Skills Framework

Draft V2.3

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1. Preamble

The rapid urbanisation in Vietnam has increased the demand for infrastructure, but poor planning and zoning implementation have exposed infrastructure investments to risks from disasters and climate change. Insufficient and untimely maintenance also reduces the quality of public infrastructure service delivery, and the durability and longevity of the underlying assets. The traditional fragmented and paper-based approaches to public asset governance, together with institutional siloing, fail to address these problems as they hinder the integration of asset information for data-driven decision-making. While Vietnam's cities and provinces are rapidly realising digital government transformation to improve public asset governance, the focus is often on IT and technology investments.

Desired breakthroughs and results from digital government transformation require effectively addressing a set of complex behavioral, cultural, and institutional issues that are associated with the 'people' and the 'process' bottlenecks. Investments in the 'people' dimension include equipping subnational government officials with a minimal level of foundational and functional digital era skills, improving the awareness and appreciation for data-driven decision making, and building a culture of applying data and digital technologies across the government for better public asset outcomes (services, resilience, efficient and equitable public resource prioritisation).

The World Bank's Disruptive Technologies for Public Assets Governance (DT4PAG) program helps to address the aforementioned innovation frictions in public asset governance in provincial governments and promote successful digital government transformation through the complementary 'people' - 'process' - 'technology' pillars. The Digital Government Academy (DGA) is a key instrument to achieving the program's objectives under the 'people' pillar by means of training programs that equip provincial government leaders and officials with foundational and functional skills to address PAG challenges with the help of technology platforms and data innovations.

The context-relevant skill framework presented in this report is a stepping stone in shaping the DGA's training curriculum that provides provincial governments' leaders and officials in Vietnam with the skills and knowledge to tackle digital challenges in public asset governance.

The report targets the following groups of audience.

❖ Leaders in provincial governments. For DGA's training purposes, provincial government leaders include the Chairperson or Vice-Chairpersons of the province's People's Committee, and the Director of relevant departments. Considering the scope of the public asset governance priorities in DT4PAG, these departments include the Department of Natural Resources and Environment, the Department of Construction, the Department of Transportation, the Department of Information and Communication, and the Department of Finance.

❖ Mid-level management officials in provincial governments. For DGA's training purposes, they include the Deputy-Directors and lower ranking management officials in the aforementioned departments.

❖ Institutions and individuals working on capacity building projects for government digital transformation initiatives.

2. Skills framework for Digital Government Academy

Digital skills and competencies frameworks provide a structured approach to understanding and developing the diverse range of digital skill sets required for various roles in the digital age. Recognizing the critical role of digital capacity building in the public sector, numerous frameworks have been developed to guide the design of training and assessments for public sector officials.

With respect to terminologies, the "Digital Competence Framework for Citizens - Digcomp 2.2" defined competencies as "a combination of knowledge, skills and attitudes" [1]. Such a distinction of skills and competencies was less clear in other frameworks. In this report, for simplicity and consistency, we refer to the framework that helps design DGA's training and assessments as the skills framework.

The DGA skills framework was developed based on (i) the review of digital competencies frameworks that were developed by worldwide institutions [1-5] and (ii) the analyses of their alignment to the DT4PAG's objectives in addressing the 'people' related innovation frictions for public asset governance in Vietnam.
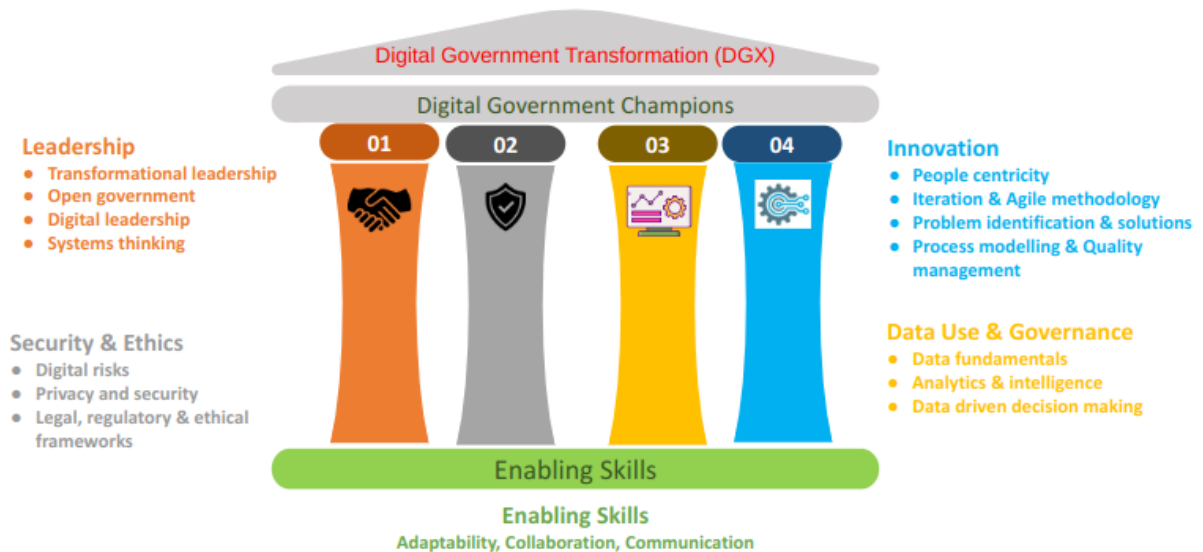

Figure 1. Pillars of the skills framework for Digital Government Academy

The skills framework is structured around 4 pillars, namely Leadership, Innovation, Data Use & Governance and Security & Ethics, and a set of enabling skills as demonstrated in Figure 1.

While the four pillars of the skill framework apply to both government leaders (participants in the ELP) and government officials (participants in the MLP), the former group will need skills that serve strategic planning exercises, which are described in Section 2.2. The latter group will need skills that help them to implement and operationalise those strategies, which are described in Section 2.3.

The enabling skills, the skills for government leaders, and the skills for government officials that are presented in Sections 2.1, 2.2, and 2.3, respectively, were curated, in consideration of the Vietnam's context, from the "Skills and Competency Framework" for the UK's National Digital Twin Programme [2], the UNESCO's report titled "Artificial Intelligence and Digital Transformation - Competencies for Civil Servants" [3], and the competencies for digital era public leaders proposed by the "Teaching Public Service in the Digital Age" [4].

2.1   Enabling Skills

These are soft-skills that support government leaders and officials in effectively exercising the core skills in the four pillars of government digital transformation.

Communication (in the context of data and digital transformation) includes (i) listening effectively to others (within and external to one's organisation) to understand data needs and challenges, and (ii) advocating for better data and information management practices to secure commitment (to data management and improved quality) across the organisation. [2]

Collaboration (in the context of data and digital transformation) is first and foremost about overcoming protectionism, identifying relevant partners, and building trust among partners to maximise the value of shared data and resources. It is also about recognising the broader benefits of data interoperability, and co-creating solutions or services, especially considering the interdisciplinary nature of digital transformation initiatives. [2]

Adaptability means the ability of government officials and leaders to adapt quickly to respond to the changing and diverse needs of the citizens on public services, and also to the even faster changing of technologies [2, 3]. More specifically, they should be able to

❖   be open to learning and change, develop the ability to adapt quickly and persevere in responding to challenges.

❖   be flexible in the implementation of a project or a policy by questioning the existing methods, processes and regulations.

❖   be resilient to setbacks that are likely to happen with digital transformation initiatives.

2.2   Executive Leadership Skills

2.2.1   Leadership Pillar

Why do provincial government leaders need skills in leadership?

- Government leaders must proactively address rapid technological changes and uncertainties, embracing experimentation and stress-testing strategies to ensure future readiness. Cultivating a culture of foresight requires a shift towards knowledge capture, transfer, and anticipatory thinking across all levels of public administration. [3]
- Reconciling digital-era practices with traditional government procedures is essential. Differences in approaches, such as project planning between finance and software teams, need to be anticipated and resolved to ensure effective stakeholder service and interdepartmental collaboration. [4]
- Creating modern digital public services demands complex multidisciplinary teams with diverse skills, spanning legal, technical, design, policy, and management expertise. These teams often face challenges due to traditional silos and limited collaboration across government units. Public service leaders must anticipate and address these difficulties to effectively utilize multidisciplinary teams for digital policy and service delivery solutions. [4]
- Open government data portals enhance data-driven decision-making and foster public trust. They promote public ownership and utilization of data for improved governance and citizen engagement. However, digital advancements also introduce risks to openness and accountability, such as data loss, accidental disclosure of sensitive information, and biases in open-source and crowdsourced initiatives. [3]
- In a rapidly evolving technological landscape, government leaders must develop the ability to discern impactful innovations from those of lesser relevance. As technology choices play a critical role in the success of government projects, leaders must make informed decisions and be accountable for their choices, rather than relying solely on expert opinions. Successful digital transformation requires that government leaders create a structured yet flexible work environment that fosters experimentation and a culture aligned with an inspiring vision. [4]

What skills do they need?

Transformational leadership	
Awareness	- recognising the patterns and trends of digital transformation, and understanding its strategic drivers to informing decision-making. - harnessing the opportunities to enhance government operations, public services, and policy making while effectively navigating structural and institutional barriers. - recognising the importance of integrating traditional public service expertise with modern digital skills, and effectively collaborating with and leading multidisciplinary teams.

Open government

Awareness	- Ensuring data ownership and transparency, creating open data mechanisms and standards while protecting privacy, and using technology to make the government more open, collaborative and accountable.

Digital leadership	
Awareness	- creating and nurturing a user-driven service vision by empowering teams in the government and creating enough room for members to take initiative, test and experiment with a common vision. - knowledge of the current and evolving affordances of digital technologies and assessing how they can be used to meet users' needs and improve public outcomes.

2.2.2 Data Use Pillar

Why do provincial government leaders need skills in data use?

- Data-driven insights and computational algorithms offer innovative solutions for complex problems and service delivery, propelling data to the heart of digital transformation in governments. [3]
- Traditionally, public service leaders have relied on statistical and economic skills. However, the emergence of diverse data sources and specialized data analysts poses new challenges. Leaders must effectively assess and deploy the appropriate technology and data skills to address specific needs. [4]

What skills do they need?

Data driven decision making	
Awareness	- able to decide the skills needed (and when they are needed) for different data tasks, including but not limited to acquiring, structuring, governing, and analysing data. - understanding, interpreting and using data and analytics results appropriately to define problems, inform decisions, design and run services, promote evidence-led policy-making, and create public value inside and outside - promoting and nurturing a data culture in the organisation. - aware that the way digital systems are designed, governed and operated can impact the usability and interoperability of data. - aware of and able to devise solutions to problems related to open data and data sharing between government agencies.

2.2.3 Innovation Pillar

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Why do provincial government leaders need skills in innovation?

- Inefficiently designed public services can lead to feelings of disrespect and frustration among citizens. Examples include unclear application procedures and repeated requests for documentation. Such shortcomings often stem from outdated systems and policies that hinder improvement efforts. A government's success should not be measured solely by target achievement but also by the quality of citizen experience. [4]
- Traditional government projects have relied on detailed upfront planning, but the dynamic nature of digital public services demands a different approach. Agile project management, with its iterative prototyping and user testing, is better suited to address the complexities arising from evolving user needs and rapid technology advancements. [4]

What skills do they need?

People centricity	
Awareness	- understanding of the steps in designing user-centred public services, from investing time and effort to collect information on users' needs, designing and testing prototypes, to evaluating users' experience and iteratively improving the services' quality.

Iteration	
Awareness	- understanding the advantages and disadvantages of different types of project management and being able to select the appropriate type/method for a given project. - able to manage and nurture an iterative working culture by creating a supportive, trusting and evidence-based environment that welcomes diverse and new ideas.

2.2.4   Security & Ethics Pillar

Why do provincial government leaders need skills in security and ethics?

While technologies have made governments more efficient and effective, they also pose new risks to governments and the public, such as data breaches, misuse of personal data, and disinformation, which can undermine trust in public institutions. [4]

What skills do they need?

Digital risks mitigation

Awareness	- be aware of the unique privacy, security, and ethical risks associated with using digital systems, which may come from both the systems themselves and from human error; able to consult experts where required, and able to evaluate the trustworthiness and comprehensiveness of their advice.

2.3   Management Leadership Skills

2.3.1   Leadership Pillar

Why do provincial government management officials need skills in leadership?

The interconnected nature of complex problems demands a systems-thinking approach and a leadership mindset from all civil servants to (i) take the initiative in gaining a full understanding of the nature of the problems (by engaging with internal and external partners), (ii) effectively address non-linear challenges associated with the problems, and (iii) consider the diverse impacts the problems and their solutions may have on stakeholders. [3]

What skills do they need and how are they measured?

Systems thinking	
- understanding that problems and their solutions are interconnected; solving one problem may affect other elements in the system, thus solution development needs to look out for these ripple effects.	
Basic level	- be aware that government problems are complex and interdependent.
Intermediate level	- develop a comprehensive understanding of government problems by integrating information from a variety of sources and stakeholders.
Advanced level	- understand the government's envisioned direction and the complex impacts that changes may have on the government's officials, processes, and structures. - foster systems thinking and be able to apply systems thinking in policy and project interventions

2.3.2   Data Use Pillar

Why do provincial government management officials need skills in data use?

Ensuring data quality and a good background understanding of techniques that extract information from data are imperative in building trust and transparency in data, which in turn enables and nurtures data-driven decision making culture at all levels. [2]

What skills do they need and how are they measured?

Data fundamentals	
- creating, monitoring, evaluating, and communicating data in context. - specifying quality requirements needed of data being produced and analysed, recognising and articulating how to generate value and make decisions with it.	
Basic level	- understand the value of data, the different data types and data sources, and be able to use established methods to manage (collect, store, share, publish) data. - be aware of data quality required for analysis and decision making.
Intermediate level	- be able to effectively articulate the value of data to others, and able to effectively manage (collect, store, share, publish) data of different types. - define requirements of data quality to suitably support analyses and decision making.
Advanced level	- guide others in collecting and managing different data types from different sources; promote the data sharing and open data culture. - work with others to build a common understanding of the quality requirements for a data collection or analysis task for improved decision-making.

Analytics and intelligence	
- structuring and analysing data using statistical analysis and other data science methods to inform data comprehension. - Using visualisation and sense-making techniques to improve data interpretation and aid decision-making.	
Basic level	- be aware of methods to manipulate and analyse data, able to do simple data manipulation and analyses (e.g. extrapolation and regression). - be aware of common tools for data visualisation and reporting.
Intermediate level	- be able to apply data modelling techniques, data ethics principles and statistical methods to transform and analyse data across different data sets. - be able to use suitable visualisation tools to draw insight from data.
Advanced level	- apply practical and ethical methods to design and/or enhance algorithms that transform and analyse large and multiple datasets to best support decision making. - be able to use different visualisation and reporting tools to truthfully and effectively draw and communicate insight from data.

2.3.3 Innovation Pillar

Why do provincial government management officials need skills in innovation?

- Success stories in public services and policies demonstrate the needs of civil servants to understand problems well before developing solutions.
- Complex and unpredictable challenges in the public sector necessitate a flexible vision that can adapt to changes during implementation. Agile methods enable early anticipation of changes and rapid adjustments, leading to faster delivery of high-quality services and policies. Collaboration, adaptability, and flexibility are crucial for implementing digital transformation projects, allowing for continuous testing and refinement of public services with diverse users.
- Public service design has evolved from understanding needs to co-creating solutions with citizens, enhancing responsiveness and effectiveness.
- Old, outdated processes impede efficiency, optimized use of resources and citizen experiences. Government officials need to question the status quo and explore new ways of delivering services, new business models to co-create solutions and streamline processes.

What skills do they need and how are they measured?

Problem identification and solutions - profound understanding of the problem, including its root cause, and being aware of the need and able to incorporate the perspectives of users and people having first account knowledge and experience of the problem. - applying critical thinking in developing and implementing solutions.	
Basic level	- be aware that solutions to a given problem may affect different stakeholders, including current and future users, of the solutions. - be aware that a problem may comprise smaller problems and that there may be different approaches to developing solutions.
Intermediate level	- use simple techniques to diagnose, investigate root causes of problems, and devise effective solutions for the problems. - be aware of the potential of emerging digital technologies and data can be part of the solutions.
Advanced level	- be able to effectively apply approaches and tools and coach team members to investigate and identify root causes of a problem - apply ideation tools to explore solutions and examine how emerging digital technologies and data can be part of the solutions.

Iteration and Agile methodology
- understanding, using, and applying agile management to adapt rapidly during implementation of projects and initiatives in response to unexpected changes while having long-term visions for them.
- collaborating effectively with partners both internal and external to the organisation by navigating organisational structures and, where possible, streamlining processes to focus on outcomes rather than adhering to conventional practices and procedures.
- applying incremental and rapid approaches in piloting solutions to improve the currently available products and services.
- nurturing a culture that allows for mistakes and learns from them.

Basic level	- understand that for effective digital transformation, flexible and adaptable management and organisational practices need to be adopted by the organisation, including effective communication and collaboration with internal and external partners (e.g. procurements and budgeting) - understand the importance of iteration and rapid feedback loops – allowing new ideas to be tested on a small scale before reaching a wider level of implementation – and the importance of incremental development approaches, where each stage of a project builds on the preceding one. - understand how prototypes can be used to bring abstract ideas to life, and provide a tangible example of how something might or might not work in practice.
Intermediate level	- Recognise the distinct characteristics of traditional planning (waterfall) and agile planning, and understanding when to employ each approach effectively. Agile planning necessitates a more flexible and adaptable working style across departments and functions. - Leverage agile management techniques to decompose large digital projects into smaller, more manageable tasks, executed in iterative cycles throughout the project lifecycle, while ensuring that projects receive adequate time and resources for testing and evaluation at each stage. - Apply agile techniques whenever feasible during project execution, including organising and/or participating in basic agile management events (e.g. daily standups, sprint reviews), and using simple agile techniques (e.g. time-boxing, retrospectives, and product backlogs) to effectively manage workload. - develop prototypes to conduct small-scale experiments of new ideas and/or to visualise products and services, which help to identify and device improvements.
Advanced level	- fully understand the implications of adopting the agile management approach to the organisational structure and work processes (e.g. for procurement and budgeting) to be focused on outcomes, not functions. - effectively apply and adapt a range of agile management techniques (e.g., sprint planning, daily stand-ups, sprint reviews, retrospectives) and suitably

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	leverage the expertise of agile coaches to help teams to prioritise outcomes over processes, build and nurture agile approaches in the organisation. - use iterative project management methodologies to allow small-scale testing of several different approaches; develop prototypes and apply testing methods (e.g. A/B testing or randomised control trials) on users to collect evidence and insight for improvements.

People centricity - placing people's needs and experience (including access, responsiveness and quality of service) at the centre of public services and policies development - designing digital public policies and technologies that consider the public and private experience and needs of people, including citizens and public servants.	
Basic level	- understand that the needs and feedback of users for a public service must be researched and gathered from users themselves, not by assuming them.
Intermediate level	- be able to conduct user research and testing to gather, analyze, validate and prioritize users' needs; testing services to assess how well they meet needs - use different methods to record (images, videos, and written notes by users) users inputs and to communicate the user research's findings. - continuously align project progress with identified user needs to ensure ongoing satisfaction.
Advanced level	- continuously consider new user needs (by regularly testing, revalidating and identifying) throughout every stage from the design, development and delivery of the project, ensuring co-ownership of the output. - interact and work with specialists in related fields to design systems and services that are people-centred while delivering desired policy outcomes.

Process modelling and quality management - Understanding the relationship between process modelling and data quality to inform information requirements and data quality improvements. - Contributing to a quality improvement culture that centres around trust and transparency of processes and the associated data (in terms of its value and integrity for decision-making).	
Basic level	- define the principles of process modelling including the 'as-is' and 'to-be' states and how this is presented using workflow design - know what good data looks like from data quality dimensions (e.g. completeness, uniqueness, consistency, accuracy, timely, validity).

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Intermediate level	- Apply the principles of process modelling and workflow design to create business process artifacts that show events, actions, connection points of a process, and the relation between data inputs and outputs along the process. - Know what data is required for certain decisions to be made, where the data is generated along the processes, and be able to evaluate the data quality using the data quality dimensions.
Advanced level	- Demonstrate the ability to model cross-functional processes, emphasising quality control for data inputs and outputs, pinpointing process and data quality issues, and the rationale for process (re)design. - Contribute to the process re-engineering based on the data quality requirements (as a result of business needs), and the governance and compliance procedures.

2.3.4 Security & Ethics Pillar

Why do provincial government management officials need skills in security and ethics?

- Effective public services and policies rely on data, including personal information, raising concerns about privacy and the balance between individual rights and collective well-being.
- Digital technologies challenge existing legal, regulatory, and ethical frameworks, necessitating revisions to address emerging innovations.

What skills do they need and how are they measured?

Privacy and security - being aware of concerns and threats around privacy and security. - adhering to government policies on managing information shared online to ensure privacy and security. - contributing to the design of government strategies and policies to address privacy and security concerns. - ability to make informed decisions about data (e.g. sharing data within governments) that ensure data integrity and interoperability while adhering to data privacy and related regulations.	
Basic level	- recognise the risks of privacy and security issues and threats, the difference between them, and how strengthening privacy and security measures can enhance the use of personal data and deliver better public services. - adhere to and implement government-mandated digital security protocols to safeguard public administration operations. - understand privacy principles and data minimisation (collecting minimal personal information that is necessary to accomplish a given purpose.)

Intermediate level	- able to efficiently and effectively make use of available data and adopt the least intrusive approach to improve public services while respecting privacy and security concerns - comply with privacy and data protections regulations
Advanced level	- follow the protocols and regulations in detecting and reporting cyber- and data-related incidents. - understand laws and regulations that protect data privacy and security - ensure there is as much transparency and consultation in the policy-making process as possible where data is used or shared to deliver digital public services without the consent of the individual, to balance between individual rights and the wider public interest.

Legal and ethical frameworks - ability to assess whether a digital transformation initiative aligns with existing human-rights standards and legal frameworks, and identify potential gaps requiring legislative action. - devising and implementing legal and ethical frameworks that account for the impact of digital technologies on societies.	
Basic level	- be aware of the need to consult existing laws and regulations when integrating digital technologies in the public sector
Intermediate level	- be aware of the legal implications of digital technologies, and anticipate scenarios in which current legislation may need revision.
Advanced level	- determining the need for new or revised regulations, or considering the possibility of no regulation. - evaluating whether a tech legislation requires a permissive or precautionary approach.

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