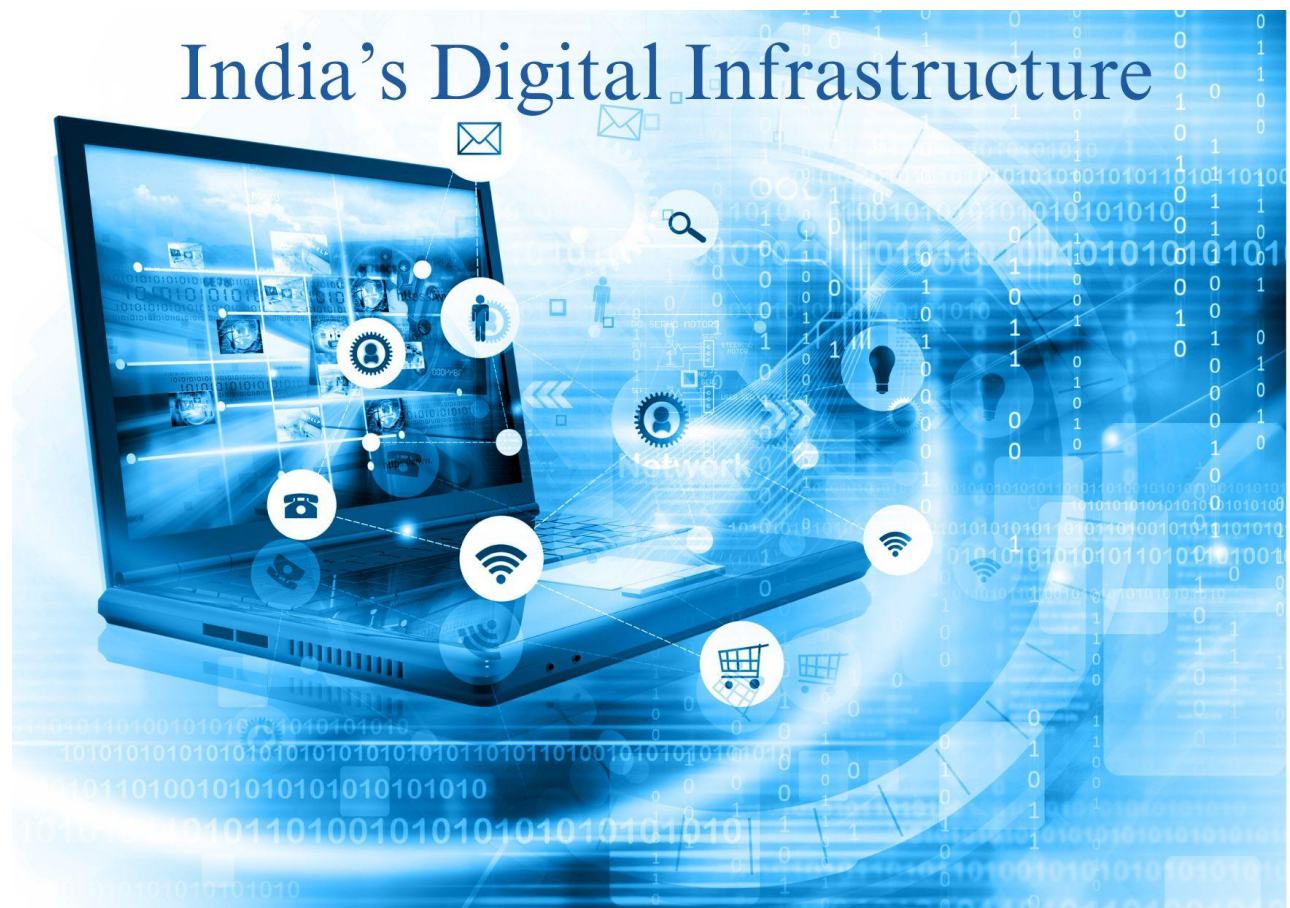




India's Digital Revolution: Transforming Infrastructure, Governance, and Public Services

December 08, 2024

India's digital infrastructure has undergone a transformative evolution in recent years, positioning the country as a global leader in digital adoption. With a rapidly expanding digital economy, driven by innovations in cloud computing, artificial intelligence (AI), machine learning (ML), and digital governance, India's infrastructure is continuously evolving to meet the growing demands of the public and private sectors. Key initiatives and projects have been rolled out to strengthen the country's digital backbone, ensuring accessibility, scalability, and security in delivering government services, fostering economic growth, and enhancing citizens' lives.



India's Digital Infrastructure Landscape

One of the central pillars of India's digital infrastructure is the expansion and development of **data centres**. These centres are crucial for supporting the increasing demand for cloud computing, data storage, and AI/ML applications. India's data centre industry is poised for substantial growth, with expectations for a significant increase in IT load capacity, which is approximately at 1000 MW

currently. The National Informatics Centre (NIC) has established state-of-the-art National Data Centres (NDC) in cities like Delhi, Pune, Bhubaneswar, and Hyderabad, providing robust cloud services to government ministries, state governments, and public sector undertakings (PSUs). These data centres also offer essential disaster recovery and hosting services, ensuring continuity in government operations. At NDC, storage capacity has been expanded to approximately 100PB, including All Flash Enterprise Class Storage, Object Storage, and Unified Storage. Additionally, around 5,000 odd servers are deployed to support various cloud workloads. Another state-of-the-art NDC (Tier-III) of 200 Racks expandable to 400 Racks is being established at Guwahati, Assam.

To address the unique challenges faced by India's Northeastern region, the **National Data Centre - North East Region (NDC-NER)** was launched in September 2020. This facility aims to bridge the digital divide, foster socio-economic development, and improve public services in the region by providing a reliable, high-performance data storage and cloud service infrastructure.

Enhancing Cloud Services: The Role of NIC and MeghRaj

India's growing cloud service ecosystem has been crucial in supporting its digital transformation. The **Enhancement of National Informatics Centre (NIC) National Cloud Services** project, launched in 2022, seeks to further upgrade the national cloud infrastructure, enabling faster and more efficient delivery of e-Governance services. Over 300 government departments are now utilizing cloud services, contributing to the rapid growth of India's digital public infrastructure.

The **GI Cloud (MeghRaj)** initiative aims to provide ICT services via Cloud to all Government Departments at the Centre and States/UTs, promoting the Cloud ecosystem nationwide. It ensures optimal use of IT infrastructure and accelerates the development and deployment of e-Gov applications such as digital payments, identity verification, and consent-based data sharing. MeitY has initiated the empanelment of Cloud Service Providers (CSPs) to address the evolving Cloud needs of Government Departments.

Digital Public Infrastructure (DPI): A Game-Changer

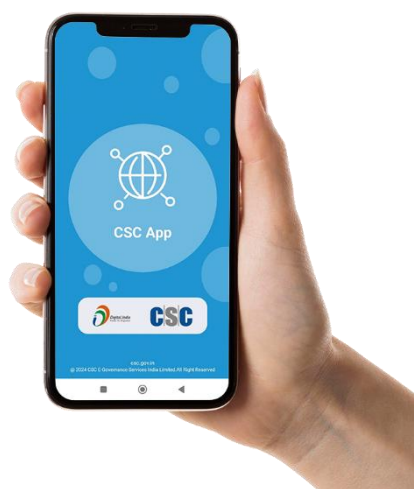
Digital Public Infrastructure (DPI) refers to foundational digital systems that are accessible, secure, and interoperable, supporting essential public services. In India, DPI has been instrumental in transforming the digital economy, much like traditional infrastructure for industrial growth. Key achievements include **Aadhaar**, **Unified Payment Interface (UPI)** etc. Aadhaar, the world's largest digital identity program, offers a unique digital identity based on biometric and demographic data. It enables authentication anytime, anywhere, while eliminating duplicate and fake identities. So far, **138.34 crore Aadhaar numbers** have been generated. **Unified Payment Interface (UPI)** facilitates digital payments and enhances financial inclusion. As on 30 June 2024, it has facilitated **24,100 crore financial transactions**. **DigiLocker**, a platform for digital document verification. It has facilitated more than 37.046 crore users and made available 776 crore issued documents. **Digital Infrastructure for Knowledge Sharing (DIKSHA)**, the world's largest education platform. As on 22nd July 2024, 556.37 crore learning sessions have been imparted using DIKSHA. It has achieved 17.95 crore course enrolments and 14.37 crore course completions.

Other significant platforms include **Government e-Marketplace (GeM)** for government procurement, **UMANG** (providing access to government services), and **API SETU** (for open APIs). **Co-WIN** and **Aarogya Setu** have been pivotal in health services, including vaccination tracking and

contact tracing. Further, India's digital health infrastructure includes eSanjeevani (telemedicine service), e-Hospital (hospital management system), and e-Courts (for judicial processes), transforming healthcare and justice delivery. The Poshan Tracker monitors nutritional services for women and children, while e-Office digitizes government workflows. The **NCD (National Non-communicable Diseases) platform** aids in managing non-communicable diseases and is integrated with the Ayushman Bharat Digital Mission and 67 million Ayushman Bharat Health Account (ABHA) numbers have been created. Skill development is supported by **SIDH (Skill India Digital Hub)**, a platform for skilling and livelihood. Additionally, **India Stack Local** showcases digital solutions developed by State Governments and UTs, with 493 solutions listed. These initiatives, part of India's Techade, have positioned India as a leader in digital services, benefiting both citizens and other nations, especially in the Global South.

The **National Knowledge Network (NKN)**, approved in March 2010, is a high-speed data communication network designed to connect National and State Data Centres, State-Wide Area Networks, and various Digital India initiatives. It supports Government-to-Government (G2G) and Government-to-Citizen (G2C) services, district connectivity, and interconnects knowledge institutions across India to promote resource sharing and collaborative research. NKN serves both the National Government Network (NGN) and the Research & Education Network (REN). The network has successfully established 1,803 links with institutions and 637 links with district centres, enabling digital governance and the efficient delivery of e-Government services.

Common Services Centres (CSCs): Reaching Rural India

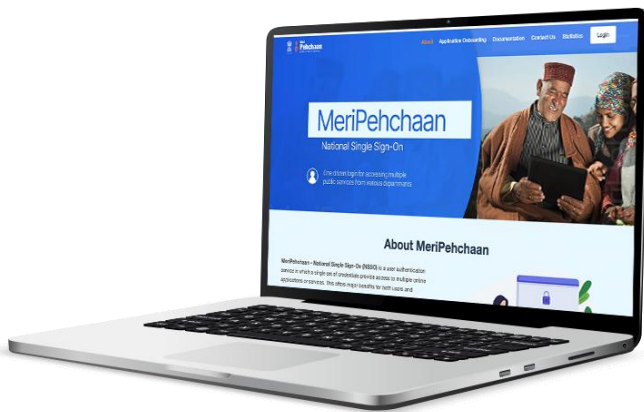


The **Common Services Centres (CSCs)** initiative, managed by the Ministry of Electronics and Information Technology (MeitY), has played a vital role in bringing e-services to rural India. As on October 2024, over 5.84 lakh CSCs are operational across the country, including 4.63 lakh at the Gram Panchayat level, the initiative has facilitated the delivery of more than 800 services ranging from government schemes to education, telemedicine, and financial services.

Citizen-Centric Digital Services

Unified Mobile Application for New-Age Governance (UMANG) is another key initiative aimed at simplifying access to government services. This mobile app integrates services from various sectors, including agriculture, health, education, and pensions. With over 7.12 crore users, UMANG has streamlined the way citizens engage with government services, providing them with a unified platform for easy access and transactions. UMANG is available in 23 multi-lingual languages (for top 100 services), including English and Hindi. As of now, **UMANG** offers about 2,077 services from 207 departments of the Central and State Governments across 32 States/UTs, including 738 Direct Benefit Transfer (DBT) services.

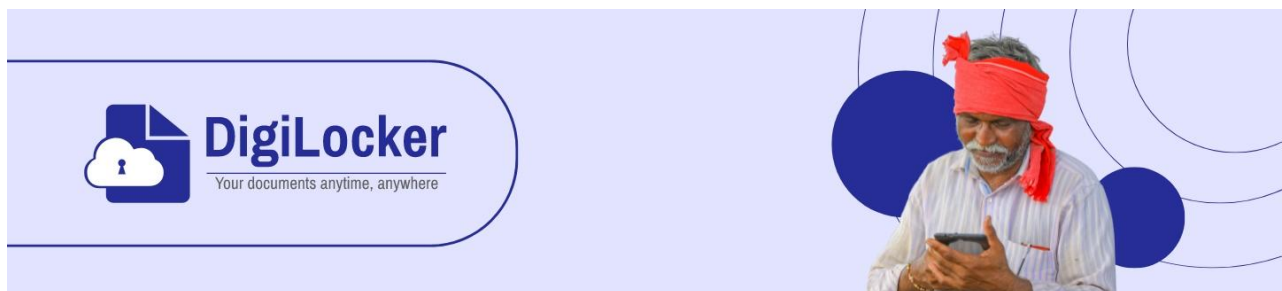
The **MeriPehchaan** platform, a National Single Sign-On (SSO) service, provides citizens with a seamless way to authenticate and access various government services using a single set of



credentials. Over 132 crore transactions have been processed on this platform, improving service delivery and reducing the complexities of managing multiple accounts and credentials. The **e-Hastakshar** (e-Sign) service enables citizens to digitally sign documents, providing a legally accepted alternative to physical signatures. A total of 81.97 crore e-Signs have been issued by all ESPs, of which 19.35 crore were issued by CDAC under the e-Hastakshar project.

Another important project, **API Setu**, facilitates the implementation of the government's Open API Policy, enabling seamless data exchange and service delivery across government systems. Over 6,000 APIs have been published, facilitating more than 312.01 crore transactions. With 1,700+ publishers, including key entities such as PAN, Driving License, Vehicle Registration, COVID Vaccination Certificate, and CBSE, the platform also serves more than 634 consumers. The **MyGov** platform is the Government of India's citizen engagement initiative, allowing citizens to share ideas, opinions, and feedback on various government policies and programs. With over 4.89 crore registered users, MyGov fosters transparency and encourages active citizen participation in governance.

Revolutionizing Government Operations



In line with the government's vision of paperless governance, **DigiLocker** has become a revolutionary platform for the issuance and verification of documents. With over 37 crore registered users, DigiLocker has transformed the way citizens access and authenticate their documents. The **Entity Locker**, an extension of this service, is designed to empower organizations by providing secure cloud-based platform to store, share, and verify digital documents, promoting further adoption of digital document management.

CollabFiles is a centralized platform for government officials to create, manage, and share office documents such as spreadsheets and text files. It integrates with platforms like e-Office and NIC email and ensures secure access via government-issued email IDs, and maintains records of document sharing. **GovDrive** is a cloud-based, multi-tenant platform offering storage as a service for Government of India officials. It enables secure storage, sharing, synchronization, and management of documents across devices, allowing officials to store, access, modify, or delete files and folders online through the GovDrive application.

The **Gov Intranet Platform** is a modern, secure portal for government officials, streamlining workflow management with Single Sign-On (SSO) via Parichay. It provides access to applications like eMail, eOffice, and the Ministry Performance Dashboard while enabling efficient calendar management, task assignment, event planning, and secure document sharing. With advanced UI/UX, multi-platform support and features like Swagatam integration for visitor passes and BharatVC for virtual meetings, it ensures seamless communication and coordination.

Conclusion

India's transformative journey in digital infrastructure underscores its commitment to innovation, inclusivity, and efficiency. By leveraging cutting-edge technologies like cloud computing, AI and through initiatives like Aadhaar, UPI and DigiLocker, India has emerged as a global leader in digital adoption. The collaborative efforts of government platforms and seamless citizen engagement, are paving the way for a digital future that empowers every citizen, fosters socio-economic growth, and strengthens governance. This digital revolution not only enhances India's domestic capabilities but also positions the nation as a pioneer in providing scalable digital solutions for the global south. As India continues to build on this momentum, it is set to redefine possibilities in governance, public service delivery, and economic development.

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