G7 TOOLKIT FOR ARTIFICIAL INTELLIGENCE IN THE PUBLIC SECTOR

G7 ITALIA 2024

REPORT PREPARED FOR THE 2024 ITALIAN G7 PRESIDENCY AND THE G7 DIGITAL AND TECH WORKING GROUP

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OECD

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G7 Toolkit for AI in the Public Sector

This Toolkit is a comprehensive guide designed to help policymakers and public sector leaders translate principles for safe, secure, and trustworthy Artificial Intelligence (AI) into actionable policies. AI can help improve the efficiency of internal operations, the effectiveness of policymaking, the responsiveness of public services, and overall transparency and accountability. Recognising both the opportunities and risks posed by AI, this toolkit provides practical insights, shares good practices for the use of AI in and by the public sector, integrates ethical considerations, and provides an overview of G7 trends. It further showcases public sector AI use cases, detailing their benefits, as well as the implementation challenges faced by G7 members, together with the emerging policy responses to guide and coordinate the development, deployment, and use of AI in the public sector. The toolkit finally highlights key stages and factors characterising the journey of public sector AI solutions.

Preface

Artificial Intelligence (AI) is revolutionising how governments work, offering unprecedented opportunities to deliver better public services, improve policy outcomes, enhance public sector productivity, and foster accountability. As AI technologies continue to evolve, it is crucial for governments to ensure their development, deployment and use in the public sector are safe, secure, and trustworthy. This Toolkit aims to support G7 members in navigating the complexities of AI integration within the public sector, providing a comprehensive guide to good practices, governance frameworks, and policy options.

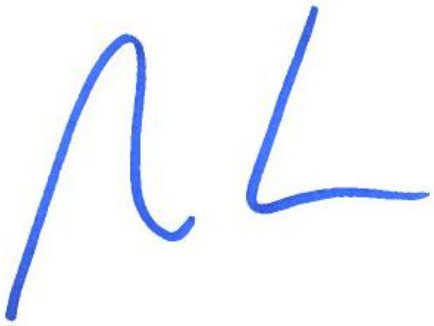
The G7 Toolkit for AI in the Public Sector draws on extensive research from the Knowledge Partners, OECD and UNESCO - and on the inputs provided by G7 members. It highlights significant trends, showcases successful AI initiatives, and addresses the challenges associated with AI implementation. By offering practical insights and actionable recommendations, this document serves as an invaluable resource for policymakers and public administrators committed to leveraging AI for public good.

We extend our gratitude to the G7 Digital and Tech Working Group and the various authorities of G7 member states for their contributions. Their collaboration to collect evidence, shape key messages and provide constructive review have been instrumental in creating a robust toolkit that will guide the safe, secure, and trustworthy use of AI in the public sector.

As we look to the future, the role of AI in government will only grow in importance. The G7, OECD and UNESCO remain dedicated to support a use of AI by public sectors in ways that contribute to deliver public value and strengthen trust in public institutions. We are confident that this publication will contribute significantly to these endeavours, helping to shape a future where AI enhances the productivity, responsiveness and accountability of public sectors worldwide.

Mathias Cormann

Secretary-General of the OECD



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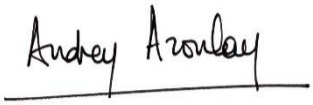

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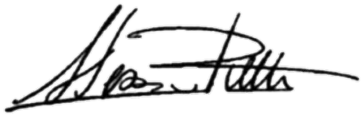

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Executive summary

Governments are at the forefront of policy and regulatory efforts as they acknowledge the significant opportunities that digital technologies, including safe, secure, trustworthy AI, present across all policy areas and sectors. They are aware of the evolving and complex challenges that digital technologies, including AI, pose with respect to protecting human rights, including privacy, and of the risks to personal data protection, security and safety, intellectual property, the environment, and of widening digital divides, including the gender digital divide. These challenges and risks reinforce the need to integrate ethical considerations in relation to the development, deployment, and use of such technologies, also in and by the public sector. Governments play a key role in fostering innovation, growth, and public value. Governments also emerge as prime users and, in some cases, developers of AI systems and applications, and are progressively leveraging and integrating AI to deliver better services and improve policy outcomes. The deployment of AI in and by the public sector can improve the efficiency of internal operations, the effectiveness of policymaking, the responsiveness of public services, and transparency and accountability.

However, concerns exist in relation to the safe, secure, and trustworthy use of such powerful technologies and the need to manage the risks. Addressing these concerns requires governments to take into consideration a range of issues. This includes integrating ethical considerations about the implications for individual citizens and societies that the development, deployment, and use of AI may have, as well as assessing whether AI systems are designed, developed, and used in a manner that consistent with human rights, fundamental freedoms, and the rule of law. It also requires consideration of the individual and societal opportunities of the technology as well as the harms that the misuse, abuse, poor design, or negative unintended consequences of AI systems may cause, which include bias and discrimination; denial of individual autonomy, recourse and rights; adverse outcomes that cannot be adequately explained; lack of transparency; invasion of privacy; infringement of intellectual property rights; and unreliable, unsafe or poor-quality outcomes.

The toolkit proposed in this document aims to support and guide governments in developing, deploying, and using AI in the public sector in a safe, secure, and trustworthy manner. The toolkit leverages the information collected through a purposely conceived questionnaire for G7 members, as well as existing work by international organisations and initiatives such as the Organisation for Economic Cooperation and Development (OECD) and the recently integrated Global Partnership on Artificial Intelligence (GPAI), as well as the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

The toolkit first identifies G7 trends and best practices in key areas, including governance structures, monitoring and oversight of AI systems, and the creation of an enabling environment for AI. It then highlights a number of AI use-related trends across different public sector functions to showcase the initiatives undertaken, the benefits achieved, and challenges faced across G7 members related to the use of AI in and by the public sector. The Toolkit finally presents a mapping of the journey of public sector AI solutions, highlighting key stages and cross-cutting factors for its trustworthy development, deployment, and use.

Key messages

Establish clear strategic objectives and action plans in line with expected benefits

Governments, and the political leadership, play a crucial role in leading the development, deployment, and use of AI in and by the public sector and in setting out the intended and expected benefits from its adoption across government. All G7 members report having set strategic objectives in this regard, and prioritised outcomes including improved service delivery, operational efficiency, and policymaking itself. G7 AI strategies tend to concentrate on essential enablers like infrastructure, data access, computing power, research abilities, and public sector workforce development. Specific initiatives such as ethical guidelines, risk management frameworks, talent development, procurement rules, cooperative partnerships, data availability, and digital infrastructure enhancement have been highlighted by members in this respect.

Include the voices of users in shaping strategies and implementation

G7 members report involving a broad range of stakeholders in designing their AI strategies, through e.g. public consultations, stakeholder outreach, and public requests for comment. The stakeholders involved include government actors, business leaders, govtech ecosystems and the research community. Inclusive approaches help build trust among users, governments, and other relevant stakeholders to shape AI-powered public services in a way that adds value to policy making and service design and delivery.

Overcome siloed structures in government for effective governance

Effective governance requires overcoming the tensions related to mandates, structures, and mechanisms across public sector organisations that are often siloed. G7 members tend to navigate such tensions and to align organisational strategies through cross-cutting or multi-institutional approaches, or by establishing lead institutions with a coordination role.

Establish robust frameworks for the responsible use of AI

Robust legal, regulatory, and policy frameworks are needed to ensure the safe, secure, and trustworthy development, deployment, and use of AI in and by the public sector. Effective, agile, and innovation-ready regulations can protect citizens, including their free exercise of rights, effectively manage risks and prevent misuse, while aligning AI advancements with societal values and needs. Existing governance frameworks address a variety of issues ranging from AI use, data protection, privacy, and data sharing, to freedom of information. G7 members have implemented additional safeguards to enable the safe, secure, and trustworthy, development, deployment, and use of AI. These include transparency requirements for public algorithms, regulations on automated decision-making, and risk management frameworks or ethical guidelines addressing the implications of the design and use of AI systems, providing developers and users with the conceptual resources and practical tools to enable responsible design and implementation of AI projects.

Through emphasising good practices, G7 members focus on ensuring that the public sector upholds these standards when leveraging AI.

Improve scalability and replicability of successful AI initiatives

While G7 members have made significant progress in developing and deploying AI across the public sector, many opportunities remain to be further explored. While more research in this respect is needed, it is key to always balance risks and opportunities, as the application of AI in certain areas may raise concerns about privacy, security, bias, and discrimination, outweighing potential benefits.

Enable a more systematic use of AI in and by the public sector

G7 members have identified several key challenges associated with the systematic implementation of AI in and by the public sector and are developing concrete policy options to address them. Efforts are underway to build the necessary foundations for effective and responsible use of AI, which include strengthening infrastructure and data governance. Data governance frameworks for the public sector are becoming increasingly relevant and aligned across countries. An increasing number of dedicated frameworks and guidelines for AI procurement are emerging that include requirements related to the trustworthiness of AI. AI skills frameworks are being expanded to address not only technical expertise, but also to build the talent of the leadership, secure essential soft skills as well as the capabilities needed to support design and customer service. Additionally, monitoring tools are being introduced to ensure AI trustworthiness and safety.

Adopt an incremental and experimental approach to the deployment and use of AI in and by the public sector

Some G7 members have adopted an incremental approach to AI in the public sector, providing clear guidance and frameworks, and ensuring the effectiveness and trustworthiness of AI solutions, to maximise benefits and mitigate potential drawbacks. Incremental and experimental approaches entail engaging stakeholders throughout the development phase, evaluating user needs, assessing data availability and quality, and continuously monitoring progress from the prototyping and piloting phases (e.g. through ex-ante impact assessments or within the framework of regulatory sandboxes). By following such an approach, governments can develop and deploy AI responsibly and achieve suitable outcomes.

1 Introduction and background

On March 14-15, 2024, Italy hosted the G7 Digital and Technology Ministers' Meeting in Verona and Trento. The Ministerial Declaration emphasizes the importance of advancing international discussions on policies, tools, and mechanisms in the areas of AI in the public sector and of taking stock of the opportunities and challenges brought by generative AI (G7 Italian Presidency, 2024[1]).

In their Declaration, the G7 Digital and Technology Ministers recognised “the critical role and responsibility of governments in shaping and steering the safe, secure, and trustworthy development, deployment, and use of AI systems, including to design and deliver better public services tailored to citizens’ needs and expectations” (Paragraph 47) and welcomed the development of a toolkit, informing an open and enabling environment for the safe, secure, and trustworthy development, deployment, and use of AI in the public sector (Paragraph 50).

The Toolkit aims to provide helpful insights and guidance to governments for:

- Assessing relevance of AI in and for specific domains in the public sector
- Identifying the skills, competencies, and profiles needed to ensure the strategic and responsible use of AI in the public sector.
- Providing an overview of the policies that may be needed to guide and coordinate the strategic and responsible use of AI in the public sector, including also by facilitating public-private collaboration.

The Italian Presidency circulated a questionnaire in April 2024 to G7 members to inform the development of the toolkit. The questionnaire aimed at taking stock of main trends, existing and planned policy initiatives and considerations on the main opportunities and risks associated with AI in the public sector. It was organised in the following inter-related sections:

- Section 1. Coherent application of AI in the public sector
- Section 2. Governance structures for a trustworthy and human-centric AI in the public sector
- Section 3. Fostering AI use in the public sector
- Section 4. Monitoring and oversight of AI in the public sector
- Section 5. Building an enabling environment for AI in the public sector

The questionnaire was composed mostly of closed questions, which provided respondents with selected options to rank or to choose from. Open questions allowed respondents to report on national or regional initiatives in G7 jurisdictions pertaining to AI in the public sector. In total, 21 questions were asked, most of which required the addition of corresponding evidence.

Building on the results of the questionnaire and relevant work of international organisations and initiatives, such as OECD, GPAI, and UNESCO, this document introduces an AI Toolkit. This Toolkit is designed to highlight trends, good practices, policy frameworks, and multiple AI enablers within G7 members. It aims to provide examples of practices and priority interventions to support the development, deployment, and application of AI in environments that are secure, safe, and trustworthy.

The Toolkit is structured to first delve into the critical elements at the initial stages of the policy cycle that enable the safe, secure, and trustworthy use of AI in the public sector. Specifically, it examines national strategies, governance frameworks, and safeguards and guardrails. These elements lay the groundwork for the appropriate use, development, and deployment of AI within the public sector. The subsequent section provides an overview of AI use trends across G7 members. It also highlights the emerging implementation challenges encountered when deploying AI systems, along with the policy options available for governments to address them. Finally, it develops an implementation journey that governments can adopt at the project level for the safe, secure, and trustworthy development of AI.

2 Enabling safe, secure, and trustworthy AI systems in the public sector

Artificial intelligence (AI) has emerged as a strategic resource and general-purpose technology with the potential to revolutionise a wide range of sectors. In the public sector, AI offers significant potential benefits, as will be further discussed in the Section 4. These include improving the efficiency of internal operations, the effectiveness of policymaking, the responsiveness of public services, and enhancing transparency and accountability (OECD, 2024[2]). Yet the rapid pace of advancement of AI technologies is challenging the capability of governments to adapt rapidly which can be potentially quite disruptive on the way public organisations and civil servants operate. Some identified challenges include the low availability of quality data and lack of common standards in the public sector, digital skills' shortage, as well as emerging concerns around security, data protection and ethical-related considerations (Ubaldi et al., 2019[3]; Ramos, Squicciarini and Lamm, 2024[4]).

Governments have a crucial role in leading the development, deployment, and use of safe, secure, and trustworthy AI systems in the public sector. As part of this effort, many governments worldwide have adopted principles and guidelines to ensure that AI development, deployment and use are rooted in respect for human rights. They have also developed national AI strategies or guiding policies to coherently set strategic objectives and approaches for AI. These strategies often outline priorities and goals for the use of AI in the public sector and, in some cases, provide a roadmap for achieving them. Such strategies can help countries establish common foundations for success in their AI-related public sector projects, aligning the capacities, norms, and structures of the relevant AI actors and ecosystems towards the achievement of common goals.

This section reports on G7 members' national strategic objectives and approaches to guide the safe, secure, and trustworthy deployment of AI systems in the public sector. It reviews the institutional arrangements, regulatory frameworks, and mechanisms for safeguarding citizens' rights, as well as for monitoring, mitigating, and compensating for unforeseen risks and adverse outcomes resulting from the deployment of AI systems in the public sector.

This toolkit uses the updated 2024 OECD definition of AI (Box 2.1).

Box 2.1. What is AI?

Although the field has been researched and discussed for more than 70 years, there is still no uniformly accepted definition of AI that is universally recognised across all countries, contexts, and organisations. The field of AI is broad and encompasses a variety of technologies, methodologies, and applications, which can lead to different interpretations and definitions depending on the perspective and purpose. Several organisations and institutions have developed their own definitions of AI based on their focus areas and objectives.

The OECD definition articulates what an AI system is for the purposes of its Recommendation on Artificial Intelligence. The formulation endeavours to support broad alignment with the European Union, Japan, and other OECD jurisdictions. According to the 2023 updated OECD definition "an AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment".

In its Recommendation on the Ethics of AI, UNESCO's approach has been to not provide a single definition as it would need to change with technological developments, and address those features of AI systems that are of central ethical relevance, including the critical role of data and the ability of AI to perceive, interpret, reason, decide, and adapt, mimicking cognitive functions associated with human intelligence. The Recommendation also acknowledges that AI systems are designed to operate with varying degrees of autonomy.

From a technical standpoint, AI manifests in various forms, yet the systems operational today predominantly fall under the category of "narrow AI". Narrow AI pertains to systems engineered and trained to perform specific tasks or operate within designated domains, as opposed to demonstrating broad or general intelligence capabilities across diverse tasks. For instance, narrow AI systems excel in tasks such as natural language processing for interpreting text, object detection and classification through computer vision, and speech recognition for converting spoken language into text. This Toolkit primarily focuses on machine learning, the most utilised form of AI, which encompasses approaches like unsupervised learning, supervised learning, reinforcement learning, and deep learning.

Source: (OECD, 2024[5]; UNESCO, 2022[6]).

2.1. National strategies and policies for AI in the public sector

G7 Members are at different stages of the development and implementation of national AI strategies and policies on AI in the public sector. The development of national strategies focusing specifically on AI in the public sector is a relatively new phenomenon (Jorge Ricart et al., 2022[7]).

The European Union, Germany, Japan, United Kingdom, and United States report having embedded a public sector focus in their broader AI strategies. In France, although the national strategy does not specifically address AI in the public sector, numerous actions and plans are proposed. For instance, through the Public Action Transformation Fund (FTAP - Fonds de transformation de l'action publique), France has invested in at least 60 AI initiatives for the public sector since 2018[1]. A trial use of AI for automating responses to customer queries was also launched in October 2023[2]. Canada has begun the development of an AI Strategy for the Federal Public Service, set to be completed by spring 2025. In Italy, the "Three-year plan for the digitalisation of the public sector (2024-2026)", while not exclusively centred

on AI, incorporates guidelines, known as a "decalogue," specifically for the development and use of AI in the public sector (Box 2.2). Additionally, the recently released national AI strategy 2024-2026[3] complements the decalogue with a section mapping six strategic objectives for AI in the public administration and related action plans the following subsections further explore the common themes set by these strategies and the mechanisms available to drive their implementation.

Table 2.1. Overview of national AI strategies in G7 Members and the European Union

Country	Name of the Strategy	Date	Public Sector Focus
Canada	Pan-Canadian Artificial Intelligence Strategy	2017/updated 2022	Separate strategy under development
European Union	Coordinated Plan on Artificial Intelligence 2018 and 2021 Review	2018/updated 2021	Embedded
France	National AI Strategy	2018/updated 2022	Separate strategy under development
Germany	Federal Government's Artificial Intelligence Strategy	2018/updated 2020	Embedded
Italy	Three-Year Plan for the digitalisation of the public sector 2024-2026	2023	Yes
Japan	AI Strategy 2022	2022	Embedded
United Kingdom	National AI Strategy	2021/updated 2022	Embedded
United States	Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence	2023	Embedded

Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024).

Box 2.2. Italy's Three-Year Plan for the digitalisation of the public sector 2024-2026

The 2024-26 Three-Year Plan approved in December 2023 defines the Italian government's objectives for the digital transformation of the public sector including the adoption of AI e systems.

The Plan lays out a set of ten fundamental principles or guidelines, known as a "decalogue," specifically for the development and use of AI in the public sector. This decalogue serves as a framework or strategic plan that outlines the objectives, priorities, and key actions to be undertaken between 2024 and 2026 to advance AI within government operations and services. Each item in the decalogue addresses different aspects, such as ensuring data security and privacy, promoting inclusivity, fostering digital skills among public sector employees, and enhancing the overall efficiency and effectiveness of public administration through AI.

General principles for the use of AI in Public Administration (The Decalogue):

- Service improvement and cost reduction: Public administrations shall invest in AI to automate repetitive operational tasks, redirecting savings to enhance and personalize services.
- Risk Analysis: Public administrations shall conduct risk assessments of AI systems to prevent rights violations and harm, adhering to classifications outlined by the AI Act.
- Transparency and Accountability: Public administrations shall ensure AI transparency and interpretability for accountability and informed user decisions on AI-powered services.
- Inclusivity and Accessibility: Public administrations commit to fairness, transparency, and non-discrimination in AI use, mindful of ethical responsibilities.
- Privacy and Security: Public administrations uphold stringent security and privacy standards in AI systems, aligning with data protection and cybersecurity laws.
- Training and skills development: Public administrations shall invest in training and developing the skills necessary to manage and effectively apply artificial intelligence within public services.
- Standardisation: Public administrations shall consider international and European standards, even those under development, with a focus on the AI Act's requirements.
- Sustainability: Public administrations shall evaluate and choose AI technologies with minimal environmental impact, ensuring sustainability.
- Foundation Models (High-Impact AI Systems): Before using high-impact AI, public administrations shall implement clear transparency measures for accountability in roles of suppliers and users of the AI system.
- Data: In procuring AI services, public administrations shall rigorously assess how service providers handle data, ensuring data ownership and adherence to privacy laws.

Source: (AGID, 2023[8]).

2.1.1. Key objectives and actions covered by AI strategies

While taking diverse approaches, G7 AI strategies for the public sector share common policy objectives and action plans (Table 2.2)[4]. The majority of strategies prioritise key enablers essential for supporting AI development, deployment, and use. These include foundational physical and digital infrastructure, access to local data, robust computing capabilities, advanced research capacities, and a skilled workforce. Commonly highlighted policy actions and initiatives in these strategies encompass talent and skill

development, defining procurement strategies and promoting collaborative partnerships. Additionally, there is emphasis on fostering ethical, trustworthy, and human-centric AI practices, ensuring data availability, and enhancing supporting infrastructure and governance frameworks.

All strategies prioritise specific application areas, such as enhancing service delivery, improving operational efficiency, and informing policymaking. Service delivery improvement emerges as the most prevalent priority. Four strategies prioritise AI applications in welfare, the health sector, and coordination with subnational governments.

The next subsections provide an overview of how these common policy actions and initiatives are addressed in G7 national strategies. Section 4 provides further insights through specific use cases and examples reported by various countries.

Table 2.2. Common key enablers and priority application areas reported by countries

Type	Common Theme	Canada*	EU	France*	Germany	Italy	Japan	UK	US
Enablers	Talent and skills	■	■	■	■	■	■	■	■
	Procurement and partnerships	■	■	■		■		■	■
	Human centric AI**	■	■		■	■	■	■	■
	Data	■	■		■	■	■	■	
	Supporting Infrastructure	■		■	■	■		■	
	Innovation	■	■		■			■	
	Funding for AI projects		■			■	■	■	■
	Governance of AI in the public sector	■	■			■	■		■
Areas of application	General government functions (service delivery, operations, and policymaking)	■		■		■	■		
	Coordination with sub-national governments		■			■	■		
	Welfare and health				■			■	

Note: Colour indicates the presence of at least one objective or action line in each country's AI strategy related to a common theme. Objectives and action lines refer to the highest-level, action-oriented statements related to the public sector in a strategy. (*) The analysed objectives or action lines for Canada and France refer to preliminary ones set in their public sector AI strategies currently under development. (**) This row refers to survey responses for Question 1.5. "Does the strategy emphasise ethical, trustworthy, and human centric development, deployment and use of AI in the public sector?".
Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024).

3.1.1.1 Talent and skills

Most strategies recognise the vital role played by talent and skills as an enabler for safe, secure, trustworthy, and effective AI use in the public sector.

Fostering AI talent and skills is a pivotal part of the **UK** AI strategy's Pillar on 'Investing in the long-term needs of the AI ecosystem'. The AI Policy Directorate has a skills team working alongside various departments including the Department for Education to support the development of skills and talent in the UK to boost AI at all levels.

The **United States'** strategy for advancing AI in the federal government includes two main sections, one of which is specifically dedicated to increasing AI talent within government. The section covers five main areas:

- Identifying AI talent needs by determining priority areas for AI talent recruitment and development;
- Creating an AI and Technology Talent Task Force to accelerate AI talent hiring and track progress;
- Recruitment measures, including implementing plans for rapid recruitment of AI talent, improving AI hiring practices, using special hiring authorities to recruit AI talent rapidly, and creating a data scientist hiring guide;
- Implementing or expanding AI training programs for employees, managers, and leaders;
- Addressing AI talent gaps in national defence.

In **Canada**, the upcoming AI Strategy for the Federal Public Service envisions an empowered workforce through continuous enhancement of AI literacy, access to advanced tools, and upskilling programs, fostering a culture of innovation and adaptability.

Italy's strategy focuses on increasing AI knowledge in the public sector through tailored PhD programs aimed at enhancing the available pipeline of expertise. Though not focused on the public sector, **France**'s national AI strategy includes a chapter on competencies and talent development, highlighting the importance of training and attracting top international talent in AI. It also outlines training plans to upskill the population and prepare for future jobs essential for leveraging AI across various sectors, including the public sector.

Digital Skills are key to the EU's digital strategy. The European Commission has also developed a range of policies and initiatives to close the digital skills and AI gap, increase digital inclusion, build a highly skilled digital workforce, and attract more women to ICT careers.

3.1.1.2 Procurement and partnerships

Leveraging external capabilities, expertise, and technology through public procurement and partnerships is a key enabler of AI implementation. Most AI strategies include actions or objectives aimed at strengthening procurement and partnerships.

- In the **United Kingdom**, the public sector's role as a purchaser is seen as a way to foster an AI ecosystem for the public good, aligning procurement with AI innovation to stimulate new markets and supply chains.
- On January 2024 the European Commission launched a package of measures to support European startups and SMEs in the development of trustworthy AI that respects EU values and rules. In particular, the 'GenAI4EU' initiative, aims to support the development of novel use cases and emerging applications in Europe's 14 industrial ecosystems, as well as the public sector. Application areas include robotics, health, biotech, manufacturing, mobility, climate, and virtual worlds (European Commission, 2024[9]).
- **Canada's** upcoming AI Strategy for the Federal Public Service aims to strategically integrate AI into existing governance structures. This integration will facilitate government-wide AI discussions, including policy direction, the coordination of broad procurement activities, and the implementation of pathfinder projects. The governance approach seeks to support partnerships with academia and industry to leverage resources and promote operational sustainability.
- In **France**, the Interministerial Directorate for Digital Affairs (DINUM) oversees and coordinates digital transformation across the public administration. It supports the Alliance incubator's projects on enhancing government services' digital capabilities by facilitating collaboration with govtech startups, tech companies, and other stakeholders. Additionally, the French Tech Central programme, launched in 2017, aims to make it easier for all start-ups to collaborate with public

actors within the framework, for example, of public purchasing procedures, open innovation approaches or beta tests[5].

- In **Italy**, the *Agenzia per l'Italia Digitale* (AgID) oversees investments in digital technologies and services for the public administration via national tenders managed by the central purchasing body, CONSIP. Guidelines for AI procurement by public administration are under development. In the **US**, the Executive Order aims to facilitate access to commercial AI solutions for public services through Government-wide acquisition initiatives, which may involve creating a procurement resource guide or other tools to assist in the acquisition process.

3.1.1.3 Guidance for AI development deployment and use

While the benefits of AI in the public sector are widely recognised, legitimate concerns persist. To address the potential unforeseen and harmful impacts on e.g. privacy and the ability to freely exercise human rights and fundamental freedoms, and to guide AI development and deployment towards maximum public benefit, G7 members acknowledge the need to integrate ethical considerations in relation to the development, deployment, and use of such technologies. In this respect, several G7 countries cited the OECD AI Principles (Box 2.4), UNESCO's Recommendation on the Ethics of AI (Box 2.5), and the high-level expert group on AI Ethic guidelines (European Commission, 2019[10]).

- In **Canada**, the AI Strategy for the Federal Public Service currently under development will be guided by the tenet of trust. Building on existing Government of Canada work in this space, the strategy will emphasize accountability, transparency, and ethics to support departmental needs. It envisions AI use guided by ethics and building on a strong foundation of ethical considerations already ensconced in policy, emphasising responsible innovation and adoption of AI.
- **Germany** reports that ethical, trustworthy, and human-centric AI development, deployment, and use are cross-cutting, integral components of the federal government's AI strategy. The German federal government has consistently promoted these values throughout the legislative process and is developing detailed guidelines on ethical principles for AI in the public sector.
- In **Italy**, the AI strategy includes recommendations for the creation of datasets that are *ethical by design* to ensure that AI systems are fair, transparent, accountable, private, secure, inclusive, and responsibly used. This approach ensures that ethical values and standards are embedded throughout the entire development and implementation process of the AI system rather than being added as an afterthought.
- In the **United States**, the Office of Management and Budget's (OMB) policy on government use of AI, which delivers on a core component of President Biden's AI Executive Order, establishes new federal agency requirements and guidance for AI governance, innovation, and risk management. In particular, the policy requires federal agencies to reliably assess, test, and monitor AI adoption and its impacts on the public and mitigate potential risks of algorithmic discrimination when the use of AI systems impacts people's rights or safety.
- The **UK** National AI Strategy committed to implementing the Algorithmic Transparency Recording Standard (ATRS). In February 2024, it was announced that use of the ATRS will become mandatory in all government departments, with an intent to extend to the broader public sector over time (see Box 2.3).

Box 2.3. United Kingdom- Embedding guidance on AI ethics and safety in the public sector

The UK National AI Strategy establishes that the public sector will lead the way by setting an example for the safe and ethical deployment of AI through how it governs its own use of the technology. The UK's Department for Science, Innovation and Technology (DSIT) is expanding in both scope and size bringing in experts in data, digital and AI from the Government Digital Service (GDS) the Central Digital and Data Office (CDDO) and the Incubator for AI (i.AI) to unite efforts in the digital transformation of public services under one department.

Additionally, the UK's National AI Strategy committed to implementing the Algorithmic Transparency Recording Standard (ATRS). In February 2024, it was announced that use of the ATRS will become mandatory in all government departments, with an intent to extend to the broader public sector over time. In addition, the UK has designed a Model for Responsible Innovation, which they use to deliver ethics red-teaming workshops with teams across government and the public sector. The Model helps teams identify the potential risks associated with their AI and data-driven use cases and recommends mitigations. Later this year, DSIT will launch the AI Management Essentials scheme, setting a minimum good practice standard for companies selling AI products and services. There will be a consultation on introducing this in public sector procurement, using purchasing power to drive responsible innovation in the broader economy.

Source: (Leslie, 2019[11]).

Box 2.4. The OECD AI Principles

The OECD Recommendation on Artificial Intelligence (the "OECD AI Principles") [OECD/LEGAL/0449] was adopted in 2019 and includes the first intergovernmental set of principles on AI. It was further updated in May 2024 to take account of policy and technology developments, ensuring they remain robust and fit for purpose. The Principles formed the basis for the 2019 G20 AI Principles.

The OECD AI Principles guide actors in their efforts to develop trustworthy AI and provide policymakers with recommendations for effective AI policies. Countries use the OECD AI Principles and related implementation tools to shape policies and regulations and create AI risk frameworks, building a foundation for global interoperability between jurisdictions. Today, the European Union, the Council of Europe, the United States, the United Nations, and other jurisdictions use the OECD's definition of an AI system and its lifecycle in their legislative and regulatory frameworks and policy guidance.

As countries are embedding values-based principles into AI legislation, regulation, and standards, moving towards future-fit policies for trustworthy AI, the influence of the OECD AI Principles on AI policy and legal frameworks is apparent around the world, including in Canada, Egypt, Italy, Japan, Korea, UK, US, and the EU.

The OECD AI Principles promote the use of AI that is innovative and trustworthy and that respects human rights and democratic values, and call for governments to work closely with stakeholders to enhance the quality of public services and ensure that the benefits from AI are broadly and fairly shared.

Source: (OECD AI Policy Observatory, 2024[12]; OECD, 2024[13]).

Box 2.5. The UNESCO Recommendation on the Ethics of Artificial Intelligence

The UNESCO Recommendation on the Ethics of AI is the first global standard on AI ethics. It is a landmark comprehensive and actionable global framework aimed at ensuring that AI systems are designed, developed, and used in ways that respect human rights and fundamental freedoms, foster just and interconnected societies, ensure diversity and inclusiveness and promote sustainable development. It does so by maintaining focus on all stages of the AI system lifecycle. Beyond elaborating the values and principles that should guide the ethical design, development and use of AI, the Recommendation lays out eleven key areas for policy action required by Member States to ensure the upholding of such values and principles. It encourages Member States to implement regulations and governance frameworks that oversee the ethical use of AI and promotes the creation of institutional mechanisms and common approaches to monitor and assess the ethical impacts of AI systems throughout their lifecycle.

UNESCO's approach recognizes that countries are at different stages of AI development and that institutional readiness and capacities of governments may diverge significantly. For this reason, the Recommendation advocates international co-operation and dialogue to address global challenges related to AI. It encourages Member States to share best practices, research, and resources to collectively advance ethical AI development.

The Recommendation is further complemented by the Readiness Assessment Methodology (RAM), designed to help countries assess their readiness to develop and deploy AI technologies responsibly and effectively. The RAM includes a range of qualitative and quantitative questions designed to gather information on key dimensions related to a country's AI ecosystem including the legal and regulatory, social and cultural, economic, scientific and educational, and technological and infrastructural dimensions.

Source: (UNESCO, 2022[6]; UNESCO, 2023[14]).

Section 3.3 on "design of safeguards/guardrails: regulatory frameworks, and soft tools", provides further information on these and other complementary instruments and mechanisms being developed by G7 members to support safe, secure, and trustworthy AI use in the public sector.

3.1.1.4 Government data in AI applications

A critical issue in the successful development and deployment of AI is the quality of data it relies on; good AI depends on good data. Recognizing this, several countries are strategically linking their AI and data strategies to ensure that AI systems are built on robust, accurate, and comprehensive datasets, in particular government data, including open government data. All G7 AI strategies include mention of open government data and investment in the development and maintenance of data centres to ensure high-quality, accessible, and secure data for AI applications. Additionally, most strategies report a focus on promoting standards and frameworks to facilitate data sharing and interoperability between different government departments and public sector organisations. This helps breaking down data silos and allows for more comprehensive and integrated use of data.

- In **Canada**, the government is committed to building AI on a solid data foundation. The AI strategy for the public service that is currently under development builds on Canada's 2023-2026 Data Strategy for the federal public service. Additionally, Canada emphasizes ethical guidelines for the

use of open government data in AI applications. This includes ensuring data privacy, mitigating biases in datasets, and promoting fairness and transparency in AI decision-making processes.

- In **Germany** the Open Data Act, enacted in 2017, mandates federal authorities to make their data openly accessible by default. This legislation aims to standardize data formats and ensure that data is easily accessible and reusable. In **Japan**, the Basic Principles on Open Data (Government of Japan Standard Terms of Use) were formulated in 2017 based on the 2016 Basic Act on the Advancement of Public and Private Sector Data Utilisation. The former sets out the significance, definitions, and rules for the openness of administrative data, and acts also as a guideline for relevant ministries' and agencies' work on the openness of administrative data. The Basic Principles on Open Data were reviewed and revised in light of recent technological developments such as AI, including the addition of provisions to further promote Open government data implementation.
- **Italy** has adopted a similar approach, setting actions to create integrated datasets for open data and open AI models. The country's strategy also foresees using more targeted data, i.e. data that is relevant to particular use cases and applications, to ensure that AI applications are precisely tailored to address specific needs and challenges within public services. This will involve, for example, collecting and using data that is relevant for land registry categorisation, traffic prediction, supporting construction sectors and infrastructure monitoring.
- In the **United States**, Section 4(b)(ii) of OMB Memorandum M-24-10 covers data, specifying that Agencies should develop adequate infrastructure and capacity to sufficiently share, curate, and govern agency data for use in training, testing, and operating AI. This includes an agency's capacity to maximise appropriate access to and sharing of both internally held data and agency data managed by third parties. Agencies should also explore the possible utility of publicly available information and encourage its use where appropriate and consistent with the data practices outlined in this memorandum.
- The **UK'**s national AI strategy focuses on enhancing data foundations to improve efficiency and public service delivery through several key initiatives, with a particular emphasis on open standards to ensure data is published in formats that are easily accessible and reusable. This includes standards for metadata, data formats, and APIs. The central portal for accessing UK government data, data.gov.uk hosts thousands of datasets from various government departments and agencies. It allows users to search, download, and reuse data in machine-readable formats.

3.1.1.5 Supporting infrastructure

Several strategies consider the key role played by infrastructure in supporting AI use and development and helping increase traction and adoption (OECD, 2024[15]).

- **Canada**'s upcoming AI Strategy for the Federal Public Service incorporates a "Supportive Infrastructure" objective aimed at developing both policy and technical frameworks to support departments and agencies in adopting AI into their operations for program delivery, science and research, and back-office productivity. Importantly, the strategy also emphasizes ensuring accessibility for all employees, thereby fostering inclusivity, and maximising the potential benefits of AI across various government sectors. This approach seeks to create a robust foundation that supports the ethical deployment and effective use of AI technologies within the Canadian public sector.
- Finally, **France**'s Villers-Cotterêts hub initiative, aimed at promoting the development and deployment of AI in the public sector, focuses, among other priorities, on providing infrastructure and resources necessary for testing and deploying AI applications. This includes access to datasets, computing resources, and expertise needed to develop and scale AI projects.

Additionally, it aims to bolster the representation of the French language within AI models seeking to address the current shortage of French-language training data for AI systems.

- I**taly**'s strategy outlines two primary actions related to supporting infrastructure. The first aims to enhance interoperability among public sector data feeds to facilitate AI development and algorithm design, ensuring adherence to data protection regulations and fostering trustworthiness. The second involves establishing an open language resource—a freely accessible repository of digital datasets—to facilitate applications such as text mining, chatbots, and multilingual services.

3.1.1.6 General government functions

Most strategies also emphasise priority applications and objectives. AI is generally seen as a driver of greater service responsiveness, operational efficiency, and policymaking efficacy.

- For instance, in **Japan**, the AI strategy promotes the use of AI in government to enhance public sector efficiency, improve the quality of public services, the working environment, and reduce administrative burdens and costs, including in tax compliance. To achieve these goals, the strategy outlines two primary actions: Firstly, it advocates integrating AI within government operations to bolster administrative functions and streamline governmental processes. Secondly, the strategy emphasizes leveraging AI for improved policymaking through comprehensive data collection and analysis, thereby fostering informed decision-making and optimising service delivery to the public.
- In **Canada**, the Enhanced Services objective within Canada's forthcoming AI Strategy for the Federal public Service aims to enhance efficiency while upholding high standards of quality. This initiative seeks to leverage data-driven approaches to deliver accessible and inclusive public services to all Canadians. By harnessing the power of AI, the strategy aims to ensure that services are not only efficient but also responsive to the diverse needs of the population. Furthermore, the strategy emphasizes accessibility as a core principle, aiming to make government services more readily available and user-friendly for all Canadians. This includes enhancing digital platforms and implementing AI-powered tools that can personalize interactions and provide timely responses to citizen inquiries and needs.
- In the **United States** the OMB Memorandum M-24-10[6] covers guidelines for Federal agencies to strengthen AI governance, advance responsible AI innovation, and manage risks from the use of AI.
- **France**'s current strategy for AI implementation in the public sector involves several initiatives. One notable effort is a pilot project utilising generative AI to draft responses to online user comments within public services. Approximately 1,000 volunteers are participating in this pilot. Additionally, France is developing "Albert," an open-source AI tool designed for public agents. Once fully developed, Albert will be deployed across various public services in France (see Box 3.3).
- Finally, **Italy**'s strategy aims to use AI to streamline bureaucratic processes, reduce costs, optimize time management, and enhance service delivery. The objective is to support a modernised public sector capable of delivering timely customised services and enable officials to prioritise critical cases.

2.1.2. The role of public consultations and stakeholder engagement in national strategies

The inclusion of a wide range of views in the design of national strategies and in the development, deployment and use of AI-enabled solutions is essential to achieve buy-in and ownership from all stakeholders, and to build up trust in the use of AI in the public sector.

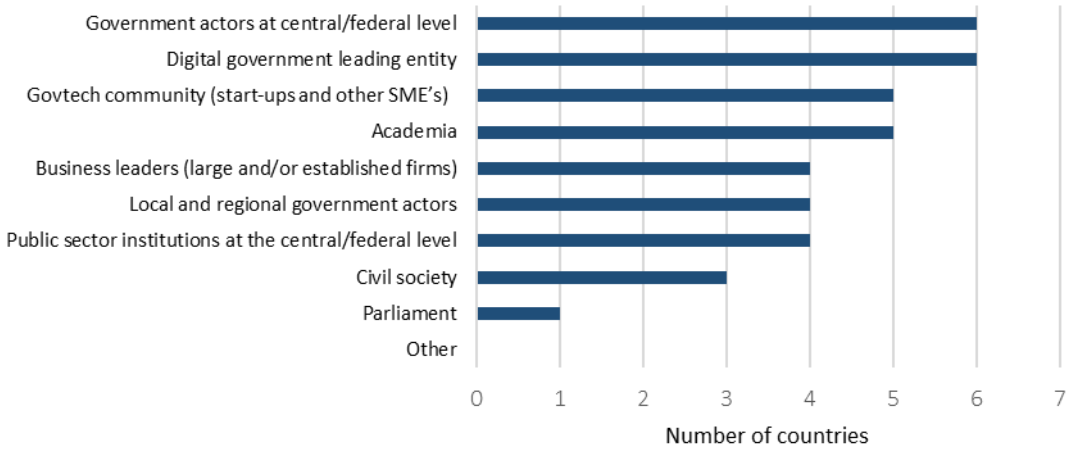
G7 members report having involved a broad range of stakeholders including government actors, business leaders, govtech ecosystems, and academia, to collect input on the design and

implementation and monitoring of their national AI strategies, and action plans for AI in the public sector. Among G7 members, the **UK** has remained committed to a multistakeholder approach throughout the implementation of its national strategy. After the publication of the "A pro-innovation approach to AI regulation"[7] white paper on 29 March 2023, the government held a formal 12-week public consultation that received input from over 545 different individuals and organisations. A response to the white paper consultation was then published on 6 February 2024. In the US, the White House engages with the National AI Advisory Committee (NAIAC)[8] that consists of experts with a broad and interdisciplinary range of AI-relevant experience from across the private sector, academia, non-profits, and civil society.

Additionally, **Canada** prioritised robust and early consultation of the forthcoming AI Strategy for the Federal Public Service with stakeholders, rights holders, public servants, and the Canadian public. The aim is to conduct broad, early, and meaningful consultation to ensure the strategy is well positioned for successful implementation and to build public trust in the government's responsible adoption of AI.

Figure 2.1. Number of G7 members having engaged/consulted specific stakeholder groups

Which actors have been engaged/consulted in the development of the national strategy, agenda, or plan for AI in the public sector?



Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024).

Multi-stakeholder consultations leverage different tools including hearings, workshops, public consultations, seminars, focus groups and surveys. The policy measure itself may demand a specific method or the involvement of a predefined group of stakeholders. Based on information from G7 members, the organisation of workshops, meetings and seminars are the most common types of consultation methods. Consultations with the public can help defining priorities and policy objectives and identify key issues. In addition to in-person consultations, some members, e.g. the **United States**, engage citizens with an online public request for written comments, to ensure that a diverse range of perspectives is considered.

2.2. Governance frameworks: institutional arrangements and coordination mechanisms

Sound and effective governance institutions and frameworks are critical for the public sector. Setting clear institutional roles is one of the basic preconditions for sound governance of AI in the public sector and to secure its use supports the sustainable digital transformation of governments (OECD, 2014[16]). Defining institutional roles and ensuring seamless coordination across various policy dimensions is also critical for the successful deployment of AI. These dimensions range from technological infrastructure to regulatory frameworks, data governance, capacity building, amongst others. Moreover, political leadership is an important enabler to forge a unified vision for AI, ensure alignment with overarching objectives and create an environment that enhances trust in AI technologies across the public sector and beyond. This section highlights the key trends and enablers for building governance frameworks for AI in the public sector.

G7 members pursue different institutional arrangements to govern the development and use of AI in the public sector. Effective governance requires overcoming the tensions across public organisations´ established identities and often siloed structures. Responses to the survey provide insights on how G7 members navigate this tension and the organisational strategies adopted. Half of the members adopt a decentralised approach (with cross-cutting or multi-institutional institutional set-ups), while the other half report having adopted a more centralised approach, i.e. they established a dedicated single leading institution, or assigned a lead or coordinating role to an existing national body or organization often upgraded to the level of ministry. Although broadly categorised as decentralised (multi-institutional) vs decentralised (with a single leading institution), countries' institutional arrangements still vary significantly in structure and functions. Arrangements depend on a country's existing institutional context and culture and may involve different entities with varied coordination mechanisms and responsibilities across leading institutions.

Table 2.3. Institutional arrangement by type

Type	Country	Coordination bodies
Multiple institutions	US	An interagency council Interagency Council of Chief AI Officers coordinates AI development and usage across agencies, The Executive-Branch council level AI Council, comprising Cabinet members, oversees AI activities throughout the Federal Government.
	France	France has established several institutional arrangements to govern AI, including the *Conseil national de l'intelligence artificielle* (CNIA) which advises the government on AI policy, regulation, and strategy, and the *Commission nationale de l'informatique et des libertés* (CNIL), which is responsible for ensuring compliance with data protection laws.
	Japan	The AI Strategy team jointly with the Cabinet Office coordinate the overall AI policy across multiple ministries and agencies. (such as the Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry, and Digital Agency).
	Canada	The Treasury Board of Canada Secretariat (TBS), through the Office of the Chief Information Officer, provides strategic direction and policy guidance on AI, including compliance tools like the Algorithmic Impact Assessment. However, the Policy on Service and Digital delegates authority to departmental heads who are responsible for establishing governance and managing IT, information, data, and cyber security within their departments, including ensuring the responsible and ethical use of automated decision systems, maintaining transparency, and risk mitigation.

Single lead institution	**Italy**	The Department for Digital Transformation (DTD) a is the primary lead body responsible for the coordination of digital initiatives. The Agency for Digital Italy (AGID), which operates under the directive of DTD is responsible for execution.
	Germany	Ministry of Interior and the upcoming BEKI (Advisory Centre for Artificial Intelligence), which will operate under the supervision of the Ministry of Interior and will serve as the primarily coordinating body for AI in the public administration.
	UK	The Department for Science, Innovation and Technology is the UK's digital centre of government. The Department coordinates governance of AI in the public sector through the Government Digital Service (GDS), Central Digital and Data Office (CDDO), Incubator for AI (i.AI), AI Policy Directorate (AIPD), and Responsible Technology Adoption Unit (RTAU).
Regional Coordination Mechanisms	**European Union**	The European Data Protection Supervisor (EDPS) is responsible for the oversight of AI systems used by EU institutions, agencies, or bodies. Additionally, the implementation of the EU AI Act is facilitated by the European AI Office, which supports governance bodies in Member States and directly enforces provisions pertaining to general-purpose AI models.

Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024).

2.2.1. Multi institutional governance approach

In the **United States**, President Biden's Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence has established two key councils to oversee AI initiatives across federal agencies. First, an interagency council has been created to coordinate the integration of AI into agency programs and operations, except those programs and operations involving national security systems. Secondly, an executive-level council, comprising Cabinet members or their appointees, has been formed to coordinate agency activities throughout the federal government. This council ensures the efficient formulation, development, communication, industry engagement, and timely implementation of AI-related policies outlined in the Executive Order.

In the **European Union** (EU), the European Data Protection Supervisor (EDPS) is responsible for the oversight of AI systems used by EU institutions, agencies, or bodies. Additionally, the implementation of the EU AI Act is facilitated by the European AI Office, which supports governance bodies in Member States and directly enforces provisions pertaining to general-purpose AI models. The EU AI Act grants the European Commission significant powers, such as the authority to evaluate general-purpose AI models, request information and corrective actions from model providers, and impose sanctions as necessary to ensure compliance. These measures are crucial for maintaining accountability and safeguarding ethical standards in the deployment of AI technologies across the EU.

In **Canada**, governance of the use of AI in the federal public service is decentralized and shared by multiple government institutions. The *Policy on Service and Digital* designates the Office of the Chief Information Officer (OCIO), within the Treasury Board of Canada Secretariat, as the leader providing strategic direction and policy guidance on IT, including AI initiatives, across the Government of Canada. The OCIO ensures alignment with digital transformation goals and promotes best practices in ethics, privacy, and security. This is supported by the Directive on Service and Digital, which outlines how government organizations manage service delivery, information, data, IT, and cyber security. However, specific responsibilities are delegated to deputy heads of individual departments. They implement the strategic direction within their departments, manage AI projects tailored to their needs, and ensure compliance with relevant policies and standards, such as the Directive on Automated Decision-Making. This directive mandates the use of the Algorithmic Impact Assessment tool to evaluate and mitigate risks associated with automated decision systems. Additionally, federal policies and laws related to privacy and human rights also apply to AI use.

For instance, the Office of the Privacy Commissioner enforces privacy regulations and provides guidance on responsible AI practices. The OCIO also facilitates collaboration and resource sharing across departments, promoting a unified approach to AI development and deployment. This structure balances centralized leadership with decentralized execution, fostering innovation while maintaining consistency with government-wide objectives.

2.2.2. Single lead institutional governance approach

Various governments have opted for single lead approaches to institutional governance. In **Germany**, the Ministry of Interior is setting up an Advisory Centre for Artificial Intelligence (BeKI) in order to create a central contact and coordination point for AI projects and initiatives in the federal administration. As an initial pilot project, a database of planned and existing AI solutions is being developed and a central infrastructure for Large Language Model (LLM) applications is being tested. Furthermore, government-wide guidelines for AI usage are currently being developed. BeKI will offer specialised expertise and services, advising public administration on legal, ethical, and technical aspects of AI. It is planned to promote national and international networking within the public sector, academia, and society. Furthermore, BeKI will support capacity building among federal administration employees and undertakes other pertinent responsibilities to advance AI governance in Germany.

The **United Kingdom** has a robust AI governance structure led by the Department for Science, Innovation & Technology (DSIT), and have recently united efforts across government to support digital transition of public services under one department. (Box 2.6).

Box 2.6. UK roles and responsibilities in government for artificial intelligence (AI)

In the UK, The Department for Science, Innovation and Technology (DSIT) is expanding in both scope and size bringing experts in data, digital and AI from the Government Digital Service (GDS), the Central Digital and Data Office (CDDO) and the Incubator for AI (i.AI) to unite efforts in the digital transformation of public services under one department. This will form part of wider efforts to launch DSIT as the digital centre of government, working closely with the Cabinet Office and the Treasury, to maximise the potential of digital, data, and technology.

The Department for Science, Innovation and Technology is expanding in both scope and size, bringing in experts from:

- Central Digital and Data Office, leading digital and data functions.
- Incubator for Artificial Intelligence (i.AI), launched in November 2023, which helps departments leverage AI to improve productivity and public services.
- Government Digital Service, responsible for building digital products and platforms to support AI adoption across government.

This will build on existing efforts within the department led by:

- Artificial Intelligence Policy Directorate, overseeing the National AI Strategy.
- Digital Standards and Internet Governance Team, leading global digital technical standards policy.
- Responsible Technology Adoption Unit, fostering trustworthy AI innovation and developing tools to ensure AI reliability.
- National Technology Adviser, guiding the UK's Science and Technology Framework for an innovative public sector.
- Artificial Intelligence Safety Institute, established in 2023, focusing on AI safety evaluations and foundational research.

The government also supports AI development through various programs:

- UK Research and Innovation (UKRI) funds multiple AI initiatives
- Alan Turing Institute, which advances AI research, builds skills, and co-leads the AI Standards Hub.
- Catapult Network, which supports innovation by bridging research and business, includes the Digital Catapult aiding AI projects.
- Digital Research Infrastructure Programme, receiving £129 million between 2022 and 2025 to develop national digital research infrastructure.

Source: (National Audit Office, 2024[17])

2.3. Safeguards and guardrails

The governance and regulatory frameworks underpinning AI are crucial to unleash the positive impacts AI can have, while addressing the challenges it poses (OECD, Forthcoming[18]; UNESCO, 2023[14])**.** This is critical particularly in relation to AI uses in the public sector that are considered high risk and therefore requiring greater scrutiny and oversight. Governance frameworks should be agile and *innovation-ready,* incorporating robust mechanisms to protect and uphold citizens' rights, while also monitoring, mitigating, and compensating for any unforeseen adverse outcomes or risks arising from the deployment and/or use of AI systems in the public sector. This includes policy and regulatory frameworks

pertaining to AI use/implementation, data protection, privacy, data sharing and accessibility, and freedom of information, among others.

At both national and supranational levels, numerous laws and regulations already exist that indirectly regulate AI and its applications across different sectors. Existing legislations on privacy and data protection, for instance, already provide substantial support to address privacy concerns related to AI. In many G7 members, these laws include provisions regulating and limiting the use of automated decision-making processes.

Having an up-to-date and comprehensive legal and regulatory basis may not be sufficient considering governments' distinct responsibility to identify and manage risks that may result from AI use with direct impact on citizens' lives. Concerns on potential risks and ethical considerations become more pronounced as AI technologies are increasingly integrated into public sector's operations with the expectation to improve the delivery of essential services, e.g. healthcare, transportation, and social services. Therefore, robust impact assessment as well as risk management frameworks and proactive strategies are crucial to ensure that AI deployments and use prioritise safety and transparency ultimately fostering trust and benefiting society at large.

The survey aimed to explore whether G7 members developed additional safeguards, requirements, or guidelines to reliably assess, test, and monitor AI's impacts on the public at large, mitigate the risks of AI deployment. These measures include ethical risks and provide the public with transparency into public sector uses of AI.

The responses to the questionnaire show that G7 members have implemented various additional safeguards to promote the ethical, trustworthy, and human-centric development and use of AI. These range from transparency requirements for public algorithms, regulations on automated decision-making, and guidelines aimed at addressing ethical risks, among others. The evidence suggests that most G7 members have primarily emphasised promoting transparency in public algorithms and developing guidance on the responsible use of AI within the public sector, both of which are further discussed in the next sections.

None of the G7 members report having developed policies and processes for auditing at national level, although there is evidence of policy development and audits at local level. For instance, in 2021, New York City enacted the AI Audit Law (NYC Local Law 144), requiring that AI systems used to inform employment-related decisions are made subject to independent audits.

Figure 2.2. Trends on guardrails or safeguards to support human-centric AI

Has your central/federal government developed any guardrails or safeguards to support the ethical, safe, secure, trustworthy, and human-centric development, deployment, and use of AI by public sector organisations?

Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024)

2.3.1. Promoting transparency in public algorithms

Transparency in AI requires that both the design and implementation processes are fully justifiable. It also necessitates that any outcome influenced by algorithms is interpretable and understandable to those affected by it. In turn, this principle ensures clarity and accountability in how AI systems operate and impact individuals or groups (Leslie, 2019[11]), as well as pertinent and sufficient information to evaluate AI systems (GPAI, 2024[19]).

- In **Canada**, the Directive on Automated Decision-Making (2019) mandates federal departments to ensure transparency, accountability, legality, and fairness in AI use. This directive specifically addresses issues like biases, safeguards personal information, and promotes procedural fairness through algorithmic impact assessments, focusing on human rights, health, and sustainability considerations. The Directive also includes requirements for reporting mechanisms, and avenues for recourse. It applies to all automated systems used in service decisions that significantly impact the legal rights, interests, or privileges of government employees and individuals or businesses external to the government. This encompasses systems including AI that either make or support administrative decisions or recommendations aimed at enhancing service delivery (Treasury Board of Canada Secretariat, 2023[20]). The implementation of the Directive is further supported by the Algorithmic Impact Assessment (AIA) tool. This is a mandatory questionnaire designed to evaluate risks associated with automated decision systems prior to their deployment and during significant functional updates. As per the Directive's requirements, the outcomes of the AIA must be disclosed on the open government portal prior to system deployment and integrated into a registry of automated decision systems used in government. This disclosure entitles the individual affected by the decision to request and receive explanations in clear and understandable language regarding the algorithm's application to their specific case. This measure aims to ensure ethical deployment of AI, accountability, and transparency in administrative processes, allowing citizens to better understand and contest decisions that impact them directly.

- Since 2016, **France** has implemented a legal framework aimed at enhancing algorithmic transparency within the public sector. According to this framework, all public entities using algorithms for decision-making are obligated to provide general information regarding the primary algorithms employed and their intended objectives. Additionally, whenever an administrative decision is influenced by an algorithm, its use must be explicitly stated in the decision itself. The Algorithmic Transparency Guide provides comprehensive guidelines aimed at improving transparency in algorithmic processes. Beyond addressing relevant legal issues and obligations it provides a range of resources including reports, articles, tools, and information on pertinent events. These resources contribute to a deeper understanding and effective implementation of the guidelines (Etalab, 2023[21]).
- In the **United States**, the OMB Director issues annual instructions to enhance transparency regarding the use of AI by federal agencies. These instructions, mandated by section 7225(a) of the Advancing American AI Act, outline requirements for agencies to collect, report, and publish their AI use cases. Starting in 2024, OMB is expanding this inventory significantly. Agencies will now be required not only to report additional use cases but also to detail the associated risks of AI deployment and explain their strategies for mitigating these risks.
- In the **United Kingdom**, as previously mentioned, the Algorithmic Transparency Recording Standard (ATRS) mandates public sector organisations to transparently disclose details about their use of algorithmic methods in decision-making processes. This requirement applies specifically to algorithmic tools that either significantly impact decisions with public implications or directly engage with the public. As of February 2024, the ATRS has been made mandatory for all government departments, with plans to gradually extend its application to encompass the wider public sector in the future. The design and development of the ATRS was underpinned by extensive collaboration with public sector, industry, and academic stakeholders as well as citizen engagement. It was also informed by a public engagement study run by the RTA and BritainThinks (OECD/UNESCO, 2024[22]).

2.3.2. Guidance on the use of AI in and by the public sector

To aid implementation of governance frameworks aimed at ensuring the ethical considerations in relation to the development, deployment and use of AI in the public sector, G7 members report a spectrum of guidance tools, ranging from practical guidelines, to technical, educational, or procedural tools such as checklists. In 2023, UNESCO released a general methodology, intended as a set of criteria to assist countries on how to conduct an EIA (see Box 2.7). Several members have developed specific guidelines addressing the use of generative AI, the integration of AI in specific policy domains, and standards promoting algorithmic transparency.

Box 2.7. UNESCO Ethical Impact Assessment (EIA)

The UNESCO EIA is a tool designed to identify and assess AI systems' benefits, concerns, and risks and appropriate measures for the prevention, mitigation, remediation, and monitoring of identified risks.

The EIA was developed to guide the procurement of AI systems, as this is one of the main channels in which algorithms make their way into highly sensitive public domains. However, the methodology can also be used more generally by developers of AI systems, in the public or private sectors. The document comprises two main parts that together strike a balance between procedure and substance. In the first part, related to scoping, the goal is to understand the basics of the system, as well as to lay out some preliminary questions, such as whether automation is the best solution for the case at hand. It also raises questions about the project team and whether plans are in place to engage different stakeholders. The second part is dedicated to implementing the principles of the UNESCO Recommendation.

The EIA is part of a larger implementation plan for the Recommendation, and it complements another tool produced by UNESCO, the Readiness Assessment Methodology (RAM). The RAM can help governments assess how robust and agile their laws, policies and institutions are in addressing AI risks.

Source: (UNESCO, 2023[23])

Guidelines are usually addressed to public officials planning to develop AI projects to improve service delivery to the public and that involve extensive data collection and analysis. Their purpose is to provide public officials with the knowledge needed to shape these projects for good and raise awareness about potential risks, including biases, breaches of personal data, and unintended discrimination.

As previously mentioned (see Box 2.3), the **United Kingdom's** Department for Science, Innovation and Technology is committed to implementing the Algorithmic Transparency Recording Standard (ATRS). In February 2024, it was announced that use of the ATRS will become mandatory in all government departments, with an intent to extend to the broader public sector over time. The ATRS establishes a standardised way for public sector organisations to proactively and openly publish information about how and why they are using algorithmic tools; specifically, those that either have a significant influence on a decision-making process with public effect, or directly interact with the public. Transparency is a key driver of public trust, with research highlighting the importance of meaningful transparency in increasing trust around the use of data-driven technologies. Supporting public sector organisations to develop mechanisms to enable transparency will help them to make use of the power of algorithmic tools.

Additionally, in January 2024, the UK government launched the Generative AI Framework to steer the development and implementation of generative AI technologies across government entities. The framework outlines ten core principles that emphasize adherence to ethical standards and responsible practices. It offers extensive resources aimed at enhancing understanding of generative AI technologies, facilitating the development of AI solutions, and ensuring their safe and ethical deployment (Central Digital and Data Office, 2023[24]).

Germany has developed two primary sets of guidelines to ensure the ethical use of AI in public services. The first set, titled Guidelines for the Use of AI in Employment and Social Protection Services, provides organisations with a structured framework. This includes a checklist designed to promote the implementation of AI systems that prioritise human-centric approaches. The guidelines encourage stakeholders to collaboratively define AI's objectives and emphasize early-stage assessments of potential consequences and risks to various groups. Additionally, they underscore the importance of maintaining high data quality, reducing biases, and enhancing transparency regarding the objectives and operations

of AI applications. An integral aspect is the promotion of explainability, ensuring that AI actions and decisions are understandable to users and stakeholders.

Another set of guidelines developed by Germany are the AI Guidelines currently under development for the Public Administration, which will be legal binding. These guidelines will include strategic principles, ethical norms, legal compliance, technical specifications, data foundations, and potential application fields. They aim is to establish a standardised minimum set of requirements for deploying AI applications across public administration with a particular focus on aligning with existing legal frameworks, ethical considerations, and data security requirements across all government departments.

In **Canada**, the Guide on the Use of Generative AI[9] serves as a resource for federal institutions utilising generative AI technologies. This document provides an overview of generative AI and guidance for federal institutions on how they must assess and mitigate ethical, legal, and other risks before they start using generative AI. It sets forth clear principles for responsible application, including the need to ensure that content from AI tools does not include or amplify biases; that it complies with human rights, accessibility, and procedural fairness obligations, and it outlines policy considerations alongside best practices to optimize these tools' deployment. The Guide emphasizes the importance of proactive engagement with key stakeholders prior to the deployment of generative AI tools, particularly in areas like public service delivery. It aims to enhance awareness and foster better coordination among federal institutions, ensuring that the integration of generative AI into government services is both thoughtful and effective.

Furthermore, in December 2023, the Office of the Privacy Commissioner (OPC) published the Principles for Responsible, Trustworthy, and Privacy-Protective Generative AI Technologies[10]. These principles outline considerations for applying key privacy principles to generative AI technologies. Additionally, several mandatory federal policies and laws govern the use of AI in Canada. These include the Canadian Charter of Rights and Freedoms, the Canadian Human Rights Act, the Values and Ethics Code for the Public Service, the Privacy Act, the Policy on Privacy Protection, and the Policy on Government Security.

In **Japan,** the AI Guidelines for Business Ver 1.0 (April 19, 2024) are intended for all entities involved in AI business activities, including public institutions such as central governments and municipalities. These guidelines set forth principles requiring that AI providers must develop and use AI systems and services that uphold the rule of law, human rights, democratic values, diversity, and a fair and just society. For instance, beyond ensuring fairness, the guidelines advocate for measures to prevent “information and digital poverty”, striving to make AI inclusive, accessible, and beneficial to all segments of society, ensuring that no one is left behind. They serve as unified guiding principles in Japan's AI governance efforts, aimed at promoting the safe and responsible use of AI across various sectors.

Box 2.8. The EU AI Act and its implications for the public sector

The European Union AI Act is a regulation on AI adopted in August 2024. The regulation introduces obligations based on the potential risks and level of impact of AI technologies. Beyond regulating AI, the Act also aims to reshape institutional frameworks within individual member states and at the European level. It categorises AI into different risk levels, crucial for guiding governmental use and oversight of AI applications.

Risk levels and obligations

The AI Act defines four risk levels:

- **Unacceptable risk**: AI uses under this category are prohibited by the AI Act. Examples include predominantly potential public sector uses such as predictive policing, 'real-time' remote biometric identification (including facial recognition) in publicly accessible spaces for law enforcement, social scoring, or assessing the risk of an individual committing criminal offenses. Law enforcement and justice are among the public sector policy areas most concerned by this category, although some exceptions apply, such as use cases concerned with national security and those remaining subject to judicial oversight.
- **High-risk** - AI uses under this category are allowed but regulated due to their significant potential harm to health, safety, fundamental rights, environment, democracy, and the rule of law. Due to its potential impact on these aspects, most public sector uses of AI might fall under this category. Examples include systems used to influence the outcome of elections and voter behaviour, automated processing of personal data to assess various aspects of a person's life, biometric identification or categorisation, assessing eligibility to benefits and services, workers management, access to essential public services and benefits, and safety components used in the management and operation of critical infrastructure. To ensure compliance, entities must establish a risk management system, conduct data governance, have in place technical documentation to demonstrate compliance, perform fundamental rights impact assessment, among others.
- **Limited risk** – These systems might include chatbots, deep fakes, emotion recognition systems, among others, and have transparency obligations where developers and deployers must ensure that end-users are aware that they are interacting with AI.
- **Minimal risk** – These systems are unregulated, but a code of conduct is suggested. Examples include video games and spam filters.

Governance Framework

The Act also introduces a restructured governance framework at both national and European levels. Each member state must designate one or more National Competent Authorities to supervise the Act's enforcement. At the European level, the European Artificial Intelligence Board will gather official points of contact of each Member country to ensure uniform application across member states. It will be complemented by an advisory forum, representing a balanced selection of stakeholders, and a new European AI Office, established within the Commission, which will be supported by a Scientific Panel of Independent Experts.

Source: (European Parliament and Council, 2024[25]), (OECD, 2024[2]), (Future of Life Institute, 2024[26]).

3 Current trends in AI in the public sector

This section of the toolkit explores governments' role as users and, in some cases, developers of AI systems and applications. It specifically:

- **Outlines trends in AI use cases within the public sector among G7 members, highlighting benefits and impacts.** It shows how AI is being used in the public sector to enhance the efficiency of internal operations, the effectiveness of policymaking, the responsiveness of public services, and the transparency and accountability of government. The examples presented are based on the results of the questionnaire developed to support a review and stocktaking across G7 members, representing their current understanding and progress in leveraging AI to achieve public sector goals.
- **Describes concrete policy options to address key implementation challenges, thereby enabling a more systematic use of AI in the public sector**. These challenges and policy options include strengthening infrastructure, transforming public procurement and partnerships for AI, upskilling and training the public sector, implementing data governance frameworks, and monitoring AI implementation in the public sector. Overall, it highlights good practices adopted by G7 members to tackle these challenges.

3.1. Expected benefits and impacts

G7 members are exploring and harnessing the potential of AI across various public sector functions, with the expectation of achieving significant impacts in alignment with human rights and fundamental freedoms, to protect and benefit society as a whole. Table 3.1 presents a taxonomy consisting of three categories used to describe and compare how specific AI use cases contribute to creating public sector value. The first category identifies specific tasks performed by AI systems, aligned with the OECD Framework for the Classification of AI Systems (OECD, 2022[27]). The second category identifies four key public sector functions where these tasks are applied: i) improving internal operations of public administrations, ii) enhancing policy making, iii) improving service design and delivery, and iv) enhancing oversight, risk detection, and public integrity within government agencies and by external oversight bodies (OECD, 2024[28]). The third category identifies three impacts that any use case can deliver to the public sector: productivity (comprising efficiency and effectiveness), responsiveness, and accountability.

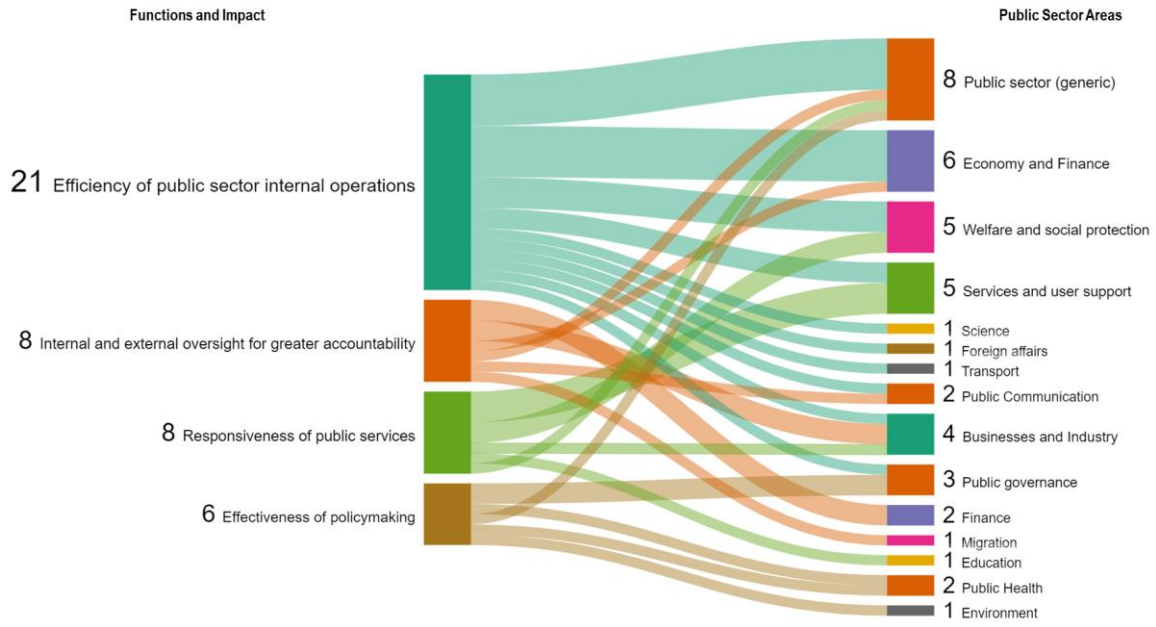
Table 3.1. Understanding the use of AI in the public sector

Tasks	Function	Impact
• Recognition. • Event detection. • Forecasting. • Personalisation. • Interaction support. • Goal-driven optimisation. • Reasoning with knowledge structures. • Content generation	Internal operations	Productivity (efficiency and effectiveness)
	Policy making	Responsiveness
	Service delivery	
	Internal and external oversight	Accountability

Note: the Tasks column is adapted from the "AI System Tasks" of the OECD Framework for the Classification of AI Systems (OECD, 2022[27]).
Source: (OECD, 2024[2]).

This taxonomy can be applied to better understand the trends of AI use across the G7. Figure 3.1 illustrates the reported AI use cases by G7 members, classified according to the public sector function they are fulfilling, the impact they are set to achieve, and the public sector area where they are being developed. **About half of the reported AI use cases in the public sector in G7 members are set to increase the efficiency of public sector operations. One fifth of the reported use cases concern internal and external oversight functions to improve government accountability and another fifth seeks to improve responsiveness of public services. A minority of use cases are being developed to improve the effectiveness of policymaking.** When examining the public sector areas where these use cases are being developed, an overwhelming majority are in economy and finance, services and user support, welfare and social protection, businesses and industry, or in general public sector functions. The following sections examine these trends and illustrate relevant practices.

Figure 3.1. Reported AI use cases in G7 members by function, impact, and public sector area



Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024)

3.1.1. *Efficiency of public sector internal operations*

The use of AI within the G7 public sector is predominantly focused on enhancing the efficiency of internal government operations, according to the questionnaire. These internal processes cover various administrative tasks, primarily aimed at boosting productivity by improving existing workflows.

One of the most immediate advantages AI can provide for the public sector is the automation of repetitive and tedious tasks. AI systems are capable of handling time-consuming tasks such as data entry, payroll processing, basic customer inquiries, information verification, and data classification, which traditionally required important human intervention and time. Thus, AI may not only free public servants to focus on more strategic activities but can also significantly reduce operational expenses. This could allow for the reallocation of resources towards critical needs, enhancing the efficiency and accuracy of operational tasks. For example, in **Canada**, several federal departments are deploying Robotic Process Automation (RPA) to streamline internal processes and enhance workflow efficiencies. These robotic agents automate tedious tasks, such as transferring information between systems and routing requests based on pre-established rules. Additionally, Canada utilises Optical Character Recognition (OCR) to process handwritten text in scanned forms and to identify relevant patterns in call centre notes, thereby reducing work items.

In the **United States**, the US Patent and Trademark Office uses AI to enhance the processing of patent applications by assisting examiners in identifying relevant documents and suggesting additional areas of existing knowledge to search. In **Italy**, the Social Security Administration developed an AI system for classifying and sorting emails, allowing public servants to reallocate their time and effort into more meaningful tasks (Box 3.1).

Box 3.1. Italy: Automatic classification and sorting of certified email

Every year, over 4 million emails flood into the INPS (the Social Security Administration of Italy), with employees manually directing each one to one of 450 territorial agencies. To streamline this, INPS introduced an AI-powered email classification system. This tool uses AI techniques to automatically analyse the content and context of incoming emails, routing them to the appropriate offices and enhancing the productivity of the Italian Public Administration. The implementation of this system not only ac***c***elerates response times to citizen queries, but it also frees up INPS employees from manually sorting vast amounts of emails. This AI solution is sustainable and scalable, offering potential for adoption in other public administration sectors and organisations worldwide.

Source: (UNESCO & International Research Centre on Artificial Intelligence, n.d.[29])

AI is also supporting government offices that require the analysis and processing of extensive documentation or larges datasets. AI tools are transforming the way documents are analysed and summarised in the public sector, particularly enhancing efficiency in departments that deal with extensive information, such as legal affairs, administrative processes, and policy development. These tools use natural language processing to understand, summarize, and highlight key points from vast amounts of text quickly and accurately. The **United Kingdom's** *Redbox Copilot*, for example, not only analyses information but also features a chatbot that helps public servants clarify specific details (Box 3.2).

Similarly, in **Japan**, AI is used to efficiently search and summarize frequently updated texts. The National Personnel Authority updates its rules annually, which demands considerable time for government staff to understand regulations related to payroll and personnel system modifications. AI simplifies this process by extracting key points and summarising laws and regulations clearly, significantly reducing the time needed to draft responses and easing staff workloads. In the **European Commission,** *Doris* (Data Oriented Services) supports the early and operative stages of the policy analysis processes by providing sentiment

analysis, keyword extraction, summarisation, and named-entity recognition for semi-automatic analysis of any type of document. Additionally, eBriefing AI-powered language service produces topic-based overviews from relevant input documents.

Box 3.2. UK: Redbox Copilot

Developed by DSIT's Incubator for AI, Redbox Copilot is an AI tool that streamlines the work of civil servants by summarising content from various documents such as letters, briefings, speeches, and meeting minutes. This enhances the accessibility and interaction with vital information, making it easier for civil servants to manage and respond to content efficiently. Similar to AI chatbots platforms like Chat-GPT, Redbox Copilot enables interactive discussions, allowing users to pose questions and delve into details about the documents they handle, further simplifying access to needed information.

Redbox Copilot is designed to significantly boost the productivity of the UK civil service by processing large volumes of documents, thus reducing the administrative load and freeing up time for public servants to focus on more strategic tasks. The project seeks to equip every civil servant with this tool, thereby enhancing overall productivity by optimising the management of administrative tasks.

Source: (Cabinet Office, 2024[30]; Multiplatform AI, 2024[31])

AI can additionally help public servants write more informed and efficient content. In **Italy**, a generative AI model named "prompt" has been developed to produce texts and reports from specific data and documentary sources. Trained on these sources, the model automatically ingests the information and generates the first draft of the report or text, which can then be manually refined through a web application. Initially used by certain offices to produce summary reports on economic and financial data, the model and app is used to facilitate data search and reduce time-consuming activities required for drafting texts and reports.

3.1.2. Responsiveness of public service delivery

G7 members appear to prioritise using AI also to improve the responsiveness of public services. AI can significantly enhance the public services design and delivery function by improving efficiency, personalisation, and accessibility for citizens. By automating routine tasks, AI significantly reduces processing times and can enable public organisations to respond to citizen requests and inquiries with greater speed. This not only decreases waiting times, but also ensures round the clock support for citizens and efficiency by increasing the accuracy of responses and minimising human errors (Ubaldi et al., 2019[3]). AI use for public service delivery also enables a shift from top-down implementation of public services to approaching design and delivery based on user needs (OECD, 2019[32]). By enabling the customisation of services, AI enhances the relevance and responsiveness of interactions with each citizen, making services more accessible and significantly boosting public engagement.

Most of use cases across the G7 impacting responsiveness are chatbots that facilitate access to information for citizens and empower public servants to provide faster and more accurate information in response to inquiries. Among chatbots providing direct support to citizens, **Canada's** Business Assistant Chatbot, part of the Canada Business App, is a mobile application to support small and medium business owners in navigating government programs and services, while providing tailored recommendations and personalised notifications on funding applications (Canadian Intellectual Property Office, 2020[33]). In the **United States**, the Aidan Chat-bot is the Federal Student Aid's virtual assistant that uses natural language processing to answer common financial aid questions and help customers get

information about their federal aid on StudentAid.gov. In just over two years, Aidan has interacted with over 2.6 million unique customers, resulting in more than 11 million user messages (U.S. Department of Education, 2024[34]).

Some AI solutions where the primary immediate benefit is the increased efficiency of internal operations in the public sector, may also lead to improved service responsiveness. Chatbots are particularly enhancing public servants' responsiveness to citizens with whom they interact. In the **UK**, Caddy is an AI tool designed to streamline customer service within *Citizens Advice*, a charity department known for its extensive support network. By providing rapid access to expert advice, Caddy empowers advisors and call handlers to efficiently address a wide array of public inquiries that range from tax issues to social services. In **France**, the *Albert* chatbot was also created to support public servants in providing more responsive and customised assistance to their users (Box 3.3).

Box 3.3. France: Albert

Albert was designed to support advisors within the France services network by enhancing their daily tasks. It offers tailored responses to specific user inquiries using a natural language response engine. This system draws on public documentation and practical guides to provide quick and reliable information. Alongside a personalised response, Albert also furnishes the sources used, suggests related frequently asked questions, and provides links and sheets from service-public.fr, enriching the advisory process with resources.

Source: (France Services, 2024[35])

Various AI use cases show that there is a significant opportunity to enhance public service delivery in specific policy areas. **Within the businesses and industry sector, AI can help navigate government offerings and provide personalised recommendations,** as illustrated by the **Canada's** Business Assistant Chatbot case referenced above**. In the welfare and social protection sector, AI has been used to improve the employability of citizens**. In **Italy,** AI is employed to help individuals find employment by effectively matching job seekers with job openings. In **Canada**, the *Record of Employment Comments Classification* (ROECC) model streamlines the processing of Employment Insurance (EI) claims. Using natural language processing, it automates the review of free-text comments received on records of employment. The system follows specific business rules and takes simple actions to reduce the manual workload of Service Canada officers and ensure timely payment of benefits to Canadians under the Employment Insurance program.

The **European Commission** has developed AI-powered tools for the funding and tender portal, enhancing user experience. An advanced search engine using natural language processing will allow users to find funding opportunities by concepts rather than juts keywords. Additionally, a recommendation system will proactively notify users about relevant news, events, and partners in their areas of expertise.

3.1.3. Improving accountability in government.

AI can enhance government accountability by improving the capacity, efficiency, and effectiveness of oversight, and supporting independent oversight institutions. By deploying algorithms to analyse massive volumes of data, AI can detect irregularities and potential fraud in processes that are traditionally vulnerable to errors and corruption. Currently, governments are leveraging AI to identify patterns of behaviour among public and private entities, detect risks and vulnerabilities in public procurement, and cross-reference information sources to enhance auditing and public transparency (OECD, 2024[2]).

Despite recent evidence of AI's potential to strengthen anti-corruption and anti-fraud activities, examples in government are still limited, and the return on investment remains unclear (Ugale, 2024[36]). The absence of AI in certain areas does not necessarily indicate an opportunity. It might suggest that AI is not suitable for those tasks, or that other considerations—such as privacy, security, bias, and discrimination—outweigh the potential benefits AI could offer.

AI is increasingly being applied to public procurement, public spending, as well as in the provision of public grants, social benefits, and subsidies programmes to uncover hidden patterns and anomalies in government documentation that indicate potential corrupt or fraudulent behaviour (OECD, 2024[2]). For instance, the **United States** Department of State developed supply chain fraud and risk models for detecting anomalous activity within its Integrated Logistics Management System (ILMS) that could be potential fraud or malfeasance. The models will expand upon existing risk models and focus on key supply chain functions such as asset management, procure-to-pay, and fleet management (U.S Department of State, n.d.[37]).

Furthermore, when it comes to document verification, **AI systems can efficiently scrutinize the authenticity of documents submitted by citizens or businesses, detecting discrepancies that might otherwise lead to fraudulent claims or services.** In **Canada**, the Department of Immigration, Refugees and Citizenship (IRCC) launched the Integrity Trends Analysis Tool to streamline verification activities and enhance fraud detection in temporary resident applications. This tool analyses large volumes of IRCC data to identify objective, fact-based patterns indicating high-risk clients, such as those involved in criminal activity or misrepresentation. By automating the detection of risk patterns associated with adverse outcomes and flagging new applications that match them, the tool assists risk assessment units in prioritising applications for verification and provides decision-makers with trend information to make confident, risk-informed decisions. In the **United States**, the Department of Homeland Security's Science and Technology Directorate (DHS S&T) is testing and evaluating AI capabilities for identity document validation, selfie matching, and presentation attack detection (PAD) through the Remote Identity Validation Technology Demonstration (RIVTD) Challenge.

AI also can detect patterns and anomalies in financial transactions that might indicate fraudulent activities, such as misappropriation of funds or illegal transactions. For instance**, Italy** reports using AI for the detection of defects in banknote production. Similarly, in the **United States** the Treasury Department is using AI to accelerate the fraud detection and fund recovery processes (Box 3.4). Italy reports an AI use case for the detection of defects in banknote production. Japan has been developing AI to detect errors when registering a bank account with the government to receive benefits. In Japan, bank account names are registered in Furigana[11], while names in the census register are written in Kanji. The AI matches Kanji and English names with their corresponding Furigana to identify any discrepancies.

Box 3.4. United States: AI mitigation techniques to stop check fraud

This initiative is led by the Treasury Department´s Office of Payment Integrity, which operates within the Bureau of the Fiscal Service. The AI tool deployed is specifically designed to combat check fraud by using near real-time capabilities that significantly enhance both the speed and efficiency with which potentially fraudulent payments from financial institutions are detected and recovered.

The integration of AI has accelerated the processes of fraud detection and fund recovery, especially considering a dramatic increase in check fraud incidents since the pandemic began. For example, the number of Suspicious Activity Reports (SARs) related to check fraud escalated to over 680,000 in 2022, nearly doubling the total from the previous year. The use of AI tools, combined with strong partnerships with federal law enforcement, has significantly strengthened the efficacy of the Treasury's anti-fraud measures.

Source: (Rascon, 2024[38]; U.S. Department of Treasury, 2024[39]).

3.1.4. Effectiveness of policymaking

AI can be instrumental throughout the entire public policy cycle by promoting an evidence-based approach that makes public administrations more efficient, effective, accountable, and responsive to citizen needs (Valle-Cruz et al., 2020[40]). AI tools offer data-driven insights that significantly enhance the policymaking process, ensuring that policies are both effective and aligned with citizens needs and expectations. An evidence-based policy approach is important as it ensures that decisions are informed by reliable data and rigorous analysis. Box 3.5 further explains how AI can be leveraged across the whole policy cycle for more effective policymaking.

Box 3.5. Using AI throughout the policy cycle

Agenda setting

One key aspect of agenda setting is the selective attention that certain issues, rather than others, receive from policymakers. AI can facilitate data-driven analysis to assist in surfacing social problems, making decision-making more reliable for both, policymakers and citizens. For example, AI enables governments to monitor emerging topics in real time from vast and representative datasets, enhancing the accuracy and speed of agenda-setting (Valle-Cruz et al., 2020[40]). By detecting social problems more accurately and quickly, AI facilitates faster policy responses before issues escalate (Höchtl, Parycek and Schöllhammer, 2016[41])

Formulation

Further into the policy formulation phase, AI can significantly influence the decision-making process, as it brings important data and information about the issue to the forefront (Valle-Cruz et al., 2020). AI analysis and predictive capabilities provide evidence-based insights that estimate not only the likely impacts of policies but identify the target populations and making economic and social diagnosis, guiding the evidence-based policies (Wirjo et al., 2022[42]; Ubaldi et al., 2019[3]). It could also assist by devising policy alternatives, providing more in-depth ex-ante policy evaluation (Desouza and Jacob, 2014[43]). Another contribution on this stage would be improving the public consultations and engagements process, helping to analyse and integrate the vast number of comments from different stakeholders' perspectives, including sentiment analysis. This incorporation of broad public input ensures that policies are not only informed by data but also reflective of the community´s needs and expectations.

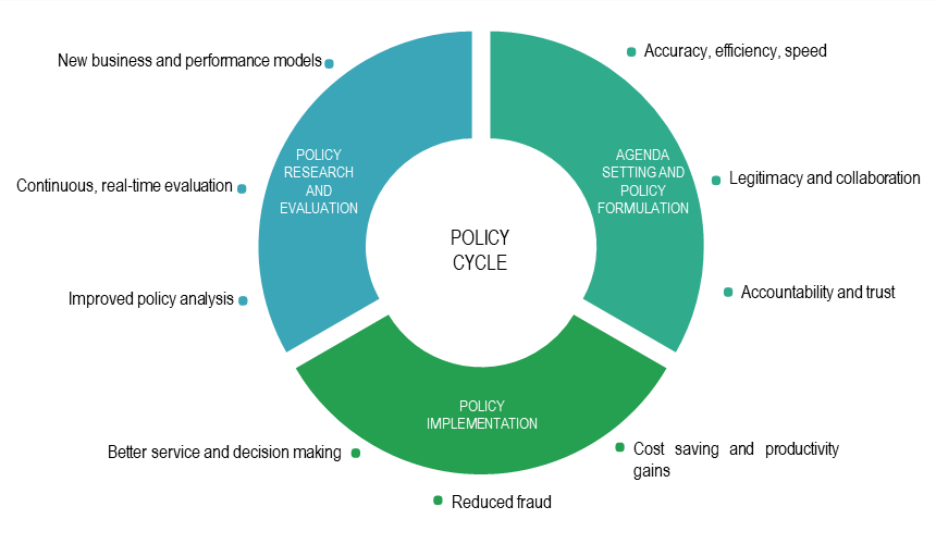
Implementation

As policies move to the implementation phase, AI-driven automation, rapid data processing, and real-time analysis significantly enhance the quality, speed, and efficiency of policy implementation. AI analytics notably strengthen and expedite the acquisition of data and information, supporting continuous improvements. Real-time data analytics can facilitate large-scale enhancements, ultimately improving the delivery of services during policy implementation (Valle-Cruz et al., 2020[40]).

Monitoring and evaluation

At the monitoring and evaluation stage, AI contributes significantly by fosters an environment in which monitoring in real-time policy interventions are available, providing better insights into the policy process, timely and accurate data assessments of policy interventions and enabling quick policy adjustments when needed (OECD, 2019[32]).

Figure 3.2. Benefits of AI at each stage of the policy cycle



Source: Reproduced from (Pencheva, Esteve and Mikhaylov, 2020[44]).

More effective policymaking remains the less explored category of AI application among G7 members.

A growing trend in AI for policymaking is the analysis of information from public consultations to better address stakeholders' needs and requests. For instance, the **United Kingdom** is developing an AI consultation Analyser to improve fairness and speed of the process of analysis of public responses to government consultations. The Analyser uses AI and data science techniques to automatically extract patterns and themes from the responses, creating dashboards that policymakers can use to better understand them. Similarly, the **European Commission** systematically consults the public on new legislative proposals through the 'Have Your Say' portal. AI is used to analyse the feedback provided by the public to help the Commission to develop and refine these legislative proposals.

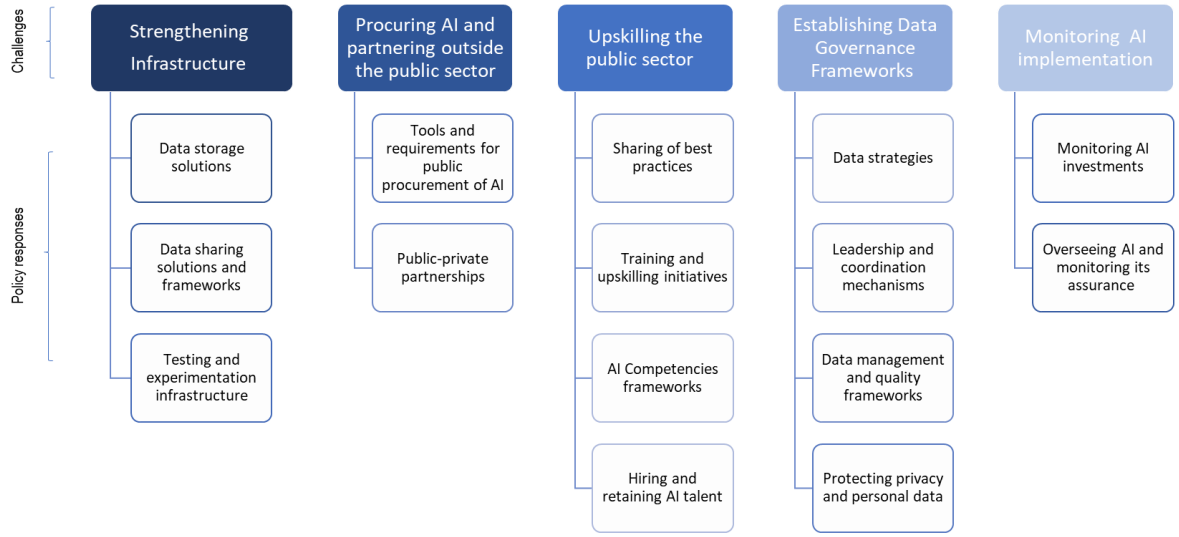
AI is leveraged to better access key evidence in the early stages of policy formulation. For instance, the **European Commission** uses AI to search for and provide scientific evidence for **EU** policy development. This application of AI spans various policy areas, including digital policies, agriculture, crisis management, security, transport, and consumer protection. In the public health domain, the **European Commission** uses an AI system for the systematic collection, analysis, and interpretation of data from various sources. This AI tool detects, verifies, and investigates potential cross-border health risks and emergencies, ensuring a rapid response. **Germany** has advanced AI applications in the public health sector. The Federal Office for Radiation Protection (BfS) uses gamma spectrometers nationwide, including in industrial plants, to monitor radioactive contamination. This AI application provides highly precise real-time radiation analysis, ensuring effective protection of the population from harmful radiation.

AI is used to improve policy implementation. Germany has developed an AI use case to detect potentially illegal online sales advertisements of protected species. Utilising image and text recognition algorithms, the system analysed approximately 50.000 advertisements in the first few weeks, identifying over 1.000 protected animal species. This task demonstrates the efficiency and effectiveness of AI in enforcing wildlife protection laws.

3.2. Policy options to address key implementation challenges

G7 members are using a variety of policy options to address key implementation challenges posed by the systematic use, development, and deployment of AI in the public sector. The primary challenges identified for governments are centred around five main areas: supporting infrastructure, public procurement and partnerships, , skills and talent, data governance, and monitoring, within government (by the centre of digital government) and external oversight (by independent institutions) (Figure 3.3). This section provides an overview of these challenges and illustrates a range of policy options adopted by G7 members to address them. The examples presented are based on the results of the questionnaire developed to support a review and stocktaking across G7 members, as well as the evidence provided by countries for the 2023 edition of the OECD Digital Government Index.

Figure 3.3. Key challenges for AI implementation and available policy options



Source: Author's elaboration.

3.2.1. Challenge 1. Strengthening infrastructure

Policy Issues

Supporting infrastructure is critical for the scaling up of AI in the public sector, serving as the backbone for integrating advanced technologies into government services and functions. This infrastructure supports the efficient handling of large volumes of data, enabling effective AI deployment and operation. Investing in this infrastructure ensures it remains robust, secure, and capable of supporting innovative AI applications to improve service delivery, drive innovation, and ensure that AI systems operate efficiently and transparently.

The most critical infrastructures for AI include **data infrastructure and architectures**, such as cloud computing platforms that offer scalable computational resources, and robust data storage and management systems necessary for handling vast datasets. Interoperability is a key component of these infrastructures, enabling seamless integration and communication between diverse AI tools and systems, and data sharing solutions provide standardised data access and trusted, secure sharing across different sectors. Additionally, testing infrastructure is vital for validating the performance, reliability, and safety of AI models before deployment.

Challenges

Governments face the challenge of increasing the capacity and responsiveness of their support infrastructure to meet the growing data demands of AI and its rapid pace of development. Key infrastructure challenges include enhancing data architecture and ensuring robust capacity, including interoperability frameworks and high-capacity data storage, and trusted, secure data-sharing solutions. Furthermore, the lack of advanced testing and simulation environments may hinder the continuous and trustworthy innovation and deployment of evolving AI technologies that respect human rights.

Policy options

G7 members have prioritised data and testing infrastructure to strengthen the infrastructure essential for the efficient development, deployment, and maintenance of AI applications in the public sector. The sections below present emerging policy options.

3.2.1.1 Policy option 1. Data storage solutions

G7 members have adopted data storage solutions to enhance AI use in the public sector and improve AI compute capacity (Box 3.6). These solutions manage large datasets for training and testing AI models, ensure security for sensitive information, support scalability for growing data volumes, and maintain data integrity and reliability, critical for accurate AI models. Additionally, optimised storage solutions reduce data management costs, enabling more effective resource allocation and improving the efficiency and capability of AI applications in delivering public services In **Canada**, Shared Services Canada (SSC) manages the Government's data centres, crucial for delivering digital services to Canadians. These centres handle telecommunications networks, data processing systems, centralised data storage, and essential equipment like servers, network switches, high performance computing and mainframes. SSC also offers hosting services that are instrumental for developing and integrating AI capabilities, including High Performance Computing (HPC) and Cloud services. HPC services provides vast computing and storage platforms for big data processing and analysis. Furthermore, these services are progressively being upgraded to include resources required for AI and Machine Learning development (Shared Services Canada, 2015[45]). Similarly, **Italy** has developed a shared data centres initiative (Box 3.7).

Box 3.6. AI compute: definition and key policy considerations

AI computing resources ('AI compute') include one or more stacks of software and hardware (inclusive of processors, memory, and networking) used to support AI-specific workloads or applications. It can include large data centres, supercomputers, and cloud providers, as well as smaller data science laptops and workstations.

A national AI compute plan should align with existing national AI strategies and centre around three fundamental questions:

- How much AI compute does the country have?
- How much AI compute does the country need? Is current domestic AI compute capacity sufficient to support national AI strategy objectives?
- How does it compare to other countries?

To answer these questions, policy makers can consider three overarching categories as part of a national AI compute plan – *capacity, effectiveness, and resilience* – which include subcomponents and can be used to develop metrics and indicators for evaluation.

Source: (OECD, 2023[46])

Box 3.7. Italy: Shared data centres

Italy's National Strategic Axis is an infrastructure initiative designed to equip the Public Administration with reliable cloud technologies. It will house strategic data and services for approximately 200 central administrations, Local Health Authorities, and major local administrations, including regions, metropolitan cities, and municipalities with over 250,000 inhabitants. As part of the Cloud Italia Strategy, this Hub aims to transform public service delivery across Italy. Distributed across the country for operational continuity and fault tolerance, the infrastructure will be managed by a selected economic operator through a public-private partnership. This setup mitigates risks of data loss and service interruptions, enhancing the security and accessibility of government data and supporting the modernisation of Italy's public administration.

Source: (Dipartimento per la Trasformazione Digitale, 2023[47])

3.2.1.2 Policy option 2. Data sharing solutions and frameworks

G7 members have adopted various data sharing solutions, including technologies and frameworks, to facilitate the secure exchange and access of data across different organisations, platforms, and sectors, and support data-driven decision making. They are important for enabling interoperability, allowing diverse systems and AI tools to communicate and integrate. Data access and exchange standards and secure methods, such as data sharing platforms, data catalogues, and interoperability frameworks, ensure that data can be efficiently and safely shared. Governments' demand for more efficient data-sharing infrastructures has created opportunities for greater openness and collaboration with external actors.

- **Italy** developed the National Digital Data Platform which offers big data solutions, including data lakes, to facilitate the easy access, sharing, and analysis of large volumes of raw and unstructured data from the public administration.
- The **United Kingdom** is creating a centralised online hub for data discovery and sharing, developed by the Central Digital and Data Office (CDDO). This "marketplace" aims to simplify data access across the government and is being piloted in 2024 (National Audit Office, 2024[17]).
- The **European Commission** has released the report "Mapping the Landscape of Data Intermediaries[12]" offering a comprehensive analysis of emerging types of data intermediaries. It examines six key types in detail: personal Information Management Systems (PIMS), data cooperatives, data trusts, data unions, data marketplaces, and data sharing pools. For each, the report explains how they operate, highlights their main features, provides key examples, and discusses business model considerations. The overall goal is to help establish a shared vocabulary among EU policymakers, experts, and practitioners (Micheli et al., 2023[48]).

Data catalogues are another solution to streamline data governance in the public sector and enhance access to high-quality, relevant data.

- **France's** Public Data Service[13] aims to facilitate the reuse of reference datasets that have the most significant economic and social impact.
- **Italy's** national interest database system[14] collects and manages key datasets that are crucial for public administration and services. It ensures that these datasets are accessible, standardised, and interoperable to support effective governance and public utility.
- **Germany's** Mobilithek[15] is an open data platform and data hub that offers a data catalogue and free access to data in the mobility sector. It is primarily designed for users in public administration, research, and the business sector. It is one of 29 European National Access Points under Delegated Acts of the European ITS Directive (2010/40/EU) in order to access, exchange and reuse transport related data and has an interface to the German Mobility Data Space.

Interoperability frameworks and systems enable clear and predictable data sharing and exchange between independently developed systems.

- In 2022, **France** adopted the so-called 3DS Law to simplify public administrative process. Provisions in the text are meant to facilitate the exchange of data between administrations while simplifying access procedures for citizens. The goal is to transition from the *once-only principle* to a *'never tell us' principle*. In this scenario, public administrations use data available in the public sector to enable citizens to exercise their rights without having to repeatedly provide the same information. Additionally, France has developed norms and standards promoting interoperability within administrative information systems (see Box 3.8).
- The Government of **Japan** has submitted a bill to promote the development of Base Registries, aiming to implement the "once-only" principle, similarly to France. In addition, for industries, Japan promotes Ouranos Ecosystem, an initiative for data sharing across companies, industries over national borders, contributing to operationalising Data Free Flow with Trust (DFFT). The country is making progress towards operating an Interoperable Data Infrastructure (IDI) to calculate the carbon footprint of the battery supply chain as a leading use case, and working to ensure interoperability with overseas platforms such as Catena-X in Europe (a framework for sharing data across the entire automotive value chain in Europe).
- **Italy's** new Interoperability Model[16] aims to enhance collaboration between Public Administrations and third parties through advanced technological solutions. It includes guidelines on technical interoperability, specifying technologies and interaction patterns, and governance models. Additionally, it sets standards for API security to ensure authentication, data protection, integrity, and confidentiality during exchanges between public and private IT systems.

- In the **European Union**, the Interoperable Europe Act[17] establishes a framework to enhance interoperability within public sector organisations, ensuring seamless cross-border services. Key elements include creating an interoperability governance structure, promoting innovation and knowledge exchange, implementing regulatory sandboxes for testing solutions, and mandating interoperability assessments for public administration. Additionally, TESTA (Trans-European Services for Telematics between Administrations) is a secure, communication infrastructure designed for sensitive information exchange between public authorities in the **European Union**. It ensures guaranteed service levels for network performance and security, including confidentiality, integrity, authentication, and availability. TESTA is used by various EU institutions and national public authorities, facilitating their connectivity and operational efficiency (European Commission, 2024[49]). The EU has also created the Common European Data Spaces[18] for sharing and reusing data from Member States, as well as from other established and emerging actors. This initiative draws from the compilation of relevant AI datasets and related registries throughout Europe and contributes to building a shared and interactive AI digital ecosystem (Manzoni et al., 2022[50]).
- In 2023, the **European Commission** released the report **Artificial Intelligence for Interoperability in the European Public Sector**[19]. The report's main objective is to analyse how AI systems are enhancing interoperability within the European public sector, focusing on AI-based solutions that improve the structuring, linking, and interconnection of data and information, and the benefits these efforts bring to legal, organisational, semantic, and technical interoperability. It highlights the role of AI techniques in fostering interoperability in the public sector, positioning AI as a powerful tool for structuring, curating, standardising, and linking public administration data, thereby making it more interoperable both within individual organisations and across sectors.

Box 3.8. Soft law instruments for data interoperability and quality

France: The General Reference Framework for Interoperability

In France, the General Reference Framework for Interoperability offers a series of recommendations to promote interoperability across information systems within the public sector. The French framework focuses on different levels of interoperability, setting standards for each level that are to be implemented by public sector organisations. Standards are therefore established for technical, semantic, or syntactic interoperability to guarantee that public sector organisations, their dispositions and systems are as interoperable as possible:

- Semantic interoperability refers to the meaning of different words, which often varies among public sector organisations. This interoperability aims to streamline the definition of words across public sector organisations to ensure there is agreement regarding the meaning of data that are exchanged and on the context of the exchange.
- Technical interoperability refers to data formats and data exchange protocols as well as the conditions and formats of storage of these data. This interoperability ensures that data can be properly exchanged among public sector organisations and in the right format.
- Syntactic interoperability stands as a subset of the technical interoperability as it focuses on the technical format data should have in order to be properly exchanged among public sector organisations.

Source: reproduced from (OECD, 2019[51]).

3.2.1.3 Policy option 3. Testing, experimentation, and support infrastructures

Another key policy option to strengthen digital infrastructure for AI scalability is the implementation of large-scale Testing and Experimentation Facilities (TEF's). These facilities the offering physical and virtual environments for technology providers to test AI-based software and hardware in real-world settings, equipped with the necessary infrastructure (European Commission, 2024[52]). Controlled environments like regulatory sandboxes, innovation centres, test beds, hubs, and labs help identify new possibilities and address technical challenges and public concerns through real-world testing.

- The **European Commission**, in partnership with Member States, is spearheading the initiative to co-fund TEF's. These TEFs offer infrastructure and technical support to innovators to test their latest AI-based software and hardware technologies at scale in real-world environments. They can also contribute to facilitating the implementation of the Artificial Intelligence Act by supporting regulatory sandboxes, in cooperation with national competent authorities for supervised testing and experimentation. The selected TEF projects are concentrated on high-impact sectors, including agri-food, healthcare, manufacturing, and smart cities & communities (European Commission, 2024[52]). Box 3.9 provides an overview of the smart cities' initiative.
- The **European Commission** has launched another initiative known as AI Factories. These are open ecosystems that revolve around supercomputers and are specifically designed for the testing and scaling up of AI systems. Built on essential infrastructure pillars such as computing power, data storage facilities, support service centres, and a diverse talent pool, these factories promote innovation, collaboration, and the development of AI. Public institutions can also take advantage of this initiative to scale their models, thereby enhancing their capabilities in AI research and application (European Commission, 2024[53]).
- The **European Union** further supports a network of European Digital Innovation Hubs (EDIH's) to increase the digitalisation of the European industry, and of SMEs in particular but also of public authorities. The EDIH's network provides tailored help to improve the digital transformation through new processes, fresh business models, and innovative products. There are over 200 of these hubs, distributed across Europe, offering technical expertise, resources, testing facilities, training, and collaborative environments, enabling entities to foster their digital maturity. By fostering digital innovation focusing on AI, EDIH's can help overcome key implementation challenges and ensure that AI technologies are integrated seamlessly into public services and business operations. More than 90% of the hubs have specialised on AI at different degrees, with the possibility to assist on technology developments, testing and experimentation, as well as legal and regulatory issues. A dedicated thematic working group focusing on AI in the public administrations aims at sharing experiences and seizing opportunities that AI can bring to advance the digital transformation in the EU.
- The **UK** has launched the Digital Research Infrastructure Programme, aiming to create a national digital research infrastructure and develop large-scale compute facilities for AI adoption. This programme will receive £129 million in government funding from 2022 to 2025. Additionally, since the 2023 Spring Budget, the government has committed over £1.5 billion to enhance compute infrastructure for AI research and innovation (National Audit Office, 2024[17]).

Box 3.9. Citcom.AI: AI Testing and Experimentation for Smart Cities & Communities

The European Commission, in collaboration with Member States, has launched Citcom.AI, a network of permanent Testing and Experimentation Facilities (TEFs) for smart cities and communities. This initiative accelerates the development of trustworthy AI in Europe by providing companies access to test and try out AI-based products in real-world conditions.

Citcom.AI focuses on enhancing existing infrastructures and expertise to offer reality lab-oriented conditions for AI and robotics solutions. The initiative targets the sustainable development of cities and communities, aiding in the transition towards a greener and more digital Europe, while bolstering resilience and competitiveness.

Themes

- Power: Innovates energy systems and reduces consumption with solutions like local district heating load forecasts and adaptive street lighting.
- Move: Enhances transportation efficiency and sustainability through urban machine learning algorithms, smart intersections, and autonomous driving.
- Connect: Improves citizen services with solutions for pollution management, urban development, and integrated facility management.

Source: (European Commission, 2024[52]).

3.2.2. Challenge 2. Procuring AI and partnering outside the public sector

Policy Issues

Maintaining updated and adaptive public procurement processes is needed for fostering an innovative and trustworthy public sector, especially for AI deployment. Effective AI scaling in the public sector requires innovative and flexible procurement processes and policies that align with AI's fast-paced and experimental nature. These policies seek to ensure responsible AI accountability, transparency, and explainability. Adaptive procurement secure regulatory compliance and agility, while fostering partnerships and collaborations with private sector and GovTech start-ups to effectively leverage external expertise (OECD, 2024[2]).

Challenges

In terms of challenges, current procurement frameworks struggle to keep up with the rapid evolution of AI technologies, highlighting the need for more adaptable and flexible systems (Farrell et al., 2023[54]). Governments often lack the experience to navigate the complexity of AI acquisition, including technical, ethical, and procedural challenges. Existing challenges related to procurement therefore also include the need for expertise to effectively evaluate the procurement of AI technologies, addressing concerns related to data privacy, identification and protection of intellectual property rights, algorithmic bias, and transparency, integrating AI with existing public sector infrastructure and legacy systems, as well as ensuring accountability. Additionally, procurement teams are often not directly involved in the design and development of AI systems, making the necessary checks more cumbersome (UNESCO, 2023[23]). The nascent state of AI markets and standards complicates contract drafting, leading to potential delays and mismatches between government needs and AI capabilities (Berryhill et al., 2019[55]).

Policy options

Overall, G7 members are shifting from traditional public procurement frameworks to more flexible ones that better suit the fast-paced nature of AI. This shift involves streamlining procurement processes through updated regulations and adjustments to public procurement frameworks, developing guidelines that encompass best practices and ethical considerations, and fostering collaboration with AI experts and industry stakeholders. The sections below present emerging policy options.

3.2.2.1 Policy option 1. Tools and requirements for public procurement of AI

Specific tools and baseline requirements can improve procurement and ensure the trustworthy deployment of AI.

For instance, since 2020, the **United Kingdom's** Crown Commercial Service has launched an "Artificial Intelligence Dynamic Purchasing System[20] (AI DPS) to support AI procurement. The AI DPS includes basic assurance measures such as standard contractual arrangements around data protection and intellectual property rights, and supplier commitments to ethical standards. Guidance is provided to buyers using the DPS on including ethical screening questions in tender documents such as questions related to fairness, bias, and explainability " (National Audit Office, 2024, p. 43[17]). Box 3.10 provides an overview of the AI DPS.

The United States has issued a Request for Information (RFI)[21] to develop guidelines for the responsible procurement of AI in federal agencies. This RFI aims to align AI public sector acquisitions with the guidance provided in the OMB Memorandum titled "Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence" and Executive Order 14110. It seeks input on best practices for AI procurement, managing risks like data security and privacy, and promoting equitable outcomes. The feedback gathered will inform policies for safe, secure, and trustworthy use of AI in government.

Box 3.10. UK Artificial Intelligence Dynamic Purchasing System (AI DPS)

The DPS offers AI services to the public sector, including AI software, machine learning for data analytics, and intelligent virtual assistants. Health and social care bodies benefit from AI applications like medical imaging and diagnostic software.

Benefits:

- Aligns with government standards and guidelines, including the Data Ethics Framework and the Department for Science, Innovation and Technology's Guidelines for AI Procurement.
- Promotes standards and criteria for AI and data-driven technology in healthcare.
- Addresses ethical considerations in AI innovation and procurement, supporting a strong ethics process.
- Includes bespoke terms to support Intellectual Property Rights (IPR) in the AI market.
- Ensures the right suppliers provide appropriate service offerings, reducing procurement timescales and easing market access.
- Allows assessment of quality, price, and cultural fit (including social value) based on individual customer requirements.

Government agencies can find suitable suppliers via the DPS Marketplace, organised into four categories: Scope of Engagement, Type of AI, Medical AI Technology, and Sector. This system facilitates the adoption of innovative AI solutions across the public sector.

Source: (Crown Commercial Service, 2024[56]).

One key initiative by the **European Commission** to improve AI technology procurement by public authorities is the establishment of an AI Public Procurement Community. This initiative works on developing safeguards for the safe implementation of AI, including AI-specific contractual clauses[22] designed to streamline the process. These standard clauses address both high-risk and non-high-risk AI systems, ensuring a more efficient and effective procurement process. Additionally, the Commission facilitates the community of practice on AI and public procurement supporting experimentation through the GovTech4all Incubator, enabling public administrations to test generative AI solutions. It focuses on three key pilots: securing cross-border data, assisting citizens with digital benefits, and innovating public procurement. Also launched by the European Commission, the Adopt AI programme from 2021 aims to transform public procurement processes for AI systems by fostering open dialogues between public procurers and the European industry. This initiative promotes mutual understanding, stimulates industry investment in AI, and seeks to create a public procurement data space for market analysis. The sectoral dialogues help bridge the gap between procurers looking for solutions and industry suppliers needing insights into public administration plans (European Commission, 2021[57]).

Countries have also focused on prior selection and evaluation of AI suppliers to ensure they are qualified. For example, Public Services and Procurement **Canada** (PSPC) and the Treasury Board of Canada Secretariat (TBS) have established a list of qualified suppliers who can provide the Government of Canada with responsible and effective AI services, solutions, and products (Box 3.11). These suppliers meet the necessary requirements and demonstrate competence in AI ethics, implementation, and access to talent. As of April 2024, this list includes over 120 approved suppliers.

Box 3.11. Canada. AI procurement system in Canada

The Government of Canada's AI Source list for the promotion of innovative procurement.

The Government of Canada has created an AI Source List with over 120 approved suppliers "to provide Canada with responsible and effective AI services, solutions and products". The framework allows government agencies to expedite procurement from firms that have demonstrated that they can provide quality AI goods and services.

The framework requires suppliers to demonstrate competence in AI ethics, as well as implementation and access to talent. Firms that responded to the "Invitation to Qualify" had to prove to an inter-disciplinary panel that they satisfied these requirements. The framework has three bands with escalating requirements. The lowest band has less stringent requirements, making it easier for small start-ups to qualify, thereby driving innovation and creating a deeper market.

The framework supports mission-driven and iterative innovation by allowing multiple firms to be commissioned to develop early-stage services to address a problem. This enables effective information sharing and an agile approach to mitigate the uncertainty of potentially disruptive approaches.

The process of establishing and maintaining this list of AI service providers is also an important way for the Government of Canada to engage with private companies in longer-term relationships. This dialogue facilitates the development of shared expectations and mutual understanding of the challenges they may be facing that are relevant to public sector organisations.

Source: Reproduced from (Berryhill et al., 2019[55]).

Guidelines can play a pivotal role in assisting public organisations to procure AI technologies effectively.

- In 2020, the World Economic Forum (WEF) developed the 'AI Procurement in a Box: AI Government Procurement Guidelines'[23], providing a framework for governments to procure artificial intelligence (AI) technologies. An overview of these guidelines is presented in Figure 3.4.
- The **United Kingdom** has collaborated with the WEF to develop the Guidelines for AI Procurement[24]. These guidelines provide principles for purchasing AI technology, insights into addressing challenges that may arise during the procurement process, and practical step-by-step guidance on the different stages of the public procurement cycle (Office for Artificial Intelligence, 2021[58]). Specific considerations to be addressed throughout the procurement process are also raised in these guidelines, which are presented in Box 3.12.
- In 2023, the Japanese Digital Agency published the "Guideline on Risk Mitigation in the Utilisation of Text-Generating AI (draft version)". This guideline, based on various identified government use cases for generative AI, outlines key points and risks for government AI procurement.
- **Italy** is developing guidelines for the procurement of AI in the Public Administration. These guidelines aim to assist public administrations in selecting procurement procedures and defining both functional and non-functional specifications for AI supplies. The primary goals are to ensure the public administration's needs are satisfied, while maintaining adequate levels of service, and ensuring compliance with the current regulatory framework (AGID, 2023[8]).

Figure 3.4. WEF Guidelines for government procurement of AI

Source: (WEF, 2020[59]).

Box 3.12. UK: Considerations to be addressed throughout the procurement process

This guide outlines the key stages of AI procurement, including Preparation and Planning, Publication, Selection, Evaluation, Award, and Contract Implementation and Ongoing Management.

- **Preparation and Planning:** Conduct a comprehensive assessment of your data, establish governance protocols, and involve relevant stakeholders. Ensure alignment with ethical guidelines and define clear objectives for AI procurement.
- **Publication**: Create and publish a detailed invitation to tender, specifying requirements, evaluation criteria, and ethical considerations. Make the tender accessible to all potential suppliers.
- **Selection, Evaluation, and Award**: Evaluate supplier responses based on predefined criteria, including technical capability, ethical compliance, and cost. Select the best fit and formally award the contract.
- **Contract Implementation and Ongoing Management:** Monitor contract performance, ensuring compliance with agreed terms. Continuously manage and review the AI system's impact, making adjustments as necessary to maintain alignment with project goals and ethical standards.

Source: (Office for Artificial Intelligence, 2021[58]).

3.2.2.2 Policy option 2. Public-private partnerships

G7 members have also advanced in establishing partnerships with private actors, including GovTech innovators, acknowledging they are critical to leverage AI's full potential. They can enable the transfer of knowledge, technologies, and best practices. For example, in **France** the government has

funded the AI incubator program for problem resolution through AI. Thus initiative fosters collaboration between government agencies, start-ups, private companies, and educational institutions to develop and share advanced digital tools and services; and facilitates access to technologies that can be adapted and integrated into various commercial offerings (Box 3.13).

Box 3.13. French government´s incubator program AIIIAnce

The French government´s incubator program seeks to integrate AI technologies into public sector, including translation, synthesis, conversational agents/search engines in natural language, programming assistance, and image and sound processing, among others. The program serves as a collaborative hub, uniting a diverse array of stakeholders including government agencies, private sector companies, and academic institutions.

Each member within the incubator is encouraged to contribute in at least in production of high-quality, royalty free training datasets; development of state-of-the-art AI technologies such as Convolutional Neural Networks and Large Language Models, including training, fine-tuning, and evaluation; creation of support tools like benchmarking tools, fine-tuning tools, optimizers, development tools and testing tools; provision of computing power; and implementation of use cases driven by counterfactual socio-economic impact analysis. The investment committee meets monthly to select the winning projects, with which it signs a management delegation agreement related to project funding, ensuring a predetermined co-financing rate of 50%.

Source: (AIIIance, 2024[60]).

3.2.3. *Challenge 3. Upskilling the public sector*

Policy Issues

The widespread adoption of AI is significantly reshaping skills requirements across the economy, transforming job tasks and the distribution of occupations (OECD, 2023[61]). Public sectors are no exception and must secure the right capacities and talent among civil servants (Medaglia, Mikalef and Tangi, Forthcoming[62]). There is a growing demand for specialised technical skills for AI development and deployment, as well as adequate AI literacy and digital skills. Moreover, it also requires diverse and multidisciplinary talent (Berryhill et al., 2019[55]). A wide range of expertise is essential to ensure that AI initiatives are well-rounded, ethically sound, and effectively integrated into the public sector, ultimately leading to more comprehensive and successful outcomes (Berryhill et al., 2019[55]).

Challenges

A primary challenge for the public sector in acquiring the necessary skills for systematic AI use is attracting and retaining AI talent (Farrell et al., 2023[54]). Rapid technological developments have increased the demand for specialised AI skills, forcing governments to upskill civil servants and compete with the private sector for a limited talent pool, often in terms of salary and working conditions (OECD, 2023[63]). The public sector has therefore a competitive disadvantage compared to private firms which can offer more economic compensation packages and advanced technological environments. This disparity makes it difficult for the public sector to maintain a skilled workforce capable of leveraging AI effectively.

Public sectors also face the challenge of AI-related job displacement and the growing need for new skills to work effectively with AI systems. The increasing uptake of AI systems put some traditional roles, particularly clerical support workers, at high risk of automation by generative AI, leading to job displacement. Consequently, it is important to focus on reskilling these workers to adapt to the evolving demands and acquire new competencies to remain relevant in the labour market. Additionally, AI can complement human tasks, enhancing human skills and requiring upskilling to maximize these benefits (UN/ILO, 2024[64]). While some workers can adapt to AI and see it as an enhancement to their work, the introduction of AI technologies presents significant risks for older and low-skilled workers (OECD, 2023[61]).

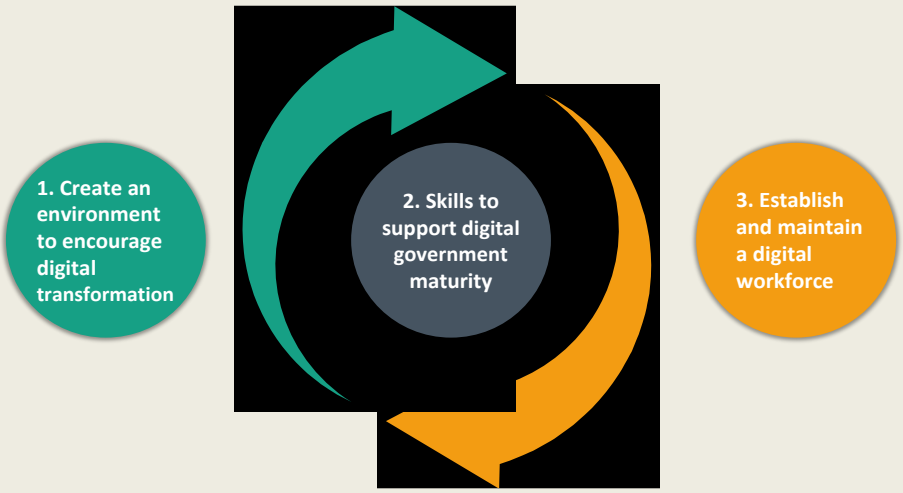
Policy options

G7 members are adopting various policy options to tackle the challenges of acquiring the necessary talent and skills. The efforts include upskilling their civil servants to support AI deployment and use in the public sector and encouraging the sharing of best practices among public servants and public sector organisations, as part of their overall efforts to create an environment that encourages the digital transformation. Most are focused on training programs, workshops, and updated competencies frameworks to develop specific AI skills. And finally, some practices are specifically targeting talent hiring and retention, contributing to establishing and maintaining an AI workforce. Many of these approaches are aligned with the OECD Framework for Digital Talent and Skills in the Public Sector (Box 3.14). The sections below present emerging policy options.

Box 3.14. OECD Framework for Digital Talent and Skills in the Public Sector

The *OECD Framework for Digital Talent and Skills in the Public Sector* can be used to address some of the talent related challenges faced by governments across public sectors and because of the rapid uptake of AI. The Framework can help distinguishing the three main areas where governments can develop specific policy options (Figure 3.5).

Figure 3.5. OECD Framework for Digital Talent and Skills in the Public Sector



Source: (OECD, 2021[65]).

3.2.3.1 Policy option 1. Sharing of best practices

G7 governments focus mainly on sharing best practices to boost public sector knowledge and foster a learning environment that encourages AI adoption across the public sector. This is shown by the findings of the questionnaire conducted across G7 members to inform the development of this report. This approach is aligned with the *OECD Framework for Digital Talent and Skills in the Public Sector* and its Pillar suggesting four contextual elements that can empower teams and improve their capability to lead the digital transformation (Figure 3.6). Documenting and disseminating successful methods, strategies, and use cases can help public sector organisations replicate and scale AI projects more effectively. This approach helps avoid common mistakes, ensures consistency, and accelerates the adoption of AI technologies across various government entities.

Figure 3.6. Creating an environment to encourage digital transformation

OECD Framework for Digital Talent and Skills in the Public Sector

Source: Authors elaboration based on (OECD, 2021[65]).

- The **UK**'s Central Digital and Data Office (CDDO) established an AI team in 2023 and created cross-government groups to enhance collaboration and knowledge sharing in specialised domains, including through an AI board and a group for sharing insights from pilots on generative AI tools.
- In **Japan** use cases on generative AI in government are regularly studies to identify key lessons. Main findings are shared with local governments and publicly accessible on the Digital Agency's website to promote knowledge dissemination. Lessons learned from the operational application of text-generating AI include need for diverse use cases beyond chat interfaces, the importance of a testing environment for both operational and system improvements, and the potential benefits of text-generating AI for repetitive and easily segmented tasks.
- **Canada's** Data Conference, serves as the primary forum for public servants and data leaders to enhance awareness, share knowledge, and advance data applications throughout the Government of Canada. Additionally, department-led working groups on AI topics enable public servants across various departments to share experiences and insights, fostering collaboration and innovation in AI implementation.
- **Germany's** Network AI in Employment and Social Protection Services promotes best practices and knowledge exchange across agencies.

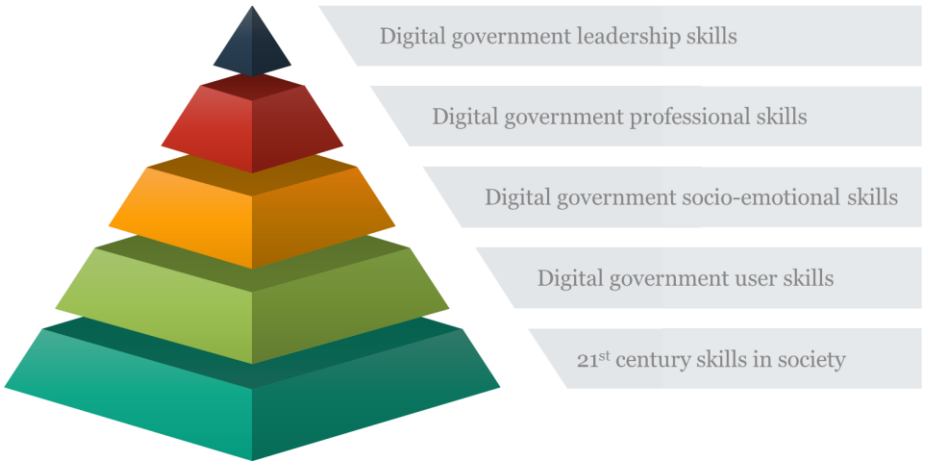
- **France** established AIIIAnce and Communauté des labos, informal inter-ministerial groups for sharing AI best practices.

3.2.3.2 Policy option 2. Training and upskilling initiatives

As with any other digital technology in government, achieving a mature use of AI requires a wide set of skills. From the baseline of 21st century skills in society up to more specialised skills at different levels of the organisation (as shown in Figure 3.7), governments can develop differential training and upskilling efforts to address the diverse needs and challenges that emerge from the use of AI in the public sector, and ensure a fair transition for at-risk employees including effective mechanisms of retaining employees during transition periods, and exploring "safety net" programmes for those who cannot be retrained (UNESCO, 2022[6]).

Figure 3.7. Skills to support digital government maturity

Pillar 2 of the OECD Framework for Digital Talent and Skills in the Public Sector



Source: (OECD, 2021[65]).

G7 members have launched AI training and upskilling programs to meet the growing demand for professional and technical skills in this field, for example:

- The **United Kingdom** actively upskills civil servants in programming, engineering, data science, and machine learning. These initiatives offer bootcamps, seminars, and hackathons, providing a broad cross-section of the civil service with free technical training.
- **France** has implemented the *Campus du Numérique* programme (or Public Digital Campus, in English), which offers trainings for civil servants. It provides a catalogue outlining methods for implementing AI-driven digital public services, focusing on user needs and impactful outcomes. Essential skills for this initiative include product management, development, data science, cloud technology, cybersecurity, digital law, and many other related disciplines (Public Digital Campus, 2024[66]).

However, beyond specialised and technical skills, **developing AI user skills across the civil service is as important for realising the benefits of AI in the public sector**. Relevant efforts from G7 members to develop training sessions for civil servants on how to use AI in the public sector include:

- The Digital Academy of **Canada's** School of Public Service provides a variety of learning products to help public servants learn about the relationship between AI and data and how it can be applied

for a modernized, high-performing public service. These trainings equip public servants with the skills and knowledge needed to deliver digital-era programs, policies, and services. The '*Using Generative AI in the Government of Canada'* course in the curriculum covers topics like effective use of AI tools, inclusive language practices, creating effective prompts and commands, detecting inaccuracies in AI outputs, and identifying different generative AI tools available to public servants. Recognising the growing importance of both AI user skills and more advanced AI expertise in the public service, Canada has been actively addressing both areas. For example, many federal departments are developing targeted AI Learning Strategies that align with the specific performance objectives of their employees. Additionally, all IT practitioners, including AI specialists, have access to self-paced learning opportunities, with specific AI-focused training available starting fall 2024. This initiative will lead to deeper expertise and more effective use of AI in delivering services to the public.

- **Japan** prioritised strengthening public servants' capabilities in using generative AI. Practical workshops for central government employees focus on teaching them how to use generative AI to streamline administrative operations and improve service quality. An example is the "*Workshop on Leveraging Generative AI for the Promotion of Work Style Reform*," which focuses on text-generating AI. Participants engage in *ideathons* and hands-on trials, including exercises with OpenAI's ChatGPT API. Another initiative by **Japan** includes developing guidelines for using text-generating AI in administrative services and tasks, identifying potential risks, and implementing strategies for risk mitigation in AI text generation.
- In Italy, the National AI Strategy 2024-2026 outlines a plan to train civil servants in the use of AI. A specialised Department for Artificial Intelligence will be established within the National School of Government (Scuola Nazionale dell'Amministrazione - SNA) to organise postgraduate training courses for public sector employees. The programme includes an introductory AI course and specialised modules on the responsible use of prompts, AI in public administration, and data-driven decision-making with AI. Additionally, such AI user skills can be instrumental in the development of projects in specific domains, as is being done in the design and delivery of training modules for public servants (Box 3.15).

Box 3.15. Italy: the "AI for Training Project"

The Scuola Nazionale dell'Amministrazione (SNA) – the Italian National School of Administration part of the Presidency of the Council - launched in January 2024 the "AI for Training Project", a pilot project on the use of AI in the design and delivery of training modules for public servants. The project aimed at:

- Training trainees and staff in the use of AI tools for training delivery;
- Experimenting with the use of AI in the course process: syllabus, selection of the classroom, preparation of teaching materials, design of training activities, processing of the final assessment;
- Innovating training products, through the production of podcasts and introductory video trailers for courses.

The project highlighted the benefits of generative AI for several tasks, including: a) the development of new training tools; b) the reduction of idle time in processing reports and documents; c) the decrease of routine tasks; and d) the integration of learning materials, even in foreign languages.

Source: Authors own elaboration based on G7 members' responses to the "G7 Toolkit for AI in the Public Sector"-related questionnaire (2024).

3.2.3.3 Policy option 3. AI Competencies frameworks

Government can develop AI competencies based on the skills that will be needed to develop and maintain AI systems, as well as to adopt, use and interact with AI applications (Table 3.2). As described in the *OECD Employment Outlook 2023*, these skills include digital and data competencies, as well as soft skills like teamwork, collaboration, and leadership. Advanced AI and digital skills are necessary for developing and maintaining AI systems, while basic data science skills are needed for interacting with AI applications. There is also a growing demand for cognitive skills, such as creative problem-solving and social and leadership skills (OECD, 2023[63]). Complementary skills for AI education, such as media and information literacy, as well as critical thinking, teamwork, communication, socio-emotional and AI ethics skills can additionally empower government officials in their interactions with AI systems (UNESCO, 2022[6]).

Table 3.2. Skills needs in the age of AI

	Type of skill	Example
Skills to develop and maintain AI systems	Specialised AI skills	• General knowledge of AI (such as Machine Learning) • Specific knowledge of AI models ("decision trees", "deep learning", "neural network", "random forest", etc) • AI tools ("tensorflow", "pytorch", "Azure OpenAI", etc) and AI software ("Copilot", "Midjourney", etc).
	Data science skills	• Data analysis • Software • Programming languages, in particular Python • Big data • Data visualisation • Cloud computing
	Other cognitive skills	• Creative problem solving
	Transversal skills	• Social skills / Management skills
	Elementary AI knowledge	• Understanding AI's strengths and weaknesses
	Digital skills	• Ability to use a computer or a smartphone

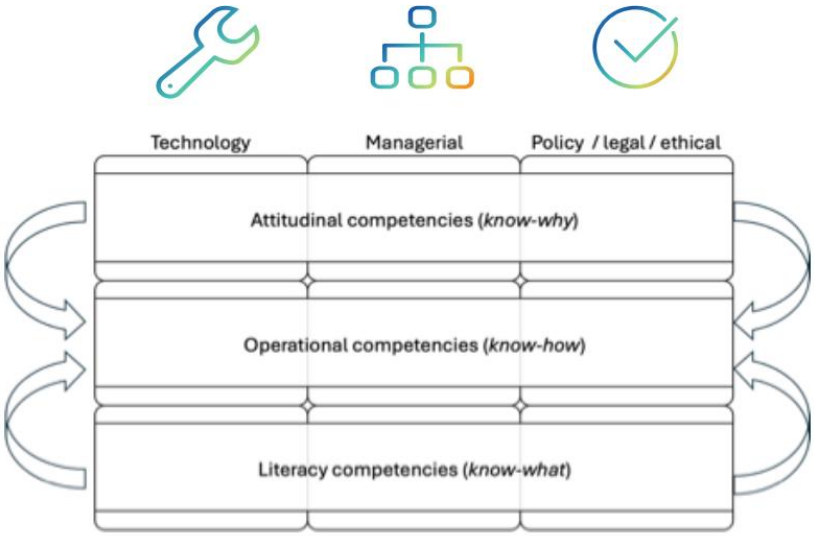
Skills to adopt, use and interact with AI applications	Other cognitive skills	• Analytical skills • Problem-solving • Critical thinking • Judgement
	Transversal skills	• Creativity • Communication • Teamwork • Multitasking

Source: adapted from (OECD, 2023[63]).

Based on their AI competencies frameworks, G7 members are developing upskilling and training programs to equip civil servants with AI-specific skills. For example:

- **United Kingdom** guidelines for AI development in the public sector recommend that teams include a data architect to set data vision, data scientists to solve complex problems, data engineers to deliver data products, ethicists to provide ethical assessments, and domain experts familiar with the deployment environment. For instance, if the AI model addresses social care, collaboration with a social worker is advised (Department for Science, Innovation and Technology, Office for Artificial Intelligence, and Centre for Data Ethics and Innovation, 2019[67]).
- **United States** departments and agencies use the AI Competency Model to pinpoint key AI skills to broaden government-wide capabilities. The US Office of Personnel Management created and validated this model, through consultation with subject matter experts (SMEs) from federal agencies, environmental scans, and focus groups and surveys. The model identifies over 43 general competencies crucial for AI work, including accountability, attention to detail, conflict management, contracting and procurement, creativity and innovation, customer service, and computer skills. Additionally, 14 technical skills were highlighted, such as application development, artificial intelligence and machine learning, communicating results, data analysis, mathematics and statistics, modelling and simulation, and testing and validation (Office of Personnel Management, 2024[68]).
- In the **European Union,** the Digital Competence Framework for Citizens (DigComp)[25] developed by the Joint Research Centre (JRC) has served as a tool to approach digital skills also for citizens and general users of digital services, including AI-driven services. The framework is used to design competence assessment tools, create training courses and materials, and identify professional digital profiles. Additionally, the JRC is developing a comprehensive competencies framework specifically designed for AI in the public sector. It includes three competency areas (technology, managerial, and policy/legal/ethical) and three competency dimensions (attitudinal, operational and literacy competencies) (Figure 3.8).

Figure 3.8. EU: Competencies for AI in the public sector, a comprehensive framework



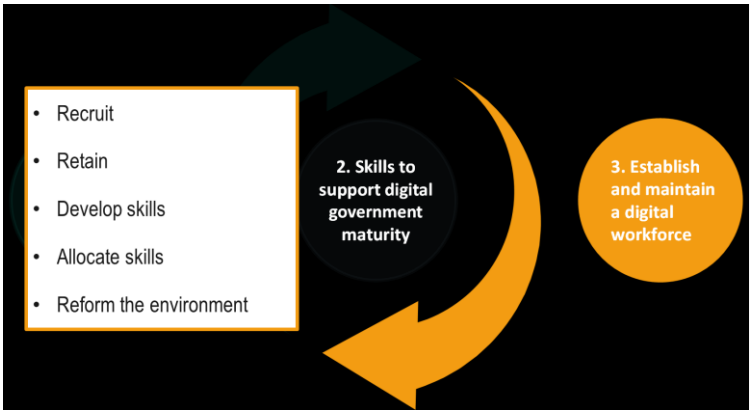
Source: (Medaglia, Mikalef and Tangi, Forthcoming[62]).

3.2.3.4 Policy option 4. Hiring and retaining AI talent

Finally, G7 members are increasingly adopting a variety of policies for hiring and retaining AI talent in response to the growing demand for specialised AI skills and to secure a competitive edge in a context with a limited talent pool. This is in line with the third pillar of the *OECD Framework for Digital Talent and Skills in the Public Sector* (Figure 3.9).

Figure 3.9. Establishing and maintaining a digital workforce

OECD Framework for Digital Talent and Skills in the Public Sector



Source: Authors elaboration based on (OECD, 2021[65]).

These policies will inevitably shape the broader environment required to foster AI adoption (as portrayed in Figure 3.6). For example:

- The **United States** launched an AI Talent Surge as part of the AI Executive Order to recruit and retain AI talent within the federal government**.** As part of this effort, the Office of Personnel Management (OPM) introduced several strategic initiatives and a skills-based hiring guidance to

enhance the recruitment and retention of AI professionals and respond to the growing importance of AI in federal operations. These efforts aim to equip federal agencies with the necessary skills and expertise to effectively implement and manage AI technologies (see Box 3.16).

- Similarly, part of **Canada's** Digital Talent Strategy prioritises developing and retaining digital talent by aligning with technological advancements and providing clear career pathways for both individual contributors and leaders. Key actions include scaling enterprise-wide IT learning, offering specialised training in domains including infrastructure operations and cybersecurity, and enhancing leadership development through targeted programs. The Strategy also focuses on assessing digital capabilities, refining digital job descriptions, and fostering digital leadership through mentorship initiatives.

Box 3.16. Strategic measures by OPM to support AI talent growth

The United States launched an AI Talent Surge to recruit AI and AI-enabling talent into the federal government. As part of this initiative the U.S. Office of Personnel Management (OPM) has implemented several key actions to bolster the recruitment and hiring of AI professionals in the federal government:

- **Flexible hiring authorities**: OPM has introduced direct hiring authorities to streamline the recruitment process for AI roles, allowing agencies to quickly onboard qualified candidates without the traditional lengthy procedures.
- **Skills-based hiring guidance**: OPM has issued new guidance and a competency model to assist agencies in identifying and hiring candidates with the right AI skills that are needed. This includes defining the core competencies required for AI roles and developing standardised assessment tools to evaluate these skills.
- **Generative AI use**: OPM promotes responsible and ethical use of generative AI for the federal workforce. This includes guidelines for federal employees on responsibly leveraging AI tools to enhance productivity.
- **Pay flexibility and incentives**: to attract top AI talent, OPM has introduced flexible pay structures and incentive programs. This includes offering competitive salaries, bonuses, and other financial incentives to make federal positions more appealing compared to the private sector.

Source: (Office of Personnel Management, 2024[69]).

3.2.4. Challenge 4. Establishing frameworks for data governance in the public sector

Policy Issues

The scaling up and systematic use of AI in the public sector requires effective data governance, as "data are the foundational building blocks of AI [systems]" (Berryhill et al., 2019[55]). Data governance enables the development and implementation of standards and processes for collecting, organising, and sharing data for AI and protecting personal data. It promotes coherence, privacy, and quality, thereby helping to meet policy objectives, and foster public trust. Effective data governance underpins the public sector's readiness to adopt AI and data-driven approaches, establishing the right "cultural, policy, legal, regulatory, institutional, organisational, and technical environment to control, manage, share, protect, and extract value from data" and AI (OECD, 2019[51]). Reflecting AI-specific requirements and promoting mechanisms, such as open repositories for publicly funded or publicly held data and source code and data trusts, can support the safe, fair, legal, and ethical sharing of data (UNESCO, 2022[6]).

Challenges

Governments often struggle with AI integration and scalability due to unclear data governance frameworks. These issues can undermine the effectiveness of AI applications in public sector and increase security and privacy risks (OECD, 2019[51]), particularly with respect to citizen's rights. Data governance obstacles include "outdated infrastructure, data silos, skill gaps, regulatory barriers, and a lack of leadership and accountability". Addressing these issues requires a holistic data governance framework that supports AI integration and scalability, while ensuring control over data management throughout its entire life cycle.

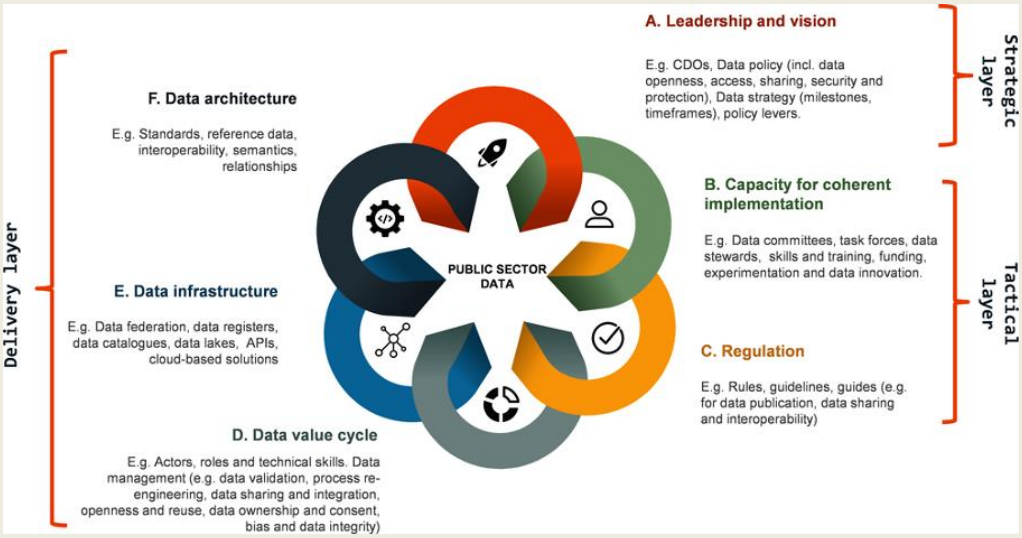
Policy Options

Overall, policy options among G7 members are focused on developing robust approaches for public sector data governance. These approaches address several aspects, including national data strategies and policies, data leadership roles, and data quality frameworks and guidelines within the public sector. The section on Challenge 2 (Strengthening Infrastructure) of this Toolkit has already provided the example of some of the actions taken, the sections below examine additional selected policy responses adopted by G7 members.

Box 3.17. OECD framework for public sector data governance

The OECD's framework for public sector data governance highlights organisational, policy and technical aspects that can help governments bring clarity and structure to how they conceive and implement their own data governance frameworks (Figure 3.10).

Figure 3.10. OECD framework for public sector data governance



Source: (OECD, 2019[51]).

3.2.4.1 Policy option 1. Government data strategies

Government data strategies enable accountability and help define leadership, expectations, roles, and goals.

- In 2023, Japan issued the Action Plan for Public-Private Data Development and Collaboration in the Era of AI, which is built on three key pillars: 1) ensuring the availability of high-quality data for open use, 2) developing tools and mechanisms to facilitate data exchange and use, including advancing Data Free Flow with Trust (DFFT), and creating a shared data exchange space, and 3) establishing systems to implement both 1) and 2). Additionally, Japan promotes Ouranos Ecosystem, an initiative for data sharing across companies, industries over national borders. Under Ouranos Ecosystem's vision, Japan discusses standards and rules of Ouranos Ecosystem.
- **Canada**[26] introduced a federal data strategy for the public services from 2023-2026, focusing on four key missions: proactively considering data needs when designing initiatives (Data by Design), stewarding data for effective analysis and insights (Data for Decision-Making), ensuring secure data flows to improve user experience (Enabling Data-Driven Services), and equipping teams with the necessary talent and tools (Empowering the Public Service). The strategy includes a detailed implementation plan with specific action timelines, milestones, key performance indicators, and a communication approach to ensure accountability within the federal public service (Government of Canada, 2024[70]).

Box 3.18. Canada: Data Strategy Framework for the Federal Public Service

The data strategy framework views data as an asset, supported by foundational pillars of talent, governance, processes, and tools, all enabled by strong communication and effective change management. The guiding principles, reflecting foundational values and concepts, are client-centred, trusted, ethical, open, enabling, and purposeful. The following figure presents the Data Strategy Framework for the Federal Public Service (Government of Canada, 2024[70]).

Figure 3.11. Data Strategy Framework for the Federal Public Service

Source: Reproduced from (Government of Canada, 2024[70]).

Open and participatory processes in formulating data strategies can integrate inputs from both public and private sector actors, leading to greater policy ownership. "Early engagement can help identify policy challenges that would otherwise be ignored and bring relevant actors on board prior to the implementation of these strategies. One relevant example in this respect is the open consultation process launched by the Department for Digital, Culture, Media, and Sports in the **United Kingdom** for the development of the UK National Data Strategy" (OECD, 2019[32]).

3.2.4.2 Policy option 2. Data leadership

Data leadership ensures strategic direction and purpose in data-driven initiatives across the public sector, promoting coherent implementation both government-wide and within individual organisations (OECD, 2019[32]). These formalised leadership roles are responsible for developing a national data strategy, providing the public sector and the public with clarity on how governments approach issues like ethics, interoperability, access, availability, governance, analytics, and more (OECD/CAF, 2022[71]).

It is important to distinguish between political and administrative leadership roles. Political leaders offer high-level support for policy agendas but can leave gaps when administrations change, reducing political backing for data policies. Conversely, top management ensures policy implementation and continuity, sustaining efforts across different political terms (OECD, 2019[32]).

G7 members have formalised a data leadership position, such as a Chief Data Officer (or a similar role with sufficient political and administrative influence), some have attached them to existent administrative structures. For instance:

- **In** recent years, Canada has brought significant changes to data roles and responsibilities across the public sector. Many federal organisations now have Chief Data Officers or similar roles. The appointment of the first Chief Data Officer of Canada marked a pivotal step, providing centralized leadership on data and information management, governance, and integration across the government.
- The **United States'** 2018 Foundations for Evidence-Based Policymaking Act, signed into law on 14 January 2019, requires each agency head to appoint a non-political employee as the agency's Chief Data Officer (Box 3.19). This mandate is part of the Open, Public, Electronic, and Necessary Government Data Act (OPEN Government Data Act), a critical element of the Foundations for Evidence-Based Policymaking Act (OECD, 2019[32]).
- **France's** Chief Data Officer (CDO) reports to the Prime Minister and is attached to the Interministerial Digital Directorate (DINUM). The CDO coordinates the activities related to data inventory, governance, production, circulation, and use. Adhering to legal secrecy and personal information protection requirements, the CDO ensures the optimal use and broad dissemination of data.

Box 3.19. United States: Chief Data Officers

While there are many roles in the U.S. Federal Government that relate to data management, since 2018, Chief Data Officers (CDOs) have emerged to lead organizational development of processes to leverage the power of data. CDOs enable data driven decision-making in a variety of ways, from providing and leveraging centralized agency analytics capacity to creating tools and platforms that enable self-service across their agencies and for the public. CDOs serve in a central leadership position, with visibility into relevant agency operations, and are positioned highly enough to regularly engage with other agency leadership, including the head of the agency.

The provisions of Foundations for Evidence-Based Policymaking Act of 2018 establish within agencies the position of the CDO to ensure the successful execution of the agency's data management responsibilities.

- The responsibilities for CDOs include: Managing data at every stage of the data lifecycle by establishing effective procedures, standards, and controls to ensure quality, accuracy, access, and protection of data, as well as managing information resources,
- Coordinating with officials in the agency responsible for using, protecting, disseminating, and generating data to ensure that the data needs of the agency are met,
- Managing data assets of the agency,
- Ensuring that agency data conforms with data management best practices,
- Engaging agency employees, the public, and contractors in using public data assets and encouraging collaborative approaches on improving data use,
- Supporting the Performance Improvement Officer and the Evaluation Officer of the agency in identifying and obtaining data to carry out necessary functions,
- Reviewing the impact of the infrastructure of the agency on data asset accessibility and coordinating with the Chief Information Officer of the agency to improve infrastructure to reduce barriers that inhibit data asset accessibility,
- Maximizing the use of data in the agency,
- Identifying points of contact for roles and responsibilities related to open data use and implementation, and
- Serving as chair of the agency's data governance board and as the agency liaison to other agencies and the Office of Management and Budget on the best way to use existing agency data for statistical purposes.

Source: (Federal CDO Council, n.d.[72]).

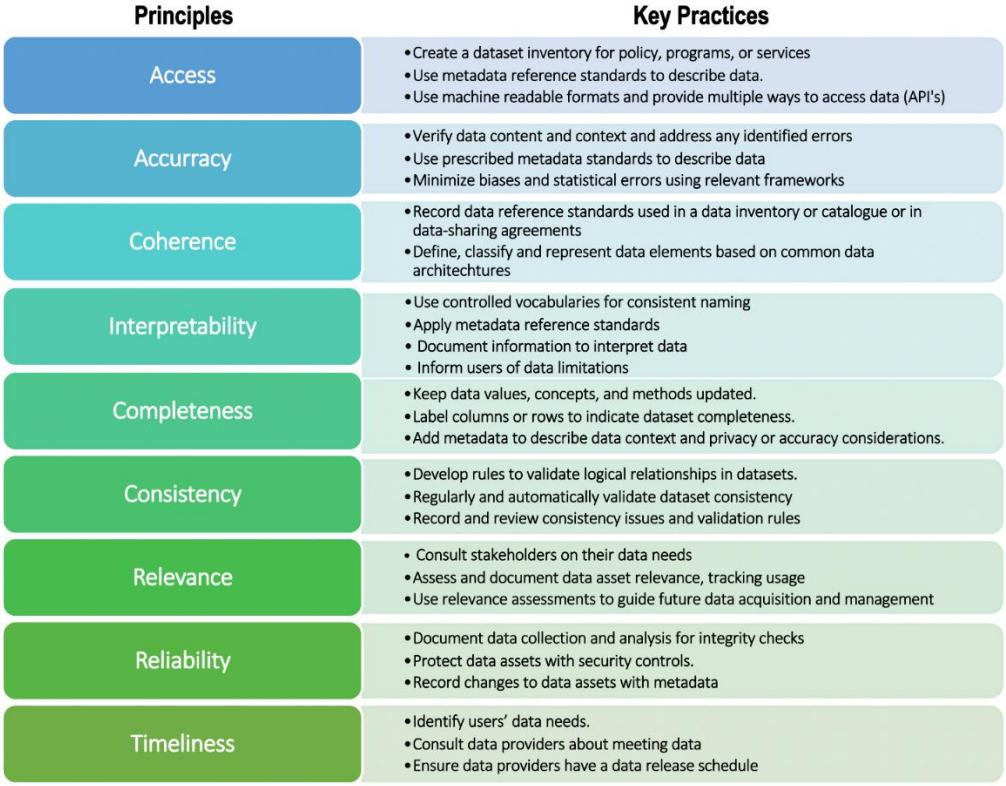
3.2.4.3 Policy option 3. Data management and quality frameworks

Several G7 members have adopted data management and quality frameworks and guidelines. Effective data management and quality frameworks enable data availability, personal data protection and access in the public sector. These frameworks establish clear guidelines and principles for maintaining data integrity, consistency, and usability. By focusing on aspects such as governance, standardisation,

and lifecycle management, these policy tools help public sector organisations produce high quality data, needed for AI systems.

- The guidance on data quality from the Government of **Canada**[27] outlines nine key dimensions: access, accuracy, coherence, interpretability, completeness, consistency, relevance, reliability, and timeliness (Figure 3.12). Good practices include establishing clear data governance, maintaining accurate and up-to-date records, ensuring data is complete and consistent across systems, making data easily accessible and interpretable, and regularly reviewing and validating data against these dimensions to ensure high quality and reliability.

Figure 3.12. Canada's Data Quality Framework – Principles and practices



Source: Author's elaboration based on (Government of Canada, 2024[73]).

- The **European Union's** data quality guidelines[28] provide recommendations to data providers for delivering high-quality data, focusing on aspects such as findability, accessibility, interoperability, and reusability. It includes specific guidelines for common file formats, data standardisation, documentation, and enhancing data openness.
- The **United Kingdom** Government's Data Quality Framework[29] emphasizes five principles: commitment to data quality, understanding user needs, assessing quality throughout the data lifecycle, effective communication of data quality, and anticipating changes. It includes guidelines for managing the data lifecycle and details dimensions of data quality such as accuracy, completeness, and consistency. This framework aims to ensure reliable data to support effective decision-making and enhance public services. Box 3.20 presents the core data quality dimensions.

Box 3.20. UK Core data quality dimensions

- **Completeness:** Describes the degree to which all necessary records are present and essential values are populated. It is important to distinguish between completeness and accuracy, as a complete data set may still contain incorrect values.
- **Uniqueness:** Ensures there is no duplication in records, meaning each entity is represented by only one record, and each value is stored only once. This helps maintain data integrity and accuracy.
- **Consistency:** Ensures values in a data set do not contradict each other or values in another data set. Consistent data supports reliable decision-making and coherence, especially when integrating data from multiple sources.
- **Timeliness:** Describes the degree to which data is an accurate reflection of the period it represents and is up to date. Timely data minimizes the lag between collection and availability, ensuring it is useful for its intended purpose.
- **Validity:** Ensures data conforms to defined formats and value ranges, adhering to rules and constraints to prevent errors and ensure data is suitable for its intended use.
- **Accuracy:** Describes the degree to which data matches reality, free from errors and biases. Accurate data is essential for trustworthiness and reliability in data-driven decision-making.
- **User Needs and Trade-offs:** Understanding user needs is crucial when measuring data quality. Trade-offs between different dimensions may be necessary based on user priorities, and these should be communicated to avoid ambiguity and misuse, ensuring data meets its intended objectives effectively.

Source: (UK Government, 2020[74]).

3.2.4.4 Policy option 4. Privacy and personal data protection frameworks

From a privacy and data governance perspective, AI systems raise several points of tension. One concern is the need for large amounts of data, often including personal data, to train advanced AI models. Due to the increased availability of personal data, one concern is AI's capacity to discover unexpected patterns in data, which makes it difficult to inform individuals in advance about how their data might be used. There is also a risk of amplifying existing biases embedded in the training data, which can perpetuate and even exacerbate societal inequalities and discrimination. Additionally, the nature of AI systems makes it challenging for individuals to modify or delete their personal data, and equally difficult for organizations to provide such access (OECD, 2024[75]).

In response to these challenges, G7 members have adopted measures, regulations, and safeguards for privacy and personal data protection through privacy and personal data protection frameworks. For example, some countries – notably in the EU through the GDPR (see Box 3.21) – provide individuals with a right to meaningful human input on important decisions that affect them.

In parallel, Privacy Enforcement Authorities (PEAs) are also collaborating on responses to AI, issuing various statements and resolutions: (i) Statement on Generative AI by the DPAs of G7 countries, adopted on 21 June 2023 (G7, 2023[76]); (ii) Resolution of the Global Privacy Assembly on Generative AI (Global Privacy Assembly, 2023 (Global Privacy Assembly, 2023[77]); (iii) Web scraping statement of 12 members of the GPA's International Enforcement Working Group (IEWG) (Global Privacy Assembly, 2023[78]); and (iv) Resolution of the Global Privacy Assembly on Artificial Intelligence and Employment (Global Privacy Assembly, 2023[79]). Additionally, PEAs of G7 members have launched several initiatives and provided

guidance in response to the growing use of AI, including but not limited to generative AI tools (OECD, 2024[75]).

Box 3.21. Examples of personal data protection legislation and country policies applicable to the use of AI

The GDPR enshrines data rights for persons located in the EU and obligations on entities processing personal data. These rights apply to general data gathering and processing technologies and have specific implications for AI. This is particularly the case for rights to transparent information as well as rights of access (Art. 12, 13, 15), rectification, erasure, and restriction of processing (Art. 16-17). Among other things, these rights aim to protect individuals' personal data and increase transparency how data are processed.

Additionally, and importantly, GDPR Article 22 gives individuals the right "not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her […]".

United Kingdom's Information Commissioner's Office (ICO)

The United Kingdom's ICO has produced comprehensive guidance on AI and data protection, that was updated on 15 March 2023. This piece is supplemented with specific guidance for explaining decisions made with AI. Relatedly, on 15 January 2024, the ICO launched a consultation series on how aspects of data protection law should apply to the development and use of generative AI models. These include the requirements developers must meet in terms of complying with data subject rights and the accuracy principle in the UK GDPR, as well as the lawful basis for web scraping to train generative AI models.

Commission nationale de l'informatique et des libertés (CNIL)

In France, the CNIL created an AI department in January 2023 to strengthen its expertise on these systems and its understanding of the risks to privacy while anticipating the implementation of the EU AI Act. On 16 May 2023, the CNIL published its action plan for the deployment of AI systems that respect the privacy of individuals. The action plan builds upon the CNIL's previous efforts in the AI domain and comprises a series of activities aimed at supporting the deployment of AI systems that uphold individuals' privacy. The CNIL's action plan also includes a dedicated dossier on generative AI, highlighting the technical functioning of generative AI, underlying legal issues and ethical challenges, and real-world applications. In April 2024, CNIL released "how-to" guidance for legal and technical professionals (data protection officers, legal professionals, people with AI-specific or non-specific technical skills, etc.) on the development of AI systems when it involves the processing of personal data.

2023 United States Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

The 2023 United States Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, directs public sector entities to establish new standards for AI safety and security, privacy protections, equity and civil rights, consumers' and workers' rights, and innovation and competition. The Executive Order emphasizes the need for companies to prioritize research on the societal risks associated with AI systems, including safeguarding privacy.

Source: (OECD, 2024[75]).

3.2.5. Challenge 5. Monitoring AI implementation in the public sector

Policy issues

Monitoring AI in the public sector can help achieve expected benefits, ensuring long-term sustainability, and fostering public trust. The widespread implementation of AI in the public sector requires continuous oversight throughout the AI lifecycle to ensure its impacts align with desired objectives and user needs while identifying the impact on human rights and fundamental freedoms, and addressing challenges such as algorithmic biases, privacy concerns, and potential misuse. It can indeed help ensuring the proper development and use of AI within the public sector by non-executive branches of government (e.g., judiciary and parliament) and accountability institutions (e.g., access to information agencies, data protection agencies, ombudspersons, audit offices) (OECD, 2024, p. 19[2]). Overall, increased investments in AI across public sectors demand a whole-of-government approach. Such a strategy promotes coherent and strategic adoption, maximising positive impacts while mitigating risks and ensuring value for money.

Challenges

"Currently, setting-up transparency, monitoring, and oversight mechanisms on AI in the public sector remains a challenge in most countries" (OECD, 2024[2]). One primary challenge is implementing monitoring tools and AI supervision processes that systematically measure outputs and impacts to oversee AI's evolution and effectiveness over time, as well as monitoring digital investments. Additionally, developing and implementing AI assurance measures can help to ensure accountability, trustworthiness, and consideration of ethics. These challenges are compounded by the need for sufficient expertise, resources, and coordination across various governmental bodies. Addressing these issues benefits from a comprehensive strategy and a whole-of-government approach to foster transparency, enhance public trust, and promote the safe, secure, and trustworthy deployment of AI technologies.

Policy options

The G7 public sectors are addressing the challenges of monitoring and overseeing AI use through several policy options. One key approach is the development of robust monitoring tools to assess the effectiveness and phased deployment of AI investments, ensuring that they align with objectives and identifying opportunities to scale them up. Another strategy involves enhancing the mandates of oversight bodies, such as non-executive branches of government and accountability institutions, to ensure comprehensive governance and accountability regarding AI investments and transparency. Additionally, countries are implementing tools to verify that AI systems do not exacerbate existing biases or create new safety concerns. These policy options complement the algorithmic transparency tools previously described under section 3.3, which are also instrumental for the effective monitoring and oversight of AI in the public sector.

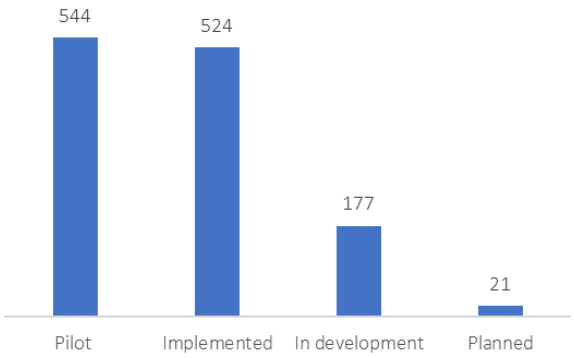
Furthermore, AI impact assessment frameworks can help optimising savings in terms of human, financial, and environmental resources, as well as improving service quality and trustworthiness and ensuring greater relevance and contextualisation (Manzoni et al., 2022[50]; OECD, 2024[2]). Complementary ethical impact assessments such as UNESCO's EIA can predict consequences, mitigate risks, avoid harmful consequences, facilitate citizen participation, and address societal challenges (see Box 3.7). The sections below provide examples of practices across G7 members informing the monitoring and evaluation of AI investments.

3.2.5.1. Policy option 1. Monitoring AI investments

Some countries are exploring various mechanisms and institutions to monitor the use and impact of AI investments. For example:

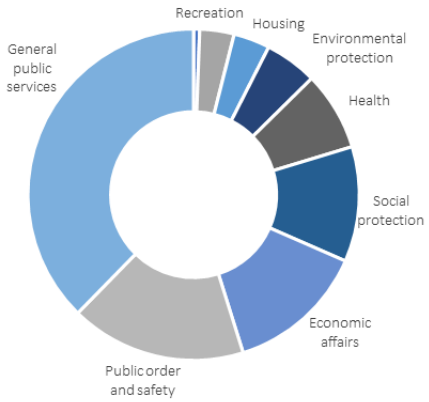
- the **European Commission** created the Public Sector Tech Watch observatory[30] to monitor the adoption of emerging technologies (namely, AI and blockchain) in the public sector. This online platform offers valuable insights into how these technologies are used to enhance public sector operations, service delivery, and open government capabilities. It hosts a dataset of over a thousand projects within the European public sector, offering information on the implementation stages of different AI projects (Figure 3.13), the policy domain in which they are being applied (Figure 3.14), among other monitoring criteria.

Figure 3.13. AI use cases in the European public sector by implementation stage



Source: Author's elaboration based on (European Commission, n.d.[80]).

Figure 3.14. AI use cases in the European public sector by policy domain



Source: Author's elaboration based on (European Commission, n.d.[80]).

- A similar monitoring tool for AI projects has been set up by the Office of Management and Budget (OMB) in the **United States**[31]. This tool directs federal agencies to complete an annual inventory of AI use cases. As of September 2023, the inventory comprised more than 700 cases. These cases are categorised based on the stage of implementation, AI techniques employed, and the organisation that owns them.
- In the **United Kingdom**, the National Audit Office released a report on the use of AI in government and its future opportunities. They surveyed governmental agencies on AI use in the public sector. By 2023, 37% of the 87 responding government bodies had deployed AI, with a total of 74 AI applications. Most of these applications aimed to improve internal processes and support

operational decision-making. AI use cases directly providing public services or engaging with the public were less common (National Audit Office, 2024[17]).

- **France**[32] has a monitoring tool for digital state projects that provides an overview of the State's major digital initiatives, including AI projects. It lists and describes strategic or sensitive IT projects, especially those costing over €9 million. This tool offers a shared vision of ongoing IT projects, serves as a lever to promote these projects, and helps identify and initiate necessary actions for project success. France monitors the distribution of projects by ministry and phase of progress, functional area, and estimated cost.
- The **United States'**[33] Technology Modernisation Fund (TMF) funds promising AI projects across the federal government to support mission-enabling AI implementation serving also as a monitoring tool to oversee and evaluate these initiatives. TMF calls for agencies to identify AI projects, including generative AI, for possible investment. Proposals must include plans for user testing, risk mitigation, evaluation metrics, and senior executive support. Expected outcomes include enhanced user experience, improved business operations, optimised security and risk management, and data-informed decision-making.

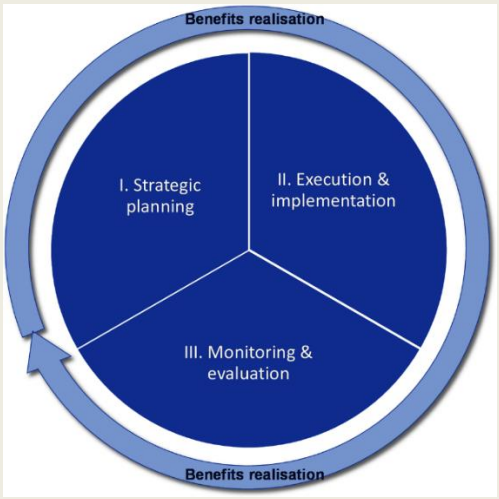
Box 3.22. The OECD Framework for Digital Government Investments

Governments are increasing their expenditure on digital technologies, including AI, to facilitate the digital transformation of public administrations. These investments demand strong public sector capacities for planning, executing, and monitoring to ensure the delivery of expected results. The *OECD Framework on Digital Government Investments* can guide governments in implementing digital transformation policies in an agile and cost-effective manner (Figure 3.15). It identifies three key pillars and policy instruments for strategic decision-making and spending on digital government (OECD, 2023[81]):

- **Strategic Planning**: Enhances coordination and collaboration among relevant authorities, planning, value proposition, and risk management.
- **Execution and Implementation**: Focuses on investment management, prioritisation, funding sources, project management, public procurement, and govtech policies.
- **Monitoring and Assessment**: Emphasizes accountability, progress monitoring, policy evaluation, return on investment, and end-user assessment.

Figure 3.15. The OECD Framework for Digital Government Investments

Three pillars for coherent and whole-of-government management of investments on digital government



Source: (OECD, 2023[81]).

Another effective tool for monitoring AI-powered services in the public sector is collecting and analysing performance data, which ensures that a service meets user needs and remains cost-efficient. Well-designed metrics indicate whether the service is achieving its goals (Government Digital Service, 2022[82]). The **UK** provides guidelines[34] on setting performance metrics for government digital services, which are valuable for measuring the success of AI services or applications (Box 3.23).

Box 3.23. UK: Guidelines on how to set performance metrics on government digital services

To set performance metrics for your service, follow these stages:

- **Define purpose:** Clearly outline your service's purpose and user needs.
- **Develop goals:** Create specific goals (benefits) that address these needs.
- **Formulate hypotheses:** Predict how actions will achieve goals using hypotheses.
- **Identify metrics:** Choose KPIs and metrics based on hypotheses.
- **Collect data:** Use diverse sources like user feedback and financial info.
- **Analyse data:** Regularly assess performance, satisfaction, and impact.
- **Provide context:** Segment data and compare with similar services.
- **Share findings:** Use dashboards and reports to present data.
- **Monitor and iterate:** Continuously refine metrics as the service evolves.

Source: (Government Digital Service, 2024[83]).

3.2.5.2. Policy option 2. Oversight and monitoring of AI systems

G7 members are exploring new accountability structures and tools for auditors to monitoring and oversee AI systems. For example:

- the **United States'** Government Accountability Office has frameworks for assessing whether algorithms meet quality criteria.
- the **United Kingdom's** National Audit Office (NAO) released a report highlighting potential risks to value for money that may arise without a clear identification of the institution responsible for implementing the AI adoption strategy in the public sector (OECD, 2024[2]). To AI assurance, indispensable for the trustworthy development and fair outcomes of AI in the public sector procurement of AI systems, preventing unintended consequences. As detailed in Box 3.24, the **United Kingdom** has developed a comprehensive AI assurance toolkit[35] to help organisations adopt appropriate assurance mechanisms (Department for Science, Innovation & Technology, 2024[84]).
- At a global level, the OECD AI Incidents Monitor (AIM) is being used to keep track of AI incidents and hazards, including in the public sector. Its goal is to assist policymakers, AI practitioners, and other stakeholders gaining valuable insights into the risks and harms of AI systems (OECD, 2024, p. 18[2]).

Box 3.24. UK AI assurance mechanisms

- **Risk assessment:** "Used to consider and identify a range of potential risks that might arise from the development and/or deployment of an AI product/ system. These include bias, data protection and privacy risks, risks arising from the use of a technology (for example the use of a technology for misinformation or other malicious purposes) and reputational risk to the organisation".
- **Bias audit:** "Assesses the inputs and outputs of algorithmic systems to determine if there is unfair bias in the input data, the outcome of a decision or classification made by the system".
- **Impact assessment:** "Impact assessments are used to anticipate the wider effects of a system/product on the environment, equality, human rights, data protection, or other outcomes. For instance, an algorithmic impact assessment is a systematic framework is a systematic framework to evaluate the potential effects and risk of deploying AI systems".
- **Compliance audit:** "Involves reviewing adherence to internal policies, external regulations and, where relevant, legal requirements".
- **Conformity assessment:** "The process of conformity assessment demonstrates whether a product or system meets relevant requirements, prior to being placed on the market. Often includes performance testing".
- **Formal verification:** "Formal verification establishes whether a system satisfies specific requirements, often using formal mathematical methods and proofs".

Source: (Department for Science, Innovation & Technology, 2024[84]).

4 Mapping the journey for AI solutions in the public sector

The transformative power of AI technologies can reshape public sector functions, services, and policies (Molinari et al., 2021[85]). This requires a phased and experimental approach to deployment whereby each stage is carefully managed to maximise impacts while mitigating risks. This chapter provides a framework for the implementation journey of AI projects in the public sector, highlighting key stages and cross-cutting factors necessary for the development, deployment, and use of safe, secure, and trustworthy AI in line with democratic values and respect for human rights.

Evidence shows that some G7 members are already following a **phased approach** to the deployment of AI technologies in the public sectors. Some have even developed specific guidance, such as:

- The **UK** public sector promotes pilots and experimentation to effectively identify and deploy promising AI applications. To support this process, it has developed robust and comprehensive guidance and frameworks, as illustrated in Box 4.1.

Box 4.1. UK: A guide to using AI in the public sector

The United Kingdom has developed a set of guidelines for building and using AI in the public sector, launched in 2019 by the Department for Science, Innovation and Technology. These guidelines emphasise an experimental and incremental approach, covering key stages such as assessing AI's ability to meet user needs, planning, and preparing for AI implementation, and ensuring ethical and safe use, amongst others. The country provides a detailed roadmap for each development and deployment phase, from evaluating the current data state and deciding whether to build or buy, to deploying and maintaining AI models, ensuring effective and responsible use of AI in the public sector. These guidelines are also connected to the "UK Service Manual" for digital service design, complementing each other.

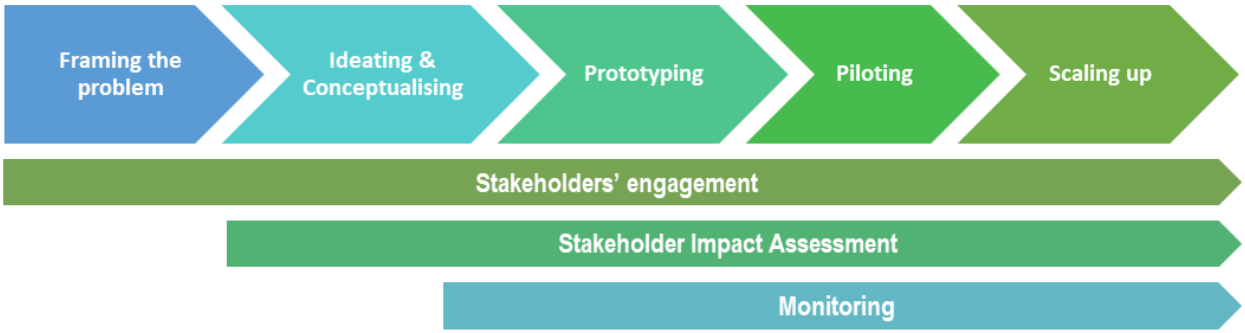
- Understanding AI.
- Assessing if AI is the right solution.
- Planning and preparing for AI implementation.
- Managing your AI project.
- Understanding AI ethics safety.

Source: (Department for Science, Innovation and Technology, Office for Artificial Intelligence, and Centre for Data Ethics and Innovation, 2019[67]).

This chapter **outlines the key stages of an Implementation Journey for developing and deploying AI solutions in the public sector** (Figure 4.1)**.** The proposed Journey is built upon the experiences of G7 members, combined with a review of agile methodologies and recommendations from specialised literature. Throughout its stages, the Journey provides a series of actions and recommendations necessary to scale the use of AI in the public sector in a safer and more effective manner. Framed within agile methodologies, it can enable continuous improvement, risk mitigation, and robust public engagement.

Starting with prototypes, governments can test AI solutions in controlled environments, refine them during pilot tests, and then, when feasible, move confidently into full-scale implementation.

Figure 4.1. Implementation journey - Stages for developing AI solutions in and by the public sector.



Source: Author's elaboration.

4.1. Framing

Clearly framing the problem is critical for developing effective AI solutions. It helps ensure resource efficiency and reduce the risk of costly, ineffective implementation. The quality of potential solutions is heavily influenced by how the problem is defined. Often, problems or policy issues are ambiguous, creating a gap between the current state and the desired outcome. For instance, a common mistake with emerging technologies such as AI is to start with solutions and then look for problems to address (OECD, 2023[86]). Instead, governments should focus on clearly identifying desired outcomes and obstacles preventing them (Berryhill et al., 2019[55]). By accurately framing the problem, AI solutions can be more precisely targeted, relevant, and effective, leading to improved decision-making and better use of resources, while also respecting human rights and fundamental freedoms. At this stage, it is essential to consider the following elements:

- ***Understanding the users, stakeholders, and their needs:*** Engaging with end-users and stakeholders in AI developments by the public sector ensures AI solutions are user-centric and effectively address real-world problems (Figure 4.2). Research methods like reviewing existing evidence, conducting interviews, and observing users help develop a deep understanding of these aspects, enhancing the relevance and acceptance of AI applications [36].

Figure 4.2. Key steps to understand the users and their needs in public sector AI developments

Source: Authors' elaboration

- ***Quantifying the size of the problem:*** By understanding the extent and specific dimensions of the problem, policymakers and developers can allocate resources more effectively, prioritise key areas of need, and tailor the solution to address the most significant pain points. This approach not only enhances the efficiency and effectiveness of the AI solution but also helps in setting measurable

goals and benchmarks for success, facilitating better monitoring and evaluation. For instance, AI service design requires a comprehensive understanding of the users and the magnitude of the issues, such as task duration and process costs (Government Digital Service, 2018[87]).

4.2. Ideating

Ideating and conceptualising before deploying an AI solution in the public sector ensures the technology effectively addresses the intended problems and meets public needs. This stage allows for trying out different solutions, estimating their benefits, considering potential implications, risks and alignment with policy objectives for AI deployment (Government Digital Service, 2019[88]; Department for Science, Innovation and Technology, Office for Artificial Intelligence, and Centre for Data Ethics and Innovation, 2019[67]). During this phase, ideas are developed, defined, and planned to form a clear and detailed concept and objective before building the solution. Emphasising user-centred solutions ensures that the proposed AI applications are both beneficial and feasible. The ideation/conceptualisation stage fosters stakeholder engagement and support, which is crucial to ensure the solution is practical and accepted by those it impacts. As AI comes with inherent risk, it is important to determine who has responsibility over which aspect of the AI, and exercise vigilance about possible poor representation of stakeholders in the project team, including prospective users, and particularly those from marginalized communities (UNESCO, 2023[23]). At this stage, it is essential to:

- **A*ssess if AI is the right solution user needs***. When a problem is identified, governments can explore multiple approaches, including AI and other solutions. If an AI solution seems feasible, it should be evaluated to determine if it is the most effective way to achieve policy objectives and create public value (Berryhill et al., 2019[55]).
- **Evaluate the available data for training the AI model(s)**, ensuring it meets relevant standards, and verifying its suitability. For instance, the **United Kingdom** provides guidelines to assess existing data[37]. Similarly, as detailed in section 3.2.4.3 Policy option 3. Data management and quality frameworks, some countries already have in place data quality and management frameworks that can be leveraged for this purpose.

4.3. Prototyping

Prototyping enables early testing and refinement of AI models, ensuring solutions are viable, meet user needs, and can be scaled for real-world applications without requiring extensive resources. It involves creating an initial version of the AI system to test feasibility and design, evaluating functionality and integration with existing systems and data. Prototyping demonstrates how the solution will work without full-scale production, customisation, or data migration (World Bank, 2020[89]). This process helps to early identify potential issues, allowing for adjustments and improvements, reducing the risk of costly failures or deviating from standards, and ensuring a robust final implementation.

At this stage, it is essential to ***ensure data integrity and privacy*, *respect intellectual property, and address cybersecurity concerns*.** This involves evaluating data quality to ensure it is sufficient and relevant for the AI model, using measures such as accuracy, completeness, uniqueness, timeliness, validity, sufficiency, relevance, representativeness, and consistency (Leslie, 2019[11]). Additionally, implementing data governance policies and ensuring compliance with data protection laws, and regional and national regulations, are essential to maintain data quality, accuracy, and reliability throughout its lifecycle, including collection, storage, processing, and sharing. As further detailed below in section 5.6Monitoring (cross-cutting action), monitoring AI through instruments like ex-ante impact assessments should start from this phase to align the system's initial results with desired goals.

4.4. Piloting

The piloting stage involves deploying the AI solution in a controlled, real-world environment. This allows for the evaluation of the system under actual operational conditions. Piloting facilitates the timely identification of potential technical flaws and governance challenges, highlighting public concerns and unforeseen issues. It also assesses the effectiveness of the AI solution in meeting its intended goals (Berryhill et al., 2019[55]) and existing standards. This stage provides valuable insights into user acceptance, system performance, and potential impacts on services and stakeholders. Additionally, piloting can serve as a useful mechanism for conducting an AI risk assessment. Policy tools like regulatory sandboxes can be used to set controlled environments for piloting AI solutions under regulatory supervision.

4.5. Scaling up

Once the AI system has been optimised through iterations and confirmed to meet all requirements and expectations, the next stage is scaling up. This involves expanding the use of the AI solution across the organisation or in the wider public sector, integrating it into regular operations, and continuously monitoring its performance and impact. Scaling up ensures that the benefits of the AI system are realised across the board, contributing to improved service delivery and operational efficiency. At this stage, it is essential to consider the following elements:

- ***Ensuring explainability and transparency***. These elements enable stakeholders to understand how AI models make decisions, being essential preconditions to ensure the respect, protection and promotion of human rights, fundamental freedoms, and fostering trust in the technology (Office for Artificial Intelligence, 2020[90]). For accountability to work effectively, governments must be able to explain why an AI system made specific decisions, especially if those decisions could impact people's lives (Berryhill et al., 2019[55]). Adhering to regulations on automated decision-making involves providing clear information about the automated processes and offering users the ability to request human review of decisions that significantly affect individuals (Department for Science, Innovation and Technology, Office for Artificial Intelligence, and Centre for Data Ethics and Innovation, 2019[67]).
- **Making clear who is responsible for the AI system**. Regardless of the decision-making process, it is essential to clearly identify who has the authority to make decisions about AI deployment, who is responsible for each decision, and to whom they are accountable. Governance frameworks that provide service users with a voice and oversight are particularly important (Berryhill et al., 2019[55]). Section *Governance frameworks: institutional arrangements and coordination mechanisms* provides an overview of AI governance frameworks among G7 members.
- ***Interacting with users.*** Beyond ensuring explainability and compliance with regulations and standards, it is important to secure good user adoption of AI-powered applications and services by interacting with the public and key users/user groups, tailored to their specific needs (children, elderly, partially abled). This interaction enhances adaptability, builds trust, and fosters broader acceptance, ensuring smoother integration into daily use. Raising awareness about the benefits as well as risks, and explaining how the AI service or application works, along with maintaining transparent communication with the public, helps demystify AI, making it more approachable and trusted by users.

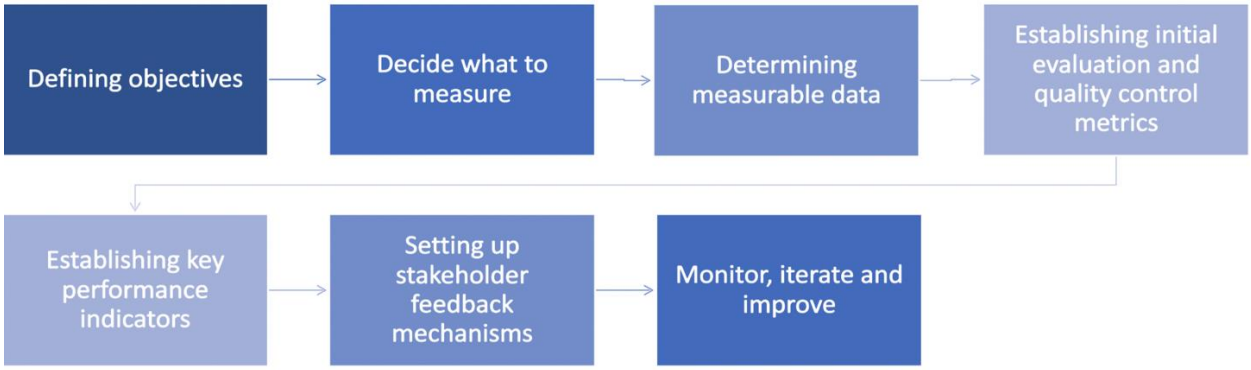
4.6. Monitoring (cross-cutting action)

Cross-cutting monitoring and engagement of stakeholders across the different stages of the implementation journey is important when deploying AI systems in the public sector. Monitoring the performance, accuracy, and impacts of AI systems often involves establishing key performance indicators and metrics, along with conducting AI assurance assessments aligned with appropriate safeguards.

4.6.1. Quality and performance metrics

From the beginning of the project, it is important to set **quality and performance metrics to ensure clear, measurable objectives, provide benchmarks for success, and track progress**. Key elements to consider are listed in Figure 4.3.

Figure 4.3. Setting quality and performance metrics



Source: based on (GOV.UK, 2017[91]).

These practices ensure the project's alignment with goals, enable continuous improvement, and support successful implementation (Government Digital Service, 2022[82]). Along this process, it is essential to consider the following elements:

- ***Using data to improve the service*** involves continuously collecting and analysing data on AI performance and user interactions. This ongoing analysis helps identify areas for enhancement, optimise functionality, and ensure the service meets user needs effectively. Data-driven insights enable timely adjustments and innovations, leading to a more efficient and responsive AI system. For instance, collected data can be used to segment users using demographic data for more targeted services or to identify points where users drop out of their journeys and elaborate improvement strategies (Government Digital Service, 2022[82]).
- ***Quality of service indicators*****:** Establishing quality of service indicators for AI systems is essential to ensure they are developed and tested with security and safety in mind. These indicators might assess algorithm testing and training, alongside traditional software metrics such as functionality, performance, usability, reliability, security, and maintainability (High-Level Expert Group on Artificial Intelligence, 2019[92]).

4.6.2. AI assurance

A second important component of monitoring AI systems is **AI assurance**. **This involves implementing measures to ensure that AI systems operate reliably, ethically, and in compliance with relevant**

regulations. Section 3.2.5.2. Policy option 2. Oversight and monitoring of AI systems explores initiatives among G7 members in this field.

4.7. Engaging (cross-cutting action)

Engaging stakeholders throughout the process implies creating a feedback loop with end-users and other stakeholders that can provide valuable insights into the system's real-world application and highlight areas for improvement. The process of engagement is a critical aspect of deploying AI systems in the public sector. This process includes:

- **Involving stakeholders**, including public sector employees, policymakers, end-users, business experts, and technical experts, provides diverse perspectives that ensure the solutions address real-world needs and challenges, and guide the process towards actionable solutions. Their input helps to identify practical requirements, potential technical barriers, and ethical considerations that might otherwise be overlooked. Continuous feedback loops and collaborative workshops enable iterative refinement of ideas, aligning the AI solution with public policy objectives and user needs.
- **Evaluating the possible impacts of AI applications** involves identifying relevant stakeholders, particularly those most affected and vulnerable (Leslie, 2019[11]). As a point in case, the Alan Turing Institute provides guidelines on conducting stakeholder-related impact assessments at various stages of AI deployment[38]. Stakeholder engagement is also a key element of UNESCO's Ethical Impact Assessment tool (Box 3.7).

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[11] Furigana are phonetic characters used alongside Kanji (Chinese characters) and English to indicate pronunciation. In Japanese, a single Kanji can have multiple Furigana, making it difficult to infer the correct Furigana from the Kanji.

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