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Advancing Digital Pakistan: A Strategic Review of Current Progress and Global Best Practices

Rukhsana Omer
Deputy Director within the International Cooperation Wing of the Ministry of Human Rights, Government of Pakistan.
Email: rukh_khilji@hotmail.com (Corresponding Author)

Abstract

Digital governance has become a characteristic of national development that promotes transparency, efficiency, and participation of citizens. The world has been experiencing that digital transformation is not only about technology but about ensuring that the digital world is designed with the human world in mind namely, artificial intelligence. Such transformation can only be successful with the trust of the people, with citizens having faith in the reliability and security of the digital systems to succeed. Pakistan is on the threshold of its digitalization, and over the past few years, extended its digital infrastructure, creating 5G networks and international data connections. The data on the mobile internet gender gap has decreased between the years 2022-2023, which is a positive attempt at increasing digital inclusion. Such efforts as the initiative of URAAN Pakistan, a national plan encompassing the introduction of technology into the economic and social reforms, have started setting a new course of inclusive digitalization. The institutional advancements toward digital responsibility and empowerment are also demonstrated by the fact that digital evidence is recognized by the Supreme Court of Pakistan and the programmes led by the State Bank to include women in the financial sphere. However, the digital future of Pakistan remains challenged. The adoption of the E-office system is uneven, with bureaucratic stagnation, weak technical facilities, and fragmented coordination, which still slow down the transformation. As this paper highlights, it is not enough to have in place a proper infrastructure. Real change means that there has to be a systemic change in place, capacity building, and the creation of more effective regional cooperation between the government and the business sector. Based on the best practices of other successful models of digital governance, such as Estonia, Denmark, Singapore, and South Korea, this paper finds actionable principles and strategic suggestions towards the situation in Pakistan, with trust, inclusion, and human-centered governance.

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Introduction: Imperative of Digital Governance

The current state of affairs is that digital governance and the strategic application of information and communication technologies (ICTs) to facilitate better service provision by the state, greater efficiency, and increased citizen engagement have become a key aspect of statecraft. In addition to the modernization of administration, it has a decisive influence on socioeconomic development, enhancing transparency, innovation, and inclusive growth (Pakistan Lawyer, 2025). Now, the adjustment of a government to digital environments is the ability to be responsive to citizens and competitive in the global economy.

ICTs overlap with development concerns, i.e., education, employment, and healthcare, which are the facilitators of social equity and economic growth. However, still, access to these technologies is unequal (United Nations Development Programme, 2007). Resolving digital inequalities, and the gender gap, in particular, is thus a societal necessity as well as a prerequisite to sustainable growth. Initiatives like the URAAN Pakistan provide an example of how the policy is committed to mitigating these separations through the digital inclusion of the economic and social reforms.

Despite these efforts, academic literature on Pakistan's digital governance remains limited. This paper fills that gap by discussing the possible ways in which digital governance could be successfully institutionalized in Pakistan based on the best practices on the topic. It determines the policy, structural, and societal obstacles that limit development and suggests feasible plans to create an inclusive, transparent, and citizen-based form of governance.

Research Objectives

i. Compare the digital governance in Pakistan to best practices in the world (Estonia, Denmark, South Korea, Singapore).
ii. Identify a human-centered design, a digital identity, and a multi-stakeholder process that aims at developing mutual trust and involving all individuals.
iii. Develop strategic recommendations using these findings to speed up the digitalization process.

Research Questions

i. What are the most important developments and issues in digital governance in Pakistan, including digital infrastructure and e-commerce?
ii. What are the lessons to be learned about effective strategies and fundamental values by global leaders in digital governance?
iii. What is the relationship between trust, transparency, and human capital development, and the successful implementation and continued use of digital public services?

Research Methodology

i. Literature Review and Data Collection: Based on secondary data that is collected from credible government publications, academic research, institutional reports, and industry analysis between 2023 and 2025.

ii. Comparative Analysis: Four countries were chosen: Estonia, Denmark, Singapore, and South Korea. These examples are different traditions of governance and the degree of digital maturity. Estonia is innovative and has institutional trust; Denmark is inclusive and participatory by the citizens; Singapore is centralized and efficient; and South Korea is a combination of high-tech and government-business cooperation. **Limitations:** The research is mainly based on secondary data, and thus, it is not possible to obtain the first-hand stakeholder opinion.

Literature Review: Global Benchmarks in Digital Government: Success Stories and Foundational Principles

This section is a critical review of major models of digital governance to derive major principles and draw practical lessons in the context of the digital transformation process in Pakistan.

A. Nordic Countries: The Nordic region is characterized by collaborative innovation, which is based on collective values, strong welfare systems, and geographical closeness that predispose the exchange of knowledge. One of them is the Nordic DigiGov Lab project, which was funded by the Nordic Council of Ministers and operated between 2024 and 2026. The Nordic-Baltic initiative is designed to promote humanistic types of digital governance. Swedish (Digg), Finnish (DVV), and Norwegian (Digdir) digital government agencies have united and provided a safe and smooth delivery of digital services compared to nationally divided initiatives (GovInsider, 2024a). The lab is in the process of three proof of

concept projects: Digg in Sweden is leading on a Trust Model, DVV in Finland is working on automated information exchange of death and inheritance life events, and Digdir in Norway is developing an AI-guided solution to help citizens with rights and benefits in the same life event. This collaborative model that shifts away from the traditional silo framework to needs-based approaches like agile development shows how cross-country collaboration can help speed up the development of digital ecosystems and overcome the constraints that individual countries may have (GovInsider, 2024a).

Denmark is a powerful Nordic country that is an example of a fully digital government. It has always ranked at the top in the e-Government survey, and in 2021, 93% of its internet users accessed the digital public services. One of the fundamental pillars of success in Denmark is its integrated digital means of identification, MitID, which has an impressive adoption rate of 96.6% among citizens aged 15 and above. MitID is a single-sign-on network that is nationwide and saves a lot of friction and prevents inconsistency in online communications between individuals and businesses. This underscores the positive nature of integrated digital identity in facilitating smooth services. Likewise, 94% of the Danish population relies on Digital Post, which is the secure digital mailbox, and 92% feel safe communicating with the authorities on the platform. The Borger.dk integrated service portal is a one-stop shop for public services, visited by more than 111 million people in 2024, where 92 percent express satisfaction with it (Queue-it, 2024). The significance of user-centric design and trust is evident due to such high levels of adoption and satisfaction.

The Nordic example, revealed in the context of Pakistan, illustrates that applied to the concept of shared digital ecosystems and the design that prioritizes citizens, it can increase the level of adoption and trust. This practice could be followed by URAAN Pakistan by creating interoperability and multilingual platforms and promoting the models of collaboration between ministries and other parties to provide uniformity in service delivery and allow universal access.

B. Estonia: Estonia has been a well-known example of e-governance in the world, revolutionizing the public services in such a way that makes bureaucracy nearly invisible and the government ever-present. The success of Estonia is based on the simplification of the processes followed by their digitalization, thereby avoiding the automation of inefficiency. Such everyday tasks as the filing of taxes or registering a business only require a few minutes online, significantly decreasing the workload of administrators (e-Estonia, 2024a). This system is reliable and transparent, which has earned the citizens high level of trust in the government.

The e-Health system offers combined lab results and patient records, which leads to increased treatment and diagnostic accuracy. Estonia is another example of AI enhancement to the quality of services, such as the OTT system of the Unemployment Insurance Fund, which forecasts the rate of unemployment and offers it based on the predictions (e-Estonia, 2024a). In the case of Pakistan, the experience of Estonia demonstrates how essential it is to streamline the administrative processes prior to the process of digitalization.

C. Singapore: The Smart Nation Initiative, which was announced in 2014, is a promising initiative to digitally empower society by means of strategic deployment of AI, data analytics, and automation (Intalio, 2023; The FutureList, 2024). It has a flagship MyInfo platform, enabling citizens to exchange certified information among agencies and reducing application times by up to 80% (Intalio, 2023). The digital identity system SingPass complements these efforts, offering citizens a secure, unified login for all services.

Singapore has very useful experiences that Pakistan can learn from by using integrated data and artificial intelligence systems in making policies. By integrating analytics into the digital governance framework of URAAN Pakistan, the government will be able to adopt a change in the mode of administration, namely reactive to proactive, evidence-based decision-making.

D. South Korea: The Digital New Deal of South Korea shows that well-established public-private relationships can expedite the innovation process. Supported by significant investments of financial funds and changes in policies, including amendments to the Electronic Government Act (Ministry of Science and ICT, 2021), the project aims at increasing access, enhancing infrastructure, and encouraging innovation in the private sector.

One of the most noticeable is the introduction of the digital identity features into the mainstream personal applications, such as the Samsung Wallet, which has become more convenient and more popular (GovInsider, 2024b). More than 424 digital services exist, and more than 1,000 digital-learning centers are working in the government to train over 600,000 citizens in rural and coastal regions (Ministry of Science and ICT, 2021). In the case of Pakistan, the success of South Korea emphasizes the need to be regulatory-flexible and collaborate with the industry

E. Synthesizing Global Best Practices: According to the global review, there are a number of shared factors that are the basis of successful digital transformation: user experience and human-centeredity, unified digital identity, simplified processes, proactive regulation, collaboration of multiple stakeholders, and proactive regulatory environment.

The combination of these principles in the case of Pakistan means that technology should be used as a facilitator of institutional innovation and empowerment of citizens, and not as a goal in and of itself.

Furthermore, Sharif and Akhtar (2023) emphasize that institutional adaptability is core to the implementation of e-reforms in the developing world, and Lee and Kim (2024) accentuate the importance of the human-centered design as a way of enhancing citizen trust. These are the findings that confirm that Pakistan needs to digitalize in a manner that integrates technological innovation and participative governance to achieve sustainability and equity. To further elaborate on these comparisons, **Table 1** provides a brief overview:

Table 1

Comparative Analysis: Global Leaders vs. Pakistan's Context

Digital Governance Principle	**Estonia**	**Denmark / Nordic**	**Singapore**	**South Korea**	**Contextual Factors**	**Relevance / Implications for Pakistan (with URAAN linkages)**
Human-centricity & UX	"Invisible bureaucracy," X-Road, high trust	MitID, Borger.dk, Digital Post, high adoption	MyInfo, AI for personalized services	Public services integrated into private apps (e.g., Samsung Wallet)	High digital literacy, social trust, responsive design cultures.	Pakistan's citizen interfaces (e.g., HEC, NADRA, SECP) are improving but remain fragmented. User experience design is often secondary to compliance needs. URAAN Pakistan's digital transformation can embed human-centric design by introducing service co-creation labs, iterative testing,

						and multilingual accessibility to enhance citizen engagement and trust.
Unified Digital Identity	Foundational ID card, X-Road	MitID (96.6% adoption)	SingPass, MyInfo for data sharing	Digital ID in private apps (e.g., Samsung Wallet)	Strong regulatory frameworks, public trust in state	Pakistan has NADRA's CNIC ecosystem, but it doesn't work well with all of the government's and private sector's systems. URAAN can help with interoperability frameworks and push for safe, federated ID models that connect CNIC-based authentication with service platforms like HEC, SECP, and FBR to build a universal digital identity infrastructure.
Process Simplification	Simplify *before* digitizing, e.g., 5-min business setup	Focus on seamless experience via integrated portals	Streamlining via MyInfo (80%-time reduction)	Regulatory reforms for efficiency	"Clean slate" advantage, agile governance	Pakistan's procedures are still very complicated. Before digitization, URAAN's service reengineering part could test process simplification across ministries, which would cut down on duplicate forms, paper workflows, and manual checks.

Strategic AI Adoption	AI for unemployment prediction	Nordic DigiGov Lab (AI-guided solutions)	Urban planning, safety, MyInfo	Digital New Deal, Virtual Assistant Service	Robust data governance, ethical frameworks	The AI policy environment in Pakistan is still new. URAAN can follow the National AI Policy by finding low-risk, high-impact pilots (like using predictive analytics for education, job matching, and research evaluation).
Multi-stakeholder Collaboration	X-Road (inter-agency data exchange)	Nordic DigiGov Lab (cross-national)	Smart Nation (cross-sector partnerships)	Strong public-private integration	Shared values, mature private sector	By uniting government, academia, and the IT sector under a single innovation umbrella, URAAN may act as a catalyst for collaboration. Cross-sectoral initiatives and co-funding schemes akin to Nordic innovation ecosystems would be encouraged by this.
Proactive Regulatory Environment	Responsive to private sector innovation	Consistent high e-Gov rankings	Digital Enterprise Blueprint, Cybersecurity Strategy	Electronic Government Act amendments	Adaptive legal frameworks, regulatory sandboxes	Pakistan's regulations often lag technological advances (data protection, fintech, AI ethics). URAAN can support policy experimentation units and regulatory sandboxes within ministries to test emerging technologies safely and encourage responsible innovation under controlled conditions.

Findings and Discussion: Progress, Challenges, and Opportunities

A. Recent Developments in E-governance and Digital Infrastructure (2023-2025)

A National Economic Transformation Plan for Uraan, Pakistan (2024–2029): Uraan, Pakistan's initiative, represents a significant shift in the country's digital landscape. The government seems to have decided to pursue a unified national transformation framework, with this policy change being introduced by Prime Minister Shehbaz Sharif on December 31, 2024, and it represents a shift in policy towards solo digital initiatives. The plan is organized into five pillars: Exports, E-Pakistan, Environment, Energy & Infrastructure, Equity, and Ethics & Empowerment, and does not see digitalization as an end in itself, but as a means to an economic recovery, competitiveness, and social equity.

The E-Pakistan pillar will help the country move towards a real digital society by enhancing innovation, developing digital infrastructure, and creating an enabling environment for technology entrepreneurship. This ambition has definite measurable results, garnering 75,000 IT graduates each year, 178% growth in IT exports over five years, 43 software parks around the country, and AI, cyber, and digital infrastructure development. Nevertheless, these high expectations are accompanied by such challenges as lack of technical capacity, unequal distribution of skills, and bureaucratic inertia, which become a bottleneck to implementation unless institutional changes do not accompany the increase in infrastructure.

The Government is financing to digital vision with allocation of Rs. 1 trillion in the 2025-2026 Public Sector Development Programme (PSDP). In this, Rs. 24.75 billion is allocated to IT and telecommunications. To supplement this, the Asian Development Bank (ADB) 2024 Technical Assistance proposal, Supporting Innovation and Digital Transformation in Public Sector Management, explains how to enhance the knowledge and capacity-building element of Uraan Pakistan to align international experience with national priorities. As shown in the following Table 2, these goals can be summarized, as they offer a unified view of the five pillars of Uraan Pakistan and their areas of focus on digital transformation:

Table 2

Digital Transformation Goals of Uraan Pakistan and Key Pillars

Pillar	Focus	Key Digital Transformation Goals
Exports	Diversification and growth of export	Target $25 billion in IT exports; Empower SMEs and startups to scale globally.
E-Pakistan	Digital transformation	75,000 IT graduates every year; Increase IT export by 178% in five years, build 43 software parks in the country; Enhance AI, cybersecurity, and digital infrastructure; Extend high-speed internet access to rural areas; Digitalize education and healthcare, and government services.
Environment	Environmental degradation	Implement climate-smart agriculture; Reduce greenhouse gas emissions by 50%
Energy & Infrastructure	Modernizing energy infrastructure	Expand installed capacity to 42,000 MW (focus on hydro, wind, solar); Develop pipelines and ports
Equity, Ethics & Empowerment	Reducing poverty, gender gaps, improving social services	Create 1.5 million jobs/year; Cut poverty by 13%; Boost literacy by 10%; Promote gender parity; Expand access to healthcare, digital skills, education

Source: Daily National Courier, and Digital Transformation Goals of Uraan Pakistan and Key Pillars (2024-2029), One Homes Report, Karachi, 2024.

In addition to infrastructure, the digital transformation plan in Pakistan is also focused on enhancing connectivity, providing services to the people, and modernizing its regulatory systems. The introduction of new 5G and Africa-1 submarine cable planned investments as recently as 2025-2026 should help minimize call drops and improve the reliability of the network coverage, which would fill the gaps in the connectivity of rural areas.

At the same time, the implementation of cloud computing, AI, and big data analytics in government departments is enhancing transparency, decreasing delays, and building early predictive designs of policies. Pakistan is also reconsidering its e-commerce tax policy for FY 202526, and it is centered on a balanced policy between compliance, innovation, and facilitation of digital payments. The e-commerce industry, which has already topped 2.17 trillion (7.7 billion dollars) in 2024, is still growing, and the upcoming E-Commerce Policy 2.0 is likely to simplify fiscal and regulatory conditions.

Although the developments mentioned above are an important step forward, it is also important to mention sustainability risks. The high rate of digitalization can make the system susceptible to cyber-attacks, data privacy challenges, and economic constraints on the massive subsidies to infrastructure developments. The combination of cybersecurity and financial risk evaluation into the future digital program will be essential to the long-term sustainability.

E-Office Implementation: The E-Office system network was fully integrated into 40 federal ministries and departments by June 2022. However, a recent study demonstrated a very heterogeneous and, in most cases, poor adoption, and there is a digitalization trap where infrastructure is implemented and processes and cultural change are not re-engineered, and inefficiencies are incurred. Five ministries whose utilization was termed as insignificant were used, such as Defense Production of 5% and Housing of 1%. Besides that, 18 ministries were using the system with less than half the workload. Non-compliance was also at a high level, as a number of 22 ministries failed to submit updated statistics, which is normally employed in order to hide mismanagement. This expresses other issues, not just technical issues, but also the absence of political willingness and aversion to transparency.

Table 3

E-Office Adoption Status in Federal Ministries (from June 2024)

Cat	Ministries/Divisions	Usage (%)
Fully Infrastructure	40 federal ministries and divisions	100%
Negligible Usage	Commerce, Law, Finance, Power, Petroleum	"Negligible"
Low Usage	Defence Production, Housing	5% (Defence Production), 1% (Housing)
Less than 50% Usage	18 out of 40 ministries/divisions	<50%
Non-Reporting	22 out of 40 ministries/divisions	(failed to submit updated data)

Source: Dawn News

Cryptocurrency, Bitcoin, and Blockchain Initiatives: Pakistan is having a complex ride with digital asset balances. Even though the problem of cryptocurrency prohibition remains a legal issue, the policy is under active development, and the Pakistan Crypto Council (PCC) and Pakistan Virtual Assets

Regulatory Authority (PVARA) were created in order to monitor blockchain and electronic currencies. Instead of considering them as isolated cases, such reforms are to be discussed in policy terms, the ways in which Pakistan will be able to utilize blockchain to achieve transparency and inclusion, and eliminate fiscal, energy, and regulatory risks.

B. Digital Gender Divide: Inclusion Case Study

It has already been demonstrated that the digital gender gap can be significantly narrowed with the help of policy-specific efforts in Pakistan. The 2025 GSMA Mobile Gender Gap Report found that Pakistan achieved the most significant rate of the gender gap in the use of the mobile internet between 2023 and 2024, by 38 to 25 per cent. To further develop causal elucidation, the reported improvement is immediately associated with specific reforms like the State Bank of Pakistan initiative on banking equality called Banking on Equality and the partnership between the government and the private sector within the National Financial Inclusion Strategy. This is a massive growth that will mean that nearly 8 million additional women in Pakistan will access mobile internet services in this timeframe, making women in rural and underserved regions the biggest beneficiaries (CPECnews, 2025; Arab News Pakistan, 2025).

The correlation between the policy change and the outcomes related to inclusion is apparent: with the help of Banking on Equality, women received financial literacy trainings, concessional lending programs, and digital onboarding services, all of which coincided with an increase in the mobile and financial inclusion rates. In a statement made by the Prime Minister on 17th April 2025, the government had a plan to create a digital environment that encourages inclusiveness and women's empowerment using well-targeted policies, skills development programs, and gender-sensitive digital architecture. Through a press release by Arab News Pakistan, this promise was captured. Despite this improvement, obstacles remain in certain locations, where cultural norms and financial levels continue to impede women's access to mobile internet (CPECnews, 2025). The following table provides a clear overview of Pakistan's progress in narrowing the mobile internet gender gap ***2023 vs. 2024***:

Table 4

Year	Gender Gap (%)	Additional Women Gaining Access (Millions)	Total Women Using Mobile Internet (%)
2023	38%	N/A	N/A
2024	25%	~8 million	45%

Source: GSMA Mobile Gender Gap Report 2025 (CPECnews, 2025; Arab News Pakistan, 2025)

State Bank of Pakistan's "Banking on Equality" Policy and Digital Financial Inclusion for Women: In 2021, the State Bank of Pakistan introduced its Banking on Equality Policy, as one of the ways to reduce the gender gap in financial inclusion, by empowering women and engaging them in the formal economy. Such initiatives, like Assan accounts and Raast to accompany this program, have significantly boosted female account holders (to 31 million) and microfinance borrowers and decreased the gender gap in access to accounts by 13 percentage points (to 34%). They aim at reaching 75 percent financial inclusion overall, including a 25 percent gender gap by the year 2028, which is the Third National Financial Inclusion Strategy. Nevertheless, issues of having a cash-based culture and the need for women to bring in some form of collateral when requesting capital remain.

C. Hurdles and Key Challenges in Pakistan towards Digital Journey

In spite of the impressive progress, there are a number of systemic issues in the way of digital transformation in Pakistan that need to be addressed on a strategic level. The main barrier is the bureaucratic inertia, accompanied by the centralization of decisions, administrative redundancies, and gaps in coordination in the work of the public administration (Sharif and Mansoor, 2024). The other important sustainability issue is fiscal: with the government multiplying digital projects, it will be essential to balance innovation with financial prudence to avoid the financial burden. Moreover, cybersecurity preparedness is also an expanding risk area, as more governance becomes digitalized, inconsistent security protocol implementation presents a possible risk to the integrity of data and public trust.

The problem of skill deficiency in the employees of the Pakistani public sector is a deterrent to the introduction and use of the digital system, as the staff is not digitally competent and literate. The other forces that influence the quality of the services are the unavailability of mobile spectrum, even after the infrastructure

has been developed. Another critical aspect that Sharif and Akhtar (2023) emphasize to achieve successful digitalization of governance organizations, in particular in developing economies, is institutional adaptability and agency cooperation. Their findings underline the need to be more structured and have greater administrative flexibility, where technological implementation is superficial and not long-term.

But these challenges do not just have threats. With the use of technology, Pakistan will be able to improve the level of transparency and accountability.

D. Development of Law: Digital Evidence as Silent Witness

The authoritative ruling of the Supreme Court on the case of the murder of Noor Mukkadam, dated 11th June 2025, is a significant move in the legal system of the land and, above all, in enhancing the efficacy of the trust of the populace in digital systems and, consequently, in enhancing responsibility. This case is also an indication of the digital transformation bordering legal modernization, where technological evidence is recognized as a viable source of justice, as an indication of the institutional adjustment to the digital world.

The Court supported the digital evidence using such hypotheses as the silent witness and said that the video recordings, which are donated properly, can be taken as primary evidence. This case law constitutes a paradigmatic change of a substantive nature that draws the judiciary out of the past, sometimes doubtful reactions, and into more direct recognition of the reality of technology.

Just as he said, Justice Muhammad Hashim Kakar (who chaired a three-member full bench of judges), noted that the use of technology was now so established in our lives that everybody was always using some form of technology or the other. Traditionally, digital evidence was always categorized as hearsay and could only be accepted under Article 164 of the Qanun-i-Shahadat Order of 1984.

However, because of its increasing relevance in finding and identifying perpetrators, significant statutory amendments were made to elevate digital evidence to the rank of primary evidence. The 'silent witness theory' allows photographic, video, or other recorded evidence to "speak for itself" as substantive proof of what it depicts, without the need for an eyewitness to testify. This kind of decision, which affirmed the death penalty imposed on Zahir Jaffer based on digital evidence and forensic evidence, raises the confidence level of society in digital systems and accountability.

Conclusion: Charting Pakistan's Digital Future

Pakistan can use digital governance as its potent driving force toward sustainable development and society. The recent success of the country is highlighted by significant improvement in reducing the mobile internet gender divide, which naturally identifies the potential of effective change when the right policies and investments are the priority (CPECnews, 2025; Arab News Pakistan, 2025). This achievement shows that digital inclusion is not only a social equity problem but a strategic necessity that would open up enormous economic and social opportunities.

The strategic initiative of Uraan Pakistan, a national economic plan, is a radical departure in the Pakistan model that includes the aspect of digital transformation to multifarious development objectives and sets bold targets of IT exports, digital infrastructure, and productive growth of IT resources. At the same time, the implementation of the policy by the State Bank of Pakistan (Banking on Equality) has shown real achievements in regard to the inclusion of women financially, which puts a clear accent on the concrete effectiveness of a policy-driven change involving digital initiatives. Moreover, the revolutionary legal success of the Supreme Court, such as its formal recognition of digital evidence as the primary evidence according to the so-called silent witness theory, is an essential move to enhance confidence in the digital systems and enhance the responsibility of the justice system.

Although some major obstacles still exist, such as bureaucratic stagnation, the issue of shortage of labor forces, and the necessity to enhance the infrastructure, they are not overwhelming. The experiences of previous digital governance practitioners emphasize the necessity to focus on the human-centered design, build robust digital identity, amplify the ties within the public-private collaboration, and uphold the confidentiality and trust of people. Emergent technologies like Bitcoin are the institutional context that impacts areas of policy restraint and opportunity that need maneuvering to generate innovation alongside regulatory precision.

The digital transformation agenda is directly related to the priorities of the Pakistan Vision 2025 and the Sustainable Development Goals (SDGs), specifically SDG 9 (Industry, Innovation, and Infrastructure), SDG 5 (Gender Equality), and SDG 16 (Peace, Justice, and Strong Institutions). The connection between strategic recommendations to these national and global frameworks

enhances the coherence component of policy and explicates more the developmental importance of digital governance efforts.

The future of public service delivery in Pakistan depends on whether the Pakistani government is ready to adopt a holistic, long-term, and integrated strategy. These include the interplay of technology and basic policy changes, investment in human capital building, and embedding innovation within an environment that promotes learning and constant change. Future studies can determine the effectiveness of digital policies empirically, monitor the trust level of citizens in digital services, and analyze the socio-economic consequences of digital inclusion efforts as an indicator to enhance future policy in question. Political goodwill and ongoing multistakeholder dialogue are key to sustaining this trend and tackling digital transformation challenges.

Strategic Recommendations

A. Focus on Basic Digital infrastructure and connectivity: Pakistan needs to keep investing in its basic digital infrastructure. This will not only be because of speeding up the scheduled 5G deployment, but also proactively overcoming bottlenecks that can seriously undermine the ability of mobile operators to keep up with data demand that including spectrum constraints.

B. Build a Huge, Secure Digital Identity System: A high-quality national digital identity system, based on a high level of security, privacy, and interoperability, is to be a priority. This is how, as described by leaders of other countries worldwide, including Estonia and Denmark, a single digital self is the base of providing friction-free and cohesive state services and creating trust in the processes of interactions between citizens (e-Estonia, 2024b; Queue-it, 2024). The decision to invest in such a system will ease the authentication process, facilitate cross-service support, and lead to the overall delivery of the user experience to citizens operating on the digital platforms of the government.

C. Human-Centric Design and Process Re-engineering into Practice: Pakistan needs to invest in re-engineering bureaucratic procedures and processes in their core before applying any digital solutions. This means that it is a systematic process of reducing complex administrative processes to make sure that digital services are, by nature, efficient, intuitive, and accessible to every citizen (e-Estonia, 2024a). Being a user-centered service design, taking citizen needs seriously, and prioritizing user experience in designing digital services will be vital in facilitating the uptake and making sure that technology becomes a

churning benefit to the people as opposed to creating more digitally enhanced bureaucracy.

D. Foster Strategic Public-Private Partnerships: Pakistan needs to foster strategic partnerships with the private sector in developing technologies, service provision, and infrastructure development. Regulatory frameworks should be responsive enough, with revenue generation alongside the necessity to ensure digital innovation (GovInsider, 2024b; Ministry of Science and ICT, 2021).

E. Investment in Human Capital and Digital Education: It is necessary to conduct special training sessions to introduce digital technologies, data analytics, cybersecurity, and agile techniques to the employees of the public sector (Sharif and Mansoor, 2024). Citizen digital literacy efforts, particularly of women and other marginalized population groups, are to be sustained on advances in reducing the mobile internet gender divide (CPECnews, 2025; Arab News Pakistan, 2025).

F. Integrate Trust, Transparency, and Data-driven Governance: Having strong data protection regulations, cybersecurity, and clear AI models is essential. By developing a data culture within the government, they will be able to make evidence-based policies, more effectively deliver the services, and make citizens trust them more (Pakistan Lawyer, 2025; Intalio, 2023; GovInsider, 2024a).

***G. Link Recommendations to Policy Coherence and Future Research*:** All suggestions are in line with Pakistan Vision 2025 and other applicable SDGs to bring about convergent policy outputs. Further studies can be targeted at the empirical evaluation of the effects of digital policy.

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