65% during the years 2011–12, 2012–13 and 2013–14, respectively. The increasingly high volumes of banking transactions being routed through internet banking, mobile banking, usage of debit/credit cards, etc. by both sophisticated and technologically uninitiated customers forces banks to lay due emphasis on automated system for frauds detection based on advanced algorithms, rather than excessive reliance on manual process. Besides, customer education, particularly, of the large number of first generation customers is the responsibility that banks must take upon themselves and educate these customers, for example, about do's and don'ts of online and mobile banking.

17. A truly effective security management will require the layering of a number of solutions that focus on people, process, technology and risk. The management of each layer will need to be based on its context among the diverse capabilities and limitations of the others. When all the layers are combined, it creates a powerful tool that can offer banks a much more successful way to manage their security challenges than any single stand-alone solution. Given that sharing the cyber attack experience among banks and drawing lessons is very critical, it is important that banks are proactively engaged with Indian Banks – Center for Analysis of Risks and Threats (IB-CART) of the IDARB for incident sharing and benefiting from each others' experience. At the end, an effective interplay of seven **S's viz. Strategy** (in terms of long term objectives), **Surveillance** (as there is no substitute for eternal vigilance), **Sharing** (of experience without which individual cyber breaches will snowball into system-wide epidemic), **Sensitisation** (of cyber risks as a serious issue from the top to the bottom of the organization), **Simulation** (by way of scenario building for possible situations of

vulnerabilities), **Safeguarding** (of customers' interest and organization's reputation) and **Skill** (technical, legal and operational skill upgradation and orientation of the staff) should form the bedrock of a robust IT security system.

Operational issues in IT infrastructure

18. Coming to the IT infrastructure and operational aspects of IT implementation, banks were beset with numerous issues as enumerated in the Working Group on "Information security, electronic banking, technology risk management and tackling cyber frauds" (Chairman Shri G. Gopalakrishna). As this has been discussed in the seminar, I would like to list only a few points, which need more attention by banks:

- a. The requirements of trained resources with requisite skill sets for the IT function need to be understood and assessed appropriately by every bank. A periodic assessment of the training requirements for human resources should be made to ensure that sufficient, competent and capable human resources are available. In this regard, acquisition and retention of IT trained human resources with attractive service conditions has been and will remain a challenge for banks, particularly the Public Sector Banks.
- b. Justification of IT investment on Return on Investment (ROI) parameter could require implementation of an IT balanced scorecard to measure IT performance along different dimensions, such as, financial aspects, customer satisfaction, process effectiveness, future capability, and for assessing IT management performance.
- c. The board and senior management are ultimately responsible for outsourced operations and for managing risks inherent in such outsourcing relationships. Responsibilities for due diligence, oversight and management of outsourcing and accountability for all outsourcing decisions continue to rest with the bank, board and senior management. For example, banks must have a system of ensuring the integrity of the currency loaded by outsourced agencies in their ATMs and should own full responsibility in this regard.
- d. The IT Act, 2000 as amended in 2008, also exposes a bank, as an intermediary, to various criminal and civil liabilities for breach in data security. For example, the newly inserted Section 43A of the Act, states that a firm possessing, dealing or handling any sensitive personal data or information in a computer resource which it owns, controls or operates, is negligent in implementing and maintaining reasonable security practices and procedures and thereby causes wrongful loss or wrongful gain to any person, such a firm shall be liable to pay damages by way of compensation to the person so affected. Banks should, therefore, give utmost priority to data protection in the IT security framework and develop a dynamic liability management framework.

Way forward – things of future

19. Before I conclude, let me briefly dwell upon my take on the future of technology based banking, in particular ICT backed payment system instruments which are all set to occupy the retail financial space in a big way. Take for example e-commerce business in India which is on a higher growth trajectory. Though initially it started with Cash-on-Delivery (CoD), net-banking, credit and debit card modes of payment, later on with the introduction of e-wallet/mobile wallet as an alternate mode of payment, the business has got the desired impetus. CoD involved a cost for the e-tailers whereas consumers /buyers were probably having lack of trust in online transaction using net-banking, credit/debit card details. Therefore, the wallet has emerged as a safe and secure mode of payment. Such wallets are vying for the space which was earlier occupied by debit cards. Reserve Bank has been

authorizing banks/non-banks for issuing e-wallets/mobile wallets which is being used extensively for bill payment, recharge apart from e-commerce transaction. In fact, we are already at the stage, when the e-commerce has encroached in to the banking territory. The day is not far off when the banks would be viewed more as technology companies offering banking products and services. While this will be a new challenge for the sector, I see this as opportunity for banks to find new growth driver.

Prime Minister's Digital India initiative

20. The recently launched Prime Minister Digital India initiative aims at integrating the government and related departments and the public with the objective of making public services available to citizens electronically by reducing paperwork. The Digital India initiative aims at creation of nationwide digital infrastructure (broadband / high speed internet), delivery of government services digitally and also increasing digital literacy. This initiative, in my view, will bring in enormous opportunity for banks to innovate and expand services to vast majority of rural population through electronic deliverables. As discussed in the last year's banking conclave (Gyan Sangam) in Pune, the top 30 processes in a public sector bank account for around 50% of costs in back office and over 80% of customer facing activities. If banks can take steps to digitise the top 30 processes quickly to improve customer experience and cut costs then they can reap huge efficiency and profitability gains. This would involve: a) defining the revised workflow, b) redefining technology where needed to transform the processes, and c) driving change management across the bank to adopt new processes.

Big Data

21. As the participants would be aware, Big Data (BD) is a broad term for data sets so large or complex that traditional data processing applications are inadequate to handle such data. An example of big data might be petabytes (1,024 terabytes) or exabytes (1,024 petabytes) of data consisting of billions to trillions of records of millions of customers. With the amount of data generated today, one would not be surprised that very soon all of us have to deal with BD in day-to-day operations. In the scenario, the new challenges would include data capture, data curation, search, sharing, storage, transfer, information privacy, analysis of data, etc. While BD throws up these challenges, the use of BD analytics in a meaningful way would offer a significant competitive advantage. Implementation of appropriate BD analytics by banks is going to be the key in achieving greater customer centricity and for acquiring a deeper understanding of customer needs given the proliferation of customers' external data, such as, social media activities and online behavior. Rather than being dazzled by the volume of data, banks should be in a position to convert it into 3 I's of Insights, Innovations and Income.

Business analytics

22. As we anticipate challenges of BD, there would be emerging technology and skill to deal with the BD in a meaningful way. Business analytics (BA) is one such field which can be used by banks to further their business interest in the increased IT environment. BA in general refers to the skills, technologies, practices for continuous iterative exploration and investigation of past business performance to gain insight and drive business planning. Business analytics can hold the key to better performance, informed decisions, actionable insights and trusted information. By bringing together all relevant information in an organization, banks can answer fundamental questions, such as what is happening? why is it happening? what is likely to happen in the future? and how should we plan for that future? Data and analytics provide very big opportunities for banks. At some level, actually, one can think of it as a way to transform the institution, much the same way in the 1980s and 1990s and early 2000s when IT systems transformed the banks in their business processes.

Internet of Things (IoT)

23. We are already in the era of ever increasing Internet of Things (IoT). IoT describes a world where just about anything can be connected to communicate in an intelligent fashion. One study says world today has 15 billion connected devices and in the next five years the number may go up to 50 billion. In other words, with the IoT, the physical world is becoming one big global information system. For banks the IoT will deliver an unprecedented level of data and data-driven customer insight. This will allow banks to provide their customers a truly bespoke experience with insights, advice, and offers that reflect the day-to-day events in customers' lives. The IoT is the key factor that will enable a bank to fully transform into a bank of things. Of course, as I had mentioned earlier, this increases cyber risk manifold as attackers can spread viruses and malware from myriad remote devices, thus turning IoT to what as someone has described as "gateway to hackers' paradise". As Marc Goodman has very aptly put it: *when everything is connected everyone is vulnerable*².

24. At the end, I would like to draw your attention to the major challenge that awaits banks in the near future. Three years ago Brett King authored a book that focussed on how banking is going to be undertaken without involving the banks³. The message was that to make banking relevant in the fast changing technology and ICT based payment ecosystem, banks have to realise that technology is a great enabler and its powers need to be harnessed in every sphere of modern day banking without losing focus on safety and security. As I had mentioned earlier, in near future banks will, whether through conviction or compulsion, have to transform into technology companies. While leveraging the ubiquitous power of technology the focus has to be on what I can call five **P**'s. They are **Products** (in terms of offerings), **Processes** (that ensure efficiency of operations), **People** (both customers and staff that take to technology engagement with maximum ease without losing sight of security needs), **Productivity** (by enhancing margins) and **Prudence** (by building more robust risk management system and regulatory compliance culture). For this, appropriate IT governance and IT strategy driven by Boards of the banks is of paramount importance. I am sure, Directors are fully geared to accept the challenges of harnessing the power of IT for their banks and this one and half day's seminar has been a great catalyst in this pursuit.

Thank you very much for patient listening !

² Marc Goodman, 2015, *Future Crimes: A journey to the dark side of technology – and how to survive it*, Doubleday.

³ Brett King, 2012, *Banks 3.0- Why Banking is No Longer Somewhere You Go, But Something You Do*, Wiley.