The public sector is rapidly changing its approach towards service delivery as consumers become highly digital and demand ubiquitous connectivity. To meet citizen needs more efficiently and effectively, government enterprises are integrating technology into their daily operations. Government organisations and utilities are fast realising the need to increase the productivity of their services and introduce more citizen-centric solutions at both the local and national levels.

In India, there has been a special thrust on using technology for the delivery of public services. This has led to the launch of e-payment and e-governance solutions as government at all levels are making customer service their priority. With greater digitisation, the government's expenditure towards IT is set to grow. According to Gartner, the Indian government is expected to spend $7.2 billion on IT products and services during 2016, an increase of 2.4 per cent over 2015. This includes investment in internal services, software, IT services, data centres, devices and telecom services. Spending on IT services, which include consulting, software support, business process outsourcing, IT outsourcing, implementation, and hardware support, is expected to grow by 9.3 per cent in 2016 to reach $1.8 billion. Government spending on software will total $885 million in 2016, a 4.5 per cent increase from 2015. Investments in software will be led by growth in applications. The Digital India initiative is making government processes streamlined and integrating data repositories. According to Gartner, the Digital India initiative will continue to drive IT investments in the government sector, led by access of government services on mobile devices (part of the mobile government initiative), and expansion of broadband services.

Key enterprise applications

Most government organisations and utilities in the country have upgraded their legacy infrastructure and established a robust IT and telecom system. The key applications being used by them are enterprise resource planning (ERP), customer relationship management (CRM) and supply chain management. An enterprise-wide robust ERP ensures that the various departments of a government organisation are well-integrated and function together to meet business objectives. CRM, on the other hand, is critical for managing customer connect and handling their grievances in a time-efficient manner.

Apart from these generic enterprise solutions that organisations use, there are specific

technological solutions. For instance, many power utilities have replaced legacy power line carriers with optic fibre cable networks and deployed geographic information system (GIS) technology for mapping sites. GIS helps power, water and gas utilities in the mapping of their networks, in order to efficiently operate and maintain their assets.

In addition to end-consumers, the government sector employees are becoming more digitally enabled. Organisations are adopting technology-enabled solutions that can increase the work efficiency of their employees. Many government enterprises are drawing lessons from their private sector experience and promoting collaborative work styles through employee engagement solutions. They are also promoting bring your own device (BYOD), which emphasises device interoperability. Organisations now allow employees, customers, and citizens to seamlessly connect their own devices such as smartphones, tablets, and laptops to internal networks. This not only allows workers a choice of their technology, but also offers increased flexibility in terms of time allocation.

Issues and challenges

While technology adoption among government organisations and utilities is rapidly increasing, maintaining existing government IT systems while investing in new solutions requires well-planned processes and can be quite challenging. A key challenge that government entities face is the threat to information security. Since government enterprises store information that is typically more sensitive than any private sector organisation, it is imperative for them to invest in securing their information systems. Threat to information security is a prime concern related to cloud adoption among government enterprises as they do not want their information to be hosted outside the country. Many cloud service providers have thus started setting up data centres within the country to encourage government organisations to adopt cloud services.

Another key challenge is the lack of skilled manpower in government enterprises for managing the IT and telecom set-up. Many government organisations do not have dedicated ICT teams to manage the IT and telecom needs of the enterprise. Moreover, a long-term plan for the upgradation of ICT infrastructure is often missing. Meanwhile, a limited budget for investing in new technologies and upgrading ICT infrastructure is a pain point for many government organisations. Meanwhile, the rapid pace of technology adoption brings to the fore the challenge of technology obsolescence. Given a limited budget and the lack of skilled workforce, enterprises need guidance to properly plan their IT investments to ensure that they deploy up-to-date technology solutions that are the most suitable to meet their business needs.

Emerging technologies

Even as government organisations are increasingly deploying technology-enabled solutions, they need to put in extra effort to keep pace with the rapidly evolving technology. A number of advancements are taking place in enterprise applications, leading to the launch of several new promising solutions for the government sector.

Data analytics is gaining traction among enterprises in a number of sectors. Analytics is the collection and analysis of data to provide insight into customer behaviour to increase the organisational efficiency and programme effectiveness. The use of analytics at all stages of business activity and service delivery is helping government agencies change the way they collect and report data. Real-time reporting of data using advanced data collection and analytical tools can help them factor in various business variables and make better decisions. Data analytics also helps organisations capture consumer needs and deliver a holistic experience. Since consumers are increasingly adopting social media platforms in their daily lives, utilities need to leverage these platforms to actively engage citizens. In this regard, too, data analytics can play an effective role by delivering insights into consumer behaviour and helping enterprises understand the consumers' preferred engagement channels. Adopting such citizen-centric information management strategies is essential for enterprises to ensure seamless service delivery across all engagement channels.

Digital government platforms are increasingly gaining traction. These platforms reduce effort and have a user-centric design, thus helping enterprises deliver services such as payments, identity management and verification, reusable applications and notifications like SMS and email that are commonly used across multiple domains in the government sector. While India is yet to witness significant activity in this regard, globally many government organisations have adopted digital platforms to simplify processes, improve citizen interaction and reduce expenditure.

Another key technology that is finding application across multiple sectors and functions is the internet of things (IoT), which is a network of physical objects (fixed and mobile) with embedded technology to communicate, monitor, sense and interact with multiple environments. While the business use-cases and adoption rate of IoT by government agencies vary according to the service domain or the programme mission, the technology is expected to gain traction in the Indian context with the launch of government initiatives such as Smart Cities and Digital India. IoT can play a key role in enabling services such as waste disposal, electricity demand management, and remote monitoring of public services in rural areas.

Government enterprises are also increasingly deploying a software-defined architecture to bring in more flexibility in their systems. Adding a layer of software in order to abstract and virtualise networks has proved to be a useful way of deploying and utilising infrastructure and keeping pace with technological advancements.

Going forward

It is essential that government organisations and utilities stay ahead on the technology learning curve to serve the citizens better. The penetration of smart devices has increased rapidly, and each individual today owns at least two devices for internet access at any given time. This means that the government and utilities need to be accessible to citizens across a number of platforms to enable the seamless delivery of services. Therefore, in the fast-evolving digital service economy, government enterprises must either make strategic investments in IT or run the risk of operating a sub-optimal business and service models that are unsustainable in the long term.