THE AI AND DIGITAL TRANSFORMATION COMPETENCY FRAMEWORK

01. DIGITAL PLANNING AND DESIGN

COMPETENCY AREAS AND SKILLS

PROBLEM IDENTIFICATION AND SOLUTIONS
Identify problems in which digital technology might be part of the solution.

SYSTEMS THINKING
Understand how problems are connected in systems.

STRATEGIC FORESIGHT
Anticipate problems and unexpected circumstances.

AGILE STRATEGY
Ability to plan initiatives while remaining flexible and adapting to unexpected circumstances.

PROFICIENCY

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
Understand the complexity and interconnectedness of problems.	Take a holistic and long-term view, and use simple tools to anticipate, identify and solve problems.	Master approaches, tools and methods to anticipate, identify and solve complex problems.	Identify and specify problems where AI is important, and anticipate future technological developments of AI.

02. DATA USE AND GOVERNANCE

COMPETENCY AREAS AND SKILLS

DIGITAL LITERACY
Understand emerging digital technology and its applications.

DATA-DRIVEN DECISION-MAKING
Mine,analyze and use data in the decisionmaking process of public policies.

OPEN DATA AND OPEN GOVERNMENT
Capacity to effectively create and use open data.

PRIVACY AND SECURITY
Knowledge of potential breaches and how can they affect government and society.

LEGAL, REGULATORY AND ETHICAL FRAMEWORKS
Capacity to adapt and change existing legislation to emerging technologies. If needed, to create tech-friendly legislation.

AI FUNDAMENTALS
Understand AI systems to a basic level.

PROFICIENCY

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
Understand and use simple digital tools, and understand the implications of using data.	Integrate digital tools into government systems, and understand the concrete implications of using data.	Create and edit digital content, exploit, analyze and share data, and develop legal frameworks and systems that take into account privacy and security.	Understand AI systems and master knowledge about the latest AI technologies.

03. DIGITAL MANAGEMENT AND EXECUTION

COMPETENCY AREAS AND SKILLS

PEOPLE-CENTRICITY
Ability to take into high consideration the user experience and needs on digital public policies and technologies.

ITERATION
Learn and accept mistakes as part of the digital project cycle.

AGILE EXECUTION
Capacity to formulate technical, logistic and strategic requirements for public digital projects and execute them.

DIGITAL LEADERSHIP
Ability to develop a vision for digital.

PROFICIENCY

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
Understand agile management techniques and collaboration.	Make use of simple agile management techniques in designing and developing projects.	Understand how to incite, organize and manage the digital transformation process.	Master, design and use specific agile management techniques, forge solid partnerships, and develop prototypes.

ATTITUDES

- TRUST
- CREATIVITY
- ADAPTABILITY
- CURIOSITY
- EXPERIMENTATION

01. DIGITAL PLANNING AND DESIGN

SYSTEMS THINKING

ATTITUDES ADAPTABILITY CURIOSITY

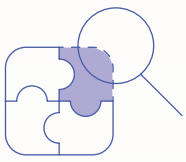
PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding and awareness that the problems governments face are complex and interrelated, and that digital transformation is a multifaceted process.	• Understanding the complexity of problems and the interconnectedness between them. • Using available information from varying sources or consulting others as necessary. • Taking a holistic and long-term view of challenges and opportunities.	• Using and applying a range of tools for systems thinking into policy and project interventions. • Understanding and articulating the projected direction of the government, and considering the complexities of how changes might impact people, structures and processes within the department. • Evaluating how other government units have implemented a new approach, to gain perspective on how doing something in a new way can increase productivity or reach goals faster. • Fostering systems thinking throughout the organisation.	• Combining systems thinking not just in terms of the service, but also in data-related aspects. This requires understanding which data are being used for AI services, from where they come, their risks and limitations, and how to ensure they are high quality. • Having a strong awareness of which components build up the AI system, and what is the desired output of the AI.

PROBLEM IDENTIFICATION AND SOLUTIONS

ATTITUDES CREATIVITY

PROFICIENCY Demonstration of:



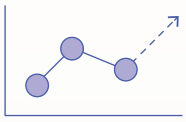
BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Awareness that the solutions they develop address specific problems faced by the users or beneficiaries of digital services. • Understanding that each problem can be unpacked into different sub-problems and can have different entry points for developing solutions.	• Using simple diagnostic techniques to understand problems and find their possible causes. • Using simple techniques for developing innovative solutions. • Awareness of how new digital technologies can address problems.	• Mastering and applying specific approaches and tools to unpack problems and identify root causes. • Applying ideation methods and techniques. • Examining how new technology can address persistent problems. • Coaching team members on how to identify problems and root causes.	• Ability to identify and specify problems where AI technologies can provide a solution. • Understanding of the underlying datasets available and whether they are appropriate to be used for the purposes of AI. • Awareness of the risks of using AI technologies, and ability to develop ways to mitigate them (including understanding the limitations of the application of AI systems, and their use in decision-making and to provide evidence for policymaking).

01. DIGITAL PLANNING AND DESIGN

STRATEGIC FORESIGHT

ATTITUDES TRUST

PROFICIENCY Demonstration of:

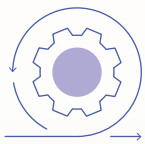


BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding and appreciating the unpredictability of complex challenges (especially those where technology can play a role) and the frequency of unexpected events and crises. • Recognizing that knowledge and practice are not fixed in a constantly changing world. • Using simple approaches such as 'horizon scanning' and 'looking outwards' at the trends and drivers that are currently shaping the world, including those within or outside of a given context.	• Applying tools and methods to find and understand signals of change in the present, and their potential future impacts. • Interpreting data and formulating versions of the future by applying a combination of foresight techniques and practices.	• Understanding the patterns and trends, especially of big strategic drivers of the digital era. • Thinking laterally to apply learnings from other geographies or sectors. • Applying tools that can help better anticipate changes that could appear in the future, revealing options for experimentation with innovative approaches, and testing existing or proposed strategies and policies. • Developing dynamic policy recommendations that spur action from decision-makers based on scanning and interpreting data while also understanding the policy impact on populations, social groups such as women or youth, and society at large. • Embedding strategic foresight in the entire governance architecture, including policy analysis, engagement and decision-making.	• Being aware of the current state of the art solutions available and research of AI technologies, their current capabilities, and limitations, as well as the potential future development of AI technologies. • Anticipating future developments of AI technologies, which could be deployed by the organisation. • Drafting an AI strategy catered to their own organisation, highlighting key strengths and challenges for using these technologies.

AGILE STRATEGY

ATTITUDES ADAPTABILITY

PROFICIENCY Demonstration of:



BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding and appreciating the importance of flexibility and adaptability in designing and developing a digital transformation.	• Using simple agile management techniques to design digital initiatives. • Understanding the difference between traditional planning (waterfall) and agile planning, and the benefit for public sector to adopt the latter. • Breaking down large projects into more manageable tasks, which are completed in short iterations throughout the digital project cycle.	• Deploying agile strategy techniques and coaching others to do so. • Clearly linking the strategy and vision to reduce blocks and barriers to their objectives.	• Applying agile development processes to ensure sufficient early testing of AI. • Avoiding a large-scale waterfall project when developing and implementing experimental AI projects.

02. DATA USE AND GOVERNANCE

DIGITAL LITERACY

ATTITUDES TRUST CURIOSITY

PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Recognizing and understanding the use of established and emerging digital technologies in the public sector. • Acknowledging that digital technology facilitates both administrative work inside government and interactions with the public. • Recognizing the difference between analog and digital work. • Using simple digital tools.	• Ability to instruct others on the use of digital technologies. • Explaining the reason and benefits for using digital technologies to improve government processes or service delivery, and advocate that it is required for future government.	• Creating and editing digital content internally and externally. • Exploiting and interpreting data to make informed decisions and deliver assigned tasks. • Analyzing new digital technologies and comparing their effectiveness. • Adapting such technologies to solve challenges, considering the contextual framework of the country. • Visualizing data through static and dynamic tools.	• Advanced understanding about the working of AI systems. • Recognizing and detecting where AI systems are used, and demonstrating proactivity in improving how to work with them. • Being able to publicly support the explanation of how AI systems may not provide the correct answer. • Complementing the weaknesses of AI with creative and critical human thinking.

DATA-DRIVEN DECISION-MAKING

ATTITUDES TRUST

PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding the relevance and impact of data on decision-making and policymaking, and the opportunities of using data in government. • Being aware of the risks associated with the use of digital technologies for social wellbeing and inclusion, as well as the environment. • Being aware of data protection standards, and potential risks related to data protection and privacy.	• Performing simple activities through the availability of government data with the objective of addressing the needs of the public. • Identifying processes and tasks where data can add value. • Ensuring the creation of interoperable data sets that can be shared across the organisation. • Reusing data made available by others for relevant work tasks. • Focusing on creating data-driven solutions which do no harm.	• Acting systemically upon government data resources with the objective of addressing the needs of the public. • Supporting development of a data strategy to improve service delivery. • Representing and advocating for data-driven policymaking. • Establishing a data culture in the organisation. • Being aware of the data value chain and how to manage each step.	• Understanding the potential of existing data in the organisation for the development of AI systems, including data integrity, completeness, representativeness, usability, as well as the condition of the collection. • Acting on this potential of data available. This includes having an awareness of potential biases in it that could affect AI development. • Supporting the collection, organization, and understanding data for the use of AI applications in alignment with responsible and ethical principles.

02. DATA USE AND GOVERNANCE

OPEN DATA AND OPEN GOVERNMENT

PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding the importance of open government standards, principles and transparency for the benefit of the public. • Following OGD standards to ensure the accessibility of governmental and ownership of public information, and promote trust based on the reliability of such data.	• Ensuring (online) access and reliability of data from a public institution. • Understanding global goods, open source and open government policy.	• Formulating the necessary mechanisms, frameworks and standards related to open data to ensure and guarantee accountability and that data as an economic asset is used for the public good. • Being an advocate for open data and open government.	• Providing high value open datasets for external organisations to use in AI development. • Using published open data in AI systems to avoid recollection of data. • Reusing and actively sharing AI components developed by their own and other public administrations.

PRIVACY AND SECURITY

PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Recognizing the importance of privacy and security issues and threats. • Recognizing the importance of how strengthening privacy and security can enhance the use of personal data and deliver better public services. • Understanding the difference between privacy and security issues. • Understanding and using simple digital security protocols regulated by the government for public administration activities. • Understanding privacy principles and data minimization.	• Using available data in the most efficient and effective way, while respecting privacy and security concerns. • Adopting the least intrusive approach that enables the public sector to improve services and efficiency without requiring more data or impacting personal privacy. • Complying with basic organisational procedures surrounding privacy in line with data protection standards.	• Detecting and reporting cyber- and data-related incidents, identifying affected systems and user groups, and triggering announcements and alerts to relevant stakeholders to efficiently resolve the situation. • Understanding and creating legislative frameworks that protect data privacy and security. • Providing more public choice in the management and use of personal data, which are used to deliver digital public services. • Ensuring that where data is used or shared without the consent of the individual there is openness, transparency and consultation in the policymaking process, which strikes a balance between individual rights and the wider public interest. Relying on established data protection mechanisms is advised.	• Ensuring that data used to train AI systems is secure and protected from tampering. • Being aware of the privacy implications of AI systems during and after development, including considering possible reinforced privacy-reducing feedback loops due to AI. • Understanding and applying principles of data minimization for AI projects. • Following and adhering to relevant privacy, data protection and AI-related legislation. • Ensuring the robustness of AI models to cybersecurity attacks. • Monitoring AI systems for adversarial use with awareness of the latest trends in abusing AI systems, and monitoring system performance over time. • Deploying privacy-enhancing AI learning methods, such as federated learning to minimize privacy violations.

02. DATA USE AND GOVERNANCE

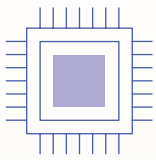
LEGAL, REGULATORY AND ETHICAL FRAMEWORKS

PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding the importance of considering legal aspects when integrating digital technologies in the public sector.	• Understanding the legal implications of digital technologies, and scenarios in which a revision of applicable legislation may be necessary.	• Anticipating legal implications of emerging technologies. • Identifying and acting upon the necessity of creating new or changing existing regulations, or to consider the possibility of not regulating. • Assessing the necessity of a permissive or precautionary approach while creating tech legislation.	• Understanding the ethical and legal implications of the development and use of AI technologies. • Assessing AI initiatives on their legal and ethical suitability prior to development. • Leveraging knowledge in suggesting that legislative changes to old laws that are hindering the digital government transformation. • Being aware of the possibilities in existing legal framework to trial, experiment or use innovative procurement mechanisms.

AI FUNDAMENTALS

PROFICIENCY Demonstration of:

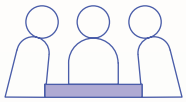


BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding what AI is and how it differs from other technologies. • Having a basic awareness of the opportunities of this technology for the organisation.	• Having a more advanced knowledge of what AI is, how to potentially apply this technology in their own working environment. • Discussing the implications of this technology in a meaningful way. • Contextualizing AI to initiate new projects leveraging AI tools. • Awareness of the potential environmental damage caused by AI technologies.	• Interpreting, evaluating and understanding the decisions made during the development of AI technologies. • Reviewing, managing and understanding the design considerations of the AI system. • Recruiting and assigning the right people and skillsets to AI projects.	• Mastering knowledge about the latest AI technologies to develop, interpret, evaluate, maintain, and implement AI systems. • Working and integrating AI technologies to their best possible extent. • Adopting additional activities to ensure AI risks are minimized, such as calculating for algorithmic bias, introducing AI transparency mechanisms and accountability.

03. DIGITAL MANAGEMENT AND EXECUTION

PEOPLE-CENTRICITY

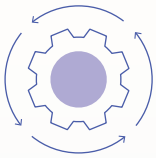
PROFICIENCY **Demonstration of:**



BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding that the needs of users must be researched and gathered from users themselves, without assuming user needs. • An interest in, and ability to, gather user feedback.	• Getting involved in user research and testing, sitting in, or conducting interviews, workshops and observations. • Using a variety of methods to record and display the results of user research. • Conducting user research to gather, analyze, validate and prioritize users' needs; testing services to assess how well they meet needs. • Regularly referring to identified users' needs and assess the project's current progress to make sure that needs are being met.	• Considering new user needs throughout the development and delivery of the project • Ensuring that every stage of the project includes user testing. • Interacting and working with specialists in user-experience and interface design to develop systems that are human-centered. • Interacting and working with specialists in behavioral sciences to use psychological and sociological techniques to deliver public policy outcomes (i.e. 'nudging'). • Using participatory approaches to design, develop, test and implement projects that involve users in production and decision-making, resulting in co-ownership of the output. • Representing and advocating for user-centric tools and techniques.	• Working with the users of the AI system to ensure that the performance and the output matches the users' needs. • Including the public in the development and monitoring of AI systems to find potential biases and other risks in developing and using AI technology. • Using of AI technology to improve the user-centricity of government services rather than making them less accessible.

ITERATION

PROFICIENCY **Demonstration of:**



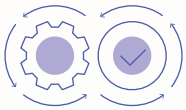
BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding the importance of iteration and rapid feedback loops – allowing new ideas to be tested on a small scale before reaching a wider level of implementation – and the importance of incremental development approaches, where each stage of a project builds on the preceding one. • Understanding how prototypes can be used to bring abstract ideas to life, and provide a tangible example of how something might work in practice. • Understanding how tests and experiments can examine what works and what does not.	• Developing simple prototypes that help the visualization of products and services and in the identification of potential difficulties. • Making use of simple agile techniques such as time-boxes, retrospectives, and product backlogs to manage workload. • Ensuring that projects include sufficient time and resources for testing and evaluation across different stages of the project cycle. • Using approaches such as sandboxes, prototyping or piloting to create small-scale experiments of new ideas.	• Using formal iterative methodologies to deliver a digital project. • Developing prototypes that can be implemented with users to test feasibility. • Using randomized tests to evaluate approaches, such as A/B testing or randomized control trials to gain evidence about what works. • Using iterative project management methodologies to allow small-scale testing of several different approaches. • Using experimental evaluation methods to assess which approaches to take forward.	• Regularly testing the performance of the AI system across time, especially post-adoption. • Developing proofs-of-concept and pilots to have a clearer understanding of the potential benefits of AI systems. • Acknowledge mistakes coming from the AI system throughout the project cycle and learn from them.

03. DIGITAL MANAGEMENT AND EXECUTION

AGILE EXECUTION

ATTITUDES EXPERIMENTATION

PROFICIENCY Demonstration of:



BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Understanding that for effective digital transformation, new management and organisational practices need to be adopted by the organisation, including those related to procurement and budgeting. • Understanding the importance of internal and external communication and collaboration.	• Participating in simple agile management events during execution of a project or program. • Using simple agile techniques during execution of a project or program. • Understanding the implications of using agile execution for the new way of working and structure of the organisation, particularly for procurement and budgeting.	• Mastering, designing and using specific agile management techniques, such as project planning, product roadmap creation, release planning, sprint planning, daily stand-ups, sprint review and retrospective, one-to-ones, and end-of-the-week emails. • Forging internal and external partnerships and coalitions. • Deploying agile coaches to support work by using the available expertise to help teams emphasize performance over process, build organisational agile capabilities, and accelerate transitions. • Advocating agile approaches in the organisation. • Partly restructuring the organisation or department based on outcomes and not expertise. • Fully understanding the concrete implications that using agile execution means for changing the way of working and the structure of the organization.	• Applying agile management techniques in AI-related projects. • Being cooperative and supportive with external partners. • Utilizing innovative public procurement methods for AI systems. • Mastering market feasibility before procuring AI systems. • Managing and evaluating the offers of external parties on the performance, rigor and security of available AI systems. • Sharing data with external parties.

DIGITAL LEADERSHIP

PROFICIENCY Demonstration of:

BASIC	INTERMEDIATE	ADVANCED	AI-SPECIFIC
• Being aware of the importance of leadership for digital transformation. • Understanding the importance of shaping the right environment and having space so that digital transformation initiatives can be designed and developed.	• Understanding and using methods to structure teams and empowering them to experiment. • Understanding that everyone, regardless of job function or position in an organisation, is important and needs to be empowered to raise issues at early stages and bring forward ideas to achieve overall goals (within the limits of the organisational structure).	• Shaping an appropriate environment for teams to succeed in their digital transformation objectives. • Creating a culture that empowers teams, encourages experimentation (including taking calculated risks), incentivizes collaboration, and measures team performance. • Influencing and motivating others by defining a vision and clear objectives, and structuring the team while allowing them to test and experiment. • Linking the use of technology to a value proposition for service delivery.	• 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. • Understanding and anticipating AI risks.