

E- Governance & Digital Transformation in Public Administration: Navigating the Algorithmic Frontier of Civic Governance

Mansi*

Abstract

This article examines the structural paradigm shift in public administration as it transitions from classical E-Governance—the mere digitization of analog processes—to comprehensive Digital Transformation. Driven by the limitations of traditional Weberian bureaucracy in a hyper-connected world, modern governance increasingly relies on Digital Public Infrastructure (DPI). This infrastructure is anchored by three critical pillars: secure digital identity ecosystems (e.g., India's Aadhaar and Estonia's e-ID), decentralized interoperability frameworks like the X-Road architecture, and sovereign, hybrid cloud environments that protect national data integrity.

Focusing on contemporary technological frontiers, the paper analyzes the deployment of Generative Artificial Intelligence (AI) and Large Language Models (LLMs) to deliver hyper-personalized, multilingual citizen services and decision-support systems. It further explores the use of predictive analytics and Internet of Things (IoT) sensor networks in smart city planning, alongside the integration of blockchain technology to secure immutable public registries and mitigate corruption in public procurement.

However, this algorithmic leap introduces complex socio-technical challenges. The article critically addresses the multidimensional digital divide, emphasizing that true digital inclusion requires maintaining analog redundancies for vulnerable populations. It examines the expanding public sector threat landscape, advocating for a transition to Zero Trust Architectures (ZTA) to combat sophisticated ransomware and state-sponsored cyber warfare. Furthermore, the study addresses data privacy concerns and algorithmic bias, pointing to regulatory frameworks like the European Union's GDPR and AI Act

*Guest Faculty Political Science NCWEB centre at Bhagini Nivedita College, University of Delhi, committed to advancing higher education and mentoring the next generation of leaders.