

## Digital Solutions in Local Government Finance: Driving Sustainable Development through e-Governance Innovation

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### Abstract

Digital technologies are vital in numerous functions within local government tasks like digital records management, data analytics, and online service delivery for informed decision-making. Appropriate digital technology strategies can significantly improve effectiveness, accountability and efficiency in establishing transparent digital reporting systems. Indeed, while acknowledging these challenges, it's essential to recognize they represent only one facet of the broader spectrum of obstacles faced by local governments in technology adoption, factors like inadequate expertise in technology integration, difficulties in allocating resources effectively and uncertainties surrounding the implementation of strategies stand out prominently. The paper used secondary data to achieve the research objective. Governance has evolved through different phases traditional, new public management, bureaucratic, participatory governance and collaborative. A notable research gap within the context of technology adoption among local governments. The paper aims to enhance a comprehensive study regarding Agenda 21, which outlines several concrete strategies to achieve sustainability. Substrates of sustainability (finance, social, economic and environmental) in planning practice. Driving forces, conditions, responses, impacts and a detailed summary of the governance paradigm of conditions and influencing factors. Findings can significantly impact the direction and success of digital technology adoption for local governments.

**Keywords:** *Sustainability, Local Governance, digital financial inclusion, participatory governance and collaboration.*

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### Introduction

The COVID-19 pandemic has slowed progress toward achieving Sustainable Development Goals by 2030, impacting areas like education/ economic disruption, food security& hunger healthcare challenges and environmental and climate actions. Investments in achieving Sustainable Development Goals fall short, with most funds still geared towards linear economic models, neglecting sustainable,

circular practices needed for long-term success. Stable and developed economic policies entities demonstrate higher performance than unstable regions and economies, revealing a gap worsened by consistent underinvestment in low/middle-income countries. In 1987, the Brundtland Commission defined Sustainable Development as meeting present needs without compromising future generations. Agenda 21 acts as a guide for achieving

economically, socially and environmentally sustainable development.

The doctrine of sustainable development and local bodies traces back to debates on economics and public finance.

**Sustainable Development and Local Bodies: Historical Concepts, Progress and Prospects:**

Historical background	Progress & Prospects
<b>Amartya Sen’s Capability Approach (1970-1980s):</b> individual Capabilities and freedom in development	<b>Infrastructure and resource management:</b> Renewable energy adoption, water conservation and waste management.
<b>Joseph Stiglitz Inclusive growth (1990s to present):</b> Economic growth benefits all segments of society.	<b>Community engagement and progress:</b> driving agents in policies and process.
<b>Elinor Ostrom Common Management (1990s -2000s):</b> Community-based resources management particularly in local contexts.	<b>Partnership &amp; collaboration:</b> by local govt. with NGOs, businesses or others to promote SDGs
<b>Nicholas Stern climate economics (2000s to present):</b> Economic risks of climate change and importance of proactive measures including local-level.	<b>Measurable impact and outcomes:</b> on local government, social and economic well-being. Quantify changes in carbon footprint reduction, poverty alleviation and economic growth etc.
<b>Jeffrey Sachs SDGs (2010 to present):</b> global SD efforts until 2030.	<b>Long-term Sustainability planning:</b> Integrated planning and decision-making processes. Evaluate strategies to ensure progress and resilience.
<b>Kate Raworth Doughnut Economics (2010 to present):</b> balance between environmental sustainability and social equity with economic models.	<b>Education initiatives&amp; Awareness Initiatives :</b> contributed to behavioral changes and increased awareness.
<b>Hernando de Soto’s property rights and development(1980-1990s):</b> fostering economic growth including Local levels.	<b>Innovation and technology adoption:</b> Advancements have facilities progress in sustainability efforts.
<b>Muhammad Yunu’s microfinance and social business (1970s to present):</b> poverty alleviation & local economic development.	<b>Challenges and Roadblocks :</b> limited resources, conflicting interest, lack of public awareness, regulatory hurdles and potential solutions.
<b>Mariana Mazzucatos mission Oriented Innovation (2010 to present):</b> government-led missions to address societal challenges, including local sustainability goals.	<b>Inclusive economic Development:</b> fostering green jobs, supporting local business that prioritize sustainability, creating economic opportunity within a sustainable framework
<b>Thomas Piketty’s wealth and Income Inequality (2010 to present):</b> Its implication for sustainable development.	<b>Circular Economy and resource optimization:</b> optimize resources, minimize waste and promote recycling and upcycling initiatives
<b>John Elkington’s triple bottom line(1990s</b>	<b>Vulnerable and Marginalized groups:</b>

to present): impacts in decision -making , applicable to local governance practices.	analyses the inclusivity of SDG and address the needs / challenges in achieving goals.
<b>Esther Duflo and Abhijit Banerjee Experimental Economics for poverty alleviation (2000s to present):</b> evidence based approaches relevant for local level interventions.	<b>Youth and civic Engagement :</b> Volunteerism and community participation in driving SDG agendas at the local level.

**Review of Literature**

Digitization has a pivotal role in fostering closer ties between citizens and the state, effectively narrowing the divide that once existed between the demand for and supply of quality public services (Xavier and Choi 2021). The digitalization of service delivery is significantly reshaping the landscape, altering their participation in governance. This shift eliminates paper- based transactions and consolidates public information access points. Process of implementation, designing, delivering and evaluating public policies as highlighted in the (World Bank Report 2019). The 11th report by India’s Second Administrative Reforms Commission, “Promoting Digitalization and e-Governance -way Forward”, utilization of ICT including AI, mobile computing etc. and integrations

aims to transform interactions with govt. arms, businesses and citizens enhancing the delivery of govt. services facilitate better transactions with the community & empower through information access. The outcome includes revenue growth, transparency and reduced financial cost and a clampdown on corruption. Digitalization presents an opportunity to revolutionize governance by transcending mere computerization of government processes. It aims to achieve efficiency in public service delivery, empower citizens and establish transparency and accountability. At its core, it prioritizes the needs and welfare of the people (Chandrashekhar, 2008). Digitalisation has the following benefits (Shareef, Jahankhani & Dastbaz 2012) and World Bank)-

<b>Bhoomi project in Kerala</b> Digitized land records, enabling citizens to access and manage their land- related info. Online reducing corruption
<b>Lodvani in Uttar Pradesh</b> lodge grievances and access land records, providing a platform for addressing citizen concerns and maintaining land-related information digitally.
<b>The Gyandoot project in MP</b> issuing certificates to citizens, the process of accessing and obtaining essential documents and services.
<b>MCA 21 by Ministry of Corporate Affairs, Govt. of India</b> Focusing on electronic filling, making corporate govt. more efficient.
<b>procurement project in Andhra Pradesh</b> ensuring transparency and efficiency in govt. procurement activities. Smart Gov by AP using smart technology.
<b>Khajane project in Kerala:</b> financial transparency and administration

Technology plays a crucial role in fostering citizen participation, especially in democratic nations like India. It serves as an empowering tool, particularly for marginalized sections of society, by offering access to information and thereby enhancing political equality. Processes like the computerization of land records, politically and socially neutral, contributed significantly to this cause. Promote a more equitable and informed society (*Vaddiraju and Manasi 2017*). the UN survey 2022 underscores that digitalization stands as a cornerstone in establishing resilient, accountable, socially inclusive organizations. It aligns with the goals outlined in SDG 16, aiming to build inclusive and peaceful societies, ensure access to justice for all citizens and establish effective, accountable and inclusive institutions at all levels within the nation. Additionally, SDG 17 aims to boost global partnerships for sustainable development, emphasizing collaboration among countries -both developed and developing -to ensure that no individual is left behind. The 2030 agenda for sustainable development calls for comprehensive partnerships among governments, the public and private sectors and civil society to collectively work towards these goals, as outlined by the UN in their SD agenda. ICT development bolsters democratic values. ICT development bolsters democratic values for fostering accountability, responsiveness and transparency in governance. Its utilization builds trust among govt., private sector and society promoting an accountable and open system (*Cordella 2005*).

### Research Objectives

This paper is designed to thoroughly analyse various issues and approaches linked to the doctrine of sustainable development goals and local bodies traced back to debates on economics and public finance.

- 1) The paper examines Agenda 21, Digital Era Significance, Challenges and Steps for Empowering Local Bodies.

### Data Source and Methodology

The paper used secondary data & information to achieve the research objective. Secondary data on various parameters has been collected from sources such as publications. Agenda 21 advocates for sustainability through transport reform, urban revitalization and technology. Development Index, an online service index divided into sub-parts comprising. This paper explores the meaning, significance, and challenges and suggests steps for empowering Local Bodies.

**Agenda 21** advocates for sustainability through transport reform, urban revitalization and technology. It urges Governments to improve rural and urban areas, construct resilient cities promote energy efficiency, job creation and non-polluting technologies. Additionally, it emphasizes renewable energy such as solar, biomass and hydroelectric, public and eco-friendly transport, minimized urban sprawl and land use protection for environmentally sensitive areas. Digital technology has indeed brought about a significant revolution in people's daily lives worldwide. The evolution and advent of technological innovations such as AI,

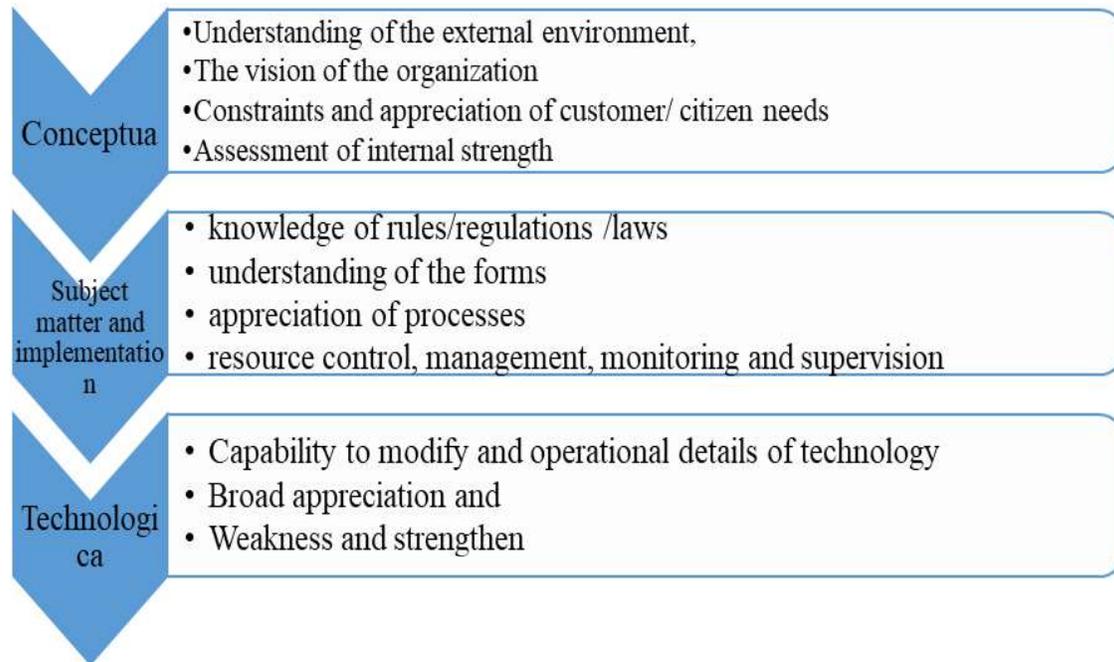
progression from Web 1.0 to 5.0, cloud technology and IoT have fundamentally transformed the landscape of governance, both in the private and public sectors. Governments worldwide are increasingly embracing digital strategies to manage the day-to-day operations of their respective nations effectively. Streamlining the delivery of public services is a way of increasing accessibility and efficiency. The digitization of public services has been instrumental in fostering trust among citizens towards their governing bodies. This shift towards digital platforms has not only expedited service delivery but has also contributed significantly to establishing accountable and transparent relationships between the government and the govt.& its constituents. Consequently, enhancing public administration &

governance agenda is crucial for fostering SDGs and socio-economic development within nations.

The pervasive influence of the digital era has revolutionized operations -

- ❖ Among government entities, commercial enterprises and citizens.
- ❖ Reorienting administrative practices to prioritize citizen-centric approaches: redefined framework through public services are rendered.
- ❖ Transparent and accountable financial processes, digitalization promotes ethical conduct and economic stability & growth.
- ❖ An inclusive and participatory governance model provides them with easier access to information and services.

### The Capabilities Requirement



**Sustainable Development Framework: Elements of Agenda 21**

<b>Sustainability Dimension</b>	<b>Criteria</b>	<b>Practices / Means (in Local Bodies Context)</b>
<b>1. Economic (Financial) Sustainability</b>	<ul style="list-style-type: none"> <li>- Development</li> <li>- Trickle-down Growth</li> <li>- Productivity</li> </ul>	<ul style="list-style-type: none"> <li>- Implementing policies ensuring essential services and equitable access (education, healthcare, sanitation, shelter)</li> <li>- Promoting civic engagement and local economic development</li> <li>- Enhancing productivity through efficient use of resources</li> <li>- Creating inclusive economic opportunities at the grassroots level</li> </ul>
<b>2. Social Sustainability</b>	<ul style="list-style-type: none"> <li>- Equity</li> <li>- Participation</li> <li>- Cultural Identity</li> <li>- Sharing</li> <li>- Accessibility</li> <li>- Institutional Stability</li> <li>- Empowerment</li> </ul>	<ul style="list-style-type: none"> <li>- Provision of social subsidies and wellness programs</li> <li>- Promoting land reforms and sustainable livelihoods</li> <li>- Addressing economic disparities through inclusive policies</li> <li>- Ensuring gender and social equality</li> <li>- Empowering local institutions and communities</li> <li>- Enhancing participation of all stakeholders</li> <li>- Promoting accessibility to resources and services for all individuals</li> <li>- Respecting and preserving cultural identity</li> </ul>
<b>3. Environmental Sustainability</b>	<ul style="list-style-type: none"> <li>- Biodiversity</li> <li>- Carrying Capacity</li> <li>- Ecosystem Integrity</li> </ul>	<ul style="list-style-type: none"> <li>- Indigenous and community-based resource management</li> <li>- Conducting landscape and ecological surveys</li> <li>- Promoting biodiversity and ecological balance</li> <li>- Sustainable land-use planning</li> <li>- Identification and management of environmental constraints</li> <li>- Ecosystem sensitivity and habitat impact assessments</li> <li>- Integrating eco-principles in local planning</li> <li>- Adapting environmental laws to suit local needs while maintaining ecological objectives</li> <li>- Encouraging community participation in conservation efforts</li> </ul>

**Digital Era Significance, Challenges, and Empowering Local Bodies**

redefine the functioning of public institutions and citizen engagement:

**1. Key Aspects of Digital Governance**

◆ **E-Administration:** Refers to the modernization of state operations through the use of Information and Communication Technology (ICT), aimed at enhancing the efficiency of

Digital governance in the current era is driven by four foundational pillars that

record-keeping and internal government processes.

- ◆ **E-Service:** Involves the digitization of public services to ensure easier, faster, and more inclusive access for all citizens via online platforms.
- ◆ **E-Governance:** The broader application of technology to streamline administrative mechanisms, deliver services efficiently, and ensure transparency and accountability in public dealings.
- ◆ **E-Democracy:** Emphasizes the use of digital tools to promote citizen involvement in democratic processes, policy formulation, and governance, thereby making democracy more participatory and responsive.

## 2. Significance of Digital Transformation in Empowering Local Bodies

a) **Efficient Information Access** - Digital systems allow for streamlined accumulation, storage, and retrieval of data, improving both administrative efficiency and public service delivery.

b) **Citizen Empowerment** - Technological advancements offer citizens easier access to policies, programs, and grievance redressal mechanisms, encouraging greater public participation and inclusion in decision-making processes.

c) **Strengthening Democratic Values** - Digitalization supports democratic ideals by promoting inclusive governance structures that are transparent and participatory, especially at the grassroots level.

d) **Enhanced Service Delivery** - The automation of services ensures timely delivery and easy accessibility to vital public welfare schemes and services.

e) **Trust, Transparency, and Accountability** - Digital transactions create auditable trails that strengthen public trust in institutions, reinforce transparency, and improve sectoral credibility.

## 3. Challenges in Implementing Digital Governance

a) **Policy Coordination and Stability** - There is a pressing need for cohesive and sustained policy efforts across economic, social, and digital spheres to ensure the success of digital initiatives.

b) **Capacity Gaps**- Skilled manpower remains inadequate. Bridging the gap between existing and required technical capacities and implementing skill enhancement policies is a major challenge.

c) **Resistance to Change** - Traditional bureaucracies often resist transparency and accountability, fearing a loss of control in the transition to digital systems.

d) **Digital Divide and Inequality**- Ensuring equitable access to digital services across rural and economically backward regions remains a major obstacle due to disparities in connectivity, digital literacy, and access to devices.

e) **Technological Risks and Security** - Cyber threats, data breaches, and inadequate infrastructure expose users to security risks. There is a growing need for compliance with international data privacy and security standards.

f) **Strategic Misalignment** - Many digital projects fail due to a lack of alignment between organizational needs and technological capabilities, leading to poor outcomes and inefficiencies.

#### 4. Key Issues Affecting Digital Governance

- ◆ **Project Mismanagement:** Costly digital initiatives often fail to deliver measurable benefits due to poor project planning and monitoring.
- ◆ **Lack of Leadership and Political Will:** The absence of motivated leadership at senior administrative and political levels impedes digital transformation.
- ◆ **Public-Private Collaboration Complexities:** Balancing private sector involvement with citizen welfare in terms of pricing, access, and terms of service requires careful negotiation.
- ◆ **Clarity in Ownership and Strategy:** Without clear internal and external ownership of projects, accountability and success remain elusive.
- ◆ **User Diversity and Engagement:** Success depends on understanding and addressing the varying digital capabilities and expectations of users, including citizens, bureaucrats, and service providers.

#### 5. Strategic Initiatives and Implementations:

To address these challenges, several digital initiatives and platforms have been introduced:

- ◆ **UMANG (Unified Mobile App for New Age Governance):** Offers a single platform for accessing government services online.
- ◆ **DigiLocker:** A secure cloud-based platform for storing and retrieving citizen documents.
- ◆ **E-District Mission Mode Project:** Delivers services such as birth and

marriage certificates, pension applications, and online tax payments.

- ◆ **Common Service Centres (CSCs):** Provide digital services in rural areas through Village Level Entrepreneurs, including loan applications and scholarship registrations.
- ◆ **MyScheme:** A unified portal offering comprehensive information on government schemes, eligibility, and application procedures.
- ◆ **Meri Pehchaan (National Single Sign-On):** Enables users to authenticate across multiple government portals with a single identity.
- ◆ **Co-WIN Platform:** Successfully managed COVID-19 vaccination registrations, certificate downloads, and appointment scheduling.
- ◆ **DBT (Direct Benefit Transfer):** Facilitates Aadhaar-based transfer of subsidies directly into beneficiaries' accounts, reducing leakages and enhancing efficiency.
- ◆ **DIKSHA:** A digital infrastructure for school teachers to access training and knowledge resources.
- ◆ **MyGov:** A platform that fosters two-way communication between citizens and government, allowing participation in policy formulation and grievance redressal.

#### 6. State-Level Success Stories

- ◆ **Karnataka's Bhoomi Project:** Computerization of land revenue records, improving transparency and accessibility.
- ◆ **Andhra Pradesh Property Registration System:** Digitization of land registration procedures to reduce delays and corruption.

- ◆ **E-Sewa Kendras:** Established across several states to offer digital access to various certificates, tax services, and government schemes.

## 7. Way Forward: Building a Digital-Ready Future

To fully realize the potential of digital governance at the local level, the following actions are essential:

- ◆ **Skill Development and Capacity Building:** Regular training of government staff and awareness among citizens.
- ◆ **Infrastructure Strengthening:** Reliable digital infrastructure and internet connectivity, especially in rural areas.
- ◆ **Security and Privacy Reforms:** Enforcing robust data protection measures to safeguard citizen information.
- ◆ **Integrated Planning and Execution:** Cross-departmental coordination and long-term vision for scalable and sustainable digital transformation.

## Conclusion

Creating an environment conducive to successful e-governance demands proactive govt. support and political leadership. Raising citizen awareness through public camps is vital, spurring demand for services. Identifying electronic and digitalization categories- information access, financial transactions and tax payment is crucial. Coordination between central and state IT departments aids technical support. Policies must consider citizens lacking internet access, ensuring they are not excluded from digitalization. Continuous process reengineering, driven by citizen feedback, is key to maintaining citizen-centric administration. The public sector should learn from private sector ICT

successes via exchange programs and localized awareness campaigns. These projects and initiatives reflect large trends toward digitalization and the use of technology to improve governance streamline processes and enhance transparency & efficiency in various administrative functions. Addressing these challenges demands a concerted effort involving policy revision, skill development etc towards success. Digitalization integration has transformed public service delivery, transparency and participation. Shift spans various technologies bridging gaps between citizens and govt, ultimately revolutionizing the quality and accessibility of services.

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