

Digital transformation in public sector governance: international experiences and lessons for Vietnam

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Abstract: *Applying comparative-analytical methods, this article synthesizes the digital transformation experiences of three countries: Ukraine, South Korea, and Singapore. The research findings show that countries that have achieved success implement digital transformation strategies in a comprehensive manner - from institutional frameworks and infrastructure to enhancing the digital capacity of citizens - in which the government plays the role of architect and leader throughout the entire process. On that basis, the article identifies lessons and requirements for Vietnam in implementing digital transformation, particularly emphasizing the need to enhance citizens' digital capacity, build a unified data ecosystem, and develop technological infrastructure. The research results provide scientific evidence for policymaking and for developing digital transformation programs suitable for Vietnam's conditions in the current period and in the years to come.*

Keywords: *Digital transformation; digital capacity; Ukraine; South Korea; Singapore; Vietnam.*

1. Introduction

Digital transformation is the process of applying digital technologies to transform governance methods, operational models, and service delivery mechanisms, thereby improving the effectiveness and efficiency of state administration and the quality of public services. Unlike simple computerization, digital transformation requires comprehensive changes across institutions, organizational structures, processes, and working culture, aiming toward a data-driven, user-centric governance model. This

process demands the assurance of modern digital infrastructure, a unified data ecosystem, seamless mechanisms for connectivity and data sharing, information security, personal data protection, and the enhancement of digital capacity for both civil servants and citizens.

Globally, many countries have made significant progress in digital transformation by developing unified data infrastructures, comprehensive digital identification systems, and data-driven governance mechanisms. Ukraine, South Korea, and Singapore are representative examples of

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successful digital transformation models with systemic approaches and strategic visions.

In Vietnam, digital transformation is identified as one of the pillars of administrative modernization and the development of a digital government. Efforts such as building the National Population Database, implementing the VNeID digital identification system, and expanding fully online public services have created an important foundation for this process. However, practical implementation continues to reveal obstacles, including fragmented data, limited information sharing among agencies, digital disparities across regions, and uneven digital capacity among citizens and civil servants (Ministry of Public Security, 2024).

These challenges highlight the need to study international experience to identify successful models systematically and derive lessons that align with Vietnam's institutional characteristics and administrative capacities.

2. Digital transformation in selected countries

2.1. Ukraine's experience with the Diia application

Ukraine is one of the pioneering countries in digital transformation, with the Diia platform considered a representative model of a "citizen-centric digital government." Launched in 2020, Diia functions as an integrated portal for all electronic public services, allowing citizens to access, digitally sign, and store administrative documents directly on their mobile devices. According to UNDP (2022), approximately 63% of Ukrainians have used at least one electronic public service; the Diia application alone reached more than 23 million users by 2024, equivalent to 81% of the adult population. Within just two years, from 2020 to 2021, the number of users increased nearly fivefold (from 2.5 million to more than 12 million).

Ukraine's digital transformation focuses on three core components: (1) Digitizing public services through the Diia platform, which integrates more than 70 online services and key

administrative documents in electronic form; (2) Establishing a unified digital identification system for citizens, enabling secure authentication and digital signatures in the online environment; and (3) Developing shared data infrastructure to facilitate data exchange among ministries and agencies and integrate citizen information into a single application.

A distinctive feature of Diia is the application of the "digital by default" design mindset and the "user experience first" approach throughout the entire development and operation process. The government not only regards citizens as beneficiaries of digital public services but also considers them co-creators through feedback, evaluations, and participation in the testing of new features. This approach has helped reduce operational costs for the state apparatus, increase public trust, and maintain governance effectiveness even in times of crisis.

2.2. South Korea's experience - An integrated e-government ecosystem

Korea is recognized as a global leader in digital transformation, consistently ranking among the highest on the United Nations' E-Government Development Index (UN E-GDI). A key highlight of Korea's digital transformation strategy is the development of an integrated digital government model to deliver proactive, transparent, and user-friendly public services.

The Korean government has developed the Government24 public service portal, which enables citizens to access more than 5,000 administrative services - from document issuance and residence registration to health and education procedures - through a single, unified platform. In addition, the G4C (Government for Citizens) electronic one-stop system was designed using the "life-event approach," meaning that public services are organized and delivered around significant life events such as birth, schooling, marriage, employment, retirement, or death. This approach represents a shift from agency-based service delivery to citizen-needs-based delivery,

helping users access services more easily and reducing administrative processing time by more than 60% (Korea Digital Agency, 2023).

Alongside the development of digital infrastructure and services, South Korea places strong emphasis on improving digital capabilities for civil servants and citizens through national training programs on digital transformation. This is considered a crucial factor in ensuring the sustainability and effectiveness of the country's digital transformation process.

2.3. Singapore's experience - The "Smart Nation" model

Singapore is a leading example in Southeast Asia of comprehensive digital transformation, with the Government's "Smart Nation" model launched in 2014. The goal of this model is to build an intelligent nation where technology and data are optimally leveraged to enhance citizens' quality of life and improve public-sector governance efficiency. The core component of Singapore's digital government is the integrated SingPass platform, which allows citizens to access more than 2,000 public and private services with a single account, including taxation, healthcare, insurance, education, and financial services. As of 2024, more than 97% of adults in Singapore have a SingPass account, reflecting the extremely high coverage of electronic public services (Smart Nation Singapore, 2023).

Beyond merely digitizing procedures, Singapore proactively applies big data and artificial intelligence (AI) to identify citizen needs and suggest relevant administrative services even before they make a request. The country focuses on developing essential digital platforms for everyday life, such as electronic healthcare, online education, and digital financial services, thereby building a comprehensive digital ecosystem.

Connections between the government and citizens are maintained through continuous feedback systems, satisfaction surveys, and real-time information provision. Singapore

implements public services based on actual needs (needs-based services), rather than simply digitizing existing procedures. Similar to Ukraine, Singapore places strong emphasis on personal data protection and strengthening citizen trust through the National Data Governance Framework and the Digital Trust Centre initiative.

2.4. Digital transformation in Vietnam

In recent years, the Government of Vietnam has demonstrated a precise determination to shift the state governance model from "administrative management" to "administrative service delivery," with the core principle of "placing citizens and businesses at the center, as the subjects, objectives, and driving force of digital transformation." This viewpoint is consistently reflected in Decision No. 942/QĐ-TTg dated June 15, 2021, which approved the Strategy for the Development of E-Government toward Digital Government for the period 2021 - 2025, with a vision to 2030. The strategy sets a target of achieving 100% of eligible online public services delivered end-to-end by 2025, ensuring the "once-only" principle in interactions between citizens and state agencies.

Subsequently, Decision No. 06/QĐ-TTg dated January 6, 2022, approving the Project on the Development of Applications of Population Data, Electronic Identification, and Authentication for National Digital Transformation for the period 2022 - 2025, with a vision to 2030, laid an important foundation for the operation of the National Population Database. The connection and data sharing among ministries, sectors, and localities help reduce paperwork, enhance transparency, improve service efficiency, and gradually realize the model of a "people-centered digital government."

Vietnam's digital transformation has been implemented vigorously, with coordinated participation from state agencies, enterprises, and citizens. According to the Ministry of Culture, Sports and Tourism (2025), as of September 2025, the nationwide rate of end-to-end online administrative procedures was 39.72%, with ministries at 53.1% and local

governments at 16.1%. As of the end of July 2024, the rate of administrative tasks processed online at the ministerial level was 89.35%, and the rate of reporting via the National Reporting Information System was 37.4%. The National Document Interoperability Axis has received and transmitted 42.2 million documents, and 100% of ministries, sectors, and localities' document management and administration systems are interconnected through this axis (Ministry of Information and Communications, 2024).

The Government's information system for meeting management and work processing has supported 102 conferences and meetings and processed 2.384 million requests for comments from Government members, replacing more than 819.9 thousand paper dossiers. The National Public Service Portal provides more than 4.4 thousand online public services; synchronizes more than 353 million records; receives 58.4 million online applications; processes over 34.4 million electronic payment transactions with a total value exceeding VND 16,533 trillion; and has received more than 539 thousand calls to its hotline. To date, 57.1 million electronic identification accounts have been activated (Ministry of Information and Communications, 2024).

Vietnam has also placed strong emphasis on improving citizens' digital skills through the Community Digital Technology Teams model. At present, all provinces and cities have established 93,524 Community Digital Technology Teams with nearly 457,820 members, covering every commune, village, residential group, and neighborhood. In addition, the Government promotes digital capacity building through the Massive Open Online Courses (MOOCs) platform at <https://onetouch.mic.gov.vn>, which has attracted more than 28 million visits and averages 2,000-3,000 new daily accesses (Ministry of Science and Technology, 2025).

3. Challenges in Vietnam's digital transformation process

Although Vietnam has achieved notable results, the digital transformation process

continues to face multidimensional challenges that directly affect the speed and quality of implementation.

First, the “digital divide” between regions remains a structural challenge. Beyond the disparity in telecommunications infrastructure and Internet coverage, the digital divide is also reflected in access to smart devices, service affordability, and the overall ability to participate in the digital environment. According to the Ministry of Culture, Sports and Tourism (2025), the Internet usage rate in urban areas is several times higher than in mountainous regions, while many remote areas still lack BTS stations, fiber-optic networks, or fixed broadband connections. This creates a risk of “leaving behind” vulnerable groups - contradicting the goal of digital inclusion. If left unaddressed, the digital divide will reduce the effectiveness of online public services, hinder the development of the digital economy, and limit citizens' access to information.

Second, the digital skills and adaptability of civil servants and citizens remain below the requirements. A portion of civil servants is still accustomed to paper-based administrative work and lacks data-driven thinking, leading to hesitation toward change and slow adoption of digital procedures. Many localities report that although infrastructure is available, civil servants do not fully utilize information system functions, resulting in wasted investment resources. Citizens, older adults, informal laborers, ethnic minorities, and individuals with low educational attainment face difficulties when using digital services. This situation forces many citizens to seek in-person assistance, increasing the workload at one-stop service units and reducing the operational efficiency of online models.

Third, data sharing and interoperability remain limited, creating bottlenecks in the delivery of public services and in supporting decision-making. Many agencies continue to maintain “fragmented data” models, forming isolated “data silos.” This results in information

duplication, increased system maintenance costs, and obstacles to developing a unified national data architecture. The lack of data standardization, insufficient technical mechanisms for connectivity (APIs, the National Data Sharing and Integration Platform - NGSP), and reluctance to share data due to concerns over legal liability and security risks have made ministries and agencies hesitant to open data. This significantly affects integrated services such as birth registration - issuance of child health insurance cards, civil status - household registration management, or land and investment procedures.

Fourth, administrative culture and public service mindsets remain poorly adapted to the digital environment. Digital transformation is not only a technical issue but also a process of organizational culture change. The “management-control” mindset - long embedded in the traditional administrative system - causes civil servants to pay limited attention to user experience, to be slow in improving procedures, and to lack proactiveness in service delivery. Many procedures continue to follow old practices but are merely “put online,” leading to “symbolic digitalization” that makes citizens feel online services remain complex and time-consuming, no better than in-person processing. For digital transformation to be truly effective, a substantial shift in service-oriented thinking is required, with a “service mindset” applied across the civil service, as seen in South Korea and Singapore.

Fifth, information security and cybersecurity remain significant challenges. Cyberattacks targeting government systems have increased significantly, while many localities still lack dedicated information security teams. The collection and processing of massive volumes of citizen data (population, health, education, etc.) require a stronger legal framework and more robust security technologies. The absence of independent oversight mechanisms and clear accountability

regulations for violations can undermine citizens’ trust in digital services.

4. Lessons for Vietnam’s digital transformation process

4.1. Promoting digital skills universalization and narrowing the digital divide across regions and population groups

The experience of South Korea shows that the “Digital Inclusion” policy plays a crucial role in ensuring that all citizens have equal opportunities to access, use, and benefit from digital transformation. In addition to substantial investment in technology infrastructure and digital platforms, the Korean Government places particular emphasis on enhancing the digital competence of the population, considering it a necessary condition for the effective operation of the digital system. Training programs are designed to be diverse and tailored to different groups, such as the elderly, persons with disabilities, immigrants, unemployed individuals, and students, helping them access technology confidently and proactively. South Korea has established an extensive network of local digital support centers, deployed the “Digital Learning Center” model, and mobilized digital volunteers in residential communities to provide hands-on guidance to citizens. At the same time, the Government has developed intuitive, straightforward instructional materials in multiple languages, using video and virtual assistants to reduce barriers related to language and device use.

For Vietnam, the lesson of “digital inclusion” is vital given significant digital gaps across urban and rural areas, lowland and mountainous regions, and population groups with diverse educational backgrounds. These disparities not only make it difficult for certain groups to access online public services but also reduce the effectiveness of local digital transformation programs. Therefore, Vietnam needs to develop and implement a long-term, systematic, and targeted national strategy to universalize digital skills, combining formal

education in schools with community-based training through Digital Community Technology Teams, community learning centers, local digital libraries, youth unions, and women's associations. In addition, it is necessary to develop digital learning materials tailored to specific groups - such as the elderly, ethnic minorities, and informal workers - combined with online learning platforms (MOOCs) to expand self-learning opportunities. The State should also prioritize support for remote and disadvantaged areas by providing subsidized smart devices, sponsoring mobile data packages, and expanding fixed and mobile broadband coverage. Narrowing the digital divide not only enhances citizens' ability to access online public services but also contributes to social equity, strengthens workforce competitiveness, and, more importantly, builds public trust in Digital Government - an essential factor for achieving a successful and sustainable national digital transformation.

4.2. Developing an open, synchronized, and secure data infrastructure

One of the core foundations of Digital Government is the national data ecosystem, in which data is treated as a public asset that can be shared, reused, and leveraged to support socio-economic development. Experience from South Korea and Singapore shows that an open, synchronized, and secure data infrastructure is a prerequisite for ensuring interoperability, transparency, and efficiency in the provision of public services and in state governance. In South Korea, the operation of the National Data Sharing Platform enables the integration of thousands of databases across ministries and agencies, allowing data to circulate seamlessly and supporting timely decision-making. Meanwhile, Singapore has developed the National Data Governance Framework and the Open Data Policy, which help standardize data collection, storage, and sharing processes, while creating a transparent legal environment that enables businesses, citizens, and research

institutions to access and use data safely and responsibly.

For Vietnam, building an open, synchronized, and secure data infrastructure is a central task in the national digital transformation process. First, the Government needs to design a unified, multi-directionally interconnected data system across ministries, sectors, and localities to overcome long-standing fragmentation and data silos. This requires standardizing data formats, connection protocols, and integration procedures to implement the principle of "born once - used many times," ensuring that data can be optimally utilized across multiple contexts and sectors. In addition, it is necessary to promulgate and improve the legal framework for information security, privacy protection, and access authorization, clearly defining each agency's legal responsibilities for collecting, storing, safeguarding, and sharing data, thereby strengthening public trust in the digital environment.

At the same time, the development of open data should be vigorously promoted to enable businesses, research institutions, and citizens to access essential information in accordance with applicable laws and regulations. Open data not only enhances government transparency but also stimulates innovation, fosters the development of digital products and services, and nurtures a vibrant digital economy ecosystem. In the context where data is considered "the new oil" of the economy, building a national data system that is secure, synchronized, and open will allow Vietnam to shape a data-driven governance model, strengthen forecasting capacity, improve the quality of public policy, and move toward a Government that serves citizens in a more proactive, accurate, and effective manner.

4.3. Placing citizens at the center of digital transformation institutions and technology design

The experience of Singapore shows that the success of Digital Government does not come solely from advanced technological

infrastructure, but, more importantly, from a governance mindset and institutional design that place citizens at the center. In these countries, all decisions related to technology, data, administrative processes, or digital experience design are considered in direct relation to the actual needs, behaviors, and satisfaction levels of citizens. Institutionally, Singapore and South Korea have both established robust legal frameworks for national data governance, ensuring privacy protection, transparency in data processing, and citizens' ownership of their personal information. At the same time, they provide mechanisms that allow citizens to monitor how their data is used and to give direct feedback on public services. This helps cultivate a digital culture built on trust, in which technology serves as a bridge between the State and its citizens, enabling convenient, transparent, and predictable public services rather than creating a sense of "control" or "administrative burden."

For Vietnam, the core lesson is the need to shift decisively from a "management" mindset to one of "service" and "enablement," placing citizens' experience at the center as a key measure of policy effectiveness and public service quality. Digital transformation cannot stop at simply digitizing existing administrative processes; instead, it must comprehensively redesign the procedural system to meet the needs of end users - citizens and businesses. Therefore, in the coming period, state agencies need to clearly institutionalize the principle of "citizen-centeredness" in strategies, programs, and legal documents on digital transformation; apply user-experience-driven design principles as the starting point for developing applications, online public service portals, data systems, and digital processes; and establish two-way feedback mechanisms that allow citizens to provide input, evaluate services, co-create solutions, and track the real-time status of their administrative requests.

In addition, ensuring equitable access to digital services is essential, with particular

attention to supporting vulnerable groups, including the elderly, people with disabilities, ethnic minorities, and residents in rural and mountainous areas. Placing citizens at the center not only improves service quality but also strengthens social trust, creating a sustainable foundation for national digital transformation.

4.4. Improving digital infrastructure

Digital infrastructure plays a foundational and decisive role in the digital transformation process, directly determining the readiness of government agencies and businesses, as well as citizens' ability to access digital services. Digital infrastructure encompasses not only telecommunications networks and Internet connectivity but also data centers, cloud computing platforms, data integration and sharing mechanisms, and cybersecurity and information safety solutions. Experiences from South Korea and Singapore show that a country can only operate an effective Digital Government when its digital infrastructure is sufficiently strong, extensive, and flexible to meet the growing demand for data processing and the rapid expansion of online public services. In the context of Vietnam's ongoing and intensive national digital transformation efforts, improving digital infrastructure must be regarded as a central task and implemented in a synchronized, long-term, and focused manner.

First, Vietnam needs to continue upgrading and expanding its telecommunications infrastructure, ensuring fiber-to-the-home (FTTH) coverage, increasing 4G availability, and accelerating nationwide 5G deployment, especially in rural, mountainous, border, and island areas. Narrowing the digital divide in infrastructure not only ensures citizens' right to access digital services but also promotes digital economic development in disadvantaged regions. *Second*, developing national data centers and a Government cloud platform is essential for establishing a centralized, large-scale data storage and processing model, ensuring data analytics capacity, and

supporting high-interoperability digital services. This forms an important foundation for government agencies to apply artificial intelligence, big data analytics, and other advanced technologies to policymaking. *Third*, Vietnam needs to continue refining and expanding the National Data Integration and Sharing Platform (NGSP), ensuring real-time connectivity among ministries, sectors, and localities, enhancing data reuse, and reducing long-standing “data silo” fragmentation. When data can be shared seamlessly, government agencies can make faster and more accurate decisions, while citizens benefit from streamlined, convenient, and transparent public services.

5. Conclusion

Digital transformation in the public sector represents a shift from a traditional administrative model to a data-driven, transparent, flexible, and citizen-centric governance model. Experiences from Ukraine, South Korea, and Singapore demonstrate that the success of digital transformation does not stem solely from investments in modern technologies, but more importantly from the synchronization of institutions, digital infrastructure, data ecosystems, citizens’ digital capabilities, and the level of trust between the State and the people. For Vietnam, although notable progress has been made in implementing online public services, developing national databases, expanding digital identification, and enhancing digital infrastructure, the digital transformation process still faces significant challenges related to technical readiness, data sharing and interoperability, the digital skills of civil servants and citizens, as well as regional digital divides.

Therefore, analyzing and comparing international experiences is crucial for shaping solutions that fit Vietnam’s specific context. These include enhancing nationwide digital literacy, building open and shared data systems, improving digital infrastructure, and institutionalizing the principle of citizen-centricity in all technological design. Such

solutions will form the foundation for accelerating national digital transformation, moving toward the development of an effective, transparent, integrity-driven Digital Government that can better meet the demands of socio-economic development in the new era.

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