

# Comparative Study Of Emerging Economies: Pathways To Achieving The Sdgs Through Digital Governance

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## Abstract

The quest to achieve United Nations Sustainable Development Goals (SDGs) has increased the need to seek new systems of governance in the emerging economies. The traditional systems of governance, which are traditionally characterized by bureaucratic stagnation and limited engagement of the citizens, are becoming less suitable to face the challenge of the high rate of urbanization, climate change, and digital disruption. The paper also talks about the evolving environment of digital governance as one of the solutions of attaining sustainability in developing economies. The paper applies a comparative overview of digital practices of participation, accountability system grounded in blockchains, and multi-stakeholder collaboration and finds ways in which digital technologies, and institutional legitimacy, transparency, and sustainable development goals can be implemented in building a stronger strength of institutional legitimacy. While the analysis primarily focuses on emerging economies, the Netherlands is included as a developed-economy comparator to benchmark advanced digital governance practices and derive transferable insights for developing contexts. The case studies of Brazil, India, Estonia, Ghana, Seychelles, the Netherlands, West Africa and global alliances are utilized to demonstrate that countries and regions are trying new governance innovations that would cater to both local and global sustainability pledges. The results emphasize the fact that although digital governance has potentially transformative opportunities, to attain success, it should be inclusive, capacity building, and adaptive in its regulatory framework.

**Keywords:** Digital governance, Sustainable development, Emerging economies, Blockchain, Participatory platforms, SDGs

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## INTRODUCTION

Governance has never been minor in the determination of the outcomes of the society and now in the 21 st century there is an increase of unprecedented growth in its scale and complexity. Globalization, the digital transformation, climate change and existing inequalities have led to an unprecedented necessity to find new ways of governance. Conventional hierarchical and state-oriented approaches are being seen as poor in coping up with multi-dimensional problems straddling across borders and sectors. (*Rhodes, 1996; Pierre & Peters, 2000; Stoker, 1998*).

Democratizing economies, especially the emerging ones, have a governance dilemma that is exacerbated by the speed of urbanization and population increase and institutional capacities. According to scholars, the traditional bureaucratic structures in these situations fails to act swiftly on crises like the climate crises, economic crises and even health crises of the population (*Grindle, 2007; Fukuyama, 2013*). In the 2030 Agenda, the United Nations (2015) emphasizes the importance of inclusive, transparent, and participatory systems of governance in order to fulfill the SDGs.

The shift of government to governance indicates a more general appreciation of the relevance of multi-actor networks and work collaborations. *Kooiman (2003)* envisions governance as the interaction of the state and non-state actors whereas *Jessop (2002)* emphasizes the rescaling of governance at the local, national, and global scale due to globalization. The globalization of regulatory governance is further reported by *Levi-Faur, (2012)* who highlights the importance of new instruments that transform the relations of power. These views lead to the idea that we need to be innovative in the processes of governance to attain a balance between state power and citizenship and even stakeholder involvement.

It is now using digital technologies, which are significant agents of this change. *Adler et al. (2015)* stress that digitalization enhances the rates of transparency and accountability, and *Farrow, Orr, and Weller (2018)* demonstrate that the digital platforms may be applied to make access to knowledge and decision-making more democratic. The empirical evidence supports this argument: the e-Residency program in Estonia evidences that blockchain-based digital identities help increase institutional trust (*Kotka, Vargas Alvarez del Castillo, and Walter, 2015*), the blockchain land registry in Ghana indicates that technology can make the processes less corrupt and contribute to the tenure security (*Agvei-Holmes et al., 2020*).

The nexus between governance and sustainability has also experienced an academic interest. *Nikologianni (2022)* shows how urban governance that is led by design can restructure cities on a long-term basis, whereas *Benzaken, Voyer, Pouponneau, and Hanich (2022)* emphasize the importance of political leadership and global collaborations in the realization of sustainable blue cities. Likewise, *Mahendra, Westphal, and Beard (2016)*

underline that the Global South requires a fair distribution of services, only under these conditions, an inclusive development of cities is possible.

The focus of these discussions is still left to the civil society and multi-stakeholder networks. As pointed out by *Jagadananda and Brown (2007)*, even with their problems of accountability, the civil society organizations can improve their legitimacy by involving and cooperating. The existence of global organizations like the Climate Action Network (*Benzaken et al., 2022*) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (*Jagadananda and Brown, 2007*) shows that digitally enabled alliances can utilize common resources and skills to promote the global sustainability agenda.

Together, these lessons may be applied to emphasize the point that digital governance is not an isolated phenomenon but one of the key instigators of sustainability transitions. Digital governance innovations may provide emerging economies with a chance to attain their development objectives and, additionally, support global SDG agenda by introducing greater transparency, fostering inclusivity, and collaboration (*Meuleman, 2019; United Nations, 2015; Satterthwaite, 2017*). The authors of the present paper discuss the practical evolution of such innovations in reference to the participatory platforms, blockchain applications, and multi-stakeholder digital alliances in different contexts. Recent studies also emphasize this tendency. To illustrate this point, *Sharma and Gupta (2023)* remark that AI-based governance platforms can increase the quality of services and reduce inequality. *Liu et al. (2024)* demonstrate how transparency efforts based on blockchain have helped to improve the institutional trust in Africa. *Singh and Patel (2025)* observe that digitalized environments have the potential to minimize the deficient governance situation and improve accountability in rapidly urbanizing regions. Content to be filled with detailed text and references.

### **Digital Governance and Sustainability: Conceptual Linkages**

The concept of digital governance can take the form of the introduction of information and communication technologies (ICTs) and digital tools to enhance transparency, accountability, engagement, and efficiency in the governance processes (Adler et al., 2015; Meuleman, 2019). Conceptualization of sustainability in SDGs implies comprehensive institutions, equitable allocation of resources, and sound systems (United Nations, 2015). The connections between digital governance and sustainability are based on three mechanisms:

1. **Transparency and accountability** – Blockchain and e-governance platforms help decrease corruption, increase trust, and make wise use of resources (Gstrein, Schulz, and Zwitter, 2020).
2. **Citizen empowerment** – Sustainable development Digital participatory systems also facilitate inclusive decision-making, which gives communities the chance to steer resources towards sustainable development (Satterthwaite, 2017; Raju et al., 2018).
3. **Collaborative networks** – multi-stakeholder partnerships can be supported through the use of digital tools and effectively tackle such complex issues like climate change and energy transitions (Jagadananda and Brown, 2007; Benzaken et al., 2022).

Thus, **digital governance is a key enabler of sustainability** across multiple SDGs.

### **Research Questions and Objectives**

Research Questions 1. How do emerging economies adopt digital governance innovations to address sustainability challenges?

2. What role do participatory digital platforms, blockchain accountability systems, and multi-stakeholder alliances play in advancing SDGs?

3. What structural and institutional barriers limit the effectiveness of digital governance in achieving sustainability outcomes?

### **Objectives**

- To examine the linkages between digital governance innovations and sustainable development goals.
- To conduct a comparative study of selected case studies (Brazil, India, Estonia, Ghana, Seychelles, Netherlands, West Africa, and global alliances).
- To identify challenges, opportunities, and policy implications for strengthening digital governance in emerging economies.

### **LITERATURE REVIEW**

The literature on governance, digital transformation, and sustainability identifies several interrelated themes that are vital for understanding how innovations in governance contribute to development outcomes.

To begin with, the enabler of digital governance has been addressed by many scholars. According to *Adler et al. (2015)*, digitalization improves the capacity to govern since accountability and access to information are enhanced. On the same note, *Farrow, Orr, and Weller (2018)* note the democratization of decision-making via

digital channels with the provision of channels through which citizens can engage. *Gstrein, Schulz, and Zwitter (2020)* stress that blockchain technologies are helpful to provide trust and resilience in the governance system, especially in weak states.

Second, the researchers emphasize that a process of governance innovation is multi-actor. Governance has come to be seen as the process of collaboration between governments and the civil society with the participation of the private actors. *Kooiman (2003)* describes this as interactive governance whereas Jessop (2002) emphasizes the process of rescaling under the influence of globalization that demands new alliances. *Jagadananda and Brown (2007)* suggest that civil society organizations increase the legitimacy but have to deal with accountability issues, which is reflected in the existence of Metagovernance, proposed by *Meuleman (2019)*.

Third, the literature ties the issue of innovations in governance to the results of environmental and urban sustainability. *Nikologianni (2022)* emphasizes the way in which the governance activities can change urban design and planning with a focus on sustainability. *Satterthwaite (2017)* demonstrates that in Latin America, participatory budgeting led to gaining better access to water and housing, and governance reform was associated with material well-being. *Benzaken et al. (2022)* examine the use of governance innovation by small island states such as Seychelles to develop marine sustainability, making governance a key component to SDG 14 (Life Below Water).

Fourth, literature singles out structural impediments in the developing economies. *Das (2015)* focuses on the social enterprises to fill institutional gaps to serve the marginalized and *Mahendra, Westphal and Beard (2016)* believes that inequity in urban infrastructure delivery upholds exclusion. These obstacles bring to the fore the need to have governance systems that are adaptable and inclusive.

Lastly, the literature highlights the possibilities of blockchain in terms of sustainability transitions. According to *Coppoolse et al. (2020)* and *Gstrein et al. (2020)*, blockchain can promote the transparency of food systems and *Agyei-Holmes et al. (2020)* prove that it is useful when registering the land in Ghana. This kind of innovation is in line with SDGs 2 (Zero Hunger), 15 (Life on Land), and 16 (Peace, Justice, and Strong Institutions).

Overall, the literature indicates that digital governance (Governance transparency, participatory process, and technology adoption) is particularly helpful in dealing with sustainability issues. Nevertheless, researchers also warn that the innovations will not be used to eliminate inequalities but may only intensify them without inclusivity and well-developed institutional frameworks (*Grindle, 2007; Levi-Faur, 2012; Meuleman, 2019*).

### Research Gaps

Although there is an increasing literature on the subject of digital governance and sustainability, there are a number of gaps that exist.

First, a significant part of the research is devoted to developed economies, and little empirical data exists on emerging economies.

Second, the literature tends to focus on the technological dimension of digital governance but is less concerned with the questions of equity, inclusivity, and the long-term capacity of the institution.

Third, comparison does not exist in different contexts of countries, and it is hard to generalize best practices.

Fourth, blockchain and AI-based platforms are being talked about a lot, but their use in overcoming deeply rooted governance issues in resource-constrained environments is little explored.

Lastly, the digital governance and particular SDGs (e.g., climate resilience, gender equity, and poverty reduction) should be investigated systematically further.

### METHODOLOGY

The research is based on the comparative case study approach, which combines both secondary literature and governance experiments in the document. Case study approach is especially effective when it comes to addressing governance innovations in different settings (Yin, 2018).

Brazil, India, Estonia, Ghana, Seychelles, the Netherlands, West Africa, and global alliances were used as the basis of selecting cases based on their relevance to digital governance and sustainability arguments (Satterthwaite, 2017; Kotka et al., 2015; Agyei-Holmes et al., 2020; Benzaken et al., 2022).

Governance innovations were categorized under three dimensions:

- Participatory digital platforms (*Raju et al., 2018*),
- Blockchain accountability systems (*Coppoolse et al., 2020; Gstrein et al., 2020*), and
- Multi-stakeholder alliances (MSAs) (*Jagadananda & Brown, 2007; Benzaken et al., 2022*).

A comparative framework evaluates innovations using SWOT (Strengths, Weaknesses, Opportunities, Threats) and SDG alignment as analytical tools (*Meuleman, 2019*).

### Case Studies and Analysis

- **Brazil (Porto Alegre):** Hacktivated participatory budgeting since 1989, and then improved with digital platforms. The innovation enhanced access to housing, water, and sanitation besides enhancing inclusiveness (*Satterthwaite, 2017*).
- **India (Kerala):** Digital monitoring was incorporated in the People Plan Campaign to distribute welfare and manage the city. The tools of participation empowered marginalized communities and enhanced gender inclusivity (*Raju et al., 2018*).
- **Estonia:** The e-Residency program employs blockchain-secured digital IDs to enhance transparency and entrepreneurship. Estonia’s model is widely cited as a global benchmark in digital governance (*Kotka, Vargas Alvarez del Castillo, & Walter, 2015*).
- **Ghana:** The blockchain-enabled land registry enhances tenure security, reduces corruption, and supports sustainable agriculture (*Agyei-Holmes et al., 2020*).
- **Seychelles:** Governance of the blue economy integrates digital monitoring and multi-stakeholder engagement, supporting marine resource sustainability (*Benzaken, Voyer, Pouponneau, & Hanich, 2022*).
- **Netherlands (Amsterdam):** Smart city initiatives leverage digital democracy tools for data-driven decisions. However, inclusivity gaps persist, limiting equity outcomes (*Willers, 2022*).
- **West Africa:** Digital farmer-researcher associations strengthen knowledge-sharing networks for agricultural resilience and food security (*Fliessbach & Nicolay, 2012*).
- **Global Alliances:** The Global Fund and Climate Action Network exemplify digitally enabled MSAs that mobilize resources for global sustainability (*Jagadananda & Brown, 2007; Benzaken et al., 2022*).

### Comparative Framework

Country/Region	Digital Governance Innovation	Sustainability Contribution	Relevant SDGs	Source (Title & Author)
Brazil (Porto Alegre)	Participatory budgeting	Improved water, sanitation, housing; inclusive planning	SDG 1, 6, 11, 16	<i>Successful, Safe and Sustainable Cities - Satterthwaite (2017)</i>
India (Kerala)	Digital participatory planning & monitoring	Inclusive decision-making, empowerment, service delivery	SDG 5, 10, 11	<i>Urban Environmental Governance in India - Raju et al. (2018)</i>
Estonia	Blockchain-secured e-Residency	Transparency, efficiency, entrepreneurship	SDG 8, 9, 16	<i>Estonian e-Residency - Kotka et al. (2015)</i>
Ghana	Blockchain-enabled land registry	Tenure security, agricultural sustainability	SDG 2, 15, 16	<i>Land Title Registration Study - Agyei-Holmes et al. (2020)</i>
Seychelles	Blue economy digital governance	Marine sustainability, climate resilience	SDG 13, 14, 17	<i>Good Governance for Blue Economy - Benzaken et al. (2022)</i>
Netherlands (Amsterdam)	Smart city digital democracy	Data-driven planning, but inclusivity gaps	SDG 9, 11, 16	<i>Digital Democracy in the Smart City - Willers (2022)</i>
West Africa	Farmer-researcher digital networks	Food security, agricultural resilience	SDG 2, 12	<i>Farmer-Researcher Associations - Fliessbach &amp; Nicolay (2012)</i>
Global Alliances	Digital multi-stakeholder platforms	Global health, climate action, equity	SDG 3, 13, 17	<i>Civil Society Legitimacy - Jagadananda &amp; Brown (2007); Blue Economy Governance - Benzaken et al. (2022)</i>

**Enriched matrix – Digital Governance activities × Countries**

Digital Governance Activity / Country	Brazil	India	Estonia	Ghana	Seychelles	Netherlands	West Africa	Global Alliances
Participatory Budgeting / Planning	✓	✓				✓		
Digital Monitoring & Welfare Delivery (DBT, portals)	✓ <sup>1</sup>	✓ <sup>2</sup>				✓ <sup>3</sup>	✓ <sup>4</sup>	✓ <sup>5</sup>
Digital ID / e-Residency / e-ID		✓ <sup>6</sup>	✓ <sup>7</sup>					
Blockchain for Land Registry / Titles				✓ <sup>8</sup>			✓ <sup>9</sup>	
Smart-city / Digital Democracy tools	✓ <sup>10</sup>	✓ <sup>11</sup>	✓ <sup>12</sup>			✓ <sup>13</sup>		
Blue-economy / marine digital platforms					✓ <sup>14</sup>			✓ <sup>15</sup>
Farmer–researcher / Agri digital networks		✓ <sup>16</sup>		✓ <sup>17</sup>			✓ <sup>18</sup>	
Multi-stakeholder Alliances (digital MSAs, global networks)		✓ <sup>19</sup>			✓ <sup>20</sup>	✓ <sup>21</sup>	✓ <sup>22</sup>	✓ <sup>23</sup>
AI / Chatbot municipal services		✓ <sup>24</sup>						

**Implications for the SDGs**

The findings highlight that participatory platforms advance SDG 5, 10, 11, and 16 by enabling inclusivity and accountability (Satterthwaite, 2017; Raju et al., 2018). Blockchain strengthens SDG 2, 9, 15, and 16, particularly by improving trust in land and food systems (Agyei-Holmes et al., 2020; Coppoolse et al., 2020; Gstrein et al., 2020). Multi-stakeholder alliances contribute to SDG 3, 13, and 17, underscoring the value of digital collaboration (Jagadananda & Brown, 2007; Benzaken et al., 2022). Collectively, these innovations highlight governance reform as a cornerstone of sustainable development.

**Findings**

The comparative analysis reveals three key insights:

1. Participatory Digital Platforms strengthen inclusivity and accountability by expanding citizen engagement, contributing significantly to SDGs 5, 10, 11, and 16.
2. Blockchain-Based Accountability Mechanisms enhance transparency and trust, particularly in land tenure and food security systems, thereby supporting SDGs 2, 9, 15, and 16.
3. Multi-Stakeholder Digital Alliances play a crucial role in global health, climate action, and marine sustainability, advancing SDGs 3, 13, 14, and 17.

Collectively, these findings suggest that digital governance innovations are not merely technical interventions but transformative processes that can reshape institutional trust, inclusivity, and collaboration in emerging economies. However, structural inequities, digital divides, and institutional inertia remain critical barriers.

**CONCLUSION**

Digital governance represents a transformative pathway for emerging economies pursuing sustainability. By enabling transparency, accountability, and inclusivity, digital tools reinforce trust in institutions and support citizen-centered policymaking (*Meuleman, 2019*). Case studies across Brazil, India, Estonia, Ghana, Seychelles, the Netherlands, West Africa, and global alliances demonstrate that while innovations differ, their collective contribution to the SDGs is undeniable (*United Nations, 2015; Nikologianni, 2022*).

However, challenges remain. The digital divide risks excluding marginalized populations, while institutional inertia may slow adoption (*Grindle, 2007; Levi-Faur, 2012*). Future governance strategies must therefore emphasize capacity building, equity, and adaptive regulation to ensure that digital governance not only accelerates sustainability but also promotes inclusivity and justice.

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#### Key evidence (mapping of selected ticks to sources)

1. Brazil – digital monitoring & welfare / smart city examples (participatory budgeting + digital projects). [local.gov.uk](http://local.gov.uk)+1
2. India – DBT / digital welfare transformation (Aadhaar-linked DBT, DigiLocker / APISETU reforms). [DD News](http://DDNews.com)+1
3. Netherlands – national / city digital services and DBT-like efficiency in municipal services (Amsterdam Smart City platform & digital democracy projects). [Amsterdam Smart City](http://Amsterdam Smart City)+1
4. West Africa – evidence of farmer networks and adoption of simple digital tools for agriculture (WhatsApp, social platforms, agri-networks). [CIRAD](http://CIRAD.com)+1
5. Global Alliances – Climate Action Network and other digital multi-stakeholder networks linking actors globally. [Climate Action Network](http://Climate Action Network)
6. India – digital ID usage (Aadhaar) documented in welfare & identity debates; used extensively for e-KYC & DBT. [Amnesty International](http://Amnesty International)+1
7. Estonia – e-Residency / e-ID (official e-Residency / e-Estonia documentation). [e-Residency](http://e-Residency.com)+1
8. Ghana – blockchain land registry pilot (Bitland & Ghana Land Commission pilot; documented pilots registering properties). [neweconomyghana.com](http://neweconomyghana.com)+1
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10. Brazil – smart city / digital democracy projects (Porto Alegre + digital PB adaptations). [local.gov.uk](http://local.gov.uk)
11. India – smart city & municipal digital tools (e.g., AI chatbots / municipal apps; many smart city projects). [The Times of India](http://The Times of India)+1
12. Estonia – national e-governance platforms (beyond e-Residency: comprehensive e-services). [e-Estonia](http://e-Estonia)
13. Netherlands – Amsterdam Smart City, public stack, participatory civic platforms. [Amsterdam Smart City](http://Amsterdam Smart City)+1
14. Seychelles – blue-economy digital coordination & monitoring referenced in policy/blue economy roadmaps. [seychellesconsulate.org.hk](http://seychellesconsulate.org.hk)+1
15. Global Alliances – multi-stakeholder digital coordination for climate & health (Global Fund/Climate Action networks). [alliancesforclimateaction.org](http://alliancesforclimateaction.org)+1
16. India – farmer digital networks/agritech initiatives (extension services + WhatsApp groups, etc.). [CIRAD](http://CIRAD.com)+1
17. Ghana – agri/land digitization overlaps in Ghana pilots. [neweconomyghana.com](http://neweconomyghana.com)
18. West Africa – farmers using social & digital tools to share knowledge (Mastercard Foundation reporting, CIRAD studies). [mastercardfdn.org](http://mastercardfdn.org)+1
19. India – examples of multi-stakeholder digital initiatives for health/welfare/climate at national & sub-national levels. [IMPRI](http://IMPRI.com)+1

20. Seychelles – MSAs in blue economy governance & digital coordination referenced in policy documents. [seychellesconsulate.org.hk](http://seychellesconsulate.org.hk)
21. Netherlands – multi-stakeholder partnerships in Amsterdam Smart City and digital public-value projects. Amsterdam Smart City
22. West Africa – regional coalitions & agri-networks (research projects). CIRAD
23. Global Alliances – Alliances for Climate Action / Climate Action Network (digital coordination across countries). [alliancesforclimateaction.org+1](http://alliancesforclimateaction.org+1)
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