Focusing on the fundamentals
Enterprise IT trends and investments 2014
It gives us immense pleasure to present the sixth annual survey report on enterprise IT trends and investments 2014, as we enter the sixth year of the CIO Association (CIO KLUB). The CIO KLUB, an initiative of the CIO Association, is one of the largest associations of chief information officers (CIOs) in India. The Enterprise IT investment survey was initiated by the CIO KLUB in 2009 in association with EY. This year, we have gathered highest ever representative response from all over India and at the same time have maintained all possible confidentiality measures of member responses, which were only accessed by the EY team for the aggregate survey analysis.

The objective of this survey is to give insights to CIOs on technology priorities. We hope that CIOs will find the results of the survey useful and use it as a tool to benchmark their respective organizations technology road map with their peers, enabling them to keep their businesses ahead of times. We are sure that this survey will also serve as a benchmark for CIOs to internally justify the technology investment in their organizations.

The survey will also prove to be valuable to product vendors, system integrators and professional services firms for understanding CIOs technology initiatives for FY14–15.

EY, our knowledge partner, has assisted the CIO KLUB to prepare the relevant questionnaire, collate responses and analyze them. Being an independent professional services firm with wide experience in advisory, EY was uniquely positioned to provide this assistance. Undoubtedly, the EY-CIO KLUB, IT trend and investment trend survey will be a useful and reliable document for CIOs.

We are glad to see the overwhelming participation from the CIO KLUB members. We, hereby, express our sincere thanks to all members for their support. We also express our sincere gratitude to the team from EY who have been working on this year’s survey for the last three months and supporting the CIO KLUB for the last six years.
This year’s survey results show several positive and interesting trends within the Indian markets. As rightly gauged by the survey response, the Indian CIOs are moving out of the shadow of the past few years and striding towards a positive and hopeful future. Unlike previous years, this year the CIOs are not intimidated by the uncertain political environment in the country, the fluctuating markets or changing regulations.

The CIO of 2014 is optimistic and looking forward to making significant investments for the development of IT and new solutions to achieve business expansion and customer satisfaction.

However, we also noticed a distinct trend where the respondents have consistently selected fundamental solutions over fancy futuristic technologies. What this tells us is that after the slump of the past couple of years, CIOs will need to revamp their fundamentals, and get them right before moving on to more complex solutions.

We are pleased to present the results of the Enterprise IT Trends and Investment Survey 2014 – insights into various IT initiatives taken by the CIOs and the proposed investment plans. It is our privilege to acknowledge that this is the sixth year that we are being associated with the CIO KLUB as knowledge partners for this survey. This survey aims to capture key IT priorities and initiatives taken by organizations across various sectors. It also captures investment patterns, and their variations from previous years. We hope that you find our survey report both interesting and useful.

We would like to extend our warmest thanks to all participating CIOs for taking time to share their views on IT investments and priorities. We are confident that you will find the survey report to be an interesting knowledge resource. We hope that it will be a valuable resource available to IT professionals and companies to understand the trends in India. We thank the CIO KLUB for giving us an opportunity to be a part of this, and reiterate our commitment to work together and jointly publish this report every year.
IT drivers and priorities in FY14-15
The 2014 survey results point to some good news. EY’s observations of the survey results have shown a distinctly optimistic outlook toward IT. The survey results clearly indicate that respondents have voted business expansion, emerging technologies and internal organizational/process change as the leading influencing factors for IT this year.

What this means is that in general, there are positive sentiments in the market and as is typically the case, sentiments drive behavior. This is clearly seen in the case where majority of the survey respondents have indicated that an increase in the IT spends is on the horizon. A distinct observation, which comes to light from this year’s survey is that the market has almost immunized itself from the macroeconomic fluctuations. The uncertainty in the political outcomes of this year’s general elections, the instabilities of the market and the changing regulatory landscape do not seem to be a significant influencing factor over IT priorities and investments. Instead, organizations are focusing on business expansion through consolidation and innovation, resulting in organizational and process change with a keen eye on understanding the regulations that impact their business. As opposed to treating each regulation as a special project, organizations today are working out how they can manage and control compliance issues within each market as part of a “business as usual” model to in order to keep the costs down.

In 2014, we see “winds-of-change” as majority of the survey respondents have indicted that an increase in the IT spends is on the horizon.

75% respondents will increase their IT budget between 1% to 20%

This is quite unlike the previous few years – in 2010, organizations were still recovering from the economic downturn of the previous year and the survey results indicated a cautious approach, with the CIO focusing on improving efficiencies. In 2011, though the economic growth had slowed, the outlook was bright as focus was shifting back to the India growth story. Innovation and building customer-centric and intelligent enterprise was the need, which was rightly projected by CIOs. However, in 2012, the economy once again showed sluggish growth, resulting in a need to develop lean, agile and resilient IT. In 2013, although IT spend increased, it was restricted to addressing inflation and rising costs with a focus on enhancing customer centricity.

The advent of these “winds-of-change” in 2014 is also clearly visible when respondents chose internal process efficiency and agility, enhanced customer experience and innovation to drive competitive advantage as top-three business drivers for IT and indicate compliance with regulatory requirements, cost savings and risk mitigation amongst the lowest three priorities.

However, this varies slightly from industry to industry. Survey results indicate that enhanced customer experience and compliance with regulatory requirements is marginally more important for banking and financial services and technology sectors, while infrastructure, industrial and consumer products sectors are leaning toward internal process efficiencies and agility. As compared to this, the automotive sector will focus on innovation to drive competitive advantage. This seems to be in-line with the activities of the past year whereby EY has seen an increase in new technology roll outs in the banking sector such as the new Real Time Gross Settlement (RTGS) system, the Green Banking Channel geared to provide customer self-service options and microchip enabled debit and credit cards. At the same time, sectors such as industrial products, which typically require large capital investments, have demonstrated less freedom to take on the
Top three priorities for key business drivers for IT by industry sector

<table>
<thead>
<tr>
<th>Technology, Media and Telecommunications</th>
<th>Financial Services</th>
<th>Infrastructure, Industrial and Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>33% Enhanced customer experience</td>
<td>29% Innovation to drive competitive advantage</td>
<td>26% Internal process efficiency and agility</td>
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<td>26% Internal process efficiency and agility</td>
<td>25% Risk mitigation</td>
<td>26% Innovation to drive competitive advantage</td>
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<tr>
<td>22% Innovation to drive competitive advantage</td>
<td>21% Enhanced customer experience</td>
<td>19% Enhanced customer experience</td>
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risks associated with adopting new technologies. Consumer product organizations are looking at developing new business models to establish demand-driven supply chain, direct customer relationships and effective use of digital media.

Two other notable surveys corroborate similar trends. In a survey carried out by MIT Sloan executives from different business functions across a wide range of industries, nearly eight out of ten respondents said that achieving digital transformation will be critical to their organizations within the next two years. The report argues that a range of digital technologies will enable major business improvements – better customer experiences, streamlined operations and new business models. The Gartner’s 2013 CIO Agenda Report notes that, while CIOs have spent the past decade dealing with tightening budgets, limited innovation and cost cutting, they have seen digital reach a tipping point across the business in the past 18 months.

On the flip side of the same coin, EY has observed interesting trends in the IT risk universe of organizations whereby majority of organizations (65%) have chosen continuous availability of critical IT resources as one of the two top risks. EY believes this is a significant area of focus for the CIOs in the upcoming years. However, these results vary by sectors; for the banking and financial services sector (FS), continuity is equally important as security and privacy (29% versus 25%), whereas for telecom, media and technology (TMT) sector organizations, staffing concerns (e.g., loss of key IT resources, inability to recruit IT staff) outweigh those as seen in all other sectors (TMT is at 13% versus financial services at 0% and average across all sectors is at 8%).

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2 Hunting and harvesting in a digital world: The 2013 CIO Agenda, Gartner, 2013
Focusing on fundamentals
It may come as no surprise that digital technologies – including social media, enterprise mobility, data analytics and cloud, commonly known as SMAC – are rapidly emerging as disruptive forces for organizations across all industries. They are fundamentally changing the ways in which consumers interact with these organizations, and at the same time creating new business models at the heart of these organizations.

However, the results of EY’s 2014 survey have shown a marked difference in adoption levels for each one. Cloud computing and IT consolidation are seen as the forerunners in this race with nearly 56% of respondents indicating it as their number 1 priority for the upcoming year; Business Intelligence, Analytics and Big Data come second at 34%; Enterprise mobility is at 25%; and social media is lagging behind at 9%. An interesting outlier, which typically gains considerable interest, is information security with a share of 18% respondent votes for top priority in FY14-15. Security has consistently taken CIO’s mindshare as one of the key priorities for last six years. The above statics lends us to believe that the true acronym, in line with the adoption scale, should be CAMSS.

The business drivers for these technologies can be easily seen in the survey respondents choosing internal process efficiency and agility, enhanced customer experience and innovation to drive competitive advantage as the top 3 priorities for the upcoming year.

**Digital technologies and business drivers**

<table>
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<tr>
<th>Internal process efficiency and agility</th>
<th>Enhanced customer experience</th>
<th>Innovation to drive competitive advantage</th>
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<tbody>
<tr>
<td>Cloud Computing</td>
<td>✓</td>
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<tr>
<td>Analytics</td>
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<tr>
<td>Enterprise Mobility</td>
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<td>Social Media</td>
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However, EY noticed an interesting trend in this year’s survey responses. Most respondents seem to be focusing on the fundamentals of each of these digital technologies, ascertaining that they get them right before they move on to the fancier upgrades/use cases.

We explore these in detail, in the subsequent sections.

As seen in the above graph, digital technologies act as enablers for business process enablement, customer enablement, IT governance risk and compliance and strategic outsourcing.

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3 Born to be digital – Ernst & Young LLP, 2014
Cloud, Analytics, Enterprise Mobility, Social Media and Security

Cloud: Adoption of cloud solutions

<table>
<thead>
<tr>
<th>Public cloud</th>
<th>Private cloud</th>
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</thead>
<tbody>
<tr>
<td>25%</td>
<td>75%</td>
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</table>

Respondents have shown a preference for private cloud solutions over public cloud to meet their IT consolidation priorities.

Information security: Risks perceived

- Employee unawareness: 56%
- Open vulnerabilities: 37%
- Not much change: 7%
- Unfavorably: 6%

Respondents have indicated a growing need to focus on internal threats.

How are CIOs being affected by changing technology?

- Favorably: 85%
- Not much change: 7%
- Unfavorably: 6%

Cloud, Analytics, Enterprise Mobility, Social Media and Security

Race to adapt digital technologies

Enterprise mobility: Adoption for collaboration versus management reporting

Respondents have said that they are currently using enterprise mobility for collaboration and are considering using it for management reporting and dash-boarding in the near future.

Social media: Enabling access to knowledge and experts

Access to knowledge and experts is viewed as a preferred use case for implementation of social media platforms in the organization.

Information security: Risks perceived

Focus on internal threats

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Analytics: Adoption of Big Data versus statistic and predictive analysis

Organisations view use of statistic and predictive analytics as more relevant than Big Data

Enterprise mobility: Adoption for collaboration versus management reporting

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Cloud: going private before public

Just a few years ago, cloud computing was little more than a speck on the horizon. However, today, “cloud” is no longer considered an emerging technology and cloud-based services have entered the mainstream. From EY’s observation in the market, a significant majority of organizations have either adopted or are planning to adopt some form of cloud computing technology.

This is also demonstrated in the survey results where 56% of respondents indicated IT consolidation and cloud services to be their number one priority as part of this year’s IT agenda.

EY’s observations of the survey results show an interesting trend where respondents have favored the adoption of private cloud over public cloud. In the sample survey, this trend is seen distinctly in the banking and financial services sector, where private cloud adoption is at 33%, while public cloud adoption did not have any takers. Comparatively, in the telecom, media and technology sectors, private and public clouds have found almost equal amount of acceptance.

This trend seems to make sense in the current Indian scenario where CIOs want to first get the basics of virtualization right – by focusing on private cloud before the widespread adoption of public cloud. Deployment of the private cloud not only cuts costs, but also provides improved efficiency, scalability, virtualization, improved monitoring and enhanced security.

Some of the significant differences between public and private cloud offerings are:

- **Control over data confidentiality:** In a public cloud environment, the consumer is not aware of the access granted to the employees of the host company to view the data. Generally the host organizations are very large, and they would have internal controls to manage the access that employees would have to view data stored on their cloud. For an organization that needs to be compliant, the internal controls will not suffice in meeting the criteria. In a private cloud environment, the consumer is aware of the access, which has been granted, to view the data stored.

- **Control over data protection:** The firewall resources provided by the public cloud provider are controlled by them. The changes that are made to the firewall configuration could affect the consumers, and the impact can be negative. In a private cloud, as far as security is concerned, you control every aspect of it. The firewalls are set up by the consumer.

This is not surprising, as the survey indicates that more than 45% of the respondents feel that security and privacy concerns outweigh their focus on cloud.
Additionally, other concerns such as service provider selection, contracting, service provider lock-in, unclear understanding of cloud architecture, deployment models and cost benefit analysis also play a significant role in the adoption of cloud services. This is evident from the survey results where 23% respondents shy away from cloud due to their lack of understanding on cloud architecture and deployment models and 25% are deterred due to lack of a global information security standard for cloud service providers.

In spite of the concerns, more than 60% of the respondents feel that the key driver for cloud adoption continues to remain the scalability, infrastructure demand management and off-loading the IT infrastructure administration to the cloud service provider.

Managing the security and privacy risk: An EY perspective

Since banning cloud services within an organization is not an option, IT executives should shift their focus toward building a secure, trusted and audit-ready (STAR) cloud environment.

- **Secure:** A secure cloud environment has the appropriate controls to protect the confidentiality, availability and integrity of the systems and data that resides in the cloud. Appropriate procedural and technical protections are in place to protect data at rest, in transit and in use.

- **Trusted:** A trusted cloud environment is designed to stand the test of time. It should provide high availability and resilience to adverse events.

- **Audit-ready:** An audit-ready cloud environment has continuous compliance and is certified to meet specific industry regulations and legislation. Appropriate procedural and technical protection is in place, documented and can be verified for compliance purposes.

The six domains listed below contain various controls and procedures required to support a STAR environment. This model can be flexible and should accommodate different cloud deployment models so that IT can provide clear guidance to the organization to promote responsible adoption of the cloud:

- **Organization:** Cloud services impact organizational behaviors. Organizations need to document roles and responsibilities associated with the use of cloud services and train employees regularly on these protocols.

- **Technology:** IT functions should design applications according to industry security standards, encrypt the data, and implement role-based access and identity management solutions.

- **Data:** IT functions need to classify and inventory data, assign data owners and securely purge data that is no longer required.

- **Operations:** Business continuity management (BCM) and resiliency program policies and procedures should include periodic review and testing. Additionally, policies and procedures for BCM, change management and data center security should be documented to formalize roles and responsibilities.

- **Audit and compliance:** Organizations should plan and execute audits in a way that minimizes business interruption. For maximum assurance, organizations should engage a third party to perform the audit and certify the environment.

- **Governance:** There are many cloud options from which organizations may choose, from public cloud services, to building a private cloud, to a hybrid approach. Regardless of the deployment path organizations pursue, governance processes should be scalable, repeatable, measurable, defensible and constantly improving.
Business intelligence and analytics: CIO’s dilemma of investing in Big Data

Business intelligence and analytics has become one of the top priorities across organizations this year with more than 34% respondents ranking this on top of their FY14-15 IT transformation agenda.

Big Data is increasingly becoming the “biggest” topic of discussion and debate for the CIOs. However, in the past Big Data was perceived to be one of the most confusing technology terms. As the popularity of Big Data has grown over the years, its meaning got diluted with some relating it to large volumes of data, some to increasing productivity and some as a marketing gimmick. The term “Big Data” can mean different things to different organizations.

EY defines “Big Data” as “very large data sets (Volume) that are being produced at a tremendous speed by the growing digitization of the society (Velocity) and consists of data from all possible sources from structured to unstructured (Variety).”

With rapidly changing data from social media, videos, location surveillance, audio/images and machine-generated data, the ability to capture billions of these raw data points and transforming it into actionable intelligence is making Big Data relevant for organizations today. Organizations using Big Data can have a more complete picture of their customers, products, operations and competitors to drive innovation (new products and services), operational efficiencies, customer delight, increased revenue and low costs.

In organizations today, typically 60% of the data stored is structured, while unstructured data makes up for the remaining 40%. In the years to come, the unstructured data is expected to grow rapidly, driving Big Data explosion.

From a CIO’s perspective, this presents a unique opportunity to go ahead and make the right investments in Big Data technologies. However, when the CIOs take a closer look at the insights being derived from the existing structured data, some of the key issues that stand out are:

- Majority of the organizations are still struggling to create a single-view of the customer, and data quality remains a key improvement area.
While most organizations will have MIS/reporting systems in place, the effectiveness and usage of these to drive business decision making leaves scope for improvement.

Organizations in India are still at a nascent stage in terms of leveraging data visualization and predictive/prescriptive analytics to optimize decision making.

In such an environment, it was not surprising that while Big Data was attracting a lot of attention from the CIOs, there was a clear reluctance in adopting Big Data technologies (only 11% of the respondents indicated Big Data investments). In sharp contrast, 42% respondents have indicated focus on adopting embedded BI techniques and 30% on adopting advanced analytics (predictive and statistical).

This is in-line with the views expressed in the Gartner BI and Analytics summit in 2013 as well, where the key themes revolved around getting more from BI and investing in Predictive Analytics:

- “Sorry Business Intelligence gurus, but BI is not good enough.” Gartner Analysts commented that BI reports are reactive, not proactive.
- “Market is moving towards predictive analytics.” It helps deliver insights faster through use of Advanced Statistical Models.
- Only 13% of the organizations surveyed by Gartner had Predictive Analytics systems in place; but nearly 73% organizations intended to increase spending on Predictive Analytics.

Respondents to our recent survey also identified the need to get more insights out of data as a key priority – with key focus areas being (a) Data visualization, (b) Predictive Analytics, (c) Collaborative BI, (d) In-database analysis for modeling and (e) In-memory BI.

Irrespective of whether you are a CIO leaning toward prioritizing investing in the future by making Big Data investments or focusing on prioritizing getting the maximum value from the data already being captured in the organizations – we see unanimous consensus that data is now being considered as a strategic asset for all organizations.

We expect most CIOs to do a balancing act between investments for future (Big Data) and deriving value from data today (invest in advanced analytics). However, as they progress through the year, one additional item that is expected to move up on their priority list will be creating an Analytics Culture in the organization. To derive the maximum insights from data and leverage it to optimize decision making across strategic – operational – tactical level would require focused change management efforts along with strong and sustained top-down sponsorship. This will become the key for maximizing the ROI from data analytics, and will help build the right business case for future investments by organizations in Big Data tools/technologies.
Top 5 trends in Business Intelligence:

**Data visualization goes mainstream:** Visual analytics allows business users to ask interactive questions of their prepared data sets and get immediate visual responses, which makes the whole process engaging. This trend will foster a strong data analysis culture where business users will look for data and perform visual analytics before making decisions.

**Predictive analytics is reality:** Over the years, organizations have built platforms and infrastructure with a significant emphasis on hindsight – “What has happened” reports that help organizations check their rear view mirrors. In 2014, there is increased acknowledgement that enterprises need to start developing insights and foresights. With better insights and a forward-looking predictive view, organizations are less reactive and are able to be more proactive and shape their outcomes.

**Collaborative BI for decision support:** Organizations are striving to bring together appropriate personnel, expose all the necessary information to make a sound actionable decision for a definitive edge over competitors, and results in happier customers, partners, and employees.

**In-database analysis for modelling:** Organizations are increasingly using analytics system consisting of an enterprise data warehouse built on an analytic database platform. Capabilities of these platforms to provide parallel processing of large datasets, partitioning and scalability geared toward analytics are increasingly being used in mission critical applications for real time decisions.

**In-memory BI:** Organizations are embedding predictive analytics in their operational systems. Enterprise organizations relying on structured will now utilize a hybrid model, combining structured and unstructured data. Traditional BI and predictive analytics will work in tandem thanks to more user-friendly applications.

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**Top 5 trends in business intelligence**
Enterprise mobility: using mobile computing to enhance collaboration

Enterprise mobility is the term used to indicate a paradigm shift in employees’ work habits where employees work using their own mobile device out of a mobile office with corporate data available to them at any time at any place.

As seen in survey results, enterprise mobility has been around for some time now in the form of messaging and collaboration tools and currently more than 63% of respondents are using this form of messaging and collaboration. This is enabled by today’s ever-evolving smart phones, availability of 3G and 4G networks and the abundant availability of innovative mobile applications.

25% of the respondents have marked enterprise mobility as their number one IT transformation priority for 2014-15. Amongst these, 50% of the organizations have revenue in excess of INR10 billion and have indicated an increase in the IT budget for the year.

On the other hand, majority of respondents (47%) have said that they are either considering or will consider using this technology for management reporting and dash-boarding in the near future. We can expect that in near future, key mobility deployments are expected to be seen for business intelligence dashboards, board level reporting, documentation management and sales force automation. However, the trend is yet to come.

The focus of CIOs today is limited to using enterprise mobility for its basic function of collaboration. This might be explained by the fact that 36% of CIOs are not considering implementing technologies such as bring your own device (BYOD), while a majority of them who have adopted BYOD, at 42%, have only used employee education as a risk-control mechanism. As seen in the survey, mobile device management (MDM), network level controls and end-point security solutions have seen very limited adoption. However, the financial services sector deviates from the norm here, where the survey results show a significant adoption of these technologies, (47% for MDM and 56% for network level controls) in addition to employee education.

Hence, as rightly pointed out in McKinsey’s feature article, Mobility Disruption5, it can be said that the adoption is limited due to challenges such as cost, governance and security concerns.

Challenges for adopting enterprise mobility

**Security:** Security is seen as the number one challenge to the adoption of enterprise mobility. With the advent of BYOD, organizations struggle to control the extent of data that is stored on employee’s devices.

The proliferation of mobile applications that the employee downloads for personal use, alongside corporate applications, creates a further risk from a data protection perspective.

Additionally, a lost or stolen device with sensitive data stored on them is a major concern.

**Governance:** Since mobility does not fall within any of the traditional IT silos, it poses a unique governance challenge. This affects application development, business process, infrastructure and operational processes.

**Cost:** The cost of mobile devices and enabling their wireless connectivity comes at a high price.

Risk management measures

EY identifies the below key technologies that may be considered to manage risks to corporate data due to enterprise mobility deployment in FY14-15, as follows:

- Implementing mobile device management (MDM) to secure, monitor or manage mobile device deployments
- Implementing network access control (NAC) to manage mobile device connectivity to corporate networks
- Implementing stricter information security policies around using BYOD
- Logging and monitoring mobile data usage
- Implementing endpoint malware protection to secure devices from malware threats

EY believes that enterprise mobility will evolve over the next few years and organizations will expand mobility capabilities beyond e-mail and collaboration tools. Enterprise mobility will also play a key role in enhancing the customer (internal as well as external) experience. However, all of this will come at a cost of an increased device security, application security and back-end integration.

Organizations will be required to explore ways to secure corporate data residing in mobile devices, and solutions, such as MDM, will play a key role in enhancing security. Hence, EY believes that CIOs need to build a strong strategy around the implementation and roll out of this technology.
Social media: a minority report

As seen in the IT transformation agenda, social media is getting a place at the CIO table, but only as a younger brother to its more powerful and hefty bigger brothers in the CAMSS digital technologies. Only 9% of respondents have chosen it as their top priority for the year.

As observed, the early adoption of social media is primarily as an internal collaboration tool. This is evident from the fact that 51% of respondents use it for easier and faster ability to access knowledge and experts.

However, as seen in survey results, approximately 30% of the respondents plan to introduce and approximately 15% respondents are evaluating introduction of social media platform in their organizations during the next year.

While the potential benefits and opportunities associated with the social trend are exciting, there are also new risks and information security issues that must be addressed.

- 51% of respondents have identified easier and faster ability to access knowledge and experts as benefits of social media.
- 15% of respondents are evaluating the introduction of social media in their organization.
- 30% of respondents have planned to introduce social media as part of the FY14-15 plan.
In EY’s perspective, the top challenges in the adoption of social media as an effective channel come from:

**Concerns about reputation risk**

Most directors are concerned primarily with the growing reputational risks that such a channel can generate – for example, when an event or headline “goes viral” on social media and propagates, it creates a disproportionate impact. Additionally, employees may violate organizational policies in terms of data leakage. This is also evident from the fact that 31% respondents include security and privacy as number one priority in their IT agenda. EY believes the best way to mitigate social media’s impact on reputation risk is by monitoring social media chatter and enabling rapid responses, which can be a challenge when organizations have time-consuming approval processes.

**Ineffective mining of the information available**

Organizations active in social media conversations often lead the way with customers and employees. They do not only turn to social media when things go wrong, but regularly engage and build loyalty. They may generate revenue growth through better targeting and reduce costs by eliminating less-effective advertising. Compliance-monitoring analytics can filter social media content to identify posts involving topics of interest or concern, as well as key contributors of such content. These contributors can then be further analyzed. For example, they can be grouped and classified based on their connections to other social media users, demographics, message patterns, personal interests and behavioral patterns. This added insight can help organizations understand how to properly address potential problems.

**Lack of active oversight at the Board level**

Today, very few board directors receive updates about policies regarding social media use by employees and management, thereby keeping them unaware of full extent of how different areas are actually using social media and the impact on end customers. EY believes that those directors who use social media as a personal source of news and market intelligence are able to ask management better and more pertinent questions. We can summarize by saying that to create a secure and successful business environment, organizations must involve their people. A technology-savvy workforce will find a way around controls, unless they fully understand the danger of the risks involved. By informing every member of the organization on the risks and issues related to social media, information security becomes an expanded function that all employees are fully aware of and have a responsibility to perform.

“Many people are not sure how to engage with social media”
Security: focusing on internal versus external threats

The survey results revealed that 56% of the respondents cited employees’ lack of awareness about phishing and spam and 37% of the respondents cited open vulnerabilities in systems as major reasons for security incidents. These are clear indicators that CIOs today need to focus on internal threats v. external threats.

EY has observed this as a global issue. According to EY’s Global Information Security Survey 2013 (GISS), 50% of respondents cite a lack of skilled resources as a barrier to value creation. Similarly, where only 20% of previous survey participants indicated a lack of executive awareness or support, 31% now cite it as an issue. Due to this, though information security departments in organizations are moving forward, the support from other parts of the organization is lagging behind.

EY believes that risks created by employees come in three major forms

Lack of knowledge
Despite training and communication, many employees are still unaware of how their actions – for example, opening a phishing e-mail or an attachment from a suspicious party – can assist adversaries.

Personal technology
The use of personal devices by employees connected to organization systems – commonly referred to as bring your own device (BYOD) – is creating complex new challenges.

The “Inside threat”
The most sinister threat comes from criminal activities by employees themselves.

To address these risks, management needs to focus on:

- Strengthening security awareness and training, ensuring staff members from across the business receive guidance to recognize and address potential threats, particularly regarding mobile computing, malware and phishing
- Screening and hiring the right people, with the right skills and competencies
- Making information security a part of the performance assessment of employees
- Managing and monitoring elevated privileges provided to employees
- Investing in developing security experts in organizations
Open vulnerabilities in systems pose an ever-present risk for CIOs

Currently, there are almost daily reports of cyber-attacks on organizations. These include distributed denial-of-service attacks – designed to overwhelm web servers – as well as theft of customer data and intellectual property. Fixing known vulnerabilities is a non-negotiable part of the information security agenda.

EY recommends doing this by focusing on internal systems.

Getting the basics right - Though it is tempting to focus on latest technologies, EY urges organizations to also continue to focus on a more basic approach. Many organizations buy expensive protection software and equipment but fail on simpler and more fundamental measures.

- Developing capabilities and not technologies, investing in the right people with the right capabilities to build a strong information security portfolio
- Improving system resiliency by ensuring robust back-up and recovery processes
- Focusing on how physical factors can enhance risk of cyber attacks – as we all know, cyber risks are not simply technological nature
- Identifying the “critical assets” such that stronger controls and more investments are made in protecting them
- Testing system vulnerabilities diligently and routinely by increasing the frequency and depth of such tests

Role of a CIO

- Indian CIOs are no longer intimidated by the uncertain economic or political environment in the country and are progressing toward a positive and hopeful future.
- The future, which will undoubtedly be digital, does look promising, even though the pace at which technology is evolving is rapid. The evolution of disruptive technologies “Internet of Things,” “intelligent software systems” will change the way we do business. We assessed the CIO’s sentiments on impact of such rapid technological and operational changes on their role.
- More than 85% of the respondent CIOs state that these changes will have a favorable impact on the role of CIO and it will provide them with ammunition to innovate and transform the business.
- Most of the respondents confirm this favorable sentiment; however, it was clearly visible in consumer-centric sectors such as consumer products and life sciences. This is corroborated by 94% of the respondents from the consumer products sector and 92% of the respondents from the life sciences sector.
- Referencing these views with what the DNA of the CIO6 portrays, throws up an interesting paradox.
- Less than 35% of their peers in the C-suite agree to the fact that CIOs enable fact-based decision-making in relation to corporate strategy. Most C-suite executives perceive IT as simply a back-office function that operated the basement data center.

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6 DNA of the CIO: an EY survey of 301 IT executives from 13 countries within EMEIA, Americas and Asia Pacific and 40 other C-suite executives who provided a perspective on how the CIO is perceived by the rest of the executive management team.
When asked how the CIOs should prepare to face the challenges posed by the rapid technology and operational changes, respondents provided a very interesting point of view:

- CIOs need to assume additional business responsibilities such that they can align IT with business, a fundamental business requirement.
- CIOs need to focus on executive education to get ready for the new challenge that will come with the new “winds of change” and the positive outlook on IT Spend.
- Although certifications, seminars and conferences are critical education programs, they not core need of the hour.

The DNA of the CIO says: “The CIO has long been positioned as a senior executive on the cusp of becoming a truly strategic partner to the business. But as this research warns, the reality is that relatively few CIOs have so far managed to reinvent themselves sufficiently to actually become one. Less than one in five of the CIOs polled for this study have risen to become a full member of their organization’s executive management team. And when asked about the degree to which they participate in strategic decision-making, responses were lukewarm, with just 43% rating this as something that they are highly engaged in.”

This indicates the formidable challenges to the CIO’s move towards business and to handling more functional responsibilities and ultimately becoming part of the executive management.

Given their exuberance on the future prospects of the CIO’s role, CIOs will need to enhance their executive skills, have better business connects to be ready to transform the business using the technological advances that will come with the “winds of change.”
The survey results are summarized based on the responses from over 200 CIOs across India.

**Exhibit 1. Percentage of respondents stating the key business drivers for IT**

- **Risk mitigation**: 39% (Rank 1)
- **Internal process efficiency and agility**: 72% (Rank 2)
- **Enhanced customer experience**: 31% (Rank 3)
- **Compliance with regulatory requirements**: 34% (Rank 4)
- **Cost savings**: 67% (Rank 5)
- **Innovation to drive competitive advantage**: 69% (Rank 5)

**Exhibit 2. Percentage of respondents stating the factors that influence their IT priorities and investments**

- **Macroeconomic uncertainties**: 39%
- **Business expansion**: 72%
- **Availability of skilled resources**: 31%
- **Change in regulations**: 34%
- **Internal organizational/process change**: 67%
- **Emerging technologies**: 69%
- **Merger and acquisitions**: 26%
Exhibit 3. Percentage of respondents stating increase/decrease in IT budget for FY14-15 over previous year

- No change: 10%
- Between 1-10% increase: 44%
- Between 11-20% increase: 31%
- Between 1-10% decrease: -7%
- Between 11-20% decrease: -7%

Exhibit 4. Percentage of respondents stating the IT risk areas in their organization

- Applications and databases
- Continuous availability of critical IT resources
- Infrastructure
- Legal and regulatory
- Third party suppliers and outsourcing
- Program and change management
- Security and privacy
- Physical environment
- Staffing
- Operations

Rank 1
Rank 2
Rank 3
Rank 4
Rank 5
Exhibit 5. Percentage of respondents stating their priorities for their FY14-15 IT transformation agenda
Exhibit 6. Percentage of respondents stating considerations for their cloud strategy

- Scalable and on demand infrastructure: 60%
- No clear understanding of cloud architecture and deployment models: 23%
- Security and privacy concerns outweigh our focus on cloud: 45%
- Managing prejudicial concerns of stakeholders: 25%
- Lack of global information security standard for cloud service provider: 25%
- Availability, location independence and recovery benefits: 44%
- Concern on service provider selection, contracting and service provider lock-in: 35%
- Others: 5%

Exhibit 7. Percentage of respondents stating benefits of cloud solution in their organization

- Business intelligence
- Customer centric applications
- Vendor collaboration applications
- Employee life cycle
- Employee self-service workflows
- Social Media/ messaging
- ERP/ business applications
- Backup and disaster recovery
- Document management
- Storage

[Rank 1] [Rank 2] [Rank 3] [Rank 4] [Rank 5]
Exhibit 8. Percentage of respondents stating the benefits of social media in their organization

- Easier and faster ability to access knowledge and experts: 51%
- Increased employee satisfaction: 37%
- Increased business exposure: 42%
- Reduced marketing expenses: 31%
- Increased customer satisfaction and loyalty: 49%
- Reduction in cost of communication: 42%
- Others: 7%

Exhibit 9. Percentage of respondents stating the status of enterprise mobility deployment in their organization

- Business transactions
- Messaging and collaboration
- Customer centric applications
- Management reporting and dashboards
- Unified communications
- Corporate social media applications
- HR application/ workflows

Legend:
- Currently using
- Implementation planned for FY14-15
- Upgrade planned for FY14-15
- Under evaluation
- No intention to use
Exhibit 10. Percentage of respondents stating the deployment of analytics and BI technologies in their organization

- Advanced analytics (predictive/statistical analysis) 30%
- Advanced data visualization capabilities (sparklines, treemaps, heat maps, etc.) 13%
- Embedded BI (reports/visualizations deployed within enterprise apps, portals, etc.) 42%
- Analysis of “big data,” particularly unstructured/non-relational data 11%
- Collaborative BI (tools promoting broad sharing and input on analyses) 26%
- In-database analysis for predictive or statistical modelling 25%
- In-memory BI/analytics (fast analysis/what-if planning on large data sets) 21%
- Mobile BI (alerts/reports/visualizations delivered to smartphones/devices) 18%
- Software-as-a-service/cloud computing-based BI/analytics 12%
- Social media/social network analysis (sentiment analysis, customer influencer/behavior analysis) 12%
Exhibit 11. Percentage of respondents stating the BYOD status and controls deployed

<table>
<thead>
<tr>
<th>Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No plans for BYOD</td>
<td>36%</td>
</tr>
<tr>
<td>Educate employees on BYOD</td>
<td>42%</td>
</tr>
<tr>
<td>Deployment of MDM</td>
<td>24%</td>
</tr>
<tr>
<td>Deployment of virtual desktops</td>
<td>22%</td>
</tr>
<tr>
<td>Application level controls</td>
<td>21%</td>
</tr>
<tr>
<td>Network level controls</td>
<td>24%</td>
</tr>
<tr>
<td>Endpoint security tools</td>
<td>22%</td>
</tr>
</tbody>
</table>

Exhibit 12. Percentage of respondents stating security vulnerabilities in their organization that has led to a security breach

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdated information security controls or architecture</td>
<td>24%</td>
</tr>
<tr>
<td>Employee unawareness of phishing and spam</td>
<td>56%</td>
</tr>
<tr>
<td>Open vulnerabilities in systems</td>
<td>37%</td>
</tr>
<tr>
<td>Unauthorized access</td>
<td>28%</td>
</tr>
<tr>
<td>Cyber-attacks to steal company data, customer data and personal information</td>
<td>23%</td>
</tr>
<tr>
<td>Espionage</td>
<td>7%</td>
</tr>
<tr>
<td>Fraud</td>
<td>15%</td>
</tr>
<tr>
<td>Internal attacks</td>
<td>19%</td>
</tr>
</tbody>
</table>
Exhibit 13. Percentage of respondents stating the potential of futuristic technologies

- 3D printing
- Energy storage
- Advanced robotics
- Machine to machine
- Autonomous vehicles
- The Internet of things (Linking machinery, equipment, and other physical assets with networked sensors and actuators to capture data and manage performance)
- Intelligent software systems performing knowledge work using advances in artificial intelligence
- Next-gen genomics and synthetic biology

Exhibit 14. Percentage of respondents with views on the impact of the technological and operational changes on CIOs

- Favourably: 48%
- Very favourably: 38%
- Not much change: 7%
- Unfavourably: 5%
- Very unfavourably: 1%
Exhibit 15. Percentage of respondents stating what CIO’s should do to meet up the challenge of the changing technological and operational landscape.

- Executive education: 63%
- Job rotation into other roles in the organisation: 42%
- Certification programs: 19%
- Seminars and conferences: 45%
- Assume additional business responsibilities: 74%
- Others: 3%
Survey approach and analysis
EY and CIOKLUB’s sixth Enterprise IT Trends and Investment Survey, brought to you by EY on behalf of the CIOKLUB, gauges current investment patterns, IT priorities and upcoming investment plans of organizations.

This year’s survey was conducted from 14 February 2014 to 06 March 2014. More than 200 CIOs from various organizations across major industries participated in the survey. The questionnaire used in this survey was designed to gather relevant information about IT investments, initiatives, priorities and technologies domains. This survey was conducted through a secure online tool with a specific URL that was mailed to designated members of the CIOKLUB, along with instructions for completing the survey.

Apart from the survey, EY conducted roundtable discussions with few CIOKLUB members at select locations for their perspective on IT initiatives. Key themes from the discussions have been considered for the report.

EY downloaded the results of the survey to conduct an analysis and used cross tabs to identify the patterns of various IT domains across specific industries, and the size and type of industry. Responses of 199 out of 211 respondents, who completed the survey, were considered as complete and used for the analysis. Partial responses have been ignored for the purpose of this analysis.

Profiles of 2014 survey participants

**Exhibit 1. Survey participants by sector**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>14%</td>
</tr>
<tr>
<td>Banking &amp; Capital Markets</td>
<td>11%</td>
</tr>
<tr>
<td>Cleantech</td>
<td>2%</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>10%</td>
</tr>
<tr>
<td>Government, Public Sector and Non-profit</td>
<td>1%</td>
</tr>
<tr>
<td>Insurance</td>
<td>1%</td>
</tr>
<tr>
<td>Life sciences</td>
<td>8%</td>
</tr>
<tr>
<td>Media &amp; Entertainment</td>
<td>1%</td>
</tr>
<tr>
<td>Mining &amp; Metals</td>
<td>2%</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>2%</td>
</tr>
<tr>
<td>Power &amp; Utilities</td>
<td>1%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>5%</td>
</tr>
<tr>
<td>Technology</td>
<td>20%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>2%</td>
</tr>
<tr>
<td>Wealth &amp; Asset Management</td>
<td>1%</td>
</tr>
<tr>
<td>Transportation</td>
<td>2%</td>
</tr>
<tr>
<td>Logistics</td>
<td>3%</td>
</tr>
<tr>
<td>Hospitality &amp; Leisure</td>
<td>2%</td>
</tr>
<tr>
<td>Retail &amp; Wholesale</td>
<td>3%</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>15%</td>
</tr>
</tbody>
</table>
Exhibit 2. Percentage of respondents by size of the organization

- < 5 Billion: 30%
- Between INR 5 Billion to INR 10 Billion: 17%
- Between INR 10 Billion to INR 50 Billion: 33%
- Between INR 50 Billion to 100 Billion: 9%
- Above INR 100 Billion: 12%
CIOs of Indian enterprises have formed the CIO KLUB registered as CIO association. CIO Association (CIO KLUB) is a non-profit and largest association of chief information officers in India. The CIO KLUB is governed by a Governing Body and a National Executive Council and each chapter has a managing committee to drive the CIO KLUB objective nationally.

We have started celebrating The International CIO’s Day from 25 April 2013, which will be held every year on this day. It is a day to celebrate the contribution of CIOs to their country’s growth by serving enterprises.

Objective of The International CIO’s Day is to increase awareness of the growing contribution of CIOs and attract more professionals to IT end user enterprises.

The CIO KLUB has grown truly national with six working chapters in India’s most strategic cities (Mumbai, Delhi, Bangalore, Pune, Chennai and Coimbatore). From a humble beginning in Mumbai on 25 April 2008 with less than 30 members, we have now grown to more than 1,000 members across India.

The key objectives of the of the Klub are to share experience, enhance knowledge, and explore business solutions by leveraging the collective wisdom of a large number of CIOs who are our registered members. They are senior technology executives in the country. The current registered members represent manufacturing, BFSI, service, pharma and health care, retail, real estate and construction from India’s leading business houses and PSUs covering a wide spectrum of Indian businesses. With such leadership as members, the CIO Klub is uniquely positioned to be the voice of the IT user community of the country. We have formed several working groups. One of the working group is formed to interact with the government and to support government initiative to deploy information technology in government projects. This is a social initiative of CIO KLUB by offering a significant experienced pool of CIOs who have implemented various IT projects in private enterprises.

The CIO KLUB is unique because it provides an interactive platform for vendors, media and CIOs for exchange of best practices and ideas and formulates strategy to address common IT issues. The KLUB’s objective is to share and enhance knowledge and to achieve that, the CIO KLUB organizes various knowledge sharing sessions across the country.

The primary objective is to drive the business benefit to the organizations of the Member CIOs and also help CIOs in their professional growth as effective leaders. The CIO KLUB will be unique in the sense that it will be an interactive platform where the vendors, media and the CIOs together will use this platform for exchanging best practice ideas and derive strategy to address common IT issues. The KLUB also encourages entrepreneurial spirit by providing a platform for sharing and generating innovative ideas in the interest of the community.

For more information about CIO KLUB, please visit

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