

Indian IT Sector: Resilient Through Multiple Technology Changes

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Living in the Era of Technological Pervasion

The share of technology in every product is increasing, and this expansion is leading to the creation of new kinds of services. Devices are becoming connected, autonomous vehicles are coming for last-mile delivery, 3D printing is disrupting the health care industry, and robots and 5G are becoming reality. Collectively, this is resulting in technology becoming central to every industry — and in the coming years, we will see new use-cases emerge as artificial intelligence (AI) creates new possibilities for personalization, monitoring and marketing. It will also create new challenges around how to access, regulate and secure data.

In practice, various industries are proactively adopting the latest digital technology. For example, banks are set to invest in digitalizing their core systems to provide more personalized services and fend off the disruption from fin-tech companies, and the retail players will invest to migrate their operations to the omni-channel approach. Automakers are expected to actively invest to make autonomous vehicles a reality, and manufacturing companies will invest in upgrading their factories with a focus on industrial IoT (the internet of things) and robotics.

Relevant Adaptation to Changing Consumer Behaviors

Enterprises are increasingly embracing business models that are defined by technology, structurally driving up technology intensity across industries. As customers' demand for digital transformation projects shifts from pilots and proof of concepts to extensive engagements, it becomes increasingly essential for business entities to reimagine multiple aspects of their operations to be leveraged with new technologies. Also, as customers become more diverse, opportunities are typically business-led, and entail crafting value propositions beyond the chief information officers, to the chief experience officers. Funding for these programs comes from the respective departmental operating budgets, and not necessarily from the IT budget.

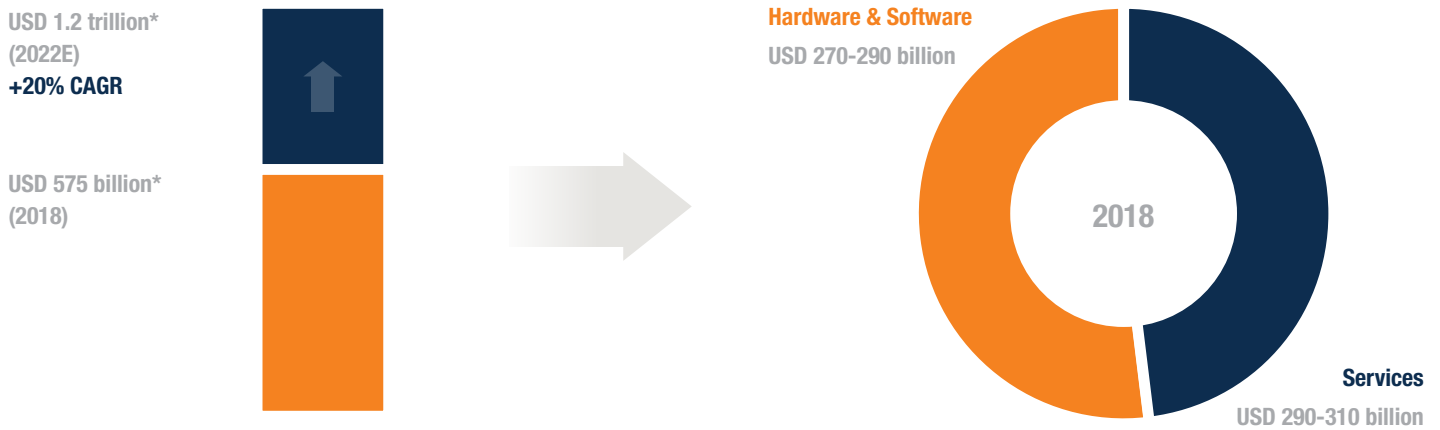
Digital Adaptation from the Manufacturing Industry

Adding more to the point, industrial manufacturers are joining their counterparts and looking for connected machineries with sensors. Except for a shift from mass production to customization, the primary objective of this new technological integration is to enable real-time data monitoring and generate

analytical insights, which can allow the exchange of critical data with other machines and computer networks on a real-time basis via cloud infrastructure. Overall, just like the Industrial Revolution overhauled manufacturing, digital transformation is instigating a mutation in the IT industry and businesses at large.

Global Enterprise Digital Spend to Touch USD \$1.2 Trillion by 2022

Source: NASSCOM Strategic Review (2019)



Key Areas of Digital-Led Spends by Businesses

Primarily, five technologies are driving the phenomenal growth in digital development: cloud computing, automation, blockchain, IoT and robotics.

Cloud Computing

As the primary choice for handling large quantities of data, the cloud is increasingly becoming an indispensable part of the enterprise IT infrastructure. IT-BPM (business process management), e-commerce, communication and media have been the leaders in cloud adoption, which is highly visible in multiple enterprises' processes for faster and better management of workflow.

Cloud Adoption in Enterprise Business Operations

Source: NASSCOM Strategic Review (2019)



As high-powered solutions such as big data, analytics, machine learning and artificial intelligence emerge to be delivered through the cloud, global cloud computing spending is expected to double by 2022, driven by the following catalysts:

- Newer data types like video, voice, etc., that require computing resources near the end consumer
- Increased computing capability that allows analysis of large quantities of data
- Higher computing capability that allows to derive insights and acquire capabilities to forecast future actions

Furthermore, with the increasing adoption of cloud computing, cloud security is also becoming a top priority to safeguard application data and infrastructure.

Automation

Automation technologies are leading to a shift away from traditional drivers such as cost reduction and efficiency gains, toward value-centric drivers such as compliance adherence, improved customer experience, autonomous processes, etc. In particular, robotic process automation (RPA) is playing a key role in business process management growth as customers look to automate low-hanging fruit and shift their focus to more strategic work.

Enterprises with mature RPA engagements have started AI-enablement of business processes, with 40% of RPA adopters moving beyond experimentation with AI-enabled processes. AI-enabled chatbots, or virtual assistants, are being used widely, while machine learning, predictive analytics and autonomies are moving up the maturity curve.

Going forward, combining cognitive technologies would allow robots to work within more complex scenarios.

Sectors Driving Growth in Automation

Sources: KPMG, NASSCOM Strategic Review (2019)

The automation market is expected to witness continued growth, driven by increased application across sectors. Examples include:

- BFSI (banking, financial services and insurance): reconciliation management system using machine learning for a bank
- Retail and manufacturing: machine learning and computational linguistics to automate the review and processing of transportation contracts
- Food and beverage: AI-enabled classification and resolution of high-volume IT infrastructure tickets for a multi-location food service distributor
- Health care and life sciences: automated medical summarization using text analytics, machine learning and NLP to improve accuracy of clinical decision-making and medical information extraction
- Travel and transportation: dynamic workflows and AI across multiple business groups and functions; bots to manage client queries and facilitate additional bookings and special requests
- Telecom, media and entertainment: robotics program delivering assisted automation (SAP activation, workbench, order to activation flows, etc.) and unassisted automation (order entry, provisioning and cancellation)

Blockchain

Service providers are shifting from an experiment-centric model to one focused on the business case. This will result in more projects moving to the production phase, where more than 70% of implementations will deliver cost savings or operational efficiencies.

BFSI (banking, financial services and insurance) is leading blockchain adoption with significant opportunities in retail, logistics, health care and manufacturing. Large member consortiums are being created across different industry sectors including BFSI, transportation and energy, etc., with cross-industry consortiums emerging rapidly.

More than 50 countries are working actively to develop standards to integrate blockchain in their economies, with nearly half of them in Europe.

The Internet of Things

As the race to disintermediate had led to the evolution of smart products and the IoT ecosystem, IT spends are becoming more integral to products than ever before.

IoT is growing at a rapid pace and its adoption is accelerating in various industries, such as telecom, automobiles, manufacturing, supply chain, service operations, etc. While enterprises are looking for IoT solutions to address gaps in internal capabilities, the manufacturing industry leads in IoT adoption because of the revolutionary way this connected technology has streamlined and simplified many processes.

A key growth driver for IoT will be the rollout and implementation of 5G. By 2021, it is expected that more than 20 billion devices will be connected to IoT. Moreover, industrial IoT opportunity is expected to surpass consumer IoT during this period.

Robotics

Robotics has evolved a great deal in the past few years from performing tedious jobs on the assembly line to mimicking more human-like traits such as dexterity and memory, which makes them more useful in industries such as manufacturing. Robots increase efficiency and minimize delays. Sensors built into smart machines “talk” to the control board, quickly identifying and fixing mechanical issues and allowing companies to make necessary adjustments more accurately.

Digital Powerhouse Supported by Unrivalled Pool of Talents

All of the above is resulting in IT spends undergoing a metamorphosis, moving from being efficiency heavy toward an increased focus on revenue growth and cost efficiencies. This, as well as the greater leverage of technology for competitive differentiation, significantly increases the need for workers with analytical skills and high-end technicians. If anything, digital advancement may be constrained only by the adequacy of skilled labor.

Global Shortage in Key Digital Skills

Source: CompTIA IT Industry Outlook (2019), CapGemini: The Digital Talent Gap, NASSCOM Strategic Review (2019)

IDC's Worldwide CIO Agenda 2019 Predictions reveals that 30% of high-demand roles for emerging technologies will remain unfilled through 2022

According to LinkedIn Workforce Report(August 2018), more than 151,000 data scientist jobs are going unfilled across the US

Research by (ISC)² estimates shortage of cyber security professionals at 2.93 Million, with ~500,000 of those positions in north America

By 2020, over a third of the core skills needed for most jobs will need skills that are currently not considered crucial to the job

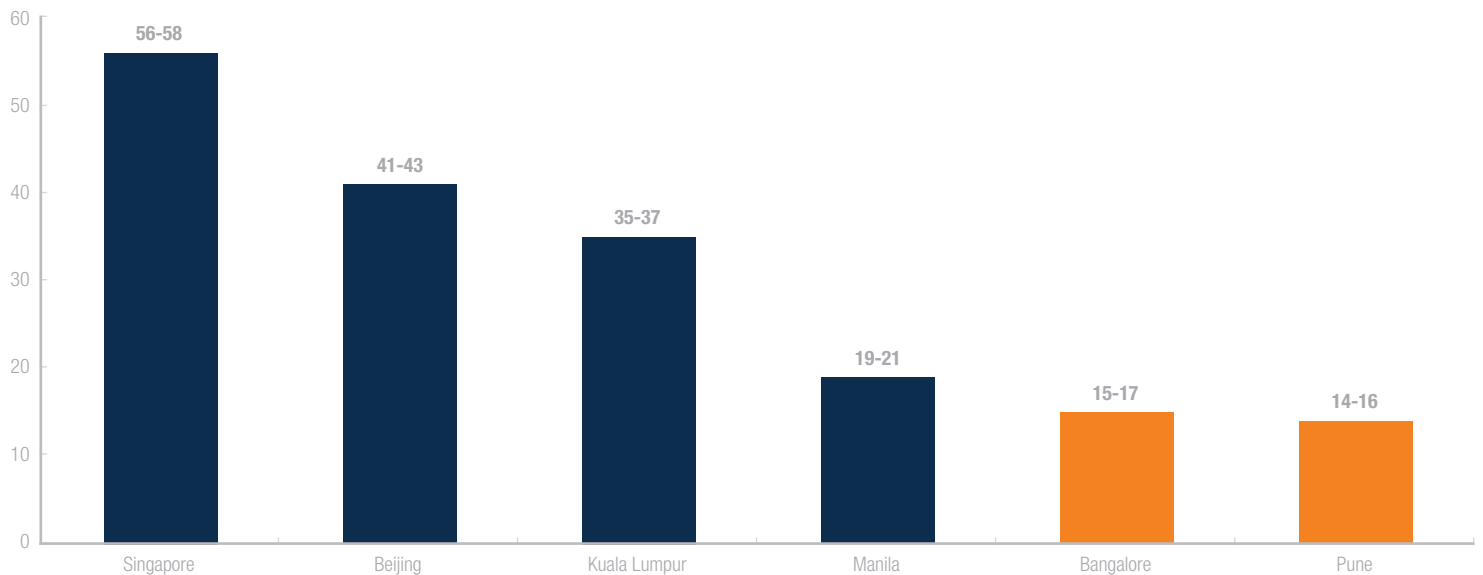
As per PwC CEO Survey 2019, more than 55% of ceos affirmed that availability of key skills is impacting the ability of their organization to innovate effectively

India is still the undisputed leader for quality-quantity-cost mix in that regard, and will be the answer to how any successful tech innovation achieves mass adoption and becomes mainstream. Over the years, Indian IT players have transitioned from being

back-office service providers to being solution providers. They are at the forefront of creating use cases, delivering the final product/ services and providing cybersecurity solutions.

Operating Cost per Full Time Employee for Architecture Development Method Services 2018, USD '000 per Annum

Source: NASSCOM Strategic Review (2019)

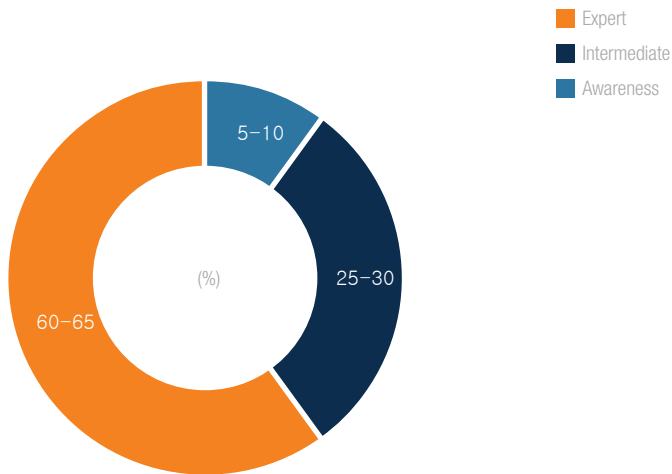


With more than 8,000 firms and 2,000 digital-focused startups, and nearly 600,000 digitally skilled workers from its 4 million IT-sector employees, India has fast been evolving as the digital partner for various industries across the world.

According to research conducted by Goldsmiths, University of London, and Automation Anywhere, India leads developed countries such as the United States, the United Kingdom and Japan in terms of deployment of AI-based and RPA-based technologies, especially in the BFSI and manufacturing sectors.

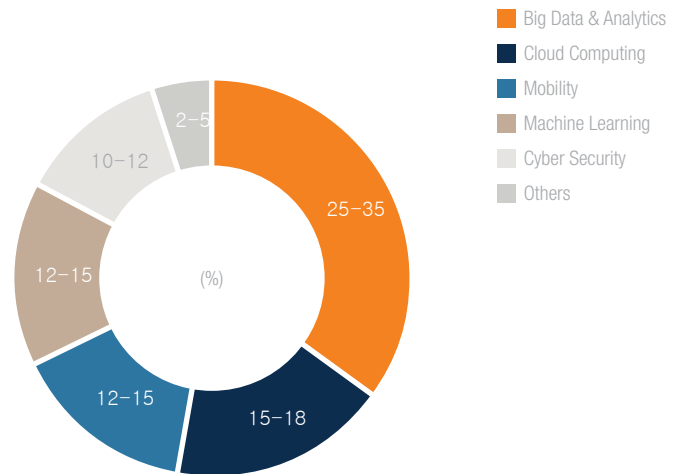
Share of India's Digitally Skilled Employees

Source: NASSCOM Strategic Review (2019)



Top Practice Areas in Demand

Source: NASSCOM Strategic Review (2019)



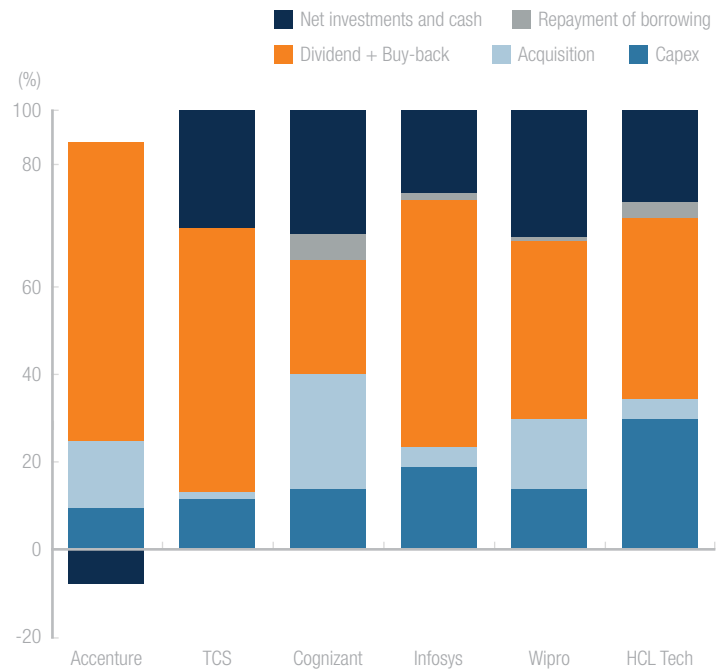
Opportunity for Indian IT Companies

Digital services contribute 35%–45% of the overall revenue of the Indian IT players. In spite of higher growth, digital has not yet lost momentum and is still growing at a robust 30%–40% rate. Currently, digital spends are being front-loaded, driven by consulting and infrastructure management services (IMS) projects due to the rising relevance of big data (agile cloud) and analytics. Not only is the future full of opportunities as long as the companies align to the norm of changing skill sets, the quality of the same has been, and remains, attractive. Digital services will be the key top-line drivers for the Indian IT industry, implying that the industry is well past its bottom of growth.

High operating margins, cash generation and return on invested capital have underlined the IT services business. As IT keeps moving up the value chain, it is unlikely that the quality of financial metrics will wane anytime soon. Moreover, they have set the bar higher in terms of payback to shareholders.

Dividend + buyback- 7-Year Aggregate

Source: Mirae Asset (2019)



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