

AI and Digital Transformation Competencies for Civil Servants

UNESCO Communication and Information Sector

Abstract

The AI and Digital Transformation Competency Framework is designed to inform digital capacity building initiatives in government. The framework outlines competencies that civil servants need to enable digital transformation and digital governance. Challenges, such as work cultures averse to experimentation and innovation, lack of IT infrastructure investment and low investment in digital skills, impede government institutions from embarking on their digital transformation journey. This framework offers three competency domains with several nested competencies and nine recommendations to assist countries in overcoming these barriers and seizing the opportunities of digital transformation.

Introduction

Digital transformations are continuously changing the way people live, work and interact in society. The rapid development and use of information and communication technologies are also impacting how governments function internally and engage with citizens.

Digital transformation has become one of the highest priorities for public organizations world-wide. Although governments are increasingly digitizing their services in response to growing public expectations, they are asked to do more to create an enabling environment in which a green and equitable digital transformation strengthens economies and societies.

However, studies have shown critical digital competency gaps in the public sector. It is therefore important to identify and address those digital transformation gaps so that the public sector can serve as a catalyst of change in digital age.

Opportunities of Digital Transformation in Government

Digital transformation can help strengthen societies by advancing the achievement of Sustainable Development Goals. For instance, Panama's National Authority for Government Innovation enhanced and harnessed digital governance to contribute towards a paperless justice system that reduced processing time by 96% (OECD, 2019). This strengthens the judicial institutes' capacities to provide justice and increases access to justice for Panamanian residents. This intervention contributes directly towards SDG 16: Peace, Justice and Strong Institutions.

Digital transformation in the public sector can also strengthen public services and governance. With digital technology and AI, policymakers can support the SDGs more easily and efficiently. For instance, with predictive analytics, the Flemish unemployment agency has digitalised and automated their job matching system (OECD, 2020). Job seekers can receive personalised job recommendations more swiftly, supporting them in their job search and fulfilling SDG 8: Decent Work and Economic Growth.

Challenges of Digital Transformation in Government

However, for digital transformation to succeed, governments need to change the way they lead and manage. Currently, they may be held back by the fear of failure, rigid hierarchical governance structures, and barriers, such as the lack of IT infrastructure and access to data. Also, civil servants' lack of digital skills can hamper the effective and coherent implementation of digital government policies. These digital competency gaps are especially prevalent in lower-middle income countries, as they tend to have lower-resource environments and lower availability of digital skills.

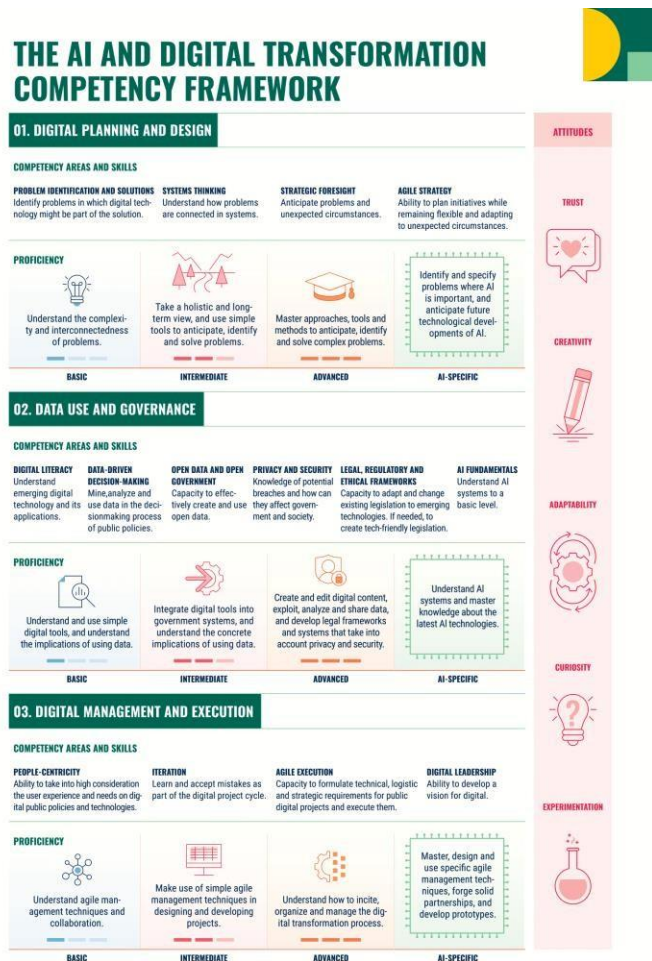
Competencies

To overcome these barriers and seize the opportunities of digital transformation, leaders in the public sector need to develop new competencies that equip them with skills to address the complex challenges of digital-era governance. These competencies include developing enabling frameworks, mitigating ethical and human rights-related risks, understanding the

development and use of digital platforms, and anticipating technological trends.

This competency framework identifies three key competency domains for policymakers in the digital age. They are: digital planning and design, data use and governance and digital management and execution. Figure 1 depicts the framework with its competencies, proficiency levels and cross-cutting attitudes.

Figure 1. The AI and Digital Transformation Competency Framework



Data source: [Authors](#)

Digital Planning and Design

For the first competency domain of digital planning and design, its competencies support the identification of problems faced by civil servants in digital transformation and the development of the vision for designing and implementing green and inclusive digital transformation policies or projects. It encourages the development of competencies related to problem

identification and solutions, systems thinking, strategic foresight and agile strategy.

Technological improvements are continuously changing the technology governance landscape. As an example, strategic foresight helps to anticipate and address rapid change and uncertainty, supports innovation by revealing options for experimentation, and helps in futureproofing by stress-testing existing or proposed strategies.

Competence in Strategic foresight involves:

- Developing dynamic policy recommendations, supported by data and understanding of the policies' impacts
- Spotting trends and patterns to understand and make decisions based on strategic drivers of the digital era
- Thinking laterally and applying learnings from other fields and geographies
- Being aware of current best solutions and the future developments of relevant AI tools
- Being able to draft contextualized AI strategies and action plans

For example, directors in government can use strategic foresight tools (i.e. scanning the horizon for emerging changes, analyzing megatrends, and developing multiple 'what-if' scenarios) to anticipate how key emerging technologies could develop, the effects they could have on all spheres of life, and how to seize upcoming opportunities. Policymakers working on an education policy can also use strategic foresight by identifying opportunities and threats that may arise in the coming years and decades, as well as possible strategies to deal with them.

Data Use and Governance

By 2025, worldwide data universe will grow to 163 ZB (zetabytes) and it is projected to double every 2 years. The availability of digitally generated data and the creation of computational algorithms to analyze this data will provide new ways of solving complex problems and delivering services. However, policymakers must be ready to use such technologies. A data-driven public sector (DDPS) recognizes that data is an asset, core and integral to policymaking, service delivery, organisational management, and innovation.

The second competency domain of data use and governance encourages civil servants to understand the fundamental role and value of data, as well as the inherent risks, and the ability to use, analyze and share data, taking into consideration ethical, privacy and security concerns. This domain is fundamental for civil servants to be able to address governance challenges and meet the public's growing expectations, while at the same time using data effectively and responsibly.

For example, competence in Data-driven decision-making is about:

- Using data efficiently, to support evidence-led policymaking and making informed decisions
- Embedding a data culture in the organisation
- Managing data value chain
- Leveraging the potential of existing data sets for the development of AI systems
- Supporting collection, organisation and use of data for AI applications, aligned with human rights and sustainability

The potential of leveraging this competency is immense. Civil servants who are capable of making decisions based on data to inform public policies, digital transformation, or decision-making processes can upkeep the integrity and quality of data used in the public sector and create use cases for existing data sets. For instance, a Chief Data Officer has the knowledge and expertise to use and manage the organisational data according to policy and regulation. They can use the data for predictive analytics and for insight generation to improve public services.

Also, the public sector needs to be ready to revise legal, regulatory and ethical frameworks with the emergence of digital technologies.

The competence related to legal, regulatory and ethical frameworks is about:

- Understanding if digital transformation initiatives conform to existing human-rights standards and legal frameworks
- Anticipating legal implications of emerging technology

- Drafting and implementing legal, regulatory and ethical frameworks that take into consideration digital technologies and their impact on societies
- Conducting regular assessments and removing ineffective frameworks

With this competence, civil servants can draft legislative frameworks that take into consideration the emergence of new technology. Also, experts on ethics, cybersecurity, and privacy concerns can conduct data impact assessments, privacy assessments and AI ethical impact assessments before, during and after development of AI systems. This ensures that AI systems are developed with close alignment to human rights.

Digital Management and Execution

The third competency domain of Digital Management and Execution enables civil servants to understand innovative project management and collaboration practices. It involves the application of working methods, and tools to use data and technology to address complex problems, and to foster new modalities for civic participation.

Developing an inspiring vision and the right 'culture' is at the core of digital transformation. Digital teams need the right environment for cooperation, collaboration and innovation. Another important competence is digital leadership. Leaders who are able to do so, are primed to lead in the digital age. Also, this is a competence that should be developed by all civil servants who work in teams to contribute towards shaping environments conducive to innovation.

Digital Leadership in the context of AI is about

- Influencing and motivating others by defining a vision and clear objectives, and structuring the team to promote experimentation
- Creating a collaborative and empowering culture
- Encouraging AI-enabled innovation in the organisation and supporting change with AI technologies
- Identifying skillsets and competencies needed for specific AI projects
- Supporting training and educational opportunities that provide staff with an AI-related skillset

With digital leadership, the heads of service design in the government are well-equipped to develop clear team vision and goals, and coach members on how to achieve them in an effective way.

Policy recommendations

This study provides five recommendations for digital capacity building to all stakeholders:

- Raise awareness of artificial intelligence and digital transformation competencies.
- Contextualize, localize, and adapt AI and digital transformation competencies
- Share learning resources for AI and digital transformation capacity building
- Monitor the impact of AI and digital transformation projects
- Facilitate knowledge exchange and mutual learning through multi-lateral cooperation.

There are four recommendations by stakeholder groups:

- Governments:
 - Take a holistic approach when using the framework. Begin by developing a national AI and digital transformation strategy, then develop digital action plans on strengthening specific competencies.
 - Develop digital transformation-related capacity-building programs and trainings, as part of national digital transformation initiatives.
- Academia:
 - Leverage the framework to establish curricula and interdisciplinary programs for developing AI and digital transformation – related competencies.
- Private Sector:
 - Collaborate with governments to implement capacity-building initiatives by contributing expertise and knowledge based on experience with digital transformation.

The competencies domains are best implemented when contextualised, localised and adapted for their specific context, based on the analysis of capacity building needs at individual, team, department, and

government levels. The proficiency levels embedded in all competencies of this competency framework can guide this contextualisation process.

Also, it is recommended to create coalitions and platforms for exchanging good practices on AI and digital transformation-related capacity building at the national, regional, and international levels.

Acknowledgments

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