SMAC 3.0: digital is here
Enterprise IT trends and investments 2015
Contents

Foreword 4
1. IT drivers and priorities in FY15-16 6
2. Journey to SMAC 3.0 10
3. Survey approach and analysis 34
As we enter the eighth year of the CIO Association (CIO KLUB), it gives us immense pleasure to present the seventh annual survey report on Information Technology (IT) trends and Enterprise IT investment trends. 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 garnered the highest ever representative response from all over India. At the same time, we have maintained all possible confidentiality measures for the 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 CIOs will find the survey findings helpful 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 the times.

The survey is also expected to be valuable to product vendors, system integrators and professional services firms for understanding CIOs’ technology initiatives for FY15-16.

EY, our knowledge partner, has assisted the CIO KLUB in preparing the relevant questionnaire, collating responses and analyzing them. Being an independent professional services firm with wide experience in advisory, EY was uniquely positioned to provide this assistance. Undoubtedly, the CIO KLUB-EY survey will be a useful and reliable document with respect to the Indian enterprise.

We are glad to see the overwhelming participation from the CIO KLUB members and express our sincere thanks to all of them 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 seven years.
In this year’s survey results, we see a shift from a focus on fundamentals to an increased focus on the next set of digital technologies, trends and opportunities. Social, Mobile, Analytics and Cloud (SMAC 1.0) was central to business thinking last year, but this year we see CIOs embrace new frontiers, moving from SMAC 1.0 to SMAC 2.0.

However, the CIOs still believe that this is not the right time for them to move to more complex (or should we say, simpler?) solutions, i.e., SMAC 3.0. Read through the following sections to gain an understanding of how the journey has evolved from SMAC 1.0 to SMAC 2.0 for the CIOs, and what will constitute SMAC 3.0.

We are pleased to present the results of the Enterprise IT Trends and Investment Survey 2015 – insights into various IT initiatives taken by the CIOs and the proposed investment plans. It is our privilege to acknowledge that this is the seventh year of our association with the CIO KLUB as knowledge partners for this survey. The survey aims to capture key IT priorities and initiatives taken by organizations across various sectors. We hope you find our survey report both interesting and useful.

We would like to extend our warm thanks to all participating CIOs for taking the time to share their views. We hope that this survey report will be a valuable resource for IT professionals and organizations 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.

Devendra Parulekar
Advisory Partner (India),
EY

Nitin Mehta
Advisory Director (India),
EY
IT drivers and priorities in FY15-16
The 2015 survey of 267 CIOs across sectors reveals some fascinating trends. The results clearly highlight that the direction of the respondents’ current and future plans aligns with the ‘Digital India’ story.

Of the respondents, 64% have stated that their IT spend will increase as compared to the previous year. Though this is lower than our preceding surveys, it is encouraging that CIOs have proposed to spend more than 25% of their IT budget on innovation – newer technologies such as cloud, mobility and analytics – to achieve their business objectives.

Increasing sales and market share; and focusing on margins will be the key drivers for IT innovation in FY15-16. The survey results clearly indicate a strong correlation between the size of the organization and the primary growth driver. Smaller organizations will have a larger focus on increasing sales as compared to curtailing costs or improving margins. This focus shifts in favor of margin improvement for larger organizations.

As gauged by the survey responses, matured and more established sectors (such as automotive, banking and financial services, manufacturing, power and utilities) believe improving margins to be their top IT driver. In contrast, growing or maturing sectors (such as retail and consumer products, infrastructure, technology, and life sciences) have voted for increasing sales to be their primary IT agenda. An interesting point to note is that the IT agenda is driven by internal factors, such as maturity and organization size. External factors, such as macroeconomic fluctuations and political uncertainties, do not heavily affect a CIO’s approach towards the IT agenda – a trend that was also noted in the 2014 report.
Shifting the focus from individual technologies to integrated solutions can deliver new digital experiences.

Digital experiences are becoming more contextual and personalized. The customer experiences that meet customer needs, feel personally relevant, and deliver in the moment will ensure success of the business. Digital transformation combines individual digital technologies, such as social, mobile, real-time 360 degree analytics capabilities and cloud, to deliver integrated business solutions that empower the business. The following sections explore how the journey has evolved from SMAC 1.0 to SMAC 2.0 for the CIOs, and what will constitute SMAC 3.0.

To summarize, EY believes that the dynamics will significantly change based on these disruptive technologies, and there will be a significant shift for CIOs with respect to managing their internal users and third-party vendors.

For internal users, we believe that the focus will shift from ‘do it for me’ (DIFM) to ‘do it yourself’ (DIY).

For third-party vendors, the focus will shift from ‘do it yourself’ (DIY) to ‘do it for me’ (DIFM).
Percentage of respondents stating their spend on IT in the current year

<table>
<thead>
<tr>
<th>Percentage of Spend</th>
<th>Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than last year</td>
<td>14%</td>
</tr>
<tr>
<td>Same as last year</td>
<td>23%</td>
</tr>
<tr>
<td>0 to 10% more than last year</td>
<td>35%</td>
</tr>
<tr>
<td>More than 10% as compared to last year</td>
<td>29%</td>
</tr>
</tbody>
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Percentage of respondents stating their spend on newer technologies as compared to business as usual

<table>
<thead>
<tr>
<th>Percentage of New Technologies</th>
<th>Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 25%</td>
<td>63%</td>
</tr>
<tr>
<td>25% - 50%</td>
<td>31%</td>
</tr>
<tr>
<td>50% and above</td>
<td>6%</td>
</tr>
</tbody>
</table>

Percentage of respondents stating the business drivers for IT agenda

- Increasing sales: 45%
- Improving margins: 38%
- Others: 17%
Journey to SMAC 3.0
Periodically refill your cyber defense program to be better prepared against cyber attack.

With the evolution of IT, your outsourcing partner holds a vital key to your future success.
Social media describes a shift in how people discover, read and share news, information and content. It fosters the human connection by transforming a monologue (one-to-many) into a dialogue (many-to-many). Social media tools make it easier to create and distribute content, and discuss the things we care about.

Social media is the transformative force of today whose use has risen dramatically over the past few years. As smartphones and tablets become ubiquitous, social media is available almost anytime, anywhere. Due to the rapid increase in the number of sites, the audiences as well as the time spent on social media have skyrocketed.

The speed, spontaneity and pervasive influence of social media have transformed the relationship between companies and their customers, employees, suppliers and regulators.

According to Mediavision, the use of social media is growing at breakneck speed. The 2014 usage statistics provided by them show that businesses are quickly jumping on the social media bandwagon.
Usage statistics as of 2014

Source - Mediavision, a digital marketing specialist

Evolution of social media

SMAC 1.0: The evolution of social media has come a long way from its original concept of connecting real-world friends.

SMAC 2.0: It has branched out into a number of sophisticated platforms, transformed the way we communicate with strangers and friends alike, and provided a whole new marketing channel for brands to communicate with their audience.

SMAC 3.0: We will see another level of advancement in this technology sphere where social media Customer Relationship Management (CRM) software will drive the change and the way businesses will approach this domain. Futuristic CRMs will be able to produce trends for all those connected to you via advanced preference analytics algorithms. These devices will be able to clearly demarcate the difference between ‘data of interest’ and ‘redundant data.’ They will also increase the coverage of the individuals for whom advertising products can be garnished based on the customer’s preferences.

Has social media really been effective in engaging with customers or enhancing collaboration? Or is it just a hype that has not lived up to its potential?
As organizations move ahead in the area of social media, EY has identified the following key concerns that CIOs need to keep an eye on. This can be summarized as below:

- **High risk**
  - Strategy not aligned to business requirements
  - Lack of a structured and well-thought-out strategy as an organization to engage with customers and other stakeholders using social media
  - Inappropriate or unapproved use of company intellectual property such as logos or trademarked material
  - Loss of intellectual property, copyright infringements and privacy breaches
  - Employees involved in social media may inadvertently leak sensitive company information
  - Disclosure of corporate assets leading to access of sensitive (privileged) information to unauthorized parties
  - Employee misuse of social applications while at work due to lack of defined policies and procedures and ineffective processes toward monitoring of compliance by employees
  - Damage to a brand or company reputation from negative, embarrassing or even incriminating employee or customer posts
  - Criminal hackers “re-engineering” confidential information – log-ins and passwords based on information posted on social media
  - More platforms create more access for viruses, malware, cross-site scripting and phishing

- **Medium risk**
  - Loss of intellectual property, copyright infringements and privacy breaches
  - Inappropriate or unapproved use of company intellectual property such as logos or trademarked material
  - Information posted on social media creates more access for viruses, malware, cross-site scripting and phishing

54% agree that social media has been really effective in engaging with customers and enhancing collaboration. 33% have mentioned that they will accrue benefits in next few years.
Universal inbox as a service – unlocking value for frontline workers using mobility

Emerging technologies, such as mobile payments, peer-to-peer payments, and mobile apps, are creating a mobile ecosystem. The next five years promise to continue this trend.

- **2BN Smartphones by 2014**
  - 1BN Smartphones will be added by 2014 and will grow 2.9x between 2011 and 2016, reaching 2,027M in number - Gartner

- **1.5MN Mobile Applications**
  - In July 2014, the number of mobile apps published in app stores has reached almost 2.5 MN – Statista Predictions for 2014

- **119% growth in traffic**
  - Smartphone mobile data traffic will grow 50 times from 2011 to 2016, a compounded annual growth rate of 119% - Pew Research Center

- **4:1 Mobile to PC App Development**
  - By 2015, mobile app development projects will outnumber native PC projects by a ratio of 4-to-1 - Gartner

52% respondents mentioned that they have budgeted for mobility in the current financial year

Evolution of mobility

- **2007 - Mobile Device Management**
- **2015 - Enterprise Mobility Management**
- **2017 - Unified Platform**
SMAC 1.0: The last decade has seen a significant rise in the usage of mobile devices. This led the top management of customer-centric firms to introduce the idea of using individual mobile devices to manage the work efficiently, bringing in the concept of Bring Your Own Device (BYOD).

SMAC 2.0: The BYOD culture was soon upgraded to its next version by redefining it to enterprise mobility. Frontline workers could now directly perform their business tasks using their mobile devices from anywhere outside the workplace. As this technology sinks in deeper into organizations, we can assume the emergence of the next level of enterprise mobility, in which organizations tie up with and work with the assistance of individual mobile partners to create a unified enterprise platform.

As depicted by the survey results, 52% of the respondents stated that they are considering mobility as a platform to enhance portability, by capturing data in real time. As compared to last year’s results, there has been a 5% increase in the number of CIOs opting for mobility. The trend is yet to catch on, but is not too far. Of the respondents, 25% mentioned that they may not have budgeted for enterprise mobility in the current financial year, but it is definitely in the pipeline.

Are you considering enterprise mobility (working on mobile applications) as a platform for enhancing portability and the ability to capture data in real time to help unlock value for frontline workers?

- 52% Yes (it's budgeted in the current financial year)
- 25% Maybe (not being considered now, but it's definitely in the pipeline)
- 23% No (Not a priority as of now)

25% respondents mentioned that mobility was not being considered NOW, but it is in the pipeline.
SMAC 3.0: The next big step is the collaboration of organizations with cloud service technologies to create custom solutions for employees to work better in the mobility space. Organizations adopting enterprise mobility would focus on the creation of a unified platform, enabling users to work on their mobile devices, irrespective of the type of device, the platform on which the device runs, and the type of connectivity available.

As organizations progress in the area of enterprise mobility, EY has identified the following key concerns that CIOs need to keep an eye on.

1. Exposure of the corporate network to unauthorised mobile apps
2. Increase in the risk multiplication factor due to the increase in the number of enterprise mobile devices
3. Uncontrolled data sharing via file-sharing tools (such as Evernote or Dropbox)
4. Protecting company data while allowing users to access their personal content
5. Availability of a remote wipe feature in case the device gets stolen
6. Centralised application security across all platforms
Insights as a service — stretching your customer reach using analytics

The customer shift from traditional experience to an online platform created a huge surge for advanced analytical tools in the digital space. With vast and constantly increasing volumes of data being generated, organizations started using this information source to uncover new opportunities, while minimizing their risk of exposure. Starting off as a technological trend, analytics has now become a strategic and operational viewpoint of organizations focused on increasing their customer base. According to EY’s The DNA of the CIO survey, 60% of CIOs think they add strong value to their businesses by enabling analytics to make fact-based decisions.

The substantive importance given to analytics can be seen in the survey response data, where 38% of the respondents have categorized analytics as “very important.” It is no surprise that increasing sales was the primary IT agenda of 54% of these respondents. To further signify the advancements in the analytical field, the survey shows that 69% of these respondents have agreed to invest more in cloud-based technologies.

How would you categorize the importance of analytics (Big Data analytics, web analytics, social media sentiment analysis, predictive analytics and content analytics) for your organisation?

- Very important: 42%
- Somewhat important: 38%
- Neither important/unimportant: 7%
- Not so important: 10%
- Not at all important: 3%

38% respondents categorized analytics as very important
42% respondents categorized analytics as somewhat important

1. DNA of the CIO: an EY survey of 301 IT executives from 13 countries within EMEA, 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.
Evolving companies with an equal focus on sales as well as margins have categorized data analytics as “somewhat important.” This shows that some CIOs are still slightly skeptical about unstructured data, which is driving the back end of operational excellence. The survey confirms this – while 48% of the respondents agree to the effectiveness of social media’s integration with data analytics, around 40% of them are still debating whether it will accrue benefits in the coming years.

Evolution of analytics – from basis reporting to entering the minds of customers

SMAC 1.0: Analytics has never been a new term. We always had tools and applications available to carry out standard analytical functions for an organization. Enter big data, and within half a decade, big data was buzzing in every CIO’s office. It was at this stage that organizations realized the significant potential of the humungous volumes of data churned out from their applications. Once the information is updated in the specialized analytics tools, they could provide vast insights on how businesses can improve. The meaning of big data took a drastic turn when large entities such as Hadoop came into the picture. These tools had the power to scan through all sorts of data (with or without significant value) and derive statistical outputs, which could then be integrated into external systems to create meaningful trends.

SMAC 2.0: The next generation of analytics emerged with concepts such as predictive modelling coming into existence. Predictive modelling or ‘predictive analytics’ defined the practice of filtering out information from huge existing datasets to identify patterns and predict future outcomes. A classic example is an e-commerce company that provides you with an array of options for products similar to the one you have just purchased. The algorithms in analytical systems are now sophisticated enough to identify your buying patterns and provide options in similar categories as part of their upselling techniques.

SMAC 3.0: The next level of analytics awaited is prescriptive analytics. Understanding customer requirements even before they have made a decision is the key element in this level. The aim is to get insight into the lives of customers, understand their lifestyles, interests and behaviors, and provide the appropriate products or services they need. Prescriptive analytics automatically synthesizes big data, multiple disciplines of mathematical sciences and computational sciences, and business rules, to make predictions. It then suggests decision options to take advantage of the predictions.

EY predicts that the collaboration of prescriptive analytics with other SMAC areas (viz. social) would formulate a big part of the CIO’s IT agenda in the coming years. This can be supported by the fact that among all the respondents who have considered data analytics to be important for the organization, 56% agree that social media is a major contributor to the success of its implementation. This implies that organizations can use the power of social media, integrate an analytics module to it, and provide specific results to users based on their browsing patterns and online profiles.

The day is not far when CIOs start realizing the power of prescriptive analytics and adopt the technology to improve their margins. Facebook, for instance, captures all your data even when you are not logged in and uses it to customize the advertisements you see on your profile.
Anywhere computing as a service – a new era of cloud computing

Cloud computing is an approach to computing infrastructure that links large pools of resources to be shared simultaneously by multiple users.

Cloud consumption is performed by four deployment models:

1. Public cloud
2. Private cloud
3. Community cloud
4. Hybrid cloud

**Public cloud.** The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services.

**Private cloud.** The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

**Community cloud.** The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off premise.

**Hybrid cloud.** The cloud infrastructure is a composition of two or more clouds (private, community or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability (e.g., cloud bursting for load balancing between clouds).
Evolution of cloud

The cloud maturity model and expected adoption timelines from SMAC 1.0 to SMAC 2.0 to SMAC 3.0 are given below.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point of entry</td>
<td>The onset of cloud computing as it emerges in business markets</td>
</tr>
<tr>
<td>Incubate/learn</td>
<td>The point past initial “testing” and delivering a major application from the cloud</td>
</tr>
<tr>
<td>FY14</td>
<td>The point at which most companies that have adopted cloud computing would have some amount of information served from the cloud</td>
</tr>
<tr>
<td>FY15 (We are here)</td>
<td>A halfway point, where the company must understand the benefit of each new/ existing application</td>
</tr>
<tr>
<td>FY17</td>
<td>The point at which most companies that have adopted cloud computing will have most of the information served from the cloud</td>
</tr>
<tr>
<td>Majority shift</td>
<td>The point at which most companies will achieve their goal of moving to the cloud</td>
</tr>
<tr>
<td>Complete absorption</td>
<td>All services operated by a cloud vendor</td>
</tr>
</tbody>
</table>

EY believes that as the cloud is embraced, cost allocation will shift significantly.

The traditional lifecycle cost allocation percentages required to implement and operate a new or updated application/service using the traditional delivery model are illustrated below.

The post-cloud migration environment will be more agile/iterative and will allow for reduced project management with more focus on service management. The shift of the cost allocation percentages to implement and operate a new or migrated application/service using the cloud delivery model are illustrated below.
The survey results show an interesting trend indicating that investment in cloud computing is delivering a range of benefits, including a shift from capital-intensive to operational cost models, lower overall cost, greater agility, reduced complexity and better security.

**Has social media really been effective in engaging with customers or enhancing collaboration? Or is it just a hype that has not lived to its potential?**

- Agree (it’s effective): 54%
- Disagree (it’s a hype that has not lived up to its potential): 33%
- Maybe (we will accrue benefits in next few years): 13%

57% respondents agreed that cloud-based technologies have given them significant benefits.
Of the respondents, 57% agreed that they are reaping the benefits of investments made in cloud-based technologies. Of these, 30% of the respondents are from the infrastructure, real estate and technology sectors. Further, 57% of the respondents plan to spend anywhere upto 25% on newer technologies, including cloud.

Our Cloud 360° framework features key areas necessary for C-suite executives to focus on to effectively manage their existing cloud environment and assess the path forward.
Act before you get hacked – getting ahead of cybercrime

Advanced technologies (cloud, big data, mobile, social media, etc.) offer new capabilities and benefits, but they also introduce new risks. Different technologies are being introduced every day, often outpacing the ability to properly assess the associated risks.

The question is not if your company will be breached, or even when, it has already happened.
The real questions are: are you aware of it, and how well are you protected for the future?

In today’s cybersecurity landscape, it is not possible to prevent all attacks or breaches; today’s attackers have significant funding, are patient and sophisticated, and target vulnerabilities in people and process as well as technology.

Cyber security landscape

<table>
<thead>
<tr>
<th>Unsophisticated attackers (script kiddies)</th>
<th>Sophisticated attackers (hackers)</th>
<th>Corporate espionage (insiders)</th>
<th>State sponsored attacks (Advanced Persistent Threat (APT), Hacktivism, Identity theft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ Experimentation</td>
<td>▶ Monetization</td>
<td>▶ Your current or former employee seeks financial gain from selling your intellectual property (IP).</td>
<td></td>
</tr>
<tr>
<td>▶ You are attacked because you have a vulnerability.</td>
<td>▶ You are attacked because you have information of value.</td>
<td>▶ You are targeted because of who you are, what you do, or the value of your IP.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ Cyber-attacks to promote political ends.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ Increased theft of Personally Identifiable Information (PII).</td>
<td></td>
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</table>

We have seen that cybersecurity is a global concern. According to EY’s Global Information Security Survey (GISS), 3 37% of respondents say that real-time insight on cyber risk is not available. With organizations increasingly relying on digitized information and sharing vast amounts of data across the globe, they have become easier targets for different forms of attack. As a result, every company’s day-to-day operations, data and intellectual property are at a serious risk. In a corporate context, a cyberattack can not only damage your brand and reputation, it can also result in loss of competitive advantage, create legal/regulatory non-compliance, and cause steep financial damage. The GISS survey indicates that 67% of the organizations feel that the threats are rising in their information security risk environment.

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2. EY Global Information Security Survey 2014
New business models rely heavily on global digitization, making the attack surface much larger, and exposing gaps in security, especially through the use of cloud, big data, mobile and social media. For example, cloud-based services and third-party data storage and management open up new channels of risk that did not previously exist.

With the constantly changing threat landscape, a new threat has arisen – Advanced Persistent Threat (APT). According to ISACA’s report on Advanced Persistent Threat Awareness, 43% of the respondents are familiar with APTs. However, only 50% of the respondents see APTs as a unique threat.

Cybersecurity has become a board level agenda. It is difficult to achieve ROI by investing in further prevention technologies. However, detection technologies will help organizations detect attacks, respond faster and minimize the damage. What would you consider investing more in?

- Preventive technologies
- Detective technologies
- Mix of both (preventive and detective)
- None

The survey results reveal that 73% of the respondents feel that as a cybersecurity solution, a mix of preventive and detective solution is required. However, EY observed that 45% of the respondents from the power & utilities or mining sectors have opted to invest in preventive solutions. Organizations will have to focus on detective technology solutions as well – having only preventive solutions will not make the organization secure.

According to EY’s GISS, 57% of respondents think that employees are the most likely source of an attack; 53% point to criminal syndicates; 46% point to Hacktivists; and 35% think external contractors working onsite are the most likely source of an attack. Organizations will need to invest in a mix of preventive and detective technologies to combat these attacks.

3. ISACA - Advanced Persistent Threat Awareness
The universal remote — connecting the unconnected

The Internet of Things (IoT) is a network of networks of uniquely identifiable “things” that contains embedded technologies to communicate and interact with their internal states or the external environment.

With billions of people connected to the internet today, the IoT represents a major transformation in a digital world that has the potential to affect everyone and every business.

IoT is expected to grow steadily through connected devices, mainly driven by the growth in smartphones and tablets.

IDC estimates that the installed base of IoT will be approximately 212 billion in 2020. This will include 30.1 billion “connected (autonomous) things” in 2020. This is largely driven by intelligent systems that will be installed and collect data across both consumer and enterprise applications.

IDC expects the technology and services revenue associated with IoT to grow at a CAGR of 7.9% from US$4.8 trillion in 2012 to US$8.9 trillion by 2020. The main growth drivers for the forecast period include:

- Pervasiveness of wireless connectivity
- Possibilities of connecting to the internet regardless of location through various protocols.

From the survey results, we observe that 39% of the organizations plan to implement IoT in the coming years. This trend is largely seen in 24% of organizations with revenues between INR 10 billion and INR 50 billion.

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4. IDC - The Internet of Things Poised to Change Everything
Internet of things (IoT) is a leading IT concept which is defined as “the ability of everyday objects to connect to the internet and to send and receive data”. Is your organisation planning to adopt IoT?

- **Yes (will implement it in the coming years)**: 39%
- **Maybe**: 31%
- **No (there are privacy and security concerns)**: 21%
- **No (there are compatibility and connectivity issues)**: 9%
- **Others**: 6%

39% of survey respondents say that they plan to adopt IoT in the coming years.
Innovative, state-of-the-art technology aims to make life simpler and safer for the consumer. It includes:

- Health care – a new patient-centric model is emerging
- Consumer and retail businesses – the age of the empowered customer and co-creator
- Banking convergence – new models for banking and finance
- Insurance – moving from statistics to individual fact-based policies

\[\text{Kevin Ashton, “That ‘Internet of Things’ Thing,” RFID Journal, July 22, 1999}\]
Smart mobility

Real-time route management and solutions aim to make travel more enjoyable and transportation more reliable. It includes:

- Autonomous driving and the connected car
- Urban mobility – smart traffic management
- Interurban mobility – connecting across the transport networks
- Fare management and payment solutions
- Distribution and logistics

Smart city

Innovations will aim to improve the quality of life in cities, encompassing security issues and energy resourcefulness. It includes:

- Smarter management of city infrastructure – using big data analytics
- Collaboration across multiple and disparate agencies – using cloud technologies
- Real-time data collection, enabling quick response – using mobile technologies
- Enhanced security – improved public safety and law enforcement, and more efficient emergency response
- Better city planning – improved schematics, project management and delivery
- Networked utilities – smart metering and grid management

Smart manufacturing

Factory and logistics solutions will be created specifically to optimize processes, controls and quality. It includes:

- Machine learning – intelligent, automated decision-making
- Machine communications – more interaction and collaboration
- Networking – networked control and management of manufacturing equipment
- Optimized processes – rapid prototyping and manufacturing, improved processes and more efficient supply chain operations
- Proactive asset management – via preventive diagnostics and maintenance
- Better infrastructure integration – overcoming the interface standards conundrum

IoT offers tremendous opportunities for personal improvements and for business innovation, but innovators need to be aware of the risks involved in IoT to provide better and more powerful solutions for the world.

Ken Allan, Global Cybersecurity Leader, EY
Do ‘IT’ for me

We are in an era of targeted cyberattacks on various organizations. The threat landscape consists of highly capable, determined adversaries who target organizations to steal information, steal money and compromise critical business services.

Emerging trends such as IoT, combined with the new normal – cloud, mobile and social capabilities – have significantly transformed the IT landscape. With IT everywhere, today’s cyber adversaries have greater opportunity to enter commercial organizations than ever before.

Traditional security can no longer be solely relied upon to thwart the efforts of a highly capable and determined adversary. Early detection and smart response require network and end-point visibility, monitoring rules to identify attack indicators, enhanced business context, and the ability to apply resources appropriately. Here, the concept of managed services with highly mature, 24*7*365 monitoring and incident response capabilities comes into picture.

The survey results reveal that 43% of the respondents will opt for a managed/outsourcing services model. The infrastructure and real estate sector leads this response, followed by consumer products and retail, and telecommunications. However, we observed that 79% of the respondents from the technology sector and 67% respondents from the energy/utilities/mining sectors opted for developing internal competencies.

What would you plan to do with regards to the availability of technological skillsets in the market?

![Bar chart showing the distribution of responses: 60% opting for managed/outsourcing services model, 58% developing internal competencies, and 21% hiring a professional services entity.]

43% respondents have opted for managed/outsourcing services model

42% respondents have opted for developing internal competencies
In today’s market, outsourcing is a key business tool leveraged by most major enterprises. Two decades ago, organizations began to initiate shared service centers to improve the efficiency of their back-office processes. For many organizations, outsourcing was the next step to cutting costs and further improving efficiencies. Today, outsourcing is no longer seen as exclusive to a specific size of organization or industry.

15% respondents have opted for hiring professional services.
EY and CIO KLUB’s seventh Enterprise IT Trends and Investment Survey, brought to you by EY on behalf of the CIO KLUB, gauges current investment patterns, IT priorities and upcoming investment plans of organizations.

This year’s survey was conducted from 17 February 2015 to 11 March 2015, and saw the participation of 278 respondents from various organizations across major industries. The questionnaire used in this survey was designed to gather relevant information about IT investments, initiatives, priorities and technologies. The survey was conducted through a secure online tool with a specific URL that was emailed to designated members of the CIO KLUB, along with instructions for completing the survey.

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. The responses of 267 out of the 278 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 2015 survey participants

Survey participants by sector

Percentage of respondents by size of the organization

Disclaimer: This document is based on survey results and not experts any opinion by EY
About CIO KLUB

CIOs of Indian enterprises have formed the CIO KLUB, registered as CIO Association. The CIO Association (CIO KLUB) is a non-profit and the 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 25 April as CIO Day from 2013. It is a day to celebrate the contribution of CIOs who contribute to their nation's growth by serving enterprises.

The objective of CIO Day is to increase the 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 1,200 members across India.

The key objectives of the KLUB are to share experiences, enhance knowledge, and explore business solutions by leveraging the collective wisdom of the large number of CIOs who are our registered members. They are senior level technology executives in the country. The current registered members represent the manufacturing, BFSI, service, pharmaceuticals and health care, retail, real estate and construction sectors from India's leading business houses and public sector undertakings. With such leaders as members, the CIO KLUB is uniquely positioned to be the voice of the IT user community of the country. We have formed various working groups. One on these groups has been formed to interact with the Government and to support initiatives to deploy information technology in government projects. This is a social initiative of the CIO KLUB, offering a vast experienced pool of CIOs who have implemented various IT projects in private enterprises.

From this year, the CIO KLUB is launching the IT award in association with the Bombay Stock Exchange (BSE). This award will recognize and honor CIOs who have set new benchmarks and have effectively used technology to improve business objectives.

This is the only award initiated jointly by one of the largest IT user companies (BSE) and India's largest IT user community organization (CIO KLUB).

For more information about CIO KLUB, please visit www.cioklub.com or email us at helpdesk@cioklub.com

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