Digital Government

Digital Transformation in the Indian Government

By Neeta Verma and Savita Dawar

Digital India is the flagship program of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. This program is centered on the vision of offering digital infrastructure as a core utility to every citizen, providing governance and services on demand, enabling the digital empowerment of citizens. Besides policy making facilitation to the IT industry and start-ups, the government has also adopted state-of-the-art ICT for its own transformation for efficient and effective delivery of information and services to citizens at large. A specific focus has been on reaching the last mile as digital inclusion is at the core of the Digital India program.

National Informatics Centre (NIC) under the Ministry of Electronics and Information Technology is an important stakeholder in the digital transformation of the Indian government.

NIC is the driving force of the Digital India program and has also helped the government be in the forefront in the use of information technology. It has been working with the government for over four decades, providing state-of-the-art infrastructure, building solutions, as well as advising individual departments on action plans and adoption of appropriate technologies.

NIC set up the VSAT-based network for inter-government communication in 1982. The X400-based electronic messaging service was used by the government long before the Internet was introduced to the country. With the help of NIC, the government has led the country in adopting the Internet and World Wide Web. The first Web presence of government was set up as early as 1995.

National infrastructure such as the network, cloud, video conferencing, government mail, GIS infrastructure, the public finance management system, and digital payments are key pieces which help provide a foundation for government departments to build IT systems that deliver services to citizens.

Digital Platforms

Government has been using ICT-based systems to implement and manage its programs for over three decades. These systems have evolved with the advent of technology. Initially, client server systems were used, which had their own challenges as they had to be installed and maintained at the last mile. Over time, the government progressed to

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The centralized systems can help to create national-level data registries/databases, which offer great advantages to a huge country like India. The importance placed on data today can only be leveraged if these kinds of registries are developed and maintained centrally instead of as isolated silos.

Digital Transformations in the Financial Sector

The Public Finance Management System (PFMS)\(^6\) has established itself as a safe, secure, efficient, and robust payment platform for the government of India. The system enables the successful delivery of payment from government treasuries and program agencies directly into beneficiaries’ accounts.

PFMS was conceived as an online transaction system that not only helps the government manage its funds but at any point of time also provides a comprehensive view of the flow of funds across different wings of the government. Over time, the PFMS has built online interfaces with most of the banks in India. PFMS (as illustrated in Figure 1) is a very efficient and effective tool for monitoring of government funds.\(^7\)

As part of the Digital India program, the government has leveraged on this unique position of PFMS and introduced the Direct Benefit Transfer (DBT)\(^1\) of payments directly to the bank accounts of benefi-

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**Figure 1. PFMS.**

<table>
<thead>
<tr>
<th>Key Features</th>
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<tbody>
<tr>
<td><strong>PFMS - Bringing efficiency, transparency &amp; accountability</strong></td>
</tr>
<tr>
<td>93 K Crore +</td>
</tr>
<tr>
<td>Amount transacted during FY 19-20</td>
</tr>
<tr>
<td>546</td>
</tr>
<tr>
<td>Govt. Schemes (enabled for DBT)</td>
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<tr>
<td>Effective Decision Support System</td>
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<tr>
<td>Interface with State Treasuries</td>
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\(^{1}\) Source: PFMS, Government of India

\(^{2}\) Source: PFMS, Government of India

\(^{3}\) Source: PFMS, Government of India

\(^{4}\) Source: PFMS, Government of India

\(^{5}\) Source: PFMS, Government of India

\(^{6}\) Source: PFMS, Government of India

\(^{7}\) Source: PFMS, Government of India

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using Web-based systems and from there moved on to cloud-based systems. Although cloud-based systems provide a lot of advantages, good stable connectivity becomes a prerequisite for the success of any centralized system. The benefits that centralized systems provide are worth the investment done in provision of a stable and robust connectivity. With the proliferation of broadband and mobile telephony, this connectivity has significantly improved and many of the challenges overcome.

The centralized systems can help to create national-level data registries/databases, which offer great advantages to a huge country like India. The importance placed on data today can only be leveraged if these kinds of registries are developed and maintained centrally instead of as isolated silos. Such centralized systems optimize operations as they reduce maintenance costs and downtime. Furthermore, compliance to government regulations is easier and the integrated national registries help provide data from across the country while providing a single source for analytics. Centralized systems also address the many concerns over interoperability of various systems working at different levels and thus enhance delivery of services.

Today, India has various national registries, such as the ones for driver’s licenses, national vehicles, public distribution beneficiaries, and health registries.

The benefits of a national registry are seen in the eTransport project, which has successfully automated the Regional Transport Office across the country and set up a consolidated nationwide transport database with real-time updates and availability. A consolidated database of over 250 million vehicle records and over 150 million driver’s license records already exists. With these registries, the transport department has evolved the eChallan application, wherein any police officer can issue an electronic citation or penalty on the spot, anywhere. These registries can also provide a close integration between vehicle insurance, pollution control systems, and accident reporting systems. A 360-degree profile of an individual or vehicle can be obtained. In the future, insurance premiums could be driven by such profiles.

Systems like these have helped bring about a digital transformation in India. These systems have had a huge impact on the work of government and the delivery of services. A description of changes in the public payment system and in the judiciary sector discussed here will serve as examples of their impact.
Revolutionizing the Indian Judiciary Sector

NIC is the single organization that consults and interacts with government at different tiers throughout India, from central government to state government to district administration. It is also the only organization that works across the three organs of state, namely the executive, judiciary, and legislative branches. The eCourts ICT system is helping transform the Indian judiciary by enabling courts to enhance judicial productivity and provide citizen-centric services. The system, as illustrated in Figure 2, has helped ensure the availability of food to over 330 million poor people at affordable prices, thus enhancing their food security (see the article by Raghavan et al. on p. 76).

PFMS together with DTB has brought about phenomenal change in terms of social impact. State governments recognized this and are also leveraging the system to transfer benefits under their programs. An estimated 100 billionINR (US$1.43 billion) is the annual gain to NIC from the PFMS platform. Integration with treasuries and the linkage of Aadhaar and DBT has helped government save close to 830 billionINR (US$11.5 billion). The Goods and Services Tax (GST) is an indirect tax levied on the supply of goods and services. It is a multistage, destination-based tax that is levied, for example, at every step as a product moves from materials through production then distribution and sale. When GST was introduced in July 2017, the e-Way Bill was also introduced to allow a common permit for movement of goods throughout the country. e-Way Bill is an electronic document that includes details regarding the movement of goods; it must be carried by transporters for any consignment over a certain threshold. The e-Way Bill mechanism ensures goods are transported in accordance with GST laws and that taxes are paid for the supply of goods (see Figure 2).

Through the e-Way Bill, taxpayers, transporters, and tax officers all rely on a unified system. The implementation of the e-Way Bill has helped boost GST revenue collections, abolished post-dated checks, and increased tax compliance. There has been significant improvement in the ease of doing business due to the self-declaration and reporting enabled by e-Way Bills, which also save time in the transport of goods. Approximately 700,000 e-Way Bills are generated every day.

Electronic transfers have made a huge social impact as they ensure the timely transfer of benefits to citizens, bringing efficiency, effectiveness, transparency, and accountability to the system.
Data Grid (NJDG) has brought transparency to the country’s justice delivery system. Tracking pending litigation at the district level has also opened judicial matters to the general public, researchers, academicians, and society at large. NJDG also serves as a decision support system to authorities like the Supreme Court, high courts, the central government, and state government to monitor pendency on varied attributes for effective decision making.

Conclusion
NIC is the IT arm and an integral part of the Indian government. This single organization consults and interacts with government institutions at all tiers, from the central to panchayat (village) level. In addition, NIC has also set up nationwide infrastructure that is leveraged by all these institutions in their internal functioning as well as the delivery of services. This structure is unique in the world and has accelerated the adoption of new technologies by government at all levels. The ready availability of infrastructure like a government network, datacenters, the cloud, and mail has fast-tracked implementation of various initiatives under the Digital India program. Cybersecurity of these infrastructure systems is also managed by NIC, making it versatile and unique.

NIC can be considered the prime builder of e-government applications and services as well as a promoter of digital opportunities for sustainable development. Use of open source technologies and open standards is at the core of many of the projects implemented by NIC. This has reduced the reliance on proprietary software and enhanced interoperability. These governance and citizen-centric products have proved a great impetus to citizen empowerment and resulted in a vast transformation in the delivery of government services, wider transparency, decentralized planning and management, and better efficiency and accountability to the people of India.

NIC’s role in e-governance initiatives is leading to a truly Digital India and ensuring effective citizen-centric governance. The imprints of NIC can be seen in almost every sector of the government such as health, education, transport, agriculture, to name just a few. With several such nationwide flagship initiatives and services, NIC is spearheading the country’s growth in the digital realm and contributing to its inclusive development. There has been massive savings for the government in this digital transformation and direct financial benefits to citizens. Citizens are the ultimate winners, with quicker, transparent delivery of services and benefits.

Further, with the advent of Digital India, the huge amount of data generated through e-governance initiatives is being used for effective planning and decision making by the government, as NIC provides support in the domain of data quality assessment and big data analytics. Keeping pace with emerging technologies, NIC has started to incorporate technologies such as deep learning, linguistic analysis, and advanced analytics in its products and e-governance applications for greater societal benefits.

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8. Unique Identification Authority of India; https://uidai.gov.in/

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