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Digital Government Transformation in Vietnam Global Lessons and Policy Implications



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Table of Contents

Abbreviations	vi
Acknowledgment	viii
Executive Summary	ix
1. Introduction	1
2. Why: Rationale and Results of eGov Transformation	5
3. What: Resourcing Priorities	17
3.1 Interoperability	24
3.2 Digital Identification	27
3.3 Digital Platform for Payments	28
3.4 Investment in Soft Digital Skills	29
4. Where is Vietnam in Terms of eGov?	33
5. How should you fund?	45
5.1 Institutional Arrangements for Digital Government Transformation	48
5.2 Public Private Partnerships (PPPs)	49
5.3 Opening Up to Tech Startups and SMEs	53
6. Conclusion and Recommendations	57
Digital Government Transformation Beyond COVID-19	60
Elaborate a Digital Government Transformation Program	60
Empower and Incentivize Subnational Governments to Continue Innovating in Terms of Digital Government	61
Retaining and Investing in Skills for Digital Transformation	62
References	65

List of Figures

Figure E1. National Services Portal Demand Indicators	x
Figure E2. Whole-of-government Digital Platforms & Data Architecture	xii
Figure 1. Development transitions	6
Figure 2. Framing public sector digital results and value for money	7
Figure 3. People, process, technology alignment	9
Figure 4. WoG success factors for integrated eGovernment services	10
Figure 5. CHIP country prioritization	21
Figure 6. Digital government relationships	30
Figure 7. Vietnam’s global digital government ranking	34
Figure 8. National Public Services Portal	39
Figure 9. Comparative ICT spending levels	40
Figure 10. Selected PPP models	51

List of Tables

Table B1.1. Analytical Inputs for Vietnam Digital Government Transformation	xvi
Table B2.1. Lessons from global experience to strengthen coordination through reforms	xvii
Table E1. Key Findings and Recommendations as Viewed Through PPT frameworks	xviii
Table E2. Barriers to digital government transformation results in Vietnam	xix
Table 1. Key functions for Vietnam’s digital government transformation	18
Table 2. Digital government leaders’ institutional highlights	22
Table 3. Scaling: Digital reference points	36
Table 4. Vietnam eGov program highlights	38
Table 5. eGov governance structure	49
Table 6. Example results framework for eGovernment	58

List of Boxes

Box E1. Underpinning analytical work Informing Vietnam’s Digital Transformation.....	xvi
Box E2. Overcoming Institutional Fragmentation for Digital Government Transformation.....	xvii
Box 1. Digital Public Services Delivery in Vietnam	4
Box 2. Digital Government Leaders.....	8
Box 3. Digital Government PfoR Support.....	11
Box 4. UK Transformation Programs.....	13
Box 5. Republic of Korea eGov	14
Box 6. Singapore Smart Nation.....	14
Box 7. Australia’s Digital Transformation.....	15
Box 8. Digital Leadership Transformation in Israel.....	15
Box 9. PPPs for Digital Government Highlights.....	48
Box 10. Open Source Platforms and Solutions	64

Abbreviations

ADWP	Adaptive Digital Workplace (Singapore)
AI	Artificial Intelligence
API	Application Programming Interface
ASEAN	Association of Southeast Asian Nations
BaU	Business-as-usual
BOO	Build, Own and Operate
BOOT	Build, Own and Operate, and Transfer
BPO	Business Process Outsourcing
CBA	Cost Benefit Analysis
CHIP	Connect, Harness, Innovate, and Protect Framework
COG	Center of Government
DGRA	Digital Government Readiness Assessment
DGS	Digital Government Service (United Kingdom)
DIPA	Data Integration Partnership for Australia
DPO	Development Policy Operation (World Bank financing type)
DTO	Digital Transformation Office (Australia)
DTP	Digital Transformation Program
EA	Enterprise Architecture
EAP	East Asia & Pacific
EFA	Expenditure Framework Assessment
G2B	Government to Business
G2C	Government to Consumer
G2G	Government to Government
GDPR	General Data Protection Regulation (EU)
GDS	Government Digital Service (United Kingdom)
GMPP	Government Major Projects Portfolio
ICT	Information and Communications Technology
ID4D	Identification for Development Program (World Bank Group)
IDs	Digital identities
IoT	Internet of Things
IPA	Infrastructure and Projects Authority (United Kingdom)

KGEA	Korean Government Enterprise Architecture
KPI	Key Performance Indicator
MIC	Ministry of Information and Communications
MOL	Singapore Moments of Life
NAO	UK's National Audit Office
NDI	National Digital ID (Singapore)
NDI	Singapore National Digital Identity
NGSP	National Government Service Platform
NSC	National Steering Committee for eGovernment
NSP	National Services Portal
ODRA	Open Data Readiness Assessment
OECD	Organisation for Economic Co-operation and Development
OOG	Office of Government
PAG	Public Asset Governance
PforR	Program for Results (World Bank financing type)
PFR	Poland Development Fund
PFRAM	PPP Fiscal Risks Assessment Model
PPP	Private Public Partnerships
PPT	People, Process, and Technology Framework
QR	Quick Response code
SBV	State Bank of Vietnam
SDG	Sustainable Development Goals
SEA	State eGovernment Agency
SEDP	Socio-Economic Development Program
SGTS	Government Technology Stack (Singapore)
SME	Small & Medium-scale Enterprises
SNSP	Smart Nation Sensor Platform (Singapore)
STEM	Science, Technology, Education, and Math
STEP	Systematic Tracking of Exchanges in Procurement
WoG	Whole-of-government

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Executive Summary

This policy note highlights the important benefits that digital government can bring to a country's government and people. Specifically, it states the rationale for digital government transformation in Vietnam, and lays out the what and how of a prioritization and sequencing strategy that can deliver digital government results and enable Vietnam to reap those benefits.

What are the benefits of digital government?

The key benefits include (i) increased quality and effectiveness of public service delivery for citizens and businesses; (ii) greater data-driven decision-making for better governance outcomes (ranging from procurement, managing infrastructure or traffic, citizen engagement to anti-corruption); and (iii) increased competitiveness and a better investment climate as a result of more transparent and efficient administration.

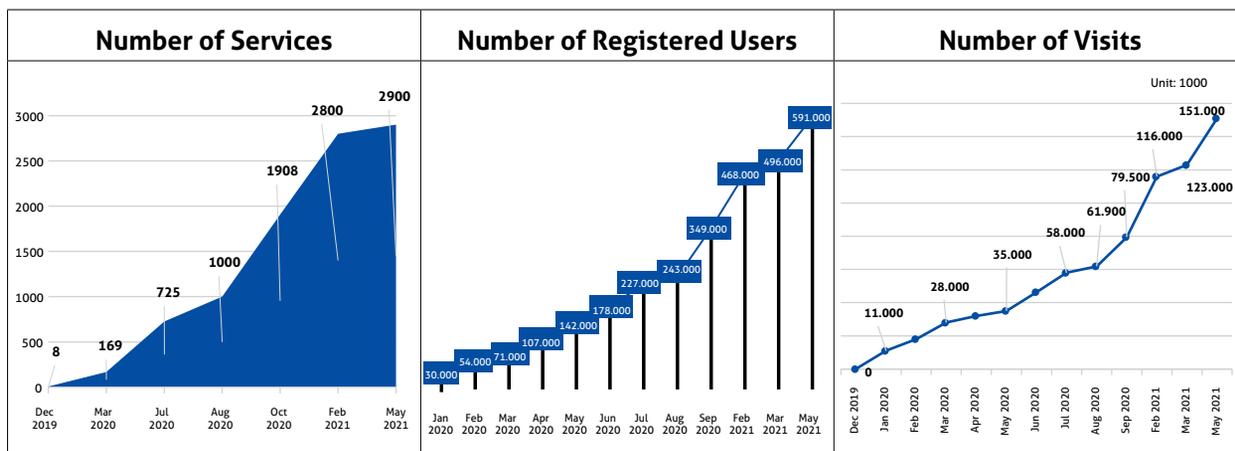
The benefits from digital government functions—if well designed, financed and delivered—can be significant. Digital government leaders such as Singapore, as reflected by its Smart Nation strategy and GovTech institutional leadership, have recognized that continually improving digital government is integral to continued global competitiveness and national development. South Korea, looking to sustain its impressive economic transformation over the past generation, has continued to invest in digital frontiers to ensure that government can meet the needs of its economic and social development. Estimates from Estonia suggest that eGov systems can reduce costs by around 2 percent of GDP. Based on a sample of developed and developing countries, foundational technologies such as digital identities (IDs) may unlock economic value equivalent 3 to 13 percent of GDP by 2030 (McKinsey 2019).

What progress has Vietnam made to date and what remains to be done?

Although national and subnational authorities are forging ahead with initiatives to advance digital government across Vietnam, several challenges need to be addressed. In December 2019, Vietnam launched its National Public Services Portal, a platform that brings together and deepens online services access and functionality for citizens and businesses (see Figure E1). Earlier in the year, an eCabinet and a digital document exchange platform were also launched. But business-as-usual and paper-based processes continue to weigh heavily on realizing the prospective benefits of digital government in Vietnam. The quality of key registries in terms of timely and comprehensive data continues to vary significantly across provinces, and institutional data-sharing remains a major challenge. Aspects of corruption, rent-seeking and a resistance to cultural change across parts of the bureaucracy continue to pose challenges. Beyond allocating adequate financial resources in the short to medium term for realizing digital government, Vietnam's authorities also will need to actively address prevailing barriers to achieving successful digital government.

Certain key ingredients are necessary to reap the full dividends from digital government programs in terms of public service delivery, decision-making and citizen engagement. Progressive transitions from paper to digital government depend on adequate human and financial resource alignments, supported by fit-for-purpose technology platforms. Rapid technological change means understanding which digital government investment trajectories can yield results and value for money across short- and longer-term horizons. It also requires governments to look carefully at what constitutes successful digital government trajectories, particularly the factors that make countries leaders versus followers.

Figure E1. The National Public Services Portal roll-out numbers show the strong demand for digital government services in Vietnam



While Vietnam’s leadership is urging both officials and citizens to make the transition to digital government, progress in this direction is slow. The leadership provided by the Prime Minister’s Office, particularly under the framework of the National Committee for eGovernment, established in August 2018 is already helping Vietnam chart a course to more effective digital government. The leadership has recognized the need to better marry and continually push the institutional and technical reform aspects of progressive digital transformation. The efforts of key cross-cutting national agencies such as the Office of Government (OOG) and the Ministry of Information and Communications (MIC) have seen progress on both fronts, especially as it relates to tangible results for citizens, businesses, and officials at all levels. However, Resolution 17/NQ-CP on March 7th 2019 underscored that although some essential services were offered to citizens and businesses online—including business registration, tax declaration, social insurance—the ratio of online transactions between citizens/businesses with government agencies regarding public services is still low. It is a similar situation in government; officials show limited uptake of digital platforms and intra-governmental services as part of their day-to-day work.

The authorities recognize that the limited uptake of digital government in Vietnam has suffered from the fact that (i) the internal process of handling those services is mostly paper-based, (ii) digital government still lacks a clear and suitable financing mechanism, and (iii) government agencies do not share data/information (including due to the lack of a legal framework for data sharing). A study by the OOG to prepare for Decision No.273/QĐ-TTg issued in 2018 by the Prime Minister in advance of approving the National Public Service Portal Scheme found that many public services cannot be delivered online due to barriers created by regulations. Procedures as regulated by laws need to be streamlined according to a “digitalization” mindset before being provided online. One aspect of those problems is the absence of more unified user gateways, and the other is the lack of cross-cutting digital identity and payments functionalities. Above all, digital government reform efforts in Vietnam require a whole-of-government approach with strong leadership, concerted actions, and resources pulled together towards realizing clearly defined objectives.

The response of governments, including Vietnam

Governments across the globe are intent on ensuring that they do not fall behind in terms of digital transformation. Thus, they are seizing the opportunities and addressing the challenges posed by emerging “disruptive” technology trends. However, among a whole series of competing pressures, many

government administrations are focusing on technology and ignoring the need for more extensive change to make such technology effective in improving the way government delivers services to its citizens.

For a rapidly developing emerging economy such as Vietnam, digital government transformation implies much more than merely investing adequate annual and medium-term budgets towards Information and Communications Technology (ICT). Digital government transformation is at its heart about modernizing the way government functions, supported by technology platform applications. Given that digital government transformation takes place at the intersection of institutional and technological change, it is distinct from many other more conventional infrastructure investment programs. Digital government results require a mix of investments in institutional and organizational change (including culture/change management), improved human resources, as well as capital and recurrent financing levels and processes. Adopting a holistic approach is essential to realize tangible improvements, as opposed to simply muddling along or conducting business as usual.

Vietnam's leaders have recognized that digitally enabled public sector modernization at both national and subnational levels is critical to the country's future prosperity. Vietnam's regional context and current lower-middle-income phase of development lend urgency to getting digital government development right. The global trends of rapid technological change and fundamental shifts in the patterns and volume of trade will be particularly consequential for Vietnam given its dynamic East Asia neighborhood context.

Navigating continued demands from structural change; integration across the region; digital connections; increased inclusion; good government effectiveness; and income growth (see Mason et. al. 2019) will in no small part hinge on a successful digital government transformation. Mounting resilience challenges, such as climate change and pandemics, only amplify the need for government to effectively leverage new technologies and build digital performance prowess in practice. Vietnam's regional leadership roles, including its 2020 ASEAN Chairmanship, all speak to the strong impetus to translate policy intent into actions towards digital government transformation.

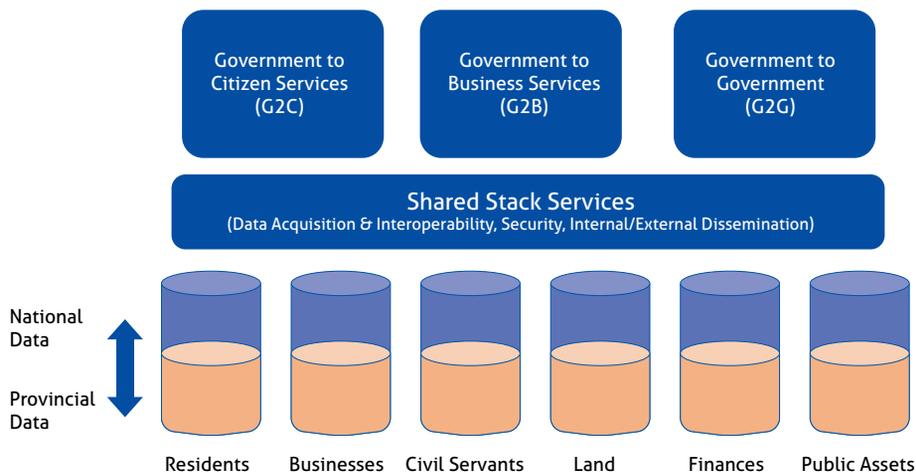
Just as investing in key physical administrative infrastructure has been integral to rapid and equitable development over the past generation, a new generation of successful development will require the effective delivery of government initiatives. Industry 4.0, along with growing prosperity and livability across both urban and rural areas, will depend on graduating beyond Government 1.0. Given the importance of change management and culture change to transform the whole-of-government into an agile and citizen-centric model, as illustrated by leading GovTech nations such as Singapore, prioritizing, sequencing and effectively resourcing foundational and functional elements of digital government, with clear KPIs for tracking progress, are critical for achieving results in Vietnam.

What can Vietnam learn from international experience?

A successful transformation, which goes beyond the digitization of public sector data and processes to change the day-to-day lives of citizens, businesses and officials, entails the establishment of both foundational and functional elements. Foundational elements for digital government include basic and broad-based digital connectivity, digital IDs and payment mechanisms for the population to avail of digital services, as well as data integration and cybersecurity platforms. Functional elements refer to how these foundations come together to deliver frontline results in practice. In areas such as digital connectivity, Vietnam starts from an adequate position, although expectations from new generation ubiquitous 5G will continue to raise the bar in this area, including for private sector investment. But in areas such as digital ID, public digital data assets interoperability and protection, and digital payments, Vietnam lags not just

behind many of its peers, but above all falls short of its potential as a digital government break-out nation. While the world’s current digital government leaders have each crafted and sustained their own individual trajectories to results, Vietnam can learn from both what worked, but also potential shortfalls from other digital government initiatives at home and abroad.

Figure E2. Digital government transformation depends on a whole-of-government approach focused on delivering frontline results to users by building both foundational and functional platforms and digital data assets



Adequate resourcing for digital government will be critical in realizing any successful transition. However, international experience with digital government transformation shows that it is not just the level of resources that matters, but also how these resources are allocated and invested across digital government functions and government levels. If data is now widely touted as the new oil, government will need to become better at generating, leveraging and safeguarding these public digital assets. The absence of whole-of-government approaches to improving the quality and use of key registries—including for citizens, enterprises, land, physical infrastructure assets, finances, public officials—will continue to sap the energy of digital transformation in Vietnam. A concerted effort is needed to not just design cross-cutting government enterprise architectures and platforms on paper, but to deliver them in practice using effective institutional and technology choices.

What are the challenges facing Vietnam?

A key challenge—but also an opportunity—for broad-based digital transformation in Vietnam remains its particular form of decentralization. While Vietnam is a unitary state, the country’s 63 cities and provinces are nonetheless responsible for the bulk of frontline service delivery and decision-making. Delivering on key digital government services, as depicted in Figure E2, will require ensuring that key national, foundational digital registry systems are in place, and that there are services platforms to effectively and securely leverage these resources.

Vietnam’s vibrant technology sector, including in the form of its Business Process Outsourcing (BPO) economy, highlights that a critical mass for greater digital economy and government already exists in the country. Figure E2 presents the six key national data registries that Vietnam has identified to be at the heart of its eGov program, but where significant gaps in comprehensive digitization of workflows and data remain. Vietnam’s authorities can decide, as part of their digital government design and implementation, whether to be a fast-follower in technology adoption (relative to the private sector and leading GovTech nations), a leap-frogger (e.g., anticipating such technologies as 5G), or a first-mover

(testing new models to address context specific problems). Whichever strategy they choose, putting the appropriate structures in place to better harness these capabilities will be critical. In practice, Vietnam's national and subnational governments will need to pursue a mix of each of these strategies in prioritizing and sequencing digital government delivery. The proof of any strategy will come at the time of delivery, and the realities of moving from on-paper intentions to digital outcomes.

Adopting a whole-of-government approach

A whole-of-government approach to digital government transformation will enable Vietnam to reap the dividends offered by new and evolving technology. On a number of fronts such as human capital skills and a dynamic economic growth trajectory with strong linkages to international value chains, Vietnam appears to be well placed to reap the prospective rewards of harnessing technological change. However, corresponding digital transformation in the public sector threatens to fall behind in the absence of corresponding institutional and investment measures that truly harness the benefits of growing digitization and new technology trends. Realizing a "whole-of-government" approach to digital transformations is therefore critical for Vietnam to deliver on the leadership intention of adapting to the Fourth Industrial Revolution. This means changing and better aligning both the "front end" (e.g., citizen, business, and official user facing) and the "back end" (e.g., procedural, data and intelligence) of the public sector. It also means that digital adaptation needs to occur across corresponding agencies and levels of government for greater public sector efficiency and co-ordination. This landscape calls for creating greater space for the private sector to provide innovative solutions to the public sector that can be harnessed to achieve digital government results.

Without a concerted effort to address both the what and how of digital government transformation in Vietnam, the 2021–25 strategic planning cycles are likely to fall below expectations (see Box E1). To achieve successful digital transformation, a more rigorous "whole-of-government" effort to address institutional and investment gaps will be required so as to harness the potential and reap the rewards from digital transformation and disruptive technologies—and avert the risks of falling short (see Box E2).

Vietnam's journey to successful digital government transformation

This policy note sets out a framework that is designed to guide Vietnam along the path to the achievement of digital government transformation results, including key aspects of eGov, such as service delivery, digital workflows and decision-making, and citizen engagement. The message of this framework is that people, processes and technology (PPT) platforms need to be aligned to achieve tangible results. This means going beyond a business-as-usual approach in the public sector that seeks to put a digital gloss on outdated analogue processes, squarely addressing some of the inertia in the system captured in Table E1 and E2. It means bringing to bear both institutional reform and technological capabilities to Vietnam's digital government transformation agenda. It will also require Vietnam to think about how it effectively organizes digital government transformation, especially in moving beyond high-level mechanisms such as the current National Committee for eGovernment and associated resolutions.

eGov Financing Policy Note Overview

Progress in digital government will also be a key ingredient in meeting Vietnam's wider digital economy development aspirations.

The Vietnam government's commitment to digital transformation has been motivated by the need to succeed in the context of meeting global value chain competitive pressures as articulated in transition

to Industry 4.0. The COVID-19 pandemic has amplified the drivers for digital transformation. But digital Government 1.0 will need to be transformed in order to meet Industry 4.0 aspirations and a world of the new normals.

With the launch of the National Public Services Portal at the end of 2019, Vietnam's achieved an important milestone on its digital transformation journey. The portal not only realizes the notion of a more unified, whole-of-government, face of digital transformation, but also shows how a number of key services—including tax payments and driving licenses—could be significantly improved. Going forward, Vietnam can improve significantly the quality of public services for citizens and businesses through digital channels, strengthen government processes and decision-making with digital foundations, and improve the ability of citizens to engage effectively with their government. Especially as Vietnam embarks on its new 2021-25 Social and Economic Development period, stronger models and resourcing will be required to sustain the next phase of digital government success.

The key message of this policy note is that Vietnam will need to continue to better marry institutional process reforms and technological opportunities to effectively govern the country in the digital age. A proposed 2021-25 Digital Government Transformation Program needs to move beyond aspirational statements or procedural measures to set out a more clearly prioritized and sequenced plan of action. This will mean being clearer about what Vietnam's leadership expects to achieve during this period and its commitment to that end. Whether for purposes of digital economy competitiveness, Industrial Revolution 4.0, Smart Cities solutions, or simply government that delivers, practical steps to digital government transformations at national and subnational levels will define the impact of financing in this critical area for Vietnam's next phase of development. Table E2 summarizes some of the key barriers to digital transformation, and sets out a set of linked recommendations.

Through an institutional reform and technological modernization lens for prioritizing and sequencing digital government results, the report recommends three major pillars to addressing digital government transformation challenges in a whole-of-government approach. A meaningful plan of action would set out clear results targets (e.g. which services will be targeted together with targets for uptake by citizens and businesses). Policy-makers will need to clearly and continually communicate the benefits of digital government transformations, as well as the costs of falling behind relative to peers. This will also mean recognizing that public-interest digital assets such as IDs, registries, and real-time information are no longer a luxury. Rather they will be integral to how both advanced and emerging governments effectively operate in this decade and possibly decades to come.

- ***Elaborate a Digital Government Transformation Program.*** This program should articulate a "Digital by Design" communications vision for foundational and functional digital government investments during the 2021-25 horizon and beyond. The DGTP should set out a more robust results framework for medium-term digital transformation, together with holistic cost benefit analysis (CBA) methodologies for foundational and functional investments for both national and selected city-provincial subnational levels. This program has to shift mindsets beyond a narrow focus on ICT projects to digital assets that need to be harnessed and protected. This can be extended with a public asset governance (PAG) lens to review the state of key digital data and sharing towards enhancing digital government outcomes, including by strengthening options for public feedback.
- ***Empower and Incentivize Subnational Governments to Continue Innovating in Terms of Digital Government:*** National government needs to set an enabling framework to promote digital transformation and innovation, while making sure that key foundational elements such as digital identities, data exchange standards, and payments are in place.

- **Retain and Invest in Skills for Digital Transformation:** Some level of inhouse skills, combined with wider public sector modernization, will be vital to realizing a Digital Government Transformation Program in Vietnam. A major focus of the DGTP will therefore need to center on investing in people and change management.

The policy note is organized in five sections:

- Section 1 introduces the motivation for the overall report
- Section 2 elaborates on the **Why** of government digital transformation. This framing underscores that digital transformation implies reforms in people and process interactions within government, and across government, citizens, and business. Viewed through the “PPT” lens, we position Vietnam’s eGov aspirations relative to international country benchmarks and experiences. This motivates the question of what types of key ingredients and resources will likely be needed to achieve success in this arena.
- Section 3 focuses on the **What** of digital government transformation by applying the PPT lens and broader CHIP framework. The section focuses on addressing digital interoperability of data, digital identification, digital payments, and skills and change management gaps.
- Section 4 summarizes **Where** Vietnam currently stands in eGov development, including its position relative to other countries based on key global benchmarks.
- Section 5 considers **How** to address the key digital government transformation success factors. These include the institutional arrangements for promoting a progressively whole-of-government approach to public sector modernization and its associated budgeting, the opportunities and risks of public sector partnerships, and ways to best crowd in digital economy innovation, especially in the form of the startup and small and medium enterprise (SME) sector.
- Section 6 concludes by assessing how these factors bode for the medium-term future of Vietnam’s eGov aspirations at national and subnational levels. The note suggests that a stronger alignment between actions and communications across the **Why, What, Where, and How** aspects of Vietnam’s digital government efforts is needed. Barring this, progress is likely to be piecemeal and protracted, falling short of potential and the achievements of some of Vietnam’s peers. We recommend establishing a more robust medium-term digital government transformation plan for 2021–25, empowering provinces and cities to innovate, and better harnessing and protecting digital data as key public sector assets, as well as investing in digital capabilities.

Vietnam Digital Government Transformation Policy Note

Box E1. Underpinning analytical work Informing Vietnam’s Digital Transformation

The Digital Government Transformation report builds on over two dozen interim outputs and just-in-time reports provided to Vietnam’s last government through 2021. The primary counterparts for this work were the Office of Government (OOG) and the Ministry of Information and Communications (MIC), as well as sub-national governments. Each of these reports identified key areas of reform progress, but also highlighted where there were areas of unfinished business. Among others, these reports include the combined Digital Government Readiness Assessment (DGRA) and Open Data Readiness Assessment (ODRA) (World Bank 2019), conducted jointly by the Government and the World Bank’s Governance and Digital Development Practices (see World Bank 2019). The DGRA component of the report evaluated Vietnam’s current potential for digital government development across seven key dimensions of leadership and governance; user focus; business process change; capabilities; culture and skills; shared infrastructure; data driven; and cybersecurity, privacy and resilience. Meanwhile, the ODRA assessed Vietnam’s open data policy through evaluating eight different dimensions of leadership; policy/legal framework; institutional structure; data within government; demand; citizen engagement; funding; and infrastructure. The World Bank also provided technical support to financial sector digitization and innovation policies of Vietnam, including to the State Bank of Vietnam (SBV) around the National Payments System (NPS).

Key areas being addressed in further depth include the state and prospects for supporting digital transformation infrastructure and services (including cloud, broadband connectivity, data services, and infrastructure). The Bank will continue to work with different sector agencies and levels of government across the public and private sector to highlight how data can be better leveraged for development, balancing both value, privacy, and security concerns (see World Bank 2021)

Table B1.1. Analytical Inputs for Vietnam Digital Government Transformation

What - Key Results	Whom	Focus	Unfinished Business
E-Gov Enterprise Architecture (EA) (11/20); Govt Info & Reporting System (08/2020); National e-Services Portal (12/2019); Digital Cabinet (06/2019); Digital Document Exchange Platform (03/2019);	OOG	Advisory advice on admin procedure reforms, reporting indicators, and data analytics on e-service delivery	Streamlining processes for public service delivery; back office interoperability-integration of information systems of various ministries; trusted digital identity and payment; Tracking actual digital workflows and continuing measuring results; Translating OOG EA into actions.
Govt Digital Transformation Plan (06/20); Govt digital data sharing decree (04/20); HCMC Data Sharing Policy (03/20)	MIC City-Provincial Governments	Advisory on e-transactions, data governance, and disruptive technology applications for public asset governance	Govt Digital Transformation Plan and Digital Economy linkage; data governance framework; data sharing platforms; data as digital assets.
Digital Identity Roadmap	MIC	Linked with eService Portal	Lack of a long-term strategy; Narrowly linked to the eService portal; linkage with digital economy, incl. digital services in banking and finance sectors
Digital Innovation Strategy	Ministry of Science and Technology (MOST)	Inputs to ten-year Science and Technology Innovation (STI) Strategy 2021-2030 and the Socio-economic Development Strategy (SEDS) 2021-2030	Accelerate and deepen broad-based digital business innovation, as highlighted by the different ways in which firms were able to respond of the COVID-19 triggered economic shock

Box E2. Overcoming Institutional Fragmentation for Digital Government Transformation

Digital government transformation requires whole-of-government change management, which must overcome likely inertia and fragmentation across the public sector. The report provides different examples of the delivery units and coordination mechanisms that leading countries have adopted to drive continuously successful transformations. The country examples include Singapore, Malaysia, Estonia, Australia, the US, and United Kingdom to name a few. The form of these institutions varied, but what is important is that those institutions were able to fulfill key functions towards successful public sector modernization. A key lesson of these experiences has been that Information Technology is only a small part of digital government transformation. Rather, effective Center of Government (COGs) functions will be critical to steer collaboration and communication among different ministries, departments, and agencies (MDAs), as well as across national and subnational levels of government.

The COVID-19 pandemic presented governments across the world with an impetus to accelerate the digitalization reform agenda in the face of contact-free economy. Strong digital capabilities across both the public and private sectors are increasingly a critical ingredient to effectively navigate this crisis. The COVID-19 pandemics has also increased interest in how CoGs should be best organized to deliver on high level agenda (see Kunicova 2020), without falling into complacency. As Vietnam emerges from the COVID-19 crisis, it may also revisit international and domestic institutional models to ensure continued momentum around its digital transformation agenda. A growing number of leading digital governments have established strong and dedicated units for digital transformation. Vietnam to-date has opted to work through the existing ministry, agency and sub-national structures. This current structure is fragmented in which more than half a dozen government agencies are put in charge with various mandates on digital transformation. Only when a strong institutional anchor with adequate staffing and resources be identified, will the government able to make inroads in the digitalization reform agenda. As Table B2.1 suggests, leadership, incentives, flexible arrangements, and strategic focus will be vital to the success of any CoG priority.

The report has also provided a roadmap to better inform both institutional and technical demands for Vietnam's wider digital transformation journey. Key areas being addressed in further depth include the state and prospects supporting digital transformation infrastructure and services (including cloud, broadband connectivity, data services, and infrastructure). In addition, the Bank's World Development Report of 2021 articulates the greater value of data that can be derived across both the public and private sectors. The Bank will work with different sector agencies and levels of government across the public and private sector to highlight how data can be better leveraged for development, balancing both value, privacy, and security concerns.

Table B2.1. Lessons from global experience to strengthen coordination through reforms

What has worked?	What has not worked?
Leadership. High-level political backing is important for any reform to enhance coordination, as is the quality of leadership. The person at the helm of the reform, if not the PM him/herself, should be technically skilled and politically savvy, as well as close to the chief executive.	Complex designs. Simple mechanisms often work best in low-income countries and FCV contexts, where capabilities are often more limited.
Incentives. The reforms that anticipated resistance and invested in buy-in were most likely to succeed.	Adding new structures with overlapping functions. There can be value in policy contestability, but unless these are well-defined, overlapping functions can blur accountability and make coordination difficult, both in sectoral coordination and in government-wide coordination.
Flexible arrangements. Flexible and adaptive coordination mechanisms work better than rigid and prescriptive ones, as they have a better chance to be sustained and become self-reinforcing even as leaders change.	Relying solely on "best-practice" institutions. Institutional solutions (e.g. delivery units) uncritically transferred from one context to another rarely produce the desired outcome, and have been criticized for 'isomorphic mimicry'. Before introducing new institutional coordination mechanisms, it is important to take stock of what already exists. Building on the existing institutions tends to work better.
COG focus on strategic issues. COG functions best when focused on strategic coordination and leaves the granular upstream and downstream coordination tasks to the MDAs.	

Source: Kunicova (2020: 18) and World Bank (2018)

Table E1. Key Findings and Recommendations as Viewed Through PPT frameworks

Lens	Highlights
People	<p>Citizens (and businesses) are still largely accustomed to engaging with government based on physical and paper-based processes for administrative services;</p> <p>Government officials are still most accustomed to paper-based processes, with limited buy-in for digital modernization processes;</p> <p>While there is significant rhetoric about the need to advance digital government and economy agendas, many parts of Vietnam’s public sector arguably still approach the challenge with a high degree of proceduralism.</p>
Process	<p>While the legal framework has recently moved to provide greater recognition for digital workflows, most official processes are still paper-based rather than digital by default;</p> <p>Lack of forward-looking legislation that can enable digital transformations, including in the areas of data sharing, trusted digital IDs, privacy protection, cloud computing, and cyber security;</p> <p>The arrangements for digital government transformation are still reliant on coordinating bodies, rather than more dedicated accountable executive bodies with requisite staffing and capabilities;</p> <p>The eGov Program lacks a clear articulation of expected results with adequate financing resources and their timely monitoring;</p> <p>The eGov lacks an effective process for leveraging private sector skills and financing. The dialogue with the major national technology companies has not resulted in transparent financing modalities that can mobilize private sector efforts and co-financing to date. At both the national and subnational levels, SMEs/startups appear to present a very limited role in providing innovative solutions in the area of service delivery or business process intelligence (including in such emerging areas as AI).</p>
Technology	<p>ICT projects remain quite siloed and fragmented;</p> <p>Digital government transformation is still equated with ICT “hardware”, rather than a public sector modernization and change management lens; Shared technology resources for digital government such as digital ID, payments, and interoperability platforms are not fit for purpose owing to lack of policy and institutional coherence across government;</p> <p>The prospects of new cloud and its servicebased models, and emerging disruptive technologies have not yet made inroads in Vietnam.</p> <p>Digital data assets, coupled with safe and secure data sharing, are only partially recognized as integral to digital government results.</p>

Table E2. Barriers to digital government transformation results in Vietnam

Barriers	Issue	Recommendations
Bureaucratic fragmentation	Frontline service delivery is fragmented across 63 cities-provinces and different national agencies	<p>Focus results indicators on frontline service delivery indicator results, subnational benchmarks</p> <p>Cluster services in portals</p> <p>Pursue user-centric design and streamlining</p> <p>Address corruption, rent-seeking, and a culture resistant to change across parts of the bureaucracy</p>
Low-quality foundational data for key registries	Foundational data for functional service delivery (individuals, businesses, land) vary significantly in terms of quality across localities	<p>Communicate how gaps in key digital registries limit frontline impacts</p> <p>Invest in key registries, but against clear results indicators, setting out minimum data standards and transparency</p>
Lack of data sharing	Agencies are unwilling to share data	<p>Link data-sharing requirements to specific public services or the decisionmaking process</p> <p>Operationalize common platforms for data sharing (e.g. X-Road in Estonia)</p> <p>Enhance transparency and disclosure, including sharing shortfalls</p>
Dual budgeting practices	Planning and finance authorities review projects from a traditional hard infrastructure perspective	Provide agencies and cities-provinces with good practice approaches for investing in digital government solutions
Protracted procurement processes	Significant delays in project implementation lead to a lack of synchronization of packages and evolution of technology	<p>Cluster digital government projects as per interdependences</p> <p>Establish special integrated procurement tracking mechanisms</p>
Unclear digital government procurement processes for PPP-type	Limited attention is given to risk sharing for digital government projects between public and private sectors	Establish PPP design facility with special emphasis on digital government projects
Lack of in-house capacity for digital government projects	Government has limited ability to design and supervise digital government in-house, leading to project delays, fragmentation and poor vendor performance	<p>Invest in in-house capabilities for digital services, including through the strategic recruitment and retention of technical human capital, and wider digital literacy programs for officials</p> <p>Establish cross-cutting PIU clusters with requisite skills</p>





1 Introduction

- 1.** The global pace of digital development across economies, societies, and governments continues to increase unabated. A growing number of countries are reaching near universal physical internet connectivity, both through fixed line and, above all, mobile access. New waves of connectivity such as 5G may make connectivity even more seamless. Innovations in eCommerce, business value chains, and social media are all, in different ways, transforming how we now live and work. A growing range of digital access tools and greater digital literacy and skills have become vital for survival in more productive economies, but at the same time they offer equity and a level playing field for shared prosperity.
- 2.** The drive for successful digital government is founded on the fact that it can: (i) improve the quality and effectiveness of public service delivery for citizens and businesses; (ii) enable greater data-driven decision-making for better governance outcomes (ranging from procurement, managing infrastructure or traffic, to anti-corruption); and (iii) enhance competitiveness and improve the investment climate as a result of more transparent and efficient administration. Successful digital government should provide citizen - engagement, broad-based benefits that cut across differences in geography, social groups, and gender, and be usercentric and responsive.
- 3.** In Vietnam, the continued modernization of government will be vital in meeting the demands of an increasingly digital era. But modernization through technology is not sufficient by itself. To be successful, applications of digital technologies and data must be human-centered if they are to improve both the delivery of government services to citizens and businesses and increase efficiency within government. Without ensuring that people and institutional process aspects are effectively addressed for progressive

change management, the public sector may increasingly become a liability rather than an enabler for Vietnam's digital economy and future society.

4. The concept of Industry 4.0 refers to a new phase of manufacturing supported by technological innovation. The Vietnamese leadership has underscored that the country needs to seize this opportunity to maintain its successful development trajectory in the context of continually developing global value chains. Digital Government 1.0, which sets out the government's initial approach to digital government, will need to be transformed in order to meet Industry 4.0 aspirations.

5. However, digital government transformation represents a huge challenge, both to Vietnam and any other country seeking digital government, as it involves change management and adequate resourcing requirements in addition to new technologies. The effective prioritization and sequencing of reforms is therefore vital to ensure that such transformation maximizes all the available resources—



technological, human and financial. The experience of other countries provides valuable guidance on the types of institutional mechanisms, technologies and architectures that will translate into success.

6. The objective of this policy note is to show that effective prioritization and sequencing, coupled with strong resourcing strategies, are critical imperatives to harnessing the benefits of eGov programs, while at the same time averting their risks. Prioritization and sequencing of Vietnam's digital government for the period 2021-2025 and beyond. The policy note serves to articulate the key results that are globally associated with successful digital government in terms of public service delivery, decision-making and operations, innovations, and competitiveness. In linking this framing with an assessment of Vietnam's current context, and its priorities and aspirations, it seeks to identify the different types of investments that national and subnational governments will need to make—including in human, financial, and leadership resources—to succeed.

7. Arguments may persist over the extent to which digital government transformation has been successful, unless performance can be measured (see Box 1). Such measurement can be based on both functional and foundational criteria.

- Functional criteria focus on the key question: Do the specific digital services work?
- Foundational criteria focus on the enabling platforms in place for digital government, such as the legal and policy frameworks, fixed and mobile internet connectivity, digital data governance, digital ID, digital payments, and digital literacy.

8. The report not only addresses the why of digital transformation, but above all seeks to inform the what, and how to advance this in the Vietnam context. In charting out the future of successful digital government for Vietnam at national and city-provincial levels for 2021-25 and beyond, the report draws on the experiences of leading and emerging digital government nations. It also leverages two frameworks to highlight the broad range of measures that will be required:

- *People, Process, Technology (PPT)* framework, which brings together the human, institutional and technological dimensions of digital transformation. It underscores that investments in technology can only be an enabler, as digital transformation requires changing the behaviors and skills of officials, citizens, and businesses, along with the policy and regulatory environment.
- *Connect, Harness, Innovative and Protect (CHIP)* framework, which helps prioritize both the foundational hard and soft infrastructure required for success, and the policy and regulatory measures needed to address such issues as cybersecurity and privacy for effective digital government and economy developments.

9. The report proceeds in five sections. Section 2 presents the rationale, or why Vietnam needs to succeed with digital government transformation over the coming decade from a benefits and costs lens. Costs refer not just to what investments must be made to achieve the benefits, but also the cost of not achieving digital government results in a period of rapid economic and social change. Section 3 identifies what must be done, focusing on four cross-cutting dimensions of digital government development that will need to be addressed for Vietnam to succeed: improved whole-of-government data interoperability and governance, digital identification, digital payments, and skills and change management gaps. Section 4 summarizes where Vietnam currently stands in terms of digital government development relative to leading and emerging digital government nations, drawing on the most recent indicative global benchmark indicators. Section 5 considers how to address key digital government transformation success factors. This includes the institutional arrangements for a whole-of-government approach, as well as the resourcing gaps that must be addressed for successful digital government, beyond adequate recurrent and capital budgets. Section 6 concludes by assessing the expectations for the medium-term future of Vietnam's eGov aspirations at national and subnational levels.

Box 1. Digital Public Services Delivery in Vietnam

While Vietnam is a unitary state, the bulk of the physical and increasingly digital frontline is under the purview of 63 cities and provinces. The ability to provide digital services depends on the state of the required registries—including citizen or firm identity, land and property verification—and transactional platforms, including online payments functionalities. To date, Vietnam has maintained a four-level scale to categorize the extent of digitization of public services.

- Level 1 allows service users to check all service procedures online.
- Level 2 provides application forms and templates for service users to download.
- Level 3 enables service users to submit the application forms online, but still requires the physical presence of service beneficiaries to get the results.
- Level 4 means that beneficiaries can make payments online and can receive door-to-door services.

While this is a good start, the classification may risk focusing on specific processes, rather than capturing a more user-centric design. For example, global leaders such as Singapore have increasingly clustered services to specific life events, such as births or business registrations. The idea is to streamline the sum of touchpoints with government to complete these events.

A 2016 report by the Ministry for Information and Communication provided an overview of the online public service delivery of ministries and agencies (see Duyễn 2017). The report finds that, while some agencies and provinces are purportedly offering Level 3 and Level 4 services, access to and information about these mechanisms are fragmented. One aspect of this problem is the absence of more unified user gateways, and the other is the lack of cross-cutting digital identity and payments functionalities (see Office of Government 2019).

As per Resolution 36a/NQ-CP on eGovernment dated October 2015, the objective of the eGovernment development is to improve the efficiency of state administrative agencies at all levels, provide better service to citizens and enterprises, improve transparency and efficiency, and improve Vietnam's eGovernment rank in the ranking of the UN. Under Decree 61/2018/NĐ-CP on 23/4/2018, the OOG has been authorized to "integrate and share data on administrative procedures with the national database of administrative procedures, other national databases, sector databases and the single door portals of local authorities."

With the December 2019 launch of the National Services Portal (NSP), five public services were made available digitally across 63 provinces and cities: (i) change driving license; (ii) notice of promotional activities (i.e., business conducting sales); (iii) reissuance of the health insurance card due to loss or damage; (iv) consumer electric services; and (v) commercial (medium voltage) power supply service (for businesses) and integrated utility for electricity bill payment. In addition, the portal provides four public services at the ministry level: (i) issuance of an international driving license; (ii) registration of promotions; (iii) the service group for the certification of origin for goods; and (iv) electronic tax payments for businesses.

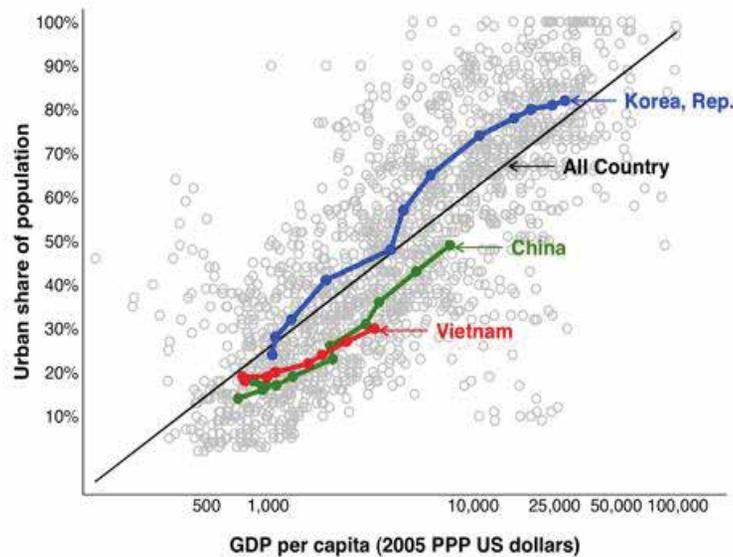
The impact that the NSP will have on Vietnam's global ranking for the UN 2020 eServices index remains to be seen (see Box 2). The national authorities envision a progressive expansion and improvement of the services provided on the platform. This will include a focus on services that improve the ease of doing business, as well as payments for traffic fines. While the NSP clearly provides an important milestone on Vietnam's journey to digital government, additional digital service channels will require ensuring that the foundational data are fit for purpose, and any digital divides confronting different population groups—whether through "hard" digital infrastructure access or "soft" barriers to access such as digital literacy—can be effectively bridged.



2 Why: Rationale and Results of eGov Transformation

10. Successful digital government transformations, if done right, can deliver significant economic, social, and political returns. While a variety of global league tables are increasingly used to capture comparative progress (cf UN 2019), the most relevant benefits are measured in-country (see Box 2). Better and more efficient public services, data-driven decision-making (including the application of new Artificial Intelligence [AI] type tools), and reduced fraud and corruption are often the result metrics. Digital workflows and data, if well designed and implemented, can be used to strengthen citizen engagement, to make government more transparent and effective. They can enhance satisfaction with government, as well as support anti-corruption strategies. But poor application of digital technologies means not only missing the benefits of these developments, but adversely delaying or disrupting the actual modernization of government. Countries such as Vietnam must be careful to avert business-as-usual traps in terms of public sector digital transformation. Figure 1 suggests that Vietnam is still at threshold levels of key structural change in terms of urbanization and income levels. In this context, its digital government transformation aspiration can be framed as both leap frogging ahead of these transitions, or dragging behind them.

Figure 1. Development transitions

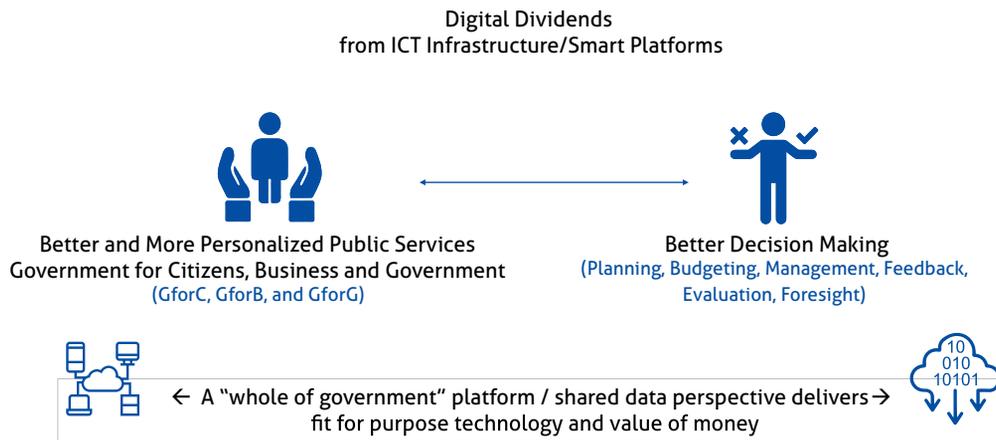


Source: World Bank, MPI (2016) Vietnam 2035.

11. Digital government transformations imply a continual re-engineering of how the public sector works to deliver tangible results for services, decision-making and citizen engagement. Successful digital government reforms are at their heart about institutional reforms meant to “achieve a better government...by improving the business processes and service delivery to citizens, business and among agencies” (cited Othman and Razali 2018). In this context, information and communication technology (ICT) must be seen as an enabler, rather than a primary end in itself. Digital government reforms are increasingly focused on the need to move beyond a transactional input focus (e.g., digitizing financial management transactions, putting paper files in a database), to a transformational beneficiary-centric results stage. The focus for digital investments in this arena centers on continually improving government performance along a number of dimensions, including service delivery, decision-making and citizen engagement. Digital technology enables such improvements in service delivery in two ways, first by improving citizens’ access to existing services, and second by enabling governments to gain feedback from citizens about unaddressed needs to inform future service improvements. The real-time feedback loop improves citizen satisfaction and fosters trust with the government.

12. Inherent to digital transformation is striving for continual improvements and adaptation in public sector performance. Two related points may stand out as obvious in the digital age. First, technology is changing rapidly, but it is only an enabler for better people and process outcomes. Second, a more fundamental institutional “theory-of-change” question is whether government pursuit and adoption of technologies continuously co-evolves toward better outcomes. A successful marriage between public sector performance and technological change will depend on wider governance and development trajectories in a given setting (see Figure 2). For example, what are the incentives for either national or subnational leaders to meaningfully pursue and enable technological innovation? Are pressures for better public sector performance improvements largely domestic (e.g., the emergence of a more demanding middle class), or international (e.g., a country’s concerns about where it sits in the context of global competitiveness and value chains).

Figure 2. Framing public sector digital results and value for money



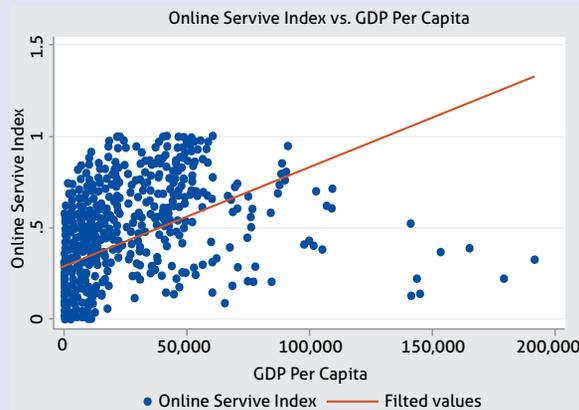
13. Public sector digital results imply improving interactions among and across users, namely government, citizenry and enterprises. A digital first process means not simply trying to digitize paper based services, but to design and implement services in a way that is optimized for the digital environment. This implies changes and adaptation in the behaviors of people, but above all in the processes—both the formally stipulated processes and those that are actually followed. It goes without saying that these three groups of users – citizens, business, public official -- can be very heterogenous, especially in terms of openness to digital adoption. These differences can run across a number of dimensions, whether generational, prosperity or gender. Any digital government program may therefore start with a clear user-centric vision of what it will require to change relationships and transactions across key stakeholder groups for the better. This applies whether establishing a national eService portal that both consolidates and deepens access to digital public services, applying digital workflows and signatures in government, or determining how data are accessed and applied for decision-making. This user-centric lens also makes tangible how digital data coming from these interactions are used and adequately protected.



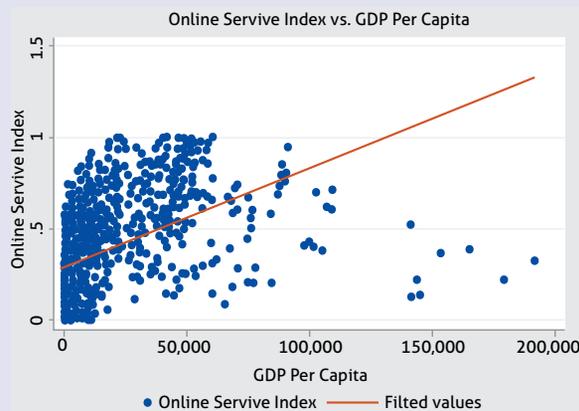
Box 2. Digital Government Leaders

The UN's two-yearly eGov index has emerged as perhaps the principal benchmark by which governments across the world now assess their digital government transformations. The UN eGov index is composed of three major sub-components: ICT infrastructure, human capital, and online services (Andrianasy et al. 2019). In the context of eGov, the term "human capital" is used rather than skills because the underlying indicators capture broader education (adult literacy, expected/mean years of schooling, and gross enrolment ratio) more than tangible digital expertise. The report also provides an eParticipation index, although this is not part of the overall index.

The literature points to four stages of progressive eGov development. The presence stage allows citizens to get information on government via websites. The interactive stage allows for some email contacts and interactive forms that generate two-way responses between government and the citizens. The transactions stage allows citizens to perform online transactions for license renewal, paying fees or taxes, as well as bidding for procurement contracts. The transformation stage organizes heterogeneous eGovernment services that enable the innovation of their entire government business and operations. Meanwhile, seamless services require interorganizations collaboration and coordination of business processes according to the mutually agreed standards and regulations (cited in Othman and Razali 2018:75). Success in this realm increasingly requires a "whole-of-government" approach. This is a concept that emphasizes "the need for greater collaboration and coordination across departmental boundaries to eliminate duplication, optimize resources, create synergies among agencies, and deliver seamless services to the citizens and businesses." The OSI is related to income levels, but significant variance exists, suggesting that countries can significantly over- or underperform relative to income.



While the latest ranking changes typically attract the most attention, closer inspection of eGov trajectories across time and components can be especially revealing. The data suggest that countries can both significantly advance but also fall back in terms of ratings, since the measure is relative. Even some improvements in eGov could mean that a country falls back in its ratings. For example, Belarus appears to have made significant gains in the past decade. Ukraine's performance has, however, wavered over the course of this period. Albania, Brazil, Bhutan, and Ghana also emerge as strong performers by these metrics.



Looking at relative rankings of the other dimensions, one can see that the picture is more complex. For example, in 2018, India ranked 96 on the overall indicator, but 9 on online services! This type of analysis identifies where there may be breakout nations, at least as measured by the online services indicator. Countries such as Singapore and the United States do relatively better on services than on the overall index. On other indicators, Vietnam falls below the median and mean in the 2018 Human Capital Index and the World Economic Forum’s Digital Skills Index.

While the online services subcomponent may be the most immediate manifestation of digital governments, it may not capture the true depth or seamless quality of achieved eServices. A key quality and innovation dimension is user-centricity (see Kaiser, Peixto and Tran 2020). The skills indicator is measured by cruder educational indicators, and therefore may not capture the stock but above all application of digital skills.

Source: UN (2018).

Achieving the desired results

14. Digital government transformations often falter on the inability to achieve a better alignment of people, process and technology (PPT) platforms for the desired results. Figure 3 suggests that digital government results depend on aligning a corresponding engagement of people (citizens, officials, business), processes (formal and informal practices), and technology platforms and infrastructure. While technological change can receive significant attention across government leadership, especially as the private sector forges ahead and public expectations mount, the risk for digital government programs is that they often falter, providing more rhetorical than tangible outcomes. McKinsey (2019) articulates key factors associated with successful digital transformations in the private sector, clustered around leadership, capacity building, empowering workers, upgrading tools, and communication. The recent Othman and Razali literature meta-study studies whole-of-government (WoG) eGov approaches found 12 WoG critical success factors (Figure 7), which can be grouped across non-technical and technical factors. Deloitte (2015) suggests that digital government initiatives can yield significant returns on investment, but this depends on bringing together all the key elements of the reform effort.

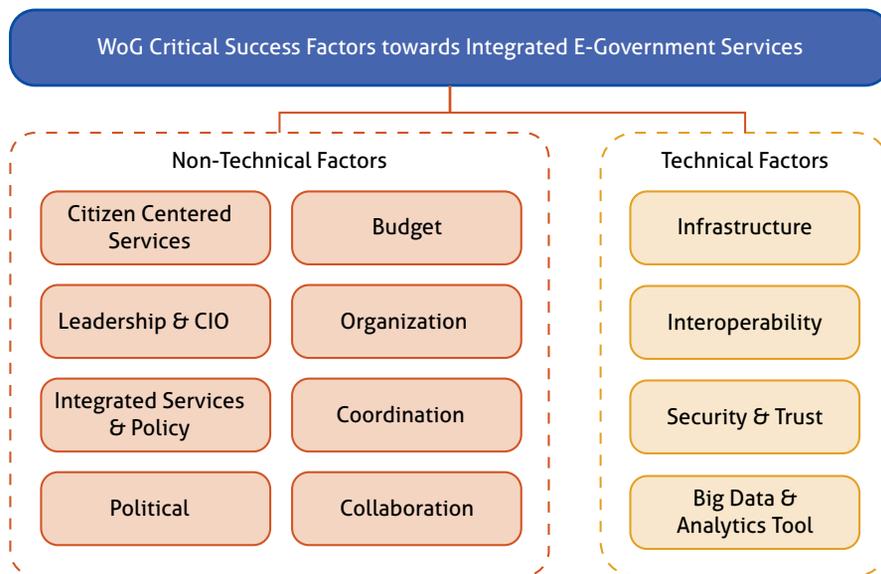
Figure 3. People, process, technology alignment



15. Adequate financial and human resources are a key element of successful eGovernment initiatives. But the nature of successful digital government reforms quickly makes clear that budget adequacy cannot be restricted to “ICT” hardware investments; it is also needed to bring together a whole host of soft investments, as well as incentives to use these resources along WoG lines. Shifts in technology to cloud and service-based models also require a different perspective on both short- and longer-term budgeting strategies and their implications (see Figure 4 and Box 3 on the Bank’s Program for Results (PforR) approach). Some initial financing costs toward digital transformation may be relatively high in monetary terms. If a country lacks key digital government and economy foundations, such as fixed or

mobile Internet access, digital identities (IDs), or payment systems, or a lack of key digital registries concerning people, land and assets, this will require relatively significant fixed investments. But digital dividends can also require less monetary and more political and institutional capital. For example, spending by agencies in silos may yield smaller benefits than the combined cost of their parts, relative to a situation of data and digital resource spending that enables benefits across agencies from a single fixed cost transaction. Enterprise Architecture (EA) exercises can help identify where shared services can generate value across national and subnational levels of government, but they must be supported by processes that ensure buy-in by all stakeholders.

Figure 4. WoG success factors for integrated eGovernment services



Source: Othman and Razali (2018).



Box 3. Digital Government PfoR Support

The World Bank's Program for Results (PfoR) financing instrument, which was introduced in 2012, supports a particular government program. Through September 2019, 130 PfoRs had been approved across almost 40 countries. Bank financing represents only a part of the overall program expenditures, and the Bank disburses against pre-agreed results over the life of the PfoR support.

Preparation of a PfoR involves the completion of a technical assessment, including an expenditure framework assessment (EFA). This analysis seeks to understand whether the proposed program expenditure is adequate, and also provides value for money in terms of achieving the program's results chain of inputs, outputs, outcomes, and impacts across different program areas. Typically, this EFA analysis straddles a medium-term period of four to five years. This also requires an institutional assessment as to whether expenditures are likely to be predictable.

While only a subset of PfoRs pursues results in the area of digital government, the types, scope and issues identified in these EFAs are revealing for thinking about Vietnam's program of expenditures for eGov. Of the 130 PfoRs, a systematic search selected the 12 operations with the highest number of digital government related results (as defined by Program Development Outcome [PDO] wording and indicators, as well as Disbursement Linked Indicators [DLIs]).

To achieve results ranging from better services, data, and decision-making, the EFAs identified the need for a spectrum of "hard", but above all "soft", expenditures to achieve success. Hard expenditures included physical infrastructure (e.g., upgrading and building of one-stop-shop centers), some IT infrastructure (server and connectivity facilities), and other equipment (e.g., vehicles for data collections). ICT expenditure inputs also included allocations for software. Key "soft" expenditures included allocations for training and change management, and in some cases incentive transfers.

While the detailed EFA analysis provides some reference points for the financing costs likely to be associated with digital government results, the key message of more systematic analysis is the need for comprehensive and credible financing. If budgets or PPPs are not credible, this is likely to mean that critical elements of a program will be neglected. This will significantly delay or derail the anticipated results. Country-level costings and options analysis are critical to establishing a viable country program that links aspirations and plans to actual delivery.

Source: Authors.

16. Given the rapid pace of technological change and market pressures, governments will need to engage with the private sector to underpin digital operations and transformations. One strategy may be to look to the private sector and build so called "fast-follower" (see Eaves 2018) approaches. This avoids costly mistakes in terms of missteps related to unproven technology. But to be "fast-followers" in terms of leveraging relevant technologies, the public sector must maintain some capabilities in-house to ensure it secures the right solutions and services. Given that successful digital government increasingly relies on more effective data use and integration, traditional stovepipe projects are unlikely to meet these new needs for an effective public sector EA. In terms of its stage of leading development, Singapore has significantly strengthened its GovTech capabilities, targeting areas where government needs to serve as a public-interest innovation leader. Similarly, Vietnam's public sector will need to carefully monitor areas where fast-follower trajectories are faltering both at the national and subnational level. At one level, this requires avoiding such risks as black-box system procurements and vendor lock-in. But, at the same time, governments are looking to the private sector to bring more innovative solutions and resources to enable digitalization of government. Such resources could straddle a spectrum of services, as well as financial resources. Government leaders must therefore have a clear-eyed view of "must haves" (e.g., both in terms of government functions and such issues as data security and privacy, ethics and access), as opposed to secondary results priorities.¹ The alignment of incentive and timeline with a few strategic private sector partners is important to establish clear accountability in such partnership.

¹ Such ethical considerations go beyond security and privacy, but also include algorithmic bias (are automated decisions fair?), as well as access issues (e.g., online service solutions that can reach and be understood by rural/lower income residents).

17. Broadly speaking, program budgeting generally seeks to strengthen the linkage between results and resource allocation, particularly on the budget side. The challenge for referencing adequate resource allocation for digital government reforms is that few, if any, governments currently prepare comprehensive budgets for their digital government initiatives. In particular, ICT spending is often siloed across individual departments and subnational governments. Even for major cross-cutting programs (e.g., improvements to core data registries or data warehouse infrastructure), budgets and execution will ultimately lie with one agency. The tendency to bean count ICT hardware investments also risks underplaying the role of soft investments to support and sustain the actual adoption of these technologies (including training, and the attraction and retention of key talent, etc.).

18. Program financing strategies are ultimately about how resources are prioritized in the face of both constraints and uncertainties. Constraints in the case of middle-income countries are both financial, but more frequently hinge on mobilizing limited requisite human resources and even political capital to succeed with digital government modernization. Since digital transformation depends on changing government processes, securing fit-for-purpose and evolving technologies, and typically exchanging data across agencies and levels of government, successful financing strategies need to tackle both institutional and incentive issues in government. Successful digital transformation therefore cannot be achieved through business or projects as usual. Rather, investment in individual systems or platforms also needs to ensure that they change business processes and the way actual digital data is managed in the public sector. Rigid annual budgeting and procurement procedures may also significantly delay IT projects in practice (cf Ashraf and Mohsin 2010), leading to significant delays even if notional overall budgets are in place. Just allocating budgets will therefore still run the risk of not achieving digital government results.

19. Leading digital government transformation nations, as reflected by global benchmarks and strategic financing, demonstrate the value of prioritization and sequencing for tangible results. Beyond securing financing for key hardware and software investments for digital transformation, leading countries have also increasingly invested in the institutional mechanisms by which they prioritize and deliver on ICT investments. These include the UK's Digital Government Service (DGS) (Box 4), South Korea's sequencing of citizen service innovations (Box 5), Australia's Digital Transformation Office (DTO) (Box 7), Israel's Digital Leaders Program (Box 8), and of course Singapore's GovTech (see Box 6). They have also shown that successful and continued digital government transformation requires an effective mix of both "hard" infrastructure investments, but also institutional and skills building resourcing. These mechanisms have moved well beyond the traditional functions of IT ministries and agency departments, and are drawing together skills and contributions from finance and also specialized bodies. The emergence of "Digital Service" bodies, for instance in the UK and Australia, serve not only to bring together business process improvements and technical skills, but are backed with some "teeth" to ensure that priority projects get delivered on time and budget. Such bodies may also provide a gate-keeping function with respect to new agency projects to promote shared services and data exchange, and avoid waste through duplication. The proliferation and fragmentation of poorly established business processes and practices, along with the siloing of IT systems and data, are often the fundamental challenge to advancing digital transformation in the public sector. Overcoming this inertia and bureaucratic resistance therefore requires adequate political and managerial investments, particular through an assertive prioritization and sequencing strategy focused on tangible results.

20. Successfully managing for results and risks needs to be at the heart of digital transformation strategies. Given the PPT dimensions of digital transformation, risks will never be fully averted at the design stage, but must be continually addressed during implementation. This means allocating adequate financial and human resources, together with results-oriented leadership. At the same time,

governments must also have the resolve to cut projects/programs where they look unable to deliver. This includes projects that have not adequately focused on fostering shared resources, data exchanges and applications. This policy note proceeds by emphasizing a number of cross-cutting elements that are increasingly integral to the success of digital government: shared platforms/interoperability, digital identification, payments, and particularly institutional arrangements for effectively managing digital transformation. The discussion then turns to working with the private sector, particularly in terms of moving beyond traditional procurement and vendor relationships, to working through PPPs and building platforms to draw in targeted services and innovations, particularly from startups and small and medium enterprises (SMEs) in the digital economy.

Box 4. UK Transformation Programs

The UK Government uses the term “transformation programs” to refer to large investments in significantly changing the way departments and services work. The UK Government currently has an estimated 38 digital government transformation programs valued at close to US\$50 billion (Howes and Bishop 2018).

A number of recent reviews suggests that the risks in not transforming are also significant, jeopardizing the future quality, value for money and relevance of public services. Relying heavily on legacy technology creates several risks for organizations, including data and security vulnerabilities. The introduction of modern platforms as part of new operating models creates flexibility that is not restricted to one service.

The National Audit Office (2013) explicitly focused its report on the issues associated with legacy technology. The report suggested that legacy technology risked lock-in to uncompetitive support arrangements with a single supplier, as well as undermined agency adaptability. A first step for other countries to assess the risk of this issue would be to take stock of all legacy contracts, and then define a strategy to address these. The savings from better management could then be directed to supporting digital transformation efforts.

The United Kingdom set up the Government Digital Service (GDS) as a center of digital expertise within the Cabinet Office in 2011, focused on improving the quality of online information and helping to transform services so that they meet users’ needs. While the GDS lodged some initial success in changing business as usual in terms of delivery on particular outcomes (NAO 2017b), significant challenges in mainstream transformation have remained, as illustrated by the challenges manifested by the Verify scheme.

The UK’s Infrastructure and Projects Authority (IPA) publishes an annual report that tracks the progress of projects currently in the Government Major Projects Portfolio (GMPP) and provides analysis of how they are performing. The 2018 IPA GMPP review covered 133 projects with a total life-cost of GBP 123 billion (about US\$154 billion). Thirty-one projects were classified as ICT, while 41 were classified as transformation and service delivery. The IPA notes that technology is also an important aspect of the transformation programs. Many of the ICT projects on the portfolio enable the transition from old, legacy contracts to new ICT provisions. Often through entering smaller, more manageable contracts with integration services delivered in-house, projects have enabled departments to become more flexible and efficient. The report explicitly classifies projects by risk rating. In 2018, it identified the Verify ID program as red status, signifying that successful delivery of the project appeared to be unachievable.

Disappointing results with regard to the UK Digital Identify Verify program suggest a need to carefully manage the risks of optimism bias, as well as to understand where update would come from in terms of both government and market-based demand (NAO 2019). Verify was designed to have people sign up to prove their identities, so they can securely access online government services such as Universal Credit or to claim a tax refund. Verify was publicly initiated in 2014, and verification covered 3.9 million users by February 2019, while the initial target for 2020 was 25 million users. It was initially based on a model of commercial identify verification providers.

The Verify program has highlighted the challenges faced even by a new transformational agency such as GDS. It highlights that digital transformation programs continue to run a high risk of failure in the face of excessive optimism and complacency by government leadership.

Box 5. Republic of Korea eGov

The Republic of Korea's digital government experience indicates the critical success factor in the appropriate sequencing of citizen service innovations to help stimulate demand for the core technology infrastructure needed to sustain reforms. There is always tension between "build (infrastructure) and they will come" and the crafting of the demand from citizens for digital service delivery. In addition, the Rep. of Korea's digital governance experience leapfrogged straight to advanced solutions by: (i) transitioning to the Cloud to maximize the efficiency of shared resources; and (ii) building in smart governance for a more data-driven and service-oriented government.

The Rep. of Korea has also prepared a summary of key projects over the past two decades, including costings of key projects. A summary of these activities runs into the multi-billion dollars. However, many of these summaries include just the costs of system set-up and do not include the costs of effectively operating and maintaining these systems.

Source: Karippacheril et al. (2015), Ministry of Interior and Safety (2018).

Box 6. Singapore Smart Nation

Singapore published its Digital Government Blueprint in 2018. The Blueprint lays out a clear set of key performance indicators (KPIs) through 2023 in the areas of stakeholder satisfaction, end-to-end digital options, end-to-end digital transactions, digital capabilities, and transformative digital projects, as well as AI, big data and data analytics.

A core financing focus of meeting the Digital Government Blueprint outcomes is the development of five platforms: These are: (i) Singapore Government Technology Stack (SGTS); (ii) National Digital Identity (NDI); (iii) Smart Nation Sensor Platform (SNSP); (iv) Moments of Life (MOL); and (v) Adaptive Digital Workplace (ADWP) for public officers. For FY2019, these five platforms accounted for 60 percent of the S\$2.5 billion to S\$2.7 billion worth of ICT contracts. The Singapore GovTech emphasized that SMEs would be able to participate in over 80 percent of the contracts.

Source: Smart Nation Digital Government Group (2018). Sagar (2019), Chong (2019).

Box 7. Australia's Digital Transformation

Australia has taken a number of both institutional and resource-allocation steps to advance digital transformation. The Digital Transformation Office (DTO) became an executive agency in July 2015. The Vision 2025 Digital Transformation strategy was issued in 2018, and included key projects and milestones through 2020. The Vision defines "Digital" as "using online technologies to improve services for people and business. It also means using data and technology to redesign how government works. We will use data and technology to redesign how government works. We will use data and technology to rethink how we deliver value, how we operate and how we strengthen our organizational culture."

Since the late 1980s, Australia's budgeting has maintained a mechanism called the "efficiency dividend". This reduces funding for annual reductions in resources available to operational (running) costs of agencies to spur cost effectiveness. The 2016–17 Budget provided that A\$500 million of projected savings would be reinvested in reforms "such as automation of public services and business re-engineering". This included A\$350 million for "transformation and innovation", which comprises: better use of data within government; streamlining and improving user access to government services; strengthening APS workforce capability; and more efficient corporate services, and A\$150 million for "agency sustainability", which aims to support "a number of agencies [in] their transition to more modern and sustainable operating models" (Parliament of Australia 2019).

The Data Integration Partnership for Australia (DIPA) is a three-year A\$130.8 million investment to maximize the use and value of the Government's data assets, starting July 1, 2017. DIPA creates new insights into important and complex policy questions through data integration and analysis.

The DTA annual reports for three years running have provided a detailed overview of priorities, funding, and progress of all key federal level investments. DTA (2018:48) suggests that national agencies spent A\$1.2 billion for FY2017–18. The portfolio of investment projects amounted to A\$68.2 billion across 68 projects. Sixty-three percent of this funding was for major transformation projects, 12 percent to make existing services better, and 25 percent to maintain existing services.

Given its level of decentralization, states play an important role in digital government transformation efforts and budgeting. States in their own right have prepared their own strategies and programs.

Source: DTA.

Box 8. Digital Leadership Transformation in Israel

Israel has become increasingly known for this dynamic and successful technology sector "Startup Nation". To advance continuous transformation in the public sector, the government of Israel established the Digital Leaders Program. Israel's Digital Strategy was prepared not by the ICT Ministry, but rather its Ministry of Social Equality and Digital Israel Bureau.

https://www.gov.il/he/Departments/digital_israel <https://innovationisrael.org.il/en/program/digital-innovation-public-sector-challenges>

<https://medium.com/digital-leaders-uk/creating-a-digitally-literate-nation-a9728ebfc512>



3 What: Investment Priorities

21. Vietnam's short- to medium-term digital transformation will need to address interoperability, digital IDs, digital payments, and digital skills. Our Vietnam context and global practice reviews suggest that the challenges of interoperability of foundational registries and data layers, digital IDs, digital payments, and skills are critical litmus tests for adequate prioritization and wider resourcing. Foundational registries include, among others, up-to-date and reliable digital databases on land, citizens and businesses. *Interoperability* refers to the platforms and practices by which digital data are shared and used securely across government agencies. *Digital IDs* refers to the ability of users and beneficiaries to safely and seamlessly access public, as well as financial, services online. *Digital payments* refers to the ability of beneficiaries to receive payments with adequate controls, or to make online payments for services, fines and taxes. *Digital skills* refers not only to the capabilities of government officials to manage changes and operate effectively in a shift to digital government, but also the need for Vietnam to invest in human capital with new digital skillsets. Table 1 summarizes the key issues and recommendations for the Vietnamese context through the PPT lens.

Table 1. Key functions for Vietnam’s digital government transformation

	People	Process	Technology Platforms	Action Priorities
<i>Interoperability</i>	Readiness to share data as they relate to government online services and decision-making/ administrative process	<p>Legal and regulatory framework still not oriented to a digital first as paper is the default orientation</p> <p>Approach to addressing interoperability tends to be high-level and procedural, rather than results anchored</p> <p>Significant shortfalls in bringing and maintaining key registries to a minimum standard</p> <p>Limited thoughts/ practices given to geospatial data sharing.</p>	<p>National & subnational data sharing platform infrastructure</p> <p>National Government Service Platform (NGSP) and Local Government Service Platforms (LGSP) are not in place yet. Clarity on ESB or peer-to-peer (X-road) architectures needed. Some current use of APIs, but most data exchanges remain ad hoc. The Digital Documents Exchange Platform sets an initial precedent, but architecture does not cover major registries.</p>	<p>Put NGSP (which has been developed by MIC) in testing and operations.</p> <p>Have specific online services and decisionmaking priorities drive accountability for interoperability practices and platforms.</p> <p>Define clear results metrics to monitor the actual data sharing and use by government agencies.</p>
<i>Digital IDs</i>	Significant share of population lacks digital ID to access higher level online services	<p>Different agencies control major pools of digital ID, but not cross-validation data</p> <p>No plan for introducing a universal ID, but efforts to leverage a “federated” approach include building on mobile phone IDs</p>	Limited use of biometrics, in contrast to GovTech breakout nations such as India	<p>Use federated model for online services in the short term</p> <p>Develop unified strategy and roadmap for digital ID uptake and ecosystem</p>
<i>Digital Payments</i>	Significant share of population lacks payment technology for digital government transactions	Regulation limits FinTech to traditional Banking Sector	Limited adoption of FinTech	Limit revenue mobilization/charging in eServices Agree on whole-of-government strategy

	People	Process	Technology Platforms	Action Priorities
<i>Digital Skills</i>	Limited specialized skills in government to manage digital transformation Limited general digital literacy in government leads to high level of explicit or implicit resistance to digital transformation	Limited ability of lead agencies to attract or retain skills No major programs for digital literacy strengthening in government	Limited use of online educational / eLearning platforms for Vietnam public sector users	Scale-up digital skills and change management investments as part of DTS 2021–25

22. Global evidence concerning public sector ICT spending provides only a very partial and incomplete view of the levels of investment required to make digital government succeed. While adequate financing is identified as a key aspect of digital government success across a number of case studies, the evidence concerning the high propensity of public sector IT projects to fail suggests some grounds for caution. The nature of public sector accounting can also place undue emphasis on “hard” capital infrastructure spending (e.g., major systems, data warehouses, government networks), rather than on more “soft” asset investments (human capital, fit-for-purpose digital data assets). Growing data from eProcurement systems may also be incomplete, or again shine undue light on project inputs, rather than a more coherent view of what it takes to make digital government transformation programs work. Given the wide ranging and diffuse stated objectives of many public sector digital modernization plans, the requisite budget alignments can provide hard specifications. Depending on the extent of decentralization, subnational expenditures may also be important in certain settings. But national governments may play critical roles in financing shared services or incentivizing subnational governments to meet certain national priorities or minimum standards.

23. Showing what governments are comparatively spending to achieve digital transformation presents a number of methodological and data challenges. In compiling such data, we have tried to understand what expenditure data are most relevant for Vietnam in terms of both how much and what expenditures would be adequate. Despite a growing number of country digital government assessments by international organizations such as the OECD and the World Bank, these have largely not focused on drawing together a review of actual program expenditure levels and components. A closer reading of available country studies for a sample of digital government leaders (e.g., Australia, the Rep. of Korea, Singapore and the United Kingdom) (see Boxes 3, 4 and 5) suggests that investments both in narrower ICT and wider government modernization can prove significant.

24. Digital government financing needs to span the spectrum of “hard” and “soft” expenditures. A breakdown of digital government expenditures can straddle a range of both “hard infrastructure” (servers, data warehouses, networks, and even one-stop buildings), software and company services, training and change management. In reviewing these expenditures, the question is what expenditures are needed to keep existing systems running as is (i.e., “keeping the lights of digital government on”), versus programs better understood to support digital transformation (e.g., the extension and deepening of online services, expanded digital registries/IDs, AI and cloud applications for decision-making). Digital transformation expenditures may mean overhauling legacy “first generation” IT systems (e.g., Singapore, the United Kingdom), thereby requiring significant spending for new platform migrations, including

training and change management. Countries with a significant level of fiscal decentralization also require understanding what spending is occurring at national and subnational levels, and how this plays out in terms of territorial differences in digital government.

25. Digital government financing will require repeated cycles as new technologies mature and old platforms obsolesce. The studies suggest that some countries are now just spending to put in place one major and minor projects, while more advanced countries are continually moving to new generations and levels of technology platforms, impacting the types of investments needed to “overcome” legacy deployments. Emerging countries such as Vietnam have received significant donor support for eGov initiatives.

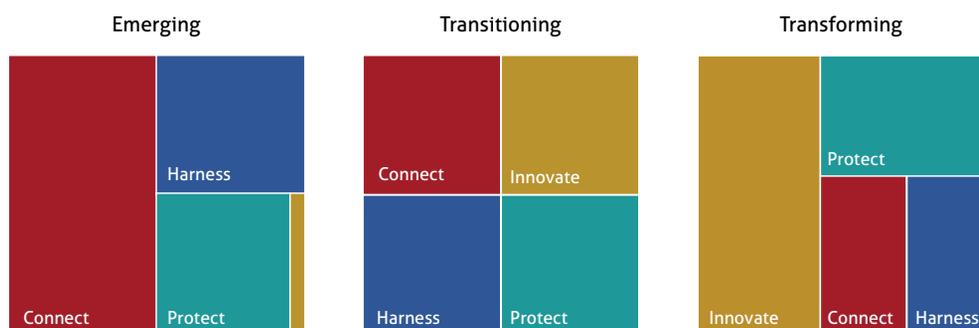
26. The institutional context for whole-of-government reforms means that these types of investments can only be expected to go so far without the necessary government capacity and support. For example, while an open source digital data interoperability platform, such as Estonia’s X-road, can be associated with relatively low financial costs, it cannot compensate for the fact that key government data registries may be performing well below par, and that respective agencies may be, for a host of reasons, reluctant to share data. This explains why the platform has subsequently been deployed in a number of other countries (e.g., Ukraine, Namibia, Madagascar), but with very different digital dividends.

Adopting a suitable framework

27. The World Bank’s Connect, Harness, Innovate, and Protect (CHIP) framework provides an entry point to assess needed actions for digital government success. The CHIP framework sets out four blocks of focus that countries need to pursue for successful digital transformation. (i) *Connect* refers to building digital foundations and enablers (digital ID, digital payments, data analytics, etc.) and ensuring system compatibility and interoperability; (ii) *Harness* reflects analog complements: regulations, skills/literacy, and leadership and institutions; (iii) *Innovate* refers to efforts to create and expand new economy services, business models, digital entrepreneurs and eGovernment; and (iv) *Protect* reflects efforts to mitigate risks: cybersecurity and privacy, misinformation, inequality of opportunities, automation and digital monopoly.

28. Getting the right emphasis on each of the CHIP building blocks depends on the country context – Vietnam is in the transitioning stage. Efforts to deliver universal online public services clearly cannot succeed in a context that has not addressed basic connectivity challenges. Realizing a transformation to Industry 4.0 in a setting of Government 1.0 is not possible if government has not harnessed basic skills and organizational reforms. A review of key benchmark indicators for Vietnam suggests that it is in the transitioning stage (Figure 5). For example, basic Internet penetration is high, but the country lacks connectivity infrastructure in terms of widespread digital IDs, payments, or whole-of-government data exchange platforms, as well as the human capital to fully harness digital transformation and innovate in the digital economy. Figure 5 shows that, in the transitioning stage, all four building blocks receive equal focus, but to move to the transforming stage, the domain of innovation must be prioritized.

Figure 5. CHIP country prioritization



Source: EAP Disruptive Technology Workshop Presentation, June 11, 2019, Singapore.

29. The digital infrastructure investments for achieving universal fixed broadband and mobile access will be significant and ongoing in any country setting. Digital network infrastructure—fiber, mobile towers, routers—requires significant investments. But its primary use will be for business and consumer purposes, therefore making it a prime candidate for private sector financing.² Next generation 5G promises a transformation of mobile networks, but also one that will come at significant costs with unclear returns on investment at this moment. The primary role of government would therefore seem to be regulatory, including to ensure equity in access and privacy. While the availability of connectivity is critical as a foundation to mature online services access, the bulk of available capacity will be used for other purposes. Public sector efforts, including potential financing, would therefore need to be concentrated on those complementary organizational and resourcing questions in the “softer” parts of connectivity, such as IDs, payments and interoperability.

30. Digital transformation is ultimately judged on the actual results metrics on which it is able to deliver. Citizens and business gauge government on its ability to deliver relevant services in a seamless and convenient manner. Leading digital transformers are increasingly able to deliver to their clients a full suite of “moments-of-life” services online (see Box 6 for Singapore), and “life events” (Box 7 for Australia). But, also within government “back offices”, digital transformation promises to make the lives of government officials easier, including how they interact with other agencies to get their own jobs done. Data-driven decision-making requires platforms that deliver. To deliver especially on innovative problem-solving or better data analytics (including AI applications), governments need to be able to harness the skills of dynamic private sector companies. This requires a good understanding of both what is needed and possible. This will mean establishing mechanisms for the private sector to propose new/innovative solutions. But these public sector innovation processes need to be structured to allow a wider set of firms to contribute to this process. Careful thought therefore needs to be given as to what the best enabling environment is to allow these solutions to surface, as well as the actual budgeting and procurement mechanism that can be used to realize them.

31. No single leading digital government nation will provide a blueprint for Vietnam 2021-25 and beyond regarding technology and financing choices. Table 2 highlights the key institutional and strategic highlights of a series of leading digital government nations. In their own right, smaller nations such as Estonia and Singapore have at times stood out as “first movers,” while countries such as Canada could best be characterized as a “fast follower.” Smaller size arguably allowed Estonia and Singapore to

² See How the pursuit of leisure drives internet use: Movies, not grain prices, are bringing the poor world online, *The Economist*, June 8th, <https://www.economist.com/briefing/2019/06/08/how-the-pursuit-of-leisure-drives-internet-use>

pursue more innovative strategies, driven in part also by their need to thrive and survive in the respective regional and global contexts (e.g., Estonia in the wake of the collapse of the Soviet Union, and Singapore’s ongoing needed to sustain itself as a globally competitive hub). South Korea pursued a more centralized approach to integrating its technology architecture, but has recently also looked to better address next generation challenges. At the subnational level, different “Smart Cities” have not just looking to better leverage technology, but more importantly innovate in terms of a more user-centric and responsive realization of public services and decision-making. The now D10 group of Leading Digital Governments, originally founded in 2014, now provides a dynamic forum for peer exchanges in the rapidly changing field of digital government demands and transformations. Emerging nations such as Vietnam will need to consider how to tap into such dynamic networks to identify the best solutions for their present stages and aspirations of digital development. This will mean looking to both these leading digital nations, but potential also national and subnational level “digital breakout nation” peers (including India and China).

Table 2. Digital government leaders’ institutional highlights

Digital Government Leader	Key eGov Institutional Highlights	Strategic Highlights
Australia	Decentralized/federal setting	Platform-based user journeys and user-centric services. Key milestones–delivery of digital identity. Delivery services include shared platforms for payments and “tell us once.” https://www.dta.gov.au/our-projects/digitalidentity/trusted-digital-identity-framework/framework-documents
Canada	Decentralized setting	In 1998, the Government launched the Service Improvement Initiative, which led to the creation of Service Canada as a single-window service provider for many government programs.
Denmark		Ranking first in the UN 2018 eGovernment Survey, Denmark adopted the “digital first” approach, such that electronic communication between citizens and government has become legally mandatory, pursuant to its Digital Strategy 2016–20. The NemID (digital ID) is a key facet of this approach streamlining public services for citizens. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2018-Survey/EGovernment%20Survey%202018_FINAL%20for%20web.pdf This advanced stage of digital transformation followed precedents of digitization reforms, such as the government’s establishment of the “Easy Account” in 2004 to facilitate the digital communication between government and citizens. https://www.governmentcomputing.com/backoffice/news/denmark-made-top-eGovernment

Digital Government Leader	Key eGov Institutional Highlights	Strategic Highlights
Estonia		Digitalization journey for the past 20 years, notably with Xroad – data interoperability platform. Next milestones are automation and process redesign–make them invisible and proactive.
Finland	Ministry of Finance has DG for Public Sector ICT	
New Zealand		NZ Data Transparency https://www.data.govt.nz/use-data/analyse-data/government-algorithmtransparency/
Singapore	GovTech Body consolidated in 2017 to serve 60+ agencies.	Established Smart Nation https://www.smartnation.sg/what-is-smart-nation/initiatives
Rep. of Korea	Centralized setting	Integrated IT systems and services for digital government since 2001–12, integrated under the Korean Government Enterprise Architecture (KGEA).
Sweden		Established National Approach to AI https://www.regeringen.se/4aa638/contentassets/a6488cceb6f418e9ada18bae40bb71f/nationalapproach-to-artificial-intelligence.pdf
United Kingdom	Established Digital Government Service in 2011 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/590199/Government_Transformation_Strategy.pdf	
United States		Developed Digital Services Playbook https://playbook.cio.gov/

Source: Authors.

3.1 Interoperability

Vietnam Context: *The lack of data-sharing and interoperability platforms and practices at national and subnational levels presents a challenge for extending online services and strengthening data-driven decision-making across agencies and provinces. Current data-sharing practices are ad hoc, and tackling this issue often falls back into protracted procedural delays. At one level, stakeholders may be concerned about the quality of data. But overall, the prevailing bureaucratic culture in Vietnam mitigates against improved digital government data interoperability. The international experience suggests that tackling this issue is primarily about effective institutional change management, supported by fit-for-purpose technology platforms. Key international experience highlights the role of adequately positioned digital transformation agencies (with associated carrots and sticks), as well as securing “back-end process reforms” from clear and observable “front-end” results commitments. Clear results commitments in terms of particular online services need to drive de facto behavioral change and agreements toward greater interoperability.*

32. As timely data from different sources increasingly prove to be the lifeblood of effective digital government, realizing interoperability becomes critical. The provision of even basic online service—for example, the provision of a driver’s license or payment of a traffic fine—requires access to different data sources. Interoperability refers to both the technical and non-technical processes and platforms by which data are exchanged to enable digital services and decision-making. This exchange of data across different systems needs to occur in a safe and secure manner through due attention to the CHIP framework’s protect pillar. At the institutional level, however, a significant challenge is to convince agencies to allow requisite access and exchange of key data. There are multiple potential reasons for this reluctance, but they must ultimately be overcome if digital government transformation is to be realized. But a strong focus on front-end results can ideally help the resolution of back-end interoperability measures and investments. But allowing interoperability to be addressed in abstract and diffuse terms is likely to be a sure recipe for obfuscation and delay across many government agencies.

33. Common identity-sharing can enable seamless front-end user experiences with government, enhancing the ability of governments to reach their citizenry. For example, Facebook’s user log-in is a familiar and convenient feature for users to access many other applications. However, this single signon would not be adequate, for example, for users to transact receipt of payments or access sensitive personal information, such as while processing a passport application. Countries across the globe are looking at practical, scalable and secure ways to strengthen the “know-your-citizens/enterprises” digital infrastructure. But similarly, if different government systems cannot talk to one another, this will undermine a more seamless and efficient user experience. Platforms that provide a more integrated user experience for the front- and back-end technology and innovation such as Facebook are becoming increasingly popular. Singapore Digital Identity QR Code in Mobile Apps and SG-Verify are also setting this trend. Singapore Digital at the Core and Citizen Centric design takes into consideration serving the needs of every citizen, regardless of age, generation, gender, ethnic heritage, religious affiliation, education level, etc. Hence, the user experience is critical to the adoption of the digital services for all citizens. These platforms aim to make the exchange of data between customers and organizations easier by skipping the time-consuming need to fill out forms or input personal details. Instead, the data in an individual’s SingPass Mobile are tapped. This removes the hassle of customers having to provide documents, the need for staff to sort out paperwork and data entry, and the security risk of these personal data being mishandled. It is the same as the principle of “once only” for data provided by citizens and firms to government agencies applied in Estonia and countries in Europe.

34. Legacy systems and vendor inertia or lock-in can undermine functionality, increase costs, and even risk the security of digital government. The United Kingdom’s National Audit Office (2013) shows that

governments may often avoid addressing these legacy issues until they become a major crisis. For digital transformation leadership this presents a challenge, particularly in terms of taking more of a whole-of-government approach to align systems and bring them to new generation technology platforms. Security breaches may be one trigger to modernize systems, but care must be taken that responses are not simply reactionary in terms of trying to shutter systems and functionalities, but rather anticipatory informed by the latest cycle of innovations. Legacy systems may hinder this anticipatory approach.

35. Digital data governance is becoming an increasingly critical issue as this asset lies at the heart of government, as well as commerce. While first generation open data approaches focused on disclosing certain datasets, interoperability within government, and with respect to government, citizens, and the private sector, now represents a far more dynamic management issue. Practical data classifications and an application programming interface (API) gateway are important to facilitate secure and efficient data exchange across databases stored in different agencies. This approach enables different agencies to share data for delivering better citizen services. The adoption of common tools and standards will raise the quality, reliability and security of the services. This will require clear specification of the Government Data Architecture and Classification rules for the seamless and secure data exchange.

For instance, Singapore provides data at a glance across agencies through Data.gov.sg and <https://blog.data.gov.sg/>, and enables data exchange through a “whole-of-government” platform called APEX.³ Estonia’s X-road provides a dynamic view to show whether agencies are actually sharing agreed data. While government leaders may not necessarily need to know the technical details of APIs, they should be in a position to demand digital proof that agencies are actually sharing data along agreed upon principles.

36. The choice of regulatory regime for digital data will be guided by societal preferences, as well as security and efficiency considerations. Societal preferences for privacy or national security may significantly shape the regulatory choices made concerning both digital government and the economy. These choices, however, need to be evaluated through the lens of efficiency and equity. For example, the EU General Data Protection Regulation (GDPR) expresses a strong societal preference for privacy. Its implementation, however, may be a potentially higher regulatory burden for small companies versus larger companies. Whatever the regulatory choice, clear-eyed regulatory impact evaluations on particular choices will be important, especially if they need to be considered in an international context. For example, regulations concerning the on-shoring of key data will be rooted in clear societal preferences or concerns over security. Thus, considerations of costs, benefits, and privacy protection are all at stake.

37. As standardization and protection of privacy/data security are increasingly becoming the responsibility of government, Vietnam needs to decide on its own regulatory policies. Many governments in middle-income countries have been establishing a set of emerging standards. Countries around the world, while generally acknowledging the importance of privacy and data security, make different tradeoffs with regard to protecting individual privacy versus harnessing efficient business and governance activity. At one extreme, where individual privacy is considered paramount over other interests, is the European GDPR, which focuses on devolving power of data back to individuals. With its extraterritorial

³ Singapore also enables data exchange through a “whole-of-government” platform called APEX, in collaboration with the Ministry of Finance, was launched to enable common application program interfaces (APIs) to facilitate automatic exchange of data and services between government departments (and private entities). The platform employs authentication policies to ensure the secure exchange of data and services, and it leverages a bridge between public and private networks to allow a secure data exchange between public and private entities (for example, citizen data with banks to reduce burdens to establishing a bank account) (OECD 2018; GovTech Singapore 2018). There are currently 14 real-time APIs on data.gov.sg that provide data ranging from taxi availability to weather forecasts. See a list of all real-time APIs on data.gov.sg. <https://govinsider.asia/innovation/api-exchange-apex-govtech-chan-cheow-hoe/>.

reach (impacting businesses around the world with European users), the regulation comes at potential short-term economic expenses (due to uncertainty and compliance costs borne by firms, particularly burdensome for smaller companies), but establishes a standard to which firms around the world are exposed. An ambiguity of the provisions generates uncertainty that may cause businesses to defer investments, including in product innovations. Such standards include, for example,



controls for data portability, privacy-by-design principles such as data minimization and classifying data for masking or anonymization, and the disclosure of data breaches within a 72-hour period. California's new data privacy law suggests that at least part of the United States may also be willing to make this tradeoff, and it may have nationwide effects.⁴ However, the United States at the federal level takes a less comprehensive approach to individual privacy relative to the European Union, with data protection regulations generally confided to individual industries, such as health and finance. A key question for mid-sized/middle-income economies such as Vietnam is to also assess the likely efficacy of particularly regulatory policies.⁵

38. The issues of interoperability cannot be left to a discussion of abstract terms and principles, but must shift to a focus on actual digital data assets. Rather, interoperability standards and platforms must be linked to the type of digital government results being expected. Realizing these objectives will require striking an effective balance between the *protect* pillar, and also promoting interoperability in terms of the *harness* and *innovate* pillars. The costs of interoperability platforms are in themselves likely to be small, but they represent the tip of the iceberg in terms of transitions to more mature digital government. At one level, agencies may be truly concerned that their data are not yet up to "shareable" data standards. This, however, should not serve as an excuse for a protracted system investment intended to solve the project through IT means. Rather, the focus of accountability should be on making existing data available early and progressively working to make improvements. For many agencies and officials, this may at the outset be quite "disruptive" to business as usual, but digital government transformation will remain hollow in the absence of opening up data and iterating on the data-sharing process.

4 <https://hbr.org/2018/07/what-you-need-to-know-about-californias-new-data-privacy-law>. Because it is difficult to tell whether a U.S. consumer is in California or another state (given all of the cross-state travel), companies are prompted to apply California privacy provisions across the country.

5 The UK Government <https://www.gov.uk/data-protection> and US Government established the Federal Data Strategy to fully leverage the value of Federal Data for mission, service and the public good <https://strategy.data.gov/>. Singapore Trusted Data Framework <https://www2.imda.gov.sg/programme-listing/ai-data-innovation>.

3.2 Digital Identification

Vietnam Context: Digital IDs are vital in reducing physical and paper-based administrative transactions with the bureaucracy as well as facilitating digital economy. The digital ID landscape in Vietnam currently remains highly fragmented, with different “critical mass” IDs seen across the Ministry of Public Security, the Ministry of Justice, as well as Vietnam Social Security. In the absence of a single universal coverage source of identity information of citizens, the bulk of prospective digital government transformation benefits (including toward reduced fraud and corruption risks) will not materialize. To break this impasse, Vietnam’s digital government initiatives will need to adopt a federated and tiered model of digital IDs. A whole-of-government guiding policy for vision and scope and an implementation roadmap would be essential in order to enable the uptake of digital ID for the digital economy of Vietnam.

39. Digital identity (ID) has become a core pillar digital government transformation and the digital economy. The digital identity system enables a large proportion of transactions to occur without requiring face-to-face interactions (e.g., visiting a government office), making services more accessible to the public and cheaper for governments and private sectors to deliver. It effectively underpins the digital transformation of a country. Introducing a digital identity scheme should, therefore, be part of a whole-of-economy strategy or a digital economy that all countries aspire to.

40. The World Bank Group’s Identification for Development (ID4D) initiative is designed to help practitioners design and implement identification (ID) systems that promote trust, inclusion and privacy. This is in accordance with the 10 Principles on Identification for Sustainable Development and other international standards and best practices. This guide is intended to serve as a central resource for country counterparts, World Bank Group staff, and other actors involved in planning, managing, and financing ID systems. The investment on foundational services of the ID systems to achieve interoperability will pave the way for the private sector to innovate and extend the ecosystem capabilities across sectors, such as financial services, health care and social protection.

41. Addressing institutional challenges will be critical for countries in pursuing ID4D. Technological change in both biometrics and AI has been transforming the capabilities, and also the cost and complexity equation. The cost of uniquely identifying a single citizen or civil servant in unique ways has declined significantly (Gelb and Metz 2018). In all cases, however, governments must ask whether identification is fit for purpose, starting with providing better and more equitable public services through digital channels. At the same time, governments must ensure that their investments in ID adequately protect interests in privacy, and do not aggravate digital divides. The returns from successful “shared” investments in digital IDs for people are likely to be high for both government and the private sector. Both the narrow functional value of ID systems (e.g., for a service such as drivers’ licenses) and foundations (also a range of functions, including addressing leakage and corruption in social transfer programs) needs to be effectively socialized and communicated. The biggest challenges to effective ID financing are likely to be institutional. Different agencies will likely have some incentive to advocate for “their” ID solution, given a specific mandate. If the mandate is too diffused, agencies will likely not address priority functional needs. If it is too specific, its design may be too narrow. So, while the unit and time costs of unique IDs have declined significantly, value for money will depend on getting early agreement on identification technologies and institutional roles and responsibilities.

42. Countries have pursued a variety of approaches to digital ID for citizens to make their interactions with government more seamless. Countries such as India and the UAE have, over a short period of time, been able to introduce a centralized eID system with biometrics nationwide, which enables government

to provide effective payments and services online to citizens. Singapore's National Digital ID (NDI) developed the Tech Stack for GovTech to build the MyInfo and SingPass as the foundational ID for Public Good. Private sectors could develop new value-added services and improve the user experience. For 2020, Singapore Government launched "SG-Verify", a facility for businesses to perform secure identity verification and data transfer through QR scanning. This will provide businesses with an alternative to visitor registration and access, customer acquisition at roadshows, or any other user cases that require identification (*Straits Times* 2019). Australia's Trusted Identity Framework holds the promise of a robust implementation plan.⁶ The United Kingdom's Verify Program has, however, fallen significantly short of expectations because of the limited user cases and low adoption, and the UK Government will no longer fund it, demonstrating the importance of managing the risks of optimism bias, as well as understanding the need for update from both government and the market (NAO 2019).

3.3 Digital Platform for Payments

Vietnam Context: *Digital payments play an integral role in both government payments to citizens and, where fees are required, payments from citizens to government. In this context, the FinTech landscape in Vietnam remains relatively traditional, with cash transactions still prevailing. International experience suggests that in the context of expanding digital services adoption, and narrowing FinTech gaps, Vietnam should look to limit those administrative digital services where fees are charged. An ongoing dialogue will also be required across financial sector regulators and digital government developers regarding what type of prioritization and sequencing is most feasible in the short and medium term to bridge these gaps.*

43. Digital payments reduce costs, increase transparency, boost economic growth in the digital platform, and eliminate theft and loss. They can create new economic opportunities, such as the ability for participants to be part of the formal economy. A digital payment ecosystem is achieved when all participants are connected in an electronic payments network based on shared and open standards, and is used by government, businesses and consumers to buy and sell physical and digital goods/services and make transfers. It enables its stakeholders to interact to the benefit of all, while simultaneously enabling its commercial participants to create economic value and deliver inclusive and responsible financial services to end users. Social assistance programs that entail a periodical monetary disbursement to beneficiaries could particularly benefit from digital payment services. While there are common elements to a digital payment platform, each market context is different and, as a result, each digital payment ecosystem will have its own particular elements—whether credit card or peer-to-peer focused—and set of stakeholders. Such elements depend on the penetration of bank accounts and/or mobile services in countries. The India Stack (that focuses on digital identity and digital payment) could be an inspiration on phasing out cash and driving greater transparency in the digital economy.

44. Financial transactions in Vietnam are still highly reliant on cash or "bricks-and-mortar" bank accounts. This means that any transactions requiring payment to government requires visits to government offices or more cumbersome bank transfers. Leading digital economies in the region have developed a variety of digital payment platforms that provide both convenience and security, even for those without a full-fledged bank account. For instance, the use of AliPay and WeChat Pay in China creates a seamless and frictionless experience for consumers. These platforms serve both growth of commerce, and also citizen and business interactions with government. The prevailing policy and applications context in Vietnam means that such platforms remain partial and fragmented, increasing barriers and frictions to online transactions. The number of bank accounts reached over 68 million in 2016 (compared with 42.1

⁶ <https://www.dta.gov.au/our-projects/digital-identity/trusted-digital-identity-framework>.

million by the end of 2012) in a country with a total population estimated at nearly 93 million. However, according to the 2017 FINDEX survey, in Vietnam only about 31 percent of individuals aged 15 and above had an account. At least for services where government expects payment in the absence of a physical/cash-based visit, this suggests the need to look for platforms to ensure that all Vietnamese will ultimately be able to avail of at least one payment method in a world of increasingly ubiquitous digital economy, and ideally also government, options.

45. The evolution of digital payments in Vietnam requires regulatory attention. According to Decree 101/2012 (as updated by Decree 80/2016/NĐ-CP dated July 1, 2016) clarifies that only the State Bank of Vietnam (SBV) and banks can provide non-cash payment services through payment accounts. The legal framework requires specificity to allow the non-bank institutions to operate in the area of digital payment and settlement services. In addition, due to the lack of banking infrastructure in some parts of the rural community, enabling the operation of an agent banking network is a necessary step for the viability of digital payments. Another important regulatory framework is the provision for interoperability across different digital payments.

46. Beyond the issue of digital payments platforms, the issue of charging for online services merits close scrutiny. The global evidence suggests that a shift to digital services can provide for significant savings and value, especially if uptake is high, compared with paper-based processes. In addition, they can outperform in terms of convenience, compliance monitoring, and scalability (cf World Bank 2016). However, seeing digital services, or data, as a revenue center for individual agencies may significantly stifle adoption, due to the need for a payment mechanism as well as pricing concerns. At the level of individual services, as well as data access within and outside government, careful attention should be paid to framing the benefits of digital government, rather than focusing on the narrow benefit of potential revenue for individual services and data access.⁷

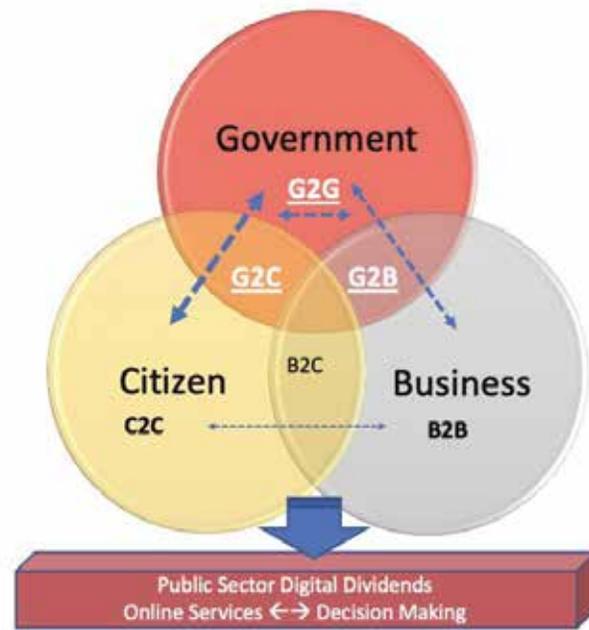
3.4 Investment in Soft Digital Skills

***Vietnam Context:** While Vietnam fares relatively well in terms of general science, technology, engineering, and math (STEM) benchmarks, digital readiness in the public sector appears low. On one level, the government lacks key capabilities to more effectively design and oversee digital government procurements with the private sector. On a wider level, government officials may be concerned that digital government will adversely affect their interests. International experience suggests that successful digital transformation leaders and breakout nations have made concerted efforts to address this fundamental ingredient of change management and sustainability.*

47. Digital skills within and outside government (including leveraging private sector talent) need to address both technical gaps but above all behavioral changes. Figure 6 highlights the increasingly interlinked digital ecosystems between the public, private and civil sectors. A narrow view of digital government presents the issues as one of high in-demand IT skills, as well as the ability to remunerate these skills correspondingly in the public sector. However, digital transformation in government is increasingly relying on far deeper and more continuous approaches to skills development inside and outside government. A constellation of factors—structural change, changes in export-oriented manufacturing and trade, and new technologies—is changing what it will take for people to be successful in the labor markets in developing East Asia (World Bank 2018). Specifically, demand is rising for more advanced skills, higher-order cognitive and technical skills, as well as socioemotional skills.

⁷ Certain services such as international passports and visas are often considered revenue sources, especially as their clientele may have a higher willingness and ability to pay. However, these services must then also demonstrate clear benefits in terms of convenience and timeliness.

Figure 6. Digital government relationships



48. Integration between policy, operations and technology needs to be strengthened. Technology must be intrinsically part of the public sector operating model so that government leadership must be sufficiently tech savvy to make sound decisions and judgements on digital projects. In order to change behavior on spending, there should be rewards for expenditure behavior that leads to investing in soft skills such as digital literacy versus investing in capital intensive data center projects. A number of countries have sought to nurture a community of leaders involved in digital transformation through regular forums to facilitate capacity-building efforts and knowledge sharing.

49. A range of skills are required for successful digital economy and government development, and investments should be made in these skills continuously through citizens' lives. Global examples suggest that digital literacy, including for savvier uptake of digital government across all population groups, has to target different age groups and a range of more fundamental and applied digital skills. The investment could be in the form of helping agencies develop their technology capacities in Science, Technology, Education, and Math (STEM) for continuous education on data and literacy. This could foster innovation culture to attract young talent and succession planning for the next generation of leaders who are digital natives. Israel has made a concerted effort to educate leaders across the public sector (see Box 6). Singapore has invested in [SkillsFuture](#) for the life-long learning journey for citizens. The [AI for Everyone \(AI4E\)](#) initiative offers a broad-based "3-hour workshop to introduce anyone to modern AI technologies and applications so that you can be savvy consumers of AI products and services." Estonia has focused on providing computer literacy skills at an early age.

50. User-centric digital design will be critical to wider adoption of and beneficiary engagement in digital government. Growing evidence, from both developed and developing countries, suggests that digital government initiatives are most successful when they adopt a very strong user focus from the start (Pathways for Prosperity Commission 2019). Although this type of design-centric thinking and outreach may not be the strength of traditional IT providers, some countries have moved successfully in

this direction. For example, the Danish Design Center, supported by the Danish Government, seeks to bring design-centric thinking to the digital economy to transform companies in Denmark.⁸ Such thinking may be particularly beneficial for governments to extend solutions to a wider set of the population, including the poor, elderly people, and marginalized ethnic groups. Design-thinking acknowledges that successful digital service adoption is not a top-down one-size-fits-all approach, but starts with a continuous dedication to ensuring that different types of users can connect and benefit from digital services. Technology is now making options for accessibility that include chatbots⁹ and even making voice recognition possible, thereby potentially reducing barriers to successful adoption. In terms of costs, these additional investments will not be high. But if well executed this will ensure that larger “back-end” investments actually experience uptake. However, this will need to ensure that governments are able to secure the right skills to deliver on this type of user centrality.

51. Co-creating with citizens and business can make for stronger feedback loops between government eServices and citizen engagements. Civic tech engagement empowers local champions to be the catalyst of change using technology. Mobile apps to connect community of like-minded citizens to address local grassroots issues are key tools to enable these local champions. This form of citizen engagement leads to better adoption and behavioral change towards digital literacy. Singapore has now instituted the GovTech Stack annual developers conference. A vibrant community of thousands of government, tech, and civil society community members gathers for this event, bringing together a critical mass of initiatives and applications. These initiatives are kept at the forefront of development through recourse to open source platforms and solutions, but above all this induces collaboration for innovation and impact (see Box 10). These types of approaches go well beyond more ad hoc and one-off hackathons or corporate social responsibility initiatives.

52. Attracting the right private sector skills and capabilities remains a core challenge for continuous digital government operations and transformation. One area of focus has been the challenges and risks associated with “business-as-usual” (BaU) procurement and contracting of IT vendors. Several countries, including Singapore, have recognized that getting value for money from vendors in this domain often requires better skills in government to design and manage these contracts. The rapid pace of digital economy innovation has also seen increased interest among governments to secure more engagements with startups and SMEs, whether through direct procurement, crowdsourcing/open source collaborations, or sub-contracting. These efforts are driven in part by the desire to draw in new and agile solutions and boost the local digital economy.

⁸ <https://danskdesigncenter.dk/en/about-danish-design-centre>

⁹ A computer program designed to simulate conversation with human users



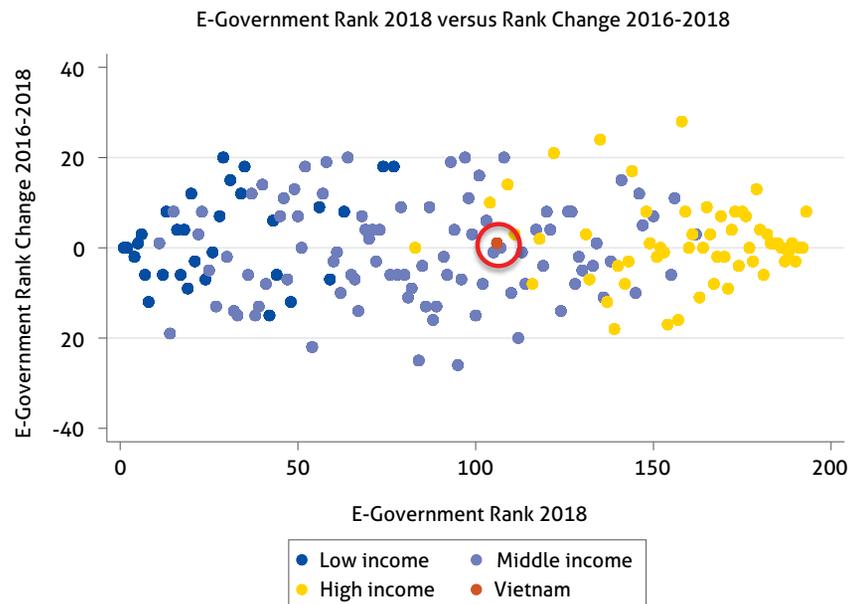


4 Where is Vietnam in Terms of eGov?

53. Vietnam is currently in the “middle of the road” on international digital economy and government rankings. The UN’s eGov two-yearly country ranking provides a general benchmarking indicator for how countries rank on key aspects of digital government.¹⁰ For 2016 to 2018, Vietnam improved one place to 88 in the sample of 193 countries. In 2020, Vietnam nudged up a further two places to a ranking of 86 (see United Nations 2020). The indicator consists of three main components: the online services index, the telecommunication infrastructure index, and a human capital index (see Box 2). A further indicator refers to digital participation. Figure 7 along the x-axis shows, not unexpectedly, that a higher ranking is generally associated with a higher income (with countries organized from lower to higher rank). The y-axis also suggests that countries can move significantly across two years and these achievements are possible across income groups.

¹⁰ The paper uses the term digital and eGov interchangeably. The main focus is on the extent to which digital platforms and data contribute to better public services, decision-making, and citizen engagement. A related objective is the extent to which governments create synergies with digital economy development, including the emergence of a strong and innovate market of digital services providers, including startups.

Figure 7. Vietnam’s global digital government ranking



Source: UN 2018, authors’ presentation.

54. The UN eGov rankings highlight the progress made by both leaders and breakout nations in digital government development. Vietnam can look to what digital government leaders such as Singapore, the Republic of Korea and Australia, as well as breakout nations, have achieved. Breakout nations refer to larger middle-income countries that have seen sustained gains across the eGov components after 2010, especially online services. For online services, for example, India outperforms by its rank 14 on the latest online services index, while ranking 96 on the overall 2018 indicators. In a similar vein, we can look at countries that have improved by more on their online service ranking relative to the overall ranking (contingent on improvements in both) during each of the two-year intervals in the data. These countries include Ghana, as well as to a lesser extent Brazil. Country studies of course reveal the starting point for each component indicator and what digital government looks like in practice in terms of broad-based, responsive and equitable access.

55. Both leaders and breakout nations reveal a number of key ingredients to success that provide valuable guidance to Vietnam as it seeks to move up the rankings. In Figure 7 Vietnam sits very much in the global middle in terms of eGov ranks and recent trends. Bershorner et. al. (2019) provide a recent systematic overview of foundational connectivity performance. The report finds that Vietnam generally falls just behind South-East Asian peers such as Indonesia, Malaysia and Thailand, but ahead of Philippines, Lao and Cambodia. Mobile internet is approaching universal. Progress in terms of online services have come as countries had realized functional improvements in providing more services on-line better. In this regard, they have often been able to make significant gains by forging ahead with improvements services a discrete set of services. Deepening these gains, and ensuring that all parts of the population can benefit from them, will typically require a set of more medium to long term foundational investments. These include digital IDs (to allow a wider set of services to be accessed, especially where security and privacy are of concern), digital “backend” data exchange (where a service requires data to be inter-operable and linked across different systems and agencies), digital payments (either from government to beneficiaries, or from beneficiaries to government), and wider digital literacy (the ability and design on the part of citizens, business and public officials to transition from face to face and paper based services to digital

channels and processes, especially where they can add greater user value in terms of convenience and functionality.

Effective coordination between national and subnational authorities

56. Vietnam's decentralization across five cities and 58 provinces presents opportunities and challenges for digital transformation. Some provinces will likely prove to be early leaders in digital transformation for improving services and government operations. This is also likely to stimulate progress across a wider set of localities over time. But to effectively deliver on digital transformation results, subnational governments will often depend on cross-cutting platform services from the national level. This includes adequate digital identification, as well as data exchanges across key national registries. Similarly, the national policy environment has to be conducive for cities and provinces to pursue digital modernization, including for example recognition of digital workflows and digital document exchanges by national agencies. At the same time, national government should ensure that all Vietnamese progressively can access digital services across the country. National and subnational authorities will therefore have to work together effectively to ensure the most effective balance of central and decentralized financing and delivery of digital government across levels of government. Strategic agreement about key results metrics of digital government transformation across Vietnam, along with an appetite to innovate by leading cities and provinces, will be critical to broad-based progress.

Concerted institutional reforms and fit-for-purpose financing

57. Digital government transformation requires a process of concerted institutional reforms and well aligned financing that vary according to a country's starting point. Several international comparators provide some sense of the absolute and relative magnitude that has taken place to achieve digital transformation in the past five to ten years. The optimal level, mix and modality of digital government financing programs is, of course, contingent on a country's starting point and its aspirations. Countries lacking basic foundational infrastructure, such as mobile Internet access, would need to make these investments to achieve the objective of universal access to online services. The investment required of a digital leader 10 years ago will only be instructive for follower countries of today in terms of what to invest in, given the pace of technological advancement and the associated costs. But if fit-for-purpose financing is increasingly at the heart of true digital governments, digital government transformation implies bringing key registries such as population, land, infrastructure assets, and human resources to an adequate level. Depending on a country's starting point, this may require significant resources, but also innovative thinking as to how data collection can be improved and sustained beyond the traditional approach.¹¹

58. Global digital government transformations span a range of territorial contexts to inform Vietnam's current efforts. Table 3 provides some points of reference of a selected set of world digital forerunners vis-à-vis Vietnam. This selection quickly highlights some obvious differences in administrative decentralization, area, urbanization, and income levels relative to present day Vietnam. While digital provides an opportunity to overcome physical distances, institutional contexts and trajectories matter significantly. The roles and responsibilities that subnational governments have with respect to services, decision-making, and expenditures will impact what national government can do in terms of setting an enabling context for broad-based results. While these selected countries have pursued a variety of

¹¹ For example, Germany has recently foregone conducting a traditional expensive census, given that its existing population registries were deemed strong enough to yield the same information. The U.S. Government is now using satellite imagery to support the validation of enumeration areas in its latest census (Quartz 2019).

initiatives (e.g., Estonia’s early X-road data exchange platform, Singapore’s GovTech), each one reveals that digital government transformation has required a significant degree of horizontal (across agencies) and vertical (across levels of government) coordination and investments. Other large nations such as India have made massive recent efforts to strengthen the foundations of their digital government “stacks” (see D’Silva et. al. 2019). These have included such key foundations as national digital IDs and payments platforms.

Table 3. Scaling: Digital reference points

	Estonia	Singapore	Rep. of Korea	Vietnam	United Kingdom	Russian Federation	United States
Population	1,317,384	5,612,253	51,466,201	95,540,800	66,023,290	144,496,740	325,147,121
Area (km ₂)	43,470	709	99,461	310,070	241,930	16,376,870	9,147,420
Tier 1 Subnational Government	79 (towns/ rural munis)	NA	17 regional entities	63 provinces/ cities	193 councils	83 republics, regions and territories	50 states
Urbanization	68.9	100	81.6	36.0	83.4	74.4	82.3
PC GDP	35,747	101,353	40,479	7,435	46,240	27,147	62,641
Online services rank 2018	26	2	4	59	4	25	2

Notes: Countries may be tied for same OSI rank.

Source: World Development Indicators and others.

Vietnam’s efforts toward digital government and what remains to be done

59. Vietnam’s government is striving for better governance arrangements for eGov reforms. On August 28, 2018, the Prime Minister formally established the National Steering Committee for eGovernment (eGov NSC) (Decision 1072). The eGov NSC comprises the Prime Minister as chair; a Deputy Prime Minister and the Ministers of the Office of Government (OOG) and the Ministry of Information and Communications (MIC), who play lead roles; 10 other ministers/vice ministers; and the chairpersons of four major public and private sector enterprises (Viettel, VNPT, Vietnam Post, and FPT). The eGov NSC is stipulated to meet on a quarterly basis (Decision 336) to orient and guide the eGov implementation efforts toward results through the development an eGovernment program for 2018–20 and toward 2025.¹² A “working group” including government, private sector, and international experts supports the eGov NSC. Work at different levels is oriented by an eGov Development Resolution (Resolution No. 17 dated March 2019) with an activity plan (eGov Program), initially setting out 22 key initiatives for the period 2019–20.

60. Vietnam now needs to build on its digital government results by addressing unfinished business and program resourcing. With the establishment of the NCS in 2018 and eGov Program in 2019, Vietnam has pursued a number of important measures toward digital government results. Table 4 summarizes eight key initiatives. In each case, work has been initiated, but significant unfinished business remains. In particular, the budgeting process for digital government efforts has remained fragmented, but above

¹² Note that PM Decisions are issues in different series, hence the difference in numbers even through the were issues on the same day.

all subject to delays. While the Government has made much of looking to the private sector, as yet there are no clear “win-win” financing arrangements for public-private partnership (PPP) projects to address larger-scale transformative investment needs. In terms of citizen- and business-facing services, the Government has taken a long time to specify what services will actually be transformed through the eGov program. The program could benefit from a more transformative user-centric design perspective, rather than top-down and technocratic approaches to online services design. Perhaps one of the largest challenges for digital transformation remains the reluctance of agencies and provinces to share key data or to fundamentally upgrade key registries including people, land and businesses. Without a whole-of-government financing approach to address these challenges, there is an inherent risk that Vietnam will continue muddling along on its digital trajectory without achieving any true transformation.

61. A whole-of-government approach to digital transformation requires several key elements. Such elements include a strong delivery mechanism with the commitment of the highest level of leadership, a clearly articulated digital transformation program with associated financial and human resources, and an enabling environment to crowd in innovations from the private sector. Vital to a successful whole-of-government strategy is institutional coordination and collaboration, together with a pragmatic mix of centralization and decentralization of digital government investments and innovations. Strong central leadership will be required for providing foundational platform layers such as data exchange, digital ID, and digital payments. Lack of institutional leadership generates excessive fragmentation, but above all can undermine sustained national and sub-national gains in digital government performance.

62. Despite the Government’s efforts to improve the governance arrangements for eGov reforms, there is a lack of dedicated executive functions to champion and deliver on digital transformation. The eGov NSC and its associated working groups draw on existing agency staff and mandates, but do not yet provide for a dedicated executive entity that can address cross-cutting government reform and enabling technology interventions. The MIC (and Departments of Information & Communications [DICs] at the provincial level) provides technical resources, including for ongoing Enterprise Architecture (EA) processes. However, neither the MIC nor the DICs appear to be in a position to follow through more actively on the institutional modernization aspects of online front-end service delivery and inter-agency collaboration back-end. At the national level, the Prime Minister’s Office, and by extension the OOG, could in principle act as change agents. Nonetheless, day-to-day technical staff and emerging digital capabilities within the Government would still be required to ensure delivery on digital services and process reforms, especially as they entail bridging across government silos, embracing new technological trends, and avoiding potential vendor lock-in at the same time. Similar challenges are also more or less mirrored at the city and provincial levels. The People’s Committees would ideally provide this leadership and executive follow-up, but this is often delegated to DICs with mixed or protracted results. In addition, since the establishment of the eGov NSC and the issuance of the eGov Resolution, there has been no funding envelope attached to the implementation of the program.

Table 4. Vietnam eGov program highlights

Key Result	Status	Unfinished Business
National eServices Portal	Portal launched at the end of 2019 (see Figure 8). Eight services (out of almost 7,000 administrative procedures) including tax payment, and driving license, were introduced at the launch; connected almost all 63 provincial portals and some of concerned ministries (MOF, MOIT, MOT) at the launch.	Limited number of truly digital administrative services provided; re-engineering of processes of public service delivery; back office interoperability; trusted digital identity and payment.
Digital Cabinet	eCabinet system was launched in June 2019, which introduced paper-less work flows for Cabinet meetings. Agendas, documents, issues for discussion and feedback from ministries have been sent through the system for monthly cabinet meetings since the launch.	Continued usage and improvements of system; Interoperate with other government agencies' system, including document management systems of other ministries.
Digital Document Exchange Platform	Launched in March 2019; Close to 1 million documents have been sent and received through the platform so far; Govt estimated saving of US\$50 million a year, especially owing to a decrease in response time from agencies and provinces.	Streamlining current workflows; Tracking actual digital work flows and continuing measuring results; Interoperate with other government systems, including the National Service Government Platform (NGSP), which is being led by MIC and would serve as government data exchange platform.
Development key Registries (Land, Citizens, Public Officials, Public Assets/ Finance, etc.)	All these critical registries are either yet to be initiated (Public Officials, Public Assets/Finance) or completed. Serious delays in terms of funding allocation, financing arrangements with private vendors and decision on system architectures (centralized or decentralized), thus inhibiting the completion of the registries on time.	Fragmentation in updating, digitizing, and deduplicating with biometrics the citizen registry process as it is covered in another project with no definite completion timeline; architecture for land registry and relationship between central and subnational levels, as well as software development to be determined.
Digital Identity	A draft decree on digital identity is under development; Linked with the National eService portal development.	Lack of a long-term strategy; Narrowly linked to the eService portal; no clear policy direction and roadmap to link digital ID with other digital services in banking and finance sectors.

Key Result	Status	Unfinished Business
Digital Payments	Low uptake of digital payments. Vietnam successfully launched the Automated Clearing House (ACH) by the National Payment Corporation of Vietnam (NAPAS) in June 2020, to increase efficiency of the digital transfers, with potential benefits also for government payments.	Lack of legal framework for agent banking and trusted digital ID inhibits uptake of digital payments.
Interoperability	National Government Service Platform (NGSP) or data exchange platform under development.	Tracking of systems connected to the NGSP as well as actual data flows through the NGSP; Actual services of NGSP; Documenting results and extent of efficiency of government systems connected through NGSP.
Digital Champion Leadership	eGov Committee established.	Lack of whole-of-government, actionable digital transformation blue print.

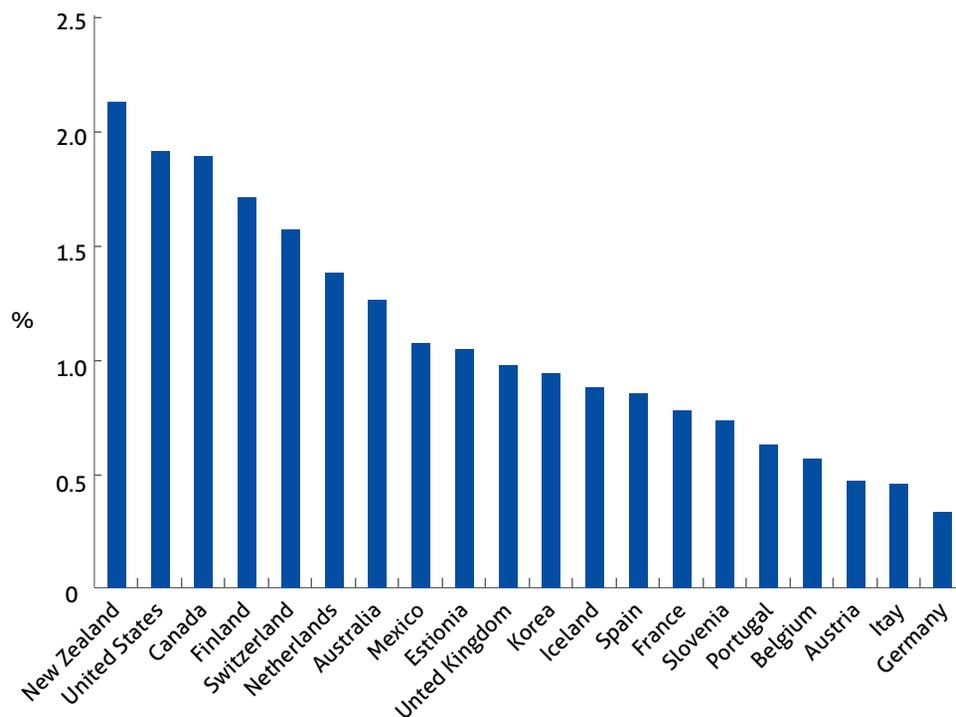
Figure 8. National Public Services Portal

The screenshot shows the homepage of the National Public Services Portal (Cổng Dịch vụ Công Quốc Gia). At the top, there is the national emblem and the portal's logo with the tagline "Kết nối, cung cấp thông tin và dịch vụ công mọi lúc, mọi nơi". Navigation buttons for "Đăng ký" (Register) and "Đăng nhập" (Login) are visible. A main navigation bar includes links for "Giới thiệu", "Thông tin và dịch vụ", "Thanh toán trực tuyến", "Phản ánh kiến nghị", "Thủ tục hành chính", and "Hỗ trợ". Below this is a search bar with the placeholder "Nhập từ khoá tìm kiếm" and a "Tìm kiếm nâng cao" button. Two prominent yellow buttons highlight "Dịch vụ công trực tuyến" and "Hỗ trợ đối tượng gặp khó khăn do đại dịch COVID-19". A news section displays three items: "Cung cấp 6 dịch vụ công tử ngày 01/07/2021" (dated 25/06/2020), "Tổng hợp tình hình đóng bộ trang thái hồ sơ thủ tục hành chính lên Cổng Dịch..." (dated 11/06/2020), and "Tổng hợp tình hình kết nối, tích hợp với Cổng Dịch vụ công Quốc gia của Bộ..." (dated 10/06/2020). The bottom section is divided into two columns: "CÔNG DẪN" (Citizens) with services like "Có con nhỏ", "Học tập", and "Việc làm"; and "DOANH NGHIỆP" (Businesses) with services like "Khởi sự kinh doanh", "Lao động và bảo hiểm xã hội", and "Tài chính doanh nghiệp".

Source: <https://dichvucong.gov.vn/p/home/dvc-trang-chu.html>

63. A major challenge facing Vietnam will be the size of the investments needed for full digital transformation. One traditional definition of digital government financing focuses on budgets dedicated to ICT (e.g., investments in hardware and software, running costs of IT infrastructures, salaries for ICT specialists and training) (OECD 2013). ICT investments are typically defined as hardware and software with more than one year’s utilization. ICT spending/investment analysis has sought to provide aggregate estimates (e.g., as share of GDP) or measures of absolute spending broken down by more detailed categories. Based on the aggregate measure, Figure 9 suggests a significant variance across OECD economies, but on average approaching 1 percent of GDP during the period. The data, however, say little about the “stock” or vintage of a country’s ICT/digital assets. South Korea provides a good example of providing a more explicit picture of ICT resourcing for digital government transformation (see Box 4). In the context of public administration modernization programs, the data do not reveal complementary expenditures on such aspects as change management or institutional strengthening. No recent comparative data are available for Vietnam, especially since digital government expenditures straddle not only national but also city/provincial governments.

Figure 9. Comparative ICT spending levels



Source: OECD (2013).

64. A lack of systematic accounts for digital government spending especially for off-budget and sub-national spending means a lack a comprehensive breakdown of recent resource allocations. A recent report by the Ministry of Finance to the Prime Minister provides a stock-taking to the major financing sources and levels for the 2016-2020 period. While the report attempts to provide some summary numbers, the report is not able to provide a clear breakdown of annual expenditures by annual or off-budget accounts. The Ministry of Finance’s Treasury and Budget Management Information System (TABMIS) capture only on-budget expenditures.

65. There are no comprehensive summaries available concerning ICT more narrowly, or digital government more broadly (including digital data generation and capacity building) expenditures for the five-year 2016-2020 planning period. The lack of comprehensive accounts is due to a number of factors. A far larger amount of allocated resources appears to have come from off-budget funds.

66. The budget classification allows tracking total spending for information technology. However, there are no discreet expenditure classifications that record capital or recurrent digital government expenditures specifically for digital government (including spending for digital data assets or training). The bulk of digital government expenditure move over has taken place off budget (e.g., through retained agency revenues or public sector enterprises), or at the level of cities and provinces. This has presented challenges for even the Ministry of Finance to consolidate corresponding budget and expenditure execution data.

67. The report also highlights where a number of major IT developments for this period have fallen short owing to insufficient and fragmented financing. The MoF report to the Prime Minister provides a stock-taking to the major financing sources and levels for the 2016-2020 period.

68. Key highlights for the 2016-2020 period included the Local Government Service Program (LGSP) (designed as a foundation to develop and implement e-Government and interoperability) and the development of the six core national databases. The LGSP aimed to cover over the 2016-2020 period to 100% central ministries, sectors and local authorities on an integrated platform for shared use of LGSP, by the end of 2019 only 3 out of 22 ministries, sectors and 13 out of 63 provinces/cities installed LSQP (see Ministry of Finance 2019:11). The only fully functioning core database is currently the business register. Only 10% of the funding for the national database on population projects that is approved in the MTIP 2016-2020 was allocated. Other databases, including those on land, social insurance, health insurance, were developed internally within their sectors/sub-sectors. Hence the sharing or shared use of such databases have not been implemented.

69. The core digital systems of the Ministry of Finance (MoF) and Ministry of Planning (MoP) could be better leveraged to gain a more comprehensive and timely insight to the digital government expenditures in Vietnam. The Ministry of Finance's Treasury and Budget Management Information System (TABMIS) should serve to record all on-budget digital government expenditures. The Ministry of Planning and Investment (MPI) Public Investment Management Systems should provide insights into all capital expenditure projects with national financing.

70. The Treasury and Budget Management Information System (TABMIS) operated by the Ministry of Finance in principle would allow for more systematic tracking of IT budgeting and execution for digital government during the 2021-2025 period. This could be done by having a specific program for digital government in TABMIS to allow tracking precisely expenditure on digital government.

71. However, TABMIS still has a number of limitations. The TABMIS does not cover many off budget spending and grants which has been very prominent for IT expenditures. Secondly, only aggregate spending is disclosed through budget reports, granular data from TABMIS is not publicly available. Similarly, the governments eProcurement system continued to provide only a particular picture of activities at the national and sub-national levels. The Public Investment Management System by MPI offers the possibility of providing a more systematic view of capital budget projects for IT. However, it also has a number of limitations. First, it only records budgets, and does not link to the TABMIS in execution. Second, it only covers nationally financed projects, so does not capture the bulk of city-provincial projects. Third, as

the system only covers public investment projects, it does not include investment projects from other sources of funding such as PPPs or SOEs.

72. The experience of digital government leaders suggests that Vietnam will need to develop a robust program of financing to achieve more transformational results. Spending in the United Kingdom's digital transformation has not just been significant, in the range of US\$50 billion, but has also had to address overhauls of legacy technologies (see Box 4). The Rep. of Korea has provided a detailed list of major IT systems initiatives over the past generation, which added up to several billion US dollars (see Box 5). Singapore has slated US\$2.5 billion for its Smart Nation program (see Box 6). Estonia's government estimates ICT constituting 1.3 percent of its annual capital budget in its early years of digital trajectory. Closer analysis of these figures suggests different institutional arrangements by which these budgets are established (including in developing countries the role played by concessional financing or technical assistance) and executed. Finland, for example, has even established a Directorate General for Digital Government in the Ministry of Finance. While the build-up of digital connectivity and computerization is clearly an important focus of this financing, complementary "soft" measures also cannot be neglected, including the presence of digital skills in government. Critical to addressing Vietnam's digital government will be progressively improving foundational systems, i.e., key registries, interoperability platforms, and digital IDs as the country aims to reap more functional results from its digital government trajectory such as broad-based service delivery improvements, decision-making and governance gains, and digital economy support.

73. Given the need to overcome institutional inertia alongside a rapid pace of technology developments, Vietnam's digital transform will require a compelling narrative and some urgency. Emerging economies such as Vietnam have crossed some threshold of fixed and mobile Internet connectivity, and also have a substantial part of government processed and the data digitized. eGov or digital transformation strategies will be part of some greater perceived need to modernize government. Prioritizing and sequencing where and how institutional and technology efforts need to be focused for results will demand both a sense of urgency, and also sustained delivery mechanisms. In moving beyond incremental approaches, digital government champions also need to have a clear and compelling narrative of why certain reforms at the policy and implementation level are necessary. Otherwise, barriers such as institutional resistance to data sharing or changing legacy workflows and systems are likely to trap Vietnam's digital government reforms in a low level equilibrium. With leading digital government nations, as well as emerging breakout peers, keeping a strong pace of evolution, Vietnam will be left behind.

74. Vietnam's public and private sector leadership needs to articulate a strong narrative for digital transformation that can overcome institutional and organizational inertias. The challenges set out in Table 2 will require leadership, resources, and also a strong cross-cutting reform narrative. A rallying narrative that resonates could be driven by concerns regarding sustaining overall growth, avoiding a middle-income trap, or greater demand-side pressure by citizens and enterprises in terms of how government works. For middle-income countries with a growing digital economy and budding tech sector, a fresh breed of startup and SME enterprises will also be looking to see how to productively engage with the public sector at both the national and subnational levels, whether directly or indirectly (e.g., as subcontractors). With technology models shifting more fundamentally in certain areas (e.g., emergence of platforms/cloud services), and potentially new generations on the horizon, governments need to think about whether to follow-fast, wait, leapfrog, or even experiment with some frontier innovations. But overcoming inertia from legacy technologies can present some significant challenges for government modernization (NAO 2013). Vietnam enjoys a significant skills base in technology, including one being leveraged for global business processes outsource (BPO) services. However, organizationally these

capabilities will need to be better harnessed through digital government innovations. This means an increasingly digital government that supports a dynamic digital economy and society, but also a digital economy and society that stimulates progress in digital government.



5 How should you fund?

75. While adequate financing of technology is essential, it is not the answer to all digital government issues. Fit-for-purpose technologies are continually evolving in terms of higher capabilities, and often cost and complexity. Experimentation with untested technologies can be costly for governments, thus suggesting that governments should be “fast followers” in technology adoption (cf David Eaves 2018). The flip side to this challenge, however, is that governments may be significant laggards in leveraging new generations of technologies, or that technologies are not really leveraged to impact public sector business processes and modernization. Singapore, and previously Estonia, provides one example where government has taken a “first-mover” approach with specific objectives in mind. The point about firstmover approaches for digital government is not necessarily that they have to involve sophisticated technology, but rather a commitment to work effectively across government and the private sector to address specific digital government challenges. In this spirit, even emerging country governments like Vietnam will need to act in certain areas as first-movers or even leap-froppers, as the context demands. Since eGov is also closely associated with data management across government, critical design and implementation issues may be less about financing and technology, but more about issues such as data sharing, security, and use (Productivity Commission 2017; NAO 2017). While financing itself cannot resolve these issues, inadequate financing processes and incentives can certainly derail digital government transformation. As digital government matures, there will be greater pressure to pursue platform/whole-of-government

approaches that deliver on shared services. This will involve drawing together legacy systems that previously would have been implemented on a piecemeal basis.

76. The public sector can benefit from various financing and implementation modalities. Different implementation modalities can refer to in-house development, vendor procurements (ranging from capital to services contracts), or various forms of PPPs. While adequate financing amounts are clearly important, success and value for money, or the risk of failure, often hinge on how digital government transformation is managed. One aspect of this is moving beyond procurement modalities that are often still centered on physical/fixed cost infrastructure, to capital budget expenditures that generate access to services and “digital assets” such as data. As various countries have also tried to shift to more agile and innovation centered mechanisms (e.g., a focus on drawing in startups and SMEs, whether through procurement, crowdsourcing/open source collaborations, or sub-contracting), they also need to ensure that services and contracts do not become excessively fragmented and unwieldy. One approach is to focus on some key platform functionalities, and then allow for a more diverse set of demand-driven solutions to build on core functionality. For example, Singapore GovTech enables startups/SMEs to leverage its open source digital government applications (e.g. OpenCerts) and provide specialized products/services (proprietary or not) to citizens.

77. Migrating beyond legacy systems can often present an institutional challenge that financing strategies need to take into consideration. Development of applications in siloes can significantly duplicate/increase costs and reduce impacts. Several leading digital transformers (e.g., Singapore) have underscored the concept of a government stack, or greater use of shared services. ITU-DIAL (2019) makes a compelling case for thinking about platform functionality across user cases. To realize these types of gains, however, financing mechanisms need to be aligned. The fact that technology, digital infrastructure and applications are developing relatively rapidly (at least compared with traditional infrastructure sectors such as road provision) means that government must also successfully manage transitions between different generations of technology. Key examples include moving to more sharedservices and cloud-based platform architectures. Implementation modalities must therefore not only think about new systems, but how to migrate from legacy configurations to new platforms, without undue costs and embarrassing service disruptions. Existing agencies and associated staff may be highly protective of these systems. Given that they are providing an existing function, policy-makers may not wish to modernize them until the situation has indeed reached crisis levels. But the resulting short-term reactive investments may then be more costly and adversely disruptive than if the functionality had been addressed earlier. At the same time, different agencies will also need to be assured that shared services and platforms will positively contribute to improved front-end services and user cases. If shared platforms create adverse dependencies across government, the behavior to proliferate stand-alone systems can also be understood within the context of the public sector. Effective financing strategies should therefore involve investing in and delivering on key shared services and platforms, while opening up opportunities for more agile and innovative digital government solutions (including frontier areas such as AI). This needs to take place within and across both national and subnational levels of government.

78. Digital government finance requires effective management across levels of government. Decentralized contexts, such as Australia, China and the United States, suggests that subnational governments can invest significantly in digital government. Leading subnational governments can also be first movers in key aspects of digital government transformation, including the provision of digital services. In this respect, national governments should carefully assess options for making shared services and applications available to all subnational governments. In a context with a host of smaller and lagging subnational governments, these platform services may also be important to ensure that they catch up

early in terms of providing basic eServices. Inter-governmental incentive grants and pilot programs have also played a role in accelerating “bottom-up” digital transformation, including in settings such as China.

79. Emerging country economies should review their financial management systems to ascertain the extent to which granular tracking of digital government resource allocation is possible. What can be readily captured depends on the state of integrated financial management systems, including how expenditures are classified. In many cases, only “hardware” capital investments are itemized, whereas recurrent services may be lumped with other spending. Understanding ICT budgeting and project spending therefore depends on individual country assessments. Middle-income countries seeking to strengthen digital government should equally look at which detailed data sources (treasury, procurement, payables) provide the most systematic resources for conducting baseline ICT spending reviews.

80. Three of the World Bank’s international datasets—its project portfolio, procurement, and global PPP data—provide some wider insights into digital government financing. First, as part of its overall financing of over 13,000 projects since 2000, patterns and ratings of financing digital government can be identified (Kaiser and Wright, 2018). This analysis suggests that just over 10 percent of World Bank projects had significant ICT or eGov spending components. The projects, however, vary significantly in terms of the degree of pure ICT infrastructure focus (e.g., connectivity for the Pacific Islands), versus significant change management components (e.g., eServices in Argentina, Mongolia, or Uruguay). Second, vendor-level data can be drawn from the World Bank’s STEP (Systematic Tracking of Exchanges in Procurement) dataset. However, since online filing of procurements was only recently made mandatory, granular analysis of this dataset is only indicative. It can be best used to highlight the types of goods and services being procured (e.g., open-source software). Finally, the World Bank’s Private Participation in Infrastructure Database captures projects mainly in low- and middle-income countries and “hard” infrastructure investments, excluding smaller and “softer” investments such as in skills development (Box 9).¹³ As the subsequent analysis leverages each of these three international datasets, it is therefore important to remember the relative scope and coverage for arriving at absolute and relative digital government financing input metrics.

¹³ Future analysis might also draw on project data from regional development banks (e.g., Inter-American Development Bank, Asian Development Bank, etc.).

Box 9. PPPs for Digital Government Highlights

The Institute/InfoDev 2009 appears to be the latest systematic review of PPPs focused on eGov. The PPI database provides the most comprehensive on-going global overview of PPP projects in middle-income countries. ICT projects comprise a relatively small share of total publicly recorded PPP projects, generally occurring in upper middle-income countries, and declining in number since the late 1990s. According to the PPI database, from 1990 to 2018, there are 535 projects with investment of US\$123.590 billion in ICT, with the largest share in terms of committed investment in Latin America and Caribbean (about 38 percent) and East Asia & Pacific (about 22 percent), and most occur in upper middle-income countries (non-IDA, non-MDB supported). ICT projects comprise 6.9 percent of the total number of PPP projects (9,031 total projects) and 6.9 percent of the total committed value of the PPP projects (US\$1,790.635 billion in total committed investments). The decline in ICT PPPs since the 1990s contrasts with the broader increasing trend in PPPs up to 2010 (though the trend has been declining since then).

ICT PPP projects have the second-highest share of unsuccessful PPPs relative to other sectors (in terms of value). About 6.9 percent of the committed value of ICT projects were cancelled or in distress. Across the universe of PPPs in the PPI database, the highest share of cancelled or in distress projects was in water and sanitation (17.9 percent of their committed investment value). The lowest share of cancelled or in distress projects, in comparison, was in natural gas (1.5 percent of their committed investment value).

ICT PPPs tend to focus on the “hardware”—connectivity in the CHIP framework—particularly regarding Internet and mobile networks. They are most often conducted as divestitures and merchant contracts. The highest valued projects include Turk Telekom in Turkey, Telesp Participacoes in Brazil, and China United Communications in China. These three contracts all occurred prior to 2006. The lack of representation of “soft” investments, such as in services and skills, may be a result of a lack of data availability; as the PPI database does not capture fully the small-scale PPP projects.

5.1 Institutional Arrangements for Digital Government Transformation

81. The institutional arrangements for managing and financing digital government programs continue to evolve across the globe. The key functions of “digital squads” could include leading critical or pilot digital government programs, reviewing ICT projects from a whole-of-government perspective (including for data-sharing and shared-services criteria), and leading public sector modernization and digital skills initiatives across government. Where these units are positioned within the government structure can vary significantly. But what clearly matters is that they effectively fulfill key functions in their given institutional context. For example, the Finnish Ministry of Finance has a Directorate General for Digital Government. In Israel, the emphasis on digital skills sits in the Ministry of Social Affairs (see Box 8).¹⁴ Table 5 presents the governance arrangements for digital transformation of leader countries in the UN eGov Index.

¹⁴ Ukraine’s State eGovernment Agency (SEGA) was established in 2014 and is de facto coordinating both eGovernment policy making and policy implementation (World Bank 2018a:13). SEGA has 75 staff positions out of which 54 are filled (World Bank 2018a:16).

Table 5. eGov governance structure

No	Name of Country	eGov Focal Agency	Reporting Line
1.	Denmark	Agency for Digitization	Ministry of Finance
2.	Australia	Digital Transformation Agency (DTA)	Executive Agency within the Prime Minister and Cabinet portfolio
3.	Singapore	Government Technology Agency	Prime Minister's Office
4.	Rep. of Korea	National Information Society Agency (NIA)	Ministry of Science and ICT
5.	United Kingdom	Government Digital Service (GDS)	Cabinet Office
6.	Sweden	Agency for Digital Government (DIGG)	Ministry of Finance
6.	Finland	Public Sector ICT Department	Ministry of Finance
8.	New Zealand	Department of Internal Affairs	Department of Internal Affairs
9.	France	L'Agence du numérique	Ministry for the Economy and Finance
10.	Japan	IT Strategic Office	Cabinet Office

Source: Authors.

82. The track record of many government ICT projects and digital transformation programs highlights the importance of effective risk management. Countries such as the United Kingdom have placed significant emphasis on digital transformation, including through creating a dedicated center of government agency to better manage this process, delivering savings and pushing innovations. But even strong capabilities such as the UK Government Digital Service (see Box 4) can be subject to optimism bias, as highlighted by the experience of the Verify digital ID program. The literature suggests that simply delegating projects for outsourcing to project managers and the private sector is not a recipe for success. Instead, the focus should be on ensuring that digital transformation projects have adequate ongoing financing and are diligently managed for successful delivery.

5.2 Public Private Partnerships (PPPs)

83. Public-private partnerships (PPPs) for eGov can present a win-win for both public and private sectors. PPPs are contracts between a private sector entity and a government body that call for the private partner to deliver a desired service and assume the associated risks. PPPs are an effective financing and governance modality for eGovernment for projects that require expertise not found within the government and/or financing too burdensome for the government to cover alone (Institute for PublicPrivate Partnerships, 2009). PPP financing may therefore be appropriate not only in capital-intensive and expensive projects, but also in those projects that are complex to manage, and outside of the scope and skillset of most government agencies.

84. Governments pursue PPPs for a host of reasons beyond financing. These include: (i) the transfer of key risks away from the public sector's limited resources and onto the private party that can best manage them; (ii) improved quality of service by both measuring and achieving key performance indicators; (iii) access/transfer of technology and improved capacity of the public sector to better manage public

services and administrative procedures; (iv) greater transparency and reduced corruption through improved access to public information and “arm’s length” implementation of services; (v) maximizing value for money through reduced costs and lower risks to the public sector; and (vi) delivering on improved competitiveness of the overall governance and economic framework (Institute for PublicPrivate Partnerships, 2009:13).



85. While PPPs can present a “win-win” for eGov, they must also receive some benefit for the private sector (e.g., budget, revenue/tariffs or data streams). Figure 10 highlights several benefits that a private contractor can receive from a PPP. For example, a South African PPP for retiree services involved allocating the budget for the Department of Labour under the old system, and focusing on improving public services quality and innovation. For the private sector to deliver on the range of possible benefits from a PPP, it will need to be provided with an adequate level of clarity and focus on the risks that it can manage. Government programs may also incentivize innovation in the industry, which generates positive spillovers for both the market and government operations. Governments’ provision of public data may enable the private sector to harness new value, for example, in training datasets for predictive analytics, whether regarding transportation routes, health outcomes, or financial risk detection. However, when providing the private party with use and access rights to data, government will need to ensure that the private party adequately addresses privacy and cybersecurity concerns (e.g., related to sensitive health data). Government also needs to ensure that it does not grant exclusive data access rights to a private party, making public-interest data inaccessible or too costly for other parts of government (both at national and subnational levels). In addition to these innovations with positive spillover effects for government and society at large, the private sector can bring targeted innovative solutions to government, whether in the form of discrete technologies or human capital, drawing from diverse technical and managerial backgrounds.

Figure 10. Selected PPP models

Type of Contract	Duration (years)	What the Private Contractor Receives	Natural of Private Contractor Performance	Examples
Service Contract (outsourcing)	1-3	Fee from government for performing a non-core service	Definite, often technical type service	Website design and management, ICT Capacity Building
Management Contract	3-8	Fee from government for the service and a performance-based incentive	Manage the operation of a government service	Call Center Staffing, Seat Management , Parking enforcement, regional water supply management
Lease	8-15	All revenues, fees or charges from consumers for the provision of the service; the service provider rents the facility from government	Manage, operate, repair and maintain, and maybe invest in, a service to specified standards and outputs	Land for ICT Infrastructure Development, Online Property Registries , Existing Airport or port facilities
BOO & BOOT	15-25	The government mostly pays the service provider on a unit basis	Construct and operate, to specific standards, the facilities necessary for service provision	ICT Infrastructure, e-procurement systems, e-business portals , Network of Kiosks
Concession	15-30	All revenues from consumer service provision; the service provider pays a concession fee to the government and may assume existing debt	Manage, operate, repair, and invest in public service infrastructure to specified standards	Telecoms operations and expansion, New airport or seaport facilities, Toll road or bridge

Source: The Institute for Public-Private Partnerships, 2009:7.

86. The structuring of eGov PPPs must pay close attention to the risks inherent in government projects that focus on modernization. PPPs may work especially well in addressing certain slices of the eGov agenda. In designing an eGov strategy, governments therefore need to think carefully not only about where PPPs may be fit for purpose, but also where they may leave gaps toward government digital transformation. Care must therefore be taken not to cherry pick functions where the private sector can receive rewards without direct calls to the budget (e.g., premium passport or visa services). Risks are uncertainties that exist throughout the phases of a PPP—they may be both downside (resulting in worse than-expected performance of the project) or upside (resulting in better-than-expected performance). Throughout project planning, it is important to identify the risks, assess their potential implications for the overall performance of the project, and ensure the public or private stakeholder is assigned responsibility for addressing this risk. For example, there may be risks regarding the operating costs of a project; in an eProcurement platform, these may result from uncertainty over the take-up of usership of the platform and unplanned glitches that may result from that usership. Higher-than-expected operating costs may result in underfinancing and worse-than-expected performance of the platform,

while lower-than-expected operating costs may result in excess financing that may be channeled to other aspects of eGovernment work. In the contract, it should be made clear that the private client is responsible for estimating this risk within the project budget. Other risks to consider include regulatory, health/safety, interest rates, procurement/construction, etc. (USAID 2015).

87. Middle-income countries must pay close attention to managing the financial, political, and technical risks associated with eGov overall, and constituent PPPs in particular. The PPP Fiscal Risks Assessment Model (PFRAM) is a tool that assesses potential fiscal costs and risks arising from PPP projects. The tool covers both country/macro-level risks and project/micro-level risks. The assessment, jointly developed by the IMF and World Bank, entails gathering specific project information and determining the government's role at key stages in the project cycle. This tool is designed to help PPP units in ministries of finance make informed fiscal decisions on PPP projects based on impacts and risks.¹⁵ Beyond providing for a more systematic review of the macro-fiscal implications of PPP projects (i.e., their impact on the fiscal deficit, gross and net debt, and stock of contingent liabilities for government), the tool also allows for ensuring that due diligence is conducted to most effectively structure PPP projects. Especially when starting a new type of PPP project, governments would be well advised to invest adequately in the upstream for these types of exercises.

88. For PPPs to succeed over time, it is important to put in place a robust institutional framework that incentivizes the lifetime success and accessibility of digital assets and services. Given digital government expectations and future shifts in technology in this particular PPP area, careful attention needs to be given to understanding the prevailing readiness of PPP governance conditions.¹⁶ While there may be some benefits to vendors retaining the technology derived from PPP leases, the public sector has to manage associated risks with vendor lock-in. Based on PPP models, the options are: (i) the private sector retains the rights to the technology developed, and sells or leases that technology to other clients, the government or private firms, or (ii) the government may purchase the technology outright and lease the technology to other government agencies. It is preferable for the private partner to maintain rights to the technology, as this keeps the government focused on its core functions, leaving development and commercialization of the ICT technology in the hands of private firms, as well as incentivizing those private firms to maintain and improve the technology (Institute for Public-Private Partnerships 2009:35).

89. eGov PPPs will perform best if set in an overall policy framework of reforms related to both the delivery of public services and the management of governmental administrative procedures. The maturation of eGov in the EU for middle-income/emerging economies appears to have been driven by the desire to meet accession/convergence standards, peer benchmarking, and growing expectations and mobility by both individuals and businesses. The EU has set out an eService Maturity Model with five levels. The highest level of service delivery means that the government pro-actively performs actions to enhance the service delivery quality and the user friendliness, while the zero level means in effect no significant online presence of the service provider. The EU model enumerates 20 services, with 12 focusing on citizens and 8 on businesses. To encourage uptake, the EU has taken a user-centric life events approach, coupled with a re-engineering of public administration processes (Bugli 2015). With a maturation of this platform approach to eGov, there is also a need to set clear objectives and performance criteria as to what private sector partners bring to this overall ecosystem, rather than structured PPPs on a standalone/opportunistic basis.

¹⁵ There is extensive online guidance on how to apply the PFRAM (<https://www.github.org/resources/publications/ppp-fiscal-riskassessment-model-pfram/>).

¹⁶ These include PPP laws, PPP central body, PPP guidelines, financial instruments, contract compliance and dispute resolution, procedures, asset ownership guidelines, labor laws, tax laws, digital signature laws, sector regulations, an independent regulator, competition law, and stakeholder consultation (The Institute 2019:15).

90. The ability of governments to design and manage digital transformation from start to end is as critical as the resources contracted or leveraged from the private sector. Successful PPPs will require the ability to effectively structure contracts, as well as provide oversight over the life of execution. This includes clear metrics for measuring the quality of services, as well as who specifically in government is responsible for monitoring and taking action if there are deficiencies. eGov PPPs will also require the ability of government authorities to implement remedies, and ensure service delivery continuity, should the private sector no longer be able to offer the services in a satisfactory manner. In a PPP in India, for example, the government provided basic services, while the private sector was responsible for premium services (The Institute 2019:42). But the experience with the United Kingdom's eVerify programs suggests the need to carefully manage the risks of optimism bias, as well as to understand where updates would come from in terms of both government and market-based demand (see Box 4).

91. GovTech leaders have put in place a number of organizational mechanisms to support more effective digital government financing and delivery. As interest in PPPs grows, governments have put in place specialized capabilities to both design and review these types of projects. The design can be more complex than the basic procurement. Since single agencies are only likely to initiate and manage a few PPPs in any given year, this strengthens the argument for ensuring that some more cross-cutting "whole-of-government" resources are in place. Digital government projects are also likely to involve particular issues for technical review (distinct say from more traditional physical infrastructure projects), which would benefit from the support of digital service functions in government.

92. As digital-transitioning countries pursue PPPs for particular types of eGov projects, they would do well to learn from both the successes and failures across different country settings. An early review of 35 PPPs by the The Institute (2009:51) suggested some success in these contract modalities, but also challenges. Malaysia established, through a PPP, the eProcurement system, or "e-perolehan", which has transacted thousands of projects and resulted in significant cost savings (The Institute 2019:14). An initial track record of eGov projects suggests that they worked well for citizen service centers, ePortals. If middle-income governments opt for PPPs for digital government, they would be well advised to review the latest experience from projects in similar areas to gain a deeper understanding of the strengths and weaknesses of such projects. At both national and city-provincial levels there would also be value in ensuring that officials have a basic understanding of what PPPs constitute in practice, including their prospective benefits but also risks in the context of digital government transformation programs. In this regard, building a better local appreciation of PPP modalities could be part of wider digital government skills building programs for public sector leaders.

5.3 Opening Up to Tech Startups and SMEs

93. The GovTech movement has increasingly emphasized the need for governments to better engage with tech startups and SMEs. The rationale for drawing in these types of firms is that they can deliver more innovative solutions on digital government than traditional or incumbent vendors could alone. These firms would be more likely to find more creative ways to advance digital government. Governments also may see engaging such firms as one element of a wider strategy to promote digital economy development. SMEs often make up the majority of employment, and start-ups are seen as a major engine for innovation and future growth. This is increasingly seen as critical for economic growth in countries around the world. Improving the enabling business environment for both start-ups and SMEs through digital government has emerged an important pillar in Singapore's GovTech strategy (see Infocomm Media Development Authority 2020). These types of firms may not be appropriate for all types of digital government support,

given their resource constraints, which may limit the scale of what they can provide and also their ability to handle government purchasing timelines. However, if they are engaged under effective procurement and partnership arrangements, start-ups and SMEs can provide sources of more agile and innovative digital government support for both national and subnational governments. Seeing where these firms fit also requires a systematic look at whether existing “legacy” vendors are providing value and innovation for digital government development.

94. Governments may enable and benefit from technology startups and SMEs in the digital economy through direct public purchasing. Procuring from startups and SMEs may benefit governments through more innovative technology products that take advantage of the niche capabilities of the smaller players, while providing market opportunities for the companies to grow and contribute to broader economic development. In some cases, governments may directly purchase from startups. For example, Canada’s 2018 program called Startup Solution Canada awards pre-commercial procurement awards of C\$100 million in challenge-based contracts (Hugill and Puvinathan 2019). The UK Digital Marketplace is a digital platform approach to draw in vendors to the public sector. Indeed, startups’ demand for recurring revenue makes governments attractive customers (Orazem, Mallory, Schlueter, and Werfel 2017). A number of reforms to public procurement, such as increasing the information about the bidding process, streamlining procurement processes to reduce their complexity, and the time it takes to provide payments to suppliers, as well as providing room for innovative solutions through defining the problem rather than the solution in the request for proposals, are ways to make this direct procurement channel feasible for startups and SMEs (Filer 2019).

95. When direct purchasing is not feasible for startups and SMEs, given resource constraints, subcontracting or partnership arrangements with larger corporate suppliers or through crowdsourcing/ open source collaboration may be possible. Given the short cash-flow cycle demands of startups and their limited resources, such direct purchasing is not always feasible given government payment timelines and their demands for scale.



Increasingly, however, corporates that are direct suppliers to governments are sourcing innovation from startups themselves. For example, the third-biggest technology contractor to the U.S. Government, Northrop Grumman, accesses innovations from startups through the Cync Program, which seeks to commercialize cyber technologies through scholarship programs for startups (Cync 2019), as well as through direct acquisitions (Crunchbase). This company case represents a broader open innovation trend seen in incumbent companies around the world to embrace disruptive technologies rather than be disrupted by them (Chestbrough 2006; Lakhani et al. 2013). Learning from these corporate incumbents, governments may benefit as “first followers” through partnering with or procuring innovative technologies directly from startups, or they may procure from corporates that themselves are sourcing innovation from

startups. Additionally, governments may crowdsource innovations from startups through third-party open source platforms, such as GitHub, or through their own open sourced platforms, such as OpenCerts in Singapore. Across 57 countries, 798 federal and local government agencies have github profiles that garner technical inputs from developers (including startups) around the world (GitHub, 2019).

96. Many governments are supporting ecosystems that enable technology startups and SMEs to grow and benefit the digital economy. Such ecosystem support aims to expedite the creation of innovation ecosystems in the digital economy. These, in turn, are expected to bring broader benefits to countries' economic growth, as well as enable the growth of firms that may provide solutions to digital government in the future. Governments around the world are providing funding for startup-supporting organizations, whether they be technology parks, incubators, accelerators, or financing organizations. For example, Startup SG in Singapore sponsors programs for startups (to build capacity, networks, and fill financing gaps), investors, and accelerators/incubators (Startups SG, 2019). Poland Development Fund (PFR), Ventures, provides about US\$11 million to venture capital and angel investors to finance innovative startups in the country through a combination of public and private funds, while another part of the organization supports startups directly through incubator and accelerator programs. Digitalswitzerland, comprised of public and private stakeholders, provides bootcamps and financing support to startups in Switzerland or those seeking to invest in the country. For many of these programs, the goal is not to make government the ultimate funder of innovation, but rather to stimulate private sector investment to make these innovation ecosystems sustainable in the future (Filer, 2019). One reflection of the procurement channel is seen in a recent global index of AI Readiness, which captures whether "government purchasing decisions foster innovation", based on a World Economic Forum survey (Oxford Insights 2019:29).





6 Conclusion and Recommendations

97. Successful digital transformations are a continuous process that requires the alignment of incentives with financial and human investments. Once countries move beyond a certain threshold of connectivity and public digitization, the next level of digital transformation requires strong leadership, institutional adaptation, and the aligned leveraging of foundational and frontier technologies. The complexity and resource demands of this transformation—in terms of institutional, human and financial resources—means that countries in the middle of the road could easily continue muddling along on their digital trajectory without achieving any true transformation.

98. Digital government programs need to be anchored in robust results frameworks and continuous risk management. A growing number of studies have sought to quantify the benefits derived from eGov. In the Rep. of Korea, Seoul's Smart Waste program resulted in the elimination of waste overflow, an 83 percent reduction in waste collection costs and a 66 percent reduction in the frequency of waste collection (UN 2018:167). In the United Kingdom, Tell Us Once, a service enabling citizens to report births/deaths to the authorities, resulted in savings of US\$0.3 billion for the government and savings of US\$0.1 billion for citizens. At the same time, there is considerable evidence that eGov projects can fail to meet expectations, and also waste a significant amount of resources. These losses should be measured not only in terms of public expenditures, but rather the types of services and outcomes missed (cf Table

6 for illustrative metrics). Measures of success need to be actively applied not just to major projects, but particularly to any cross-cutting activity that may be hampered, as shown, for example, in annual risk reviews in the United Kingdom (IPA 2018).

Table 6. Example of results framework for eGovernment

Indicator	Baseline	Target	Data Source
Reduction in cost of eService delivery (e.g., paying taxes online)	x hours/days to collect taxes x US\$ to collect taxes	x% reduction in time and cost to collect taxes	Government-level collection International sources (e.g., Doing Business ; Benchmarking Public Procurement Data , UN E-Services Index , etc.)
Increase in number of people getting access to eServices	x% of the population have access to eServices	x percentage point increase in share of population with access to eServices	UN eParticipation Index
Increase in number of IT/GovTech-related startups/SMEs and their innovations	X number of IT/ GovTechrelated new business registrations for startups/ SMEs X number of IT/ GovTechrelated patent applications submitted	x % increase in number of IT/GovTech-related new business registrations x% increase in IT patent applications submitted	World Bank new business registration indicator Crunchbase data on new startup founding
Increase in people employed in IT/ GovTech-related jobs and/or who possess those skills; increase in average wages	X number of people employed in IT/ GovTech-related fields X number of people with digital skills US\$X average wage	x% increase in number of people employed in IT/ GovTech-related fields x% increase in average wages	National employment data World Economic Forum Competitiveness Index sub-scores for digital skills

99. The transition from emerging to leading digital government will increasingly demand execution on both a whole-of-government and modular platform and a shared-services approach. As digital government becomes a core part of the way government works, this means taking seriously such concepts as digital first, a single source of truth for digital datasets, and the use of collaborative online platforms. At one level, this would be measured in individual projects that did not deliver on expectations (and wasted public resources). But more importantly, without a whole-of-government approach, middle-of-the-road countries such as Vietnam will miss the opportunities that true digital government and economic transformations currently afford, as well as the costs of falling behind the curve. As the commercial sector has shown, digital platforms—and the data associated with them—when successful can create significant value to the private sector and consumers. Their value grows as more users access the service, and can be easily scalable to demand (e.g., by leveraging cloud services). However, the public sector also needs to carefully assess that centralized sources casting themselves as platforms do not serve to capture

significant resources or data assets. KPI design, and platform operator accountabilities, wherever they sit, will need to be continually evaluated for value through a whole-of-government lens.

100. Digital government needs to be implemented as a cross-cutting aspect of mainstream public sector administration reforms. To succeed, countries such as Vietnam must move beyond the procedural creation of systems and reporting, and drive new frontiers in business intelligence, such as AI. But AI must be able to draw on “digital data fuel,” which places a growing emphasis on both being able to leverage these data resources through effective platforms and also putting in place safe and secure practices to manage this process. Vietnam needs to increasingly see digital data as an asset. This means being clearer about where key digital assets need to be both improved and better managed to deliver on the digital government vision. Like all increasingly digitizing governments, Vietnam’s authorities need to refine their strategy for digital Public Asset Governance (PAG). One dimension of this may center on open data (see Andreasson et. al. 2019). Perhaps even more vital for digital government is better managing how key data are both shared and protected as part of how government works.

101. Credible communications are integral to sustaining digital transformations. While there may be some debate over global comparative metrics of digital transformations, ultimately real digital transformation returns will be measured by what is achieved at the country level. This is also how reputations of government leaders will be built or lost. To successfully manage the digital transformation process, leaders will need to be able to set and deliver on tangible outcomes. The minority ingredient of this success will be technology, while the bulk will depend on “soft investments”—putting political, human, and financial capital in the right place at the right time. Beyond building critical mass and delivery muscle, communicating the short-, medium- and longer-term benefits of digital transformation efforts in a way that resonates with local constituencies will be critical. In addition to putting in place the priorities and resources that deliver on substance, governments need to make sure that success is clearly defined in terms of concrete milestones and that open communication strategies are pursued to ensure that results do not get lost in translation with respect to the wider constituency of citizens, businesses, and officials.

102. While Vietnam’s 2021–25 five-year development plan provides an excellent opportunity to move to a more results-based program approach to realizing digital government transformation, this can only be achieved through institutional reforms and adequate financial resources. Key initial initiatives and achievements during the current program have highlighted the strong recognition among national and subnational leaders of the importance of advancing digital transformation. However, significant unfinished business remains across a number of key areas (Table 4). The journey to a truly “digitally native” government will still require significant change management and well-targeted investments.¹⁷ But most government officials and the wider population face the journey of digital migrants: how to become familiar and comfortable with digital processes and benefits, rather than experience them as veneers over traditional ways of doing things. Given Vietnam’s decentralized context, city and provincial governments are likely to be important leaders in realizing digital government innovation and transformation. However, central government will need to make immediate headway in completing key national registries, such as for citizens and land, and enabling other public agencies and local governments to harness the potential of these centralized digital systems. Our global review suggests that a number of institutional reforms will be critical in realizing tangible benefits from digital government in Vietnam, along with adequate resourcing.

¹⁷ “Digital natives” refers to the new generations that have grown up with digital rather than paper-based experiences, and their expectations.

Digital Government Transformation Beyond COVID-19

103. The COVID-19 pandemic has increased the global demand for modernizing public services, decision support, government business continuity, as well as strengthened citizen and business engagement through on-line channels. While Vietnam has weathered the COVID-19 pandemic quite well, it has underscored the importance of maintaining business continuity and effectiveness even as many officials were disrupted from coming to their traditional places of work.

104. While there is a general sense that COVID-19 potential increased the demand for government digital transformation, there are also significant risks that this momentum could dissipate to business as usual practices. Lack of strategic prioritization, bureaucratic inertia, financing gaps, and barriers to responsive and responsible digital data sharing, legacy systems, and whole-of-government coordination failures could all see digital transformation opportunities and results fall short of expectations.

105. But the COVID-19 experience can also provide a point in time to overcome traditional orthodoxies to overcome how governments should work (see Deloitte 2020), and potentially overcome traditional barriers to change. This includes expectations to how services are provided, how digital data is shared and applied across government and the private sector, and the types of skill civil servants are expected to have in a set of pandemic new normals.

For Covid-19 and beyond, the government should prioritize and sequence three major actions for impactful digital government transformation across national and sub-national levels:

- (1) elaborate a digital government transformation program that shifts mindsets from inputs to data assets, change management and results
- (2) empower sub-national governments
- (3) build skills in government for digital transformation.

Elaborate a Digital Government Transformation Program

106. While the eGov resolution approved in early 2019 provided a renewed impetus toward deepening digital government in Vietnam, an adequate resourcing plan is required. The process has raised a greater awareness to the people, process and technology (PPT) platform aspects of strengthening digital government. This has included launching the eCabinet and eDocument platforms, advancing the Enterprise Architecture (EA) process, and the anticipated issuance of forward-looking legislation on datasharing and digital ID, as well as the launch of the National eServices Portal at the end of 2019. However, while the eGov resolution has set some targets, it lacks an adequate resourcing plan and a follow-through delivery mechanism to ensure that key elements of the digital government trajectory come together. The eGov Steering Committee is innovative in drawing in key players from the commercial/SOE sector, but does not provide longer-term modalities by which critical digital government initiatives as listed in the eGov resolution could be realized on a sustainable basis.

107. For the eGov resolution to be realized and for Vietnam to step on a firm path toward digital transformation, it is important that targets and key performance indicators be clearly set and monitored for both front-end and back-end systems. Clear commitments to specific digital dividends, in terms of increased digital enabled services to citizens and firms, can also drive the back-end business process re-engineering and seamless data exchanges. This results framework would serve to specify clearer financing programs, including in which areas to best engage the private sector. The 2021–25 Socio-

Economic Development Program (SEDP) now provides an excellent opportunity to set out a clearer and more comprehensive digital transformation program (DTP). Beyond the Steering Committee mechanism, the DTP could also serve to clarify the institutional roles and responsibilities by which it could be delivered. This includes ensuring that key authorities and skills are present in the public sector, as well as among citizens and businesses even as the private sector takes on a significant degree of the load to deliver on the program.

108. A key mindset change required for digital government to succeed will be a shift from an emphasis on inputs and systems toward digital government results. This will increasingly mean seeing digital data as a primary public sector asset, rather than focusing on systems development. The Bank's World Development Report of 2021 shows that significant value of data that can be derived across both the public and private sectors. It will also require a stronger focus on the development of platform systems that address the processes through which data are effectively and securely shared. Starting with key national registries, the litmus test will not be what IT systems have been deployed (a means to an end), but rather what data are being generated, applied, shared, and continually updated and improved. With the growing centrality of digital data as an asset, key measures will also need to be taken to ensure these assets and the interests of key stakeholders are being adequately protected. Cybersecurity and data privacy regulations are an important part of this. The starting point will be to clarify the key digital assets being utilized across government, including in such emerging richer areas as geospatial data. Each data asset should be associated with a primary data owner and steward. Shared obligations would be to ensure that particular data are fit for purpose and accessible to realize priority service delivery, decision-making and citizen engagement results. These metrics can be elaborated on in the GTP results framework, along with the due diligence measures taken to address the protect dimension. Leading digital government practitioners realize that in a digital age no data are completely secure from data breaches. However, the way to address this is to put in place strong digital data-resilience and risk-management strategies. If breaches do occur, they will need to be addressed early. This again echoes the need to build strong institutional delivery mechanisms across national and subnational governments. Regardless of where they sit in government, digital government results will require a strong mix of learning by doing for delivering results and instituting a balance of risk-management frameworks and practices.

Empower and Incentivize Subnational Governments to Continue Innovating in Terms of Digital Government

109. The high degree of decentralization in Vietnam means that leading provinces are likely to drive some of the most tangible progress and innovations in digital services, decision-making and citizen engagement. In particular, wealthier provinces also have the capacity to make significant investments in strengthening digital government. The central government clearly has a role to play in setting a strong enabling policy framework, setting a reference EA framework, and providing some shared services infrastructure. The central government could also encourage provincial governments to embrace new disruptive or smart technology trends, such as Internet of Things (IoT) and Artificial Intelligence (AI), even if they have not been covered in the existing reference framework. At the same time, the central government should work to avoid digital divides or gaps relative to poorer and less dynamic provincial governments. Peer exchanges, as well as different inter-government incentives, including some financing, could encourage these developments. But above all, the most significant critical mass for digital government will come when key cities and provinces take digital innovation forward in practice. The central government should provide enough space and encouragement to more advanced localities and also ensure that their experience translates into a wider impetus and set of digital platforms for

other provinces. Specific areas would be to urge all national agencies to encourage recognition of digital workflows, as having a clear plan of communications with the National Assembly to flag pinch-points for digital transformation. Development partners can also work with interested provinces to assist in developing applications, e.g., for disruptive technologies, set against a broader national vision of implementation.

Retaining and Investing in Skills for Digital Transformation

110. Sustained skills retention and development are integral to digital transformation. The continued pace of technological development means that skills both inside and outside government need to be continually upgraded. Enterprises that trade on stale technologies are likely to rapidly become casualties of the market unless they adapt. But governments also need to be careful not to become locked into yesterday's technologies, as this over time will come at a high cost. Open source frameworks (see Box 10) and methods of collaboration are examples of new ways of doing things that have been found to work for the blue-chip commercial tech sector. Within government, this means securing adequate capabilities to manage both the business and technical sides of the digital government transformation program. It also means that the wider bureaucracy cadre needs to be given continued opportunities to improve their digital skills. The focus on learning is important not just to enable officials to do their jobs in more modern ways, but also to give them a stake in modernizing the way government works. Wider efforts to build digital skills and literacy across all levels of society are likely to represent investments that can produce strong results. Ideally, government officials will be intrigued to find that such topics as big data and AI are becoming part of the curriculum of their own children. This will be perhaps one of the clearest signals that not only digital hard, but above all soft skills will be vital to the inter-dependent success of both digital government and economy in Vietnam.



111. The government of Vietnam currently does not operate major regular programs for strengthening digital skills on a continuous basis in the civil service. Data on civil service employment is fragmented across national and sub-national levels of government. Since there is no integrated data system on sanctioned and filled positions, this also means that more nuanced data concerning digital government/

IT skills, or insights into continued skills development. The lack of data also does not allow us to assess if digital government/IT related positions are less likely to get filled due to skills shortages, or the inability to attract skills relative to the private sector.

112. In July 2020, the MIC conducted a 2 days training for 100 key digital transformation experts from ministries, provinces and SOEs. This was one of the first courses of this kind. The present design was limited to introducing prevailing regulations and policy on IT application, and to set out processes and guidance on how to prepare an IT project under current regulation. Since there was no preparation budget provided for this offering, the organizers could not prepare dedicated training materials. A second offering of this course may be offered over the coming year. However, lack of funding will mean that the training methodology will remain the same. The existing training methodology by MIC officers could benefit from a clearer objective and sense of the specific skill/knowledge/capability to be trained to the attendees. The MIC is planning for a training program for digital transformation for 2021 which will provide the digital transformation capability building to the government and public sector. The curriculum is still being reviewed. Initial indications suggest that this offering will be co-financed by the government and private sector.

113. In strengthening these offerings, the Vietnamese authorities should learn from the different modalities for continuous digital government learning pursued by countries ranging from Israel to Singapore. Beyond traditional one off lecture or workshops formats, these involve on-going learning on the job and an effort to elicit innovation suggestions by engaged civil servants. The COVID-19 pandemic has also highlighted the importance and flexibility of on-line learning mechanisms. These could include on-demand topics (e.g., cybersecurity, data sharing, FinTech, etc.). To better target these programs, the government should consider orienting more programs towards a competency framework for human resource (HR) development to support digital transformation. This would allow training to more clearly achieve their objectives, ensuring that each training will equip a specific skill, knowledge, technique in alignment with the need for digital transformation journey of the government.

Box 10. Open Source Platforms and Solutions

While the term “open source” is sometimes still dismissed as referring to free software, it has become a major aspect of the way applications are developed, maintained, and improved in the public sector. Different terms such as open data, open standards, and open source are often conflated (see Miglarese 2019), leading to lack of clarity about the role each dimension can play in advancing digital government transformation in advanced and emerging economies.

The term “open source” refers to intellectual property (traditionally software) that can be freely accessed, modified, and combined by different parties, while adhering to a range of licensing and disclosure commitments. But more fundamentally, it has come to define a set of practices for innovation and collaboration. Today, technology companies, software developers, and governments around the world are active participants on open source, particularly enabled by the emergence of platforms, such as Github, that aggregate major open source projects in one place, reducing costs to collaboration on and exploration of software innovations. In reality, many software products use open source inputs, though they may add a proprietary layer to commercial additions made to the product. The largest technology players are active participants. For example, in the past few years, Microsoft and IBM have acquired two of the largest open source platforms, GitHub and Red Hat, respectively.

In the context of GovTech, open source typically refers to software programs, algorithms and key “stack” services used in digital government processes (e.g., Linux operating system, Google’s Tensorflow framework for machine learning). Beyond intellectual property, through its modular and community-driven nature, open source provides flexibility, agility, and transparency to government systems, reducing the risk of vendor lock-in, lowering costs and enabling recruitment and retention of human capital in government. At the same time, open source supports the growth of the community of developers, who provide positive spillovers to the digital economy and induce a culture of merit-based collaboration. The example of Singapore’s GovTech, which has rapidly expanded its inhouse development and innovation capabilities since its establishment in 2016, highlights the importance of these more forward-looking collaborative ecosystems for digital government development.

Recourse to open source can benefit both external (client government, private, and civil society) and internal (WBG) stakeholders. It may (i) reduce time and money costs of digital government by avoiding duplicative or vendorlocked code utilization and providing access to the frontier of innovative applications; (ii) better harness digital innovations by supporting private/civil society communities for public sector services and decision-making; and (iii) leverage cloud-based platforms and collaborations within and across WBG clients (including for the growing field of applied big data analytics and visualizations/AI empowered applications) to improve transparency, efficiency, and participation within the Bank; (iv) attract and help retain technical and community-driven human capital in government; and (v.) induce a collaborative culture in government transcending agency silos.

Issues

For WBG clients and task-teams, there may be a number of barriers and risks to realizing the benefits of open source use in digital government and within the Bank itself: (i) applications may fail to be mainstreamed in terms of linkages with “mainstream” government digital systems (e.g., IFMIS) owing to a host of concerns (data sharing, security, vested interests); (ii) the code base may not be adequately supported by communities or private sector if the creation of apps is simply “contracted out” (boutique/orphan applications); (iii) Bank staff perceive open source more as static intellectual property (“free software”), rather than a dynamic set of incentive alignments across global, national, and local digital economy players and technology trends (platforms, cloud services, etc.); and (iv) Bank staff/client government representatives lack the human capital/skills to harness and mainstream open source, given the lack of comprehensive documentation on open source platforms. A further challenge may be that open source software solutions are applied in a fragmented and silo-based manner, with inadequate attention to building more scalable, sustainable, and cost-effective GovTech solutions across governments (ITU 2019).

Use of open source such as U.S. Code.gov opens the federal custom-developed source code for sharing and re-use across federal agencies and opens at least 20 percent of federal custom source code to the public: <https://code.gov/about/overview/introduction>.

Singapore GovTech has prioritized open source under the rationale of wanting to tap into the ecosystem of experts in the open source community to co-develop technical solutions. Source: Authors.

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