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INTELLIGENCE: RULES AND APPLICATIONS "**

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**DIGITAL TRANSFORMATION, ARTIFICIAL INTELLIGENCE, AND AUTOMATED
DECISION-MAKING IN PUBLIC ADMINISTRATION**

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AI in Public Administration: A case for internal capacity building

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- AI in Public Administration: context
 - Considerations in building government AI systems
 - Importance of internal AI capacity in government
 - Challenges and opportunities of Generative AI for government

AI across all
functional
areas of
Government

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- **Enforcement:** targeting of agency enforcement action (US SEC and IRS)
 - **Regulatory research, analysis, and monitoring:** analytics to shape agency policy (FDA, Bureau of Labor Statistics)
 - **Adjudication:** supporting adjudication of benefits or rights (US Patent Office)
 - **Public services and engagement:** facilitate communication with the public (Postal Service)
 - **Internal management:** HR, procurement and maintenance (Health and Human Services)

Evidence

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- Hard to find consistent evidence
 - Two recent surveys:
 - The 2020 report to the Administrative Conference of the United States
 - The 2022 report by the European Commission Joint Research Centre

FIGURE 1. AI USE CASES BY POLICY AREA

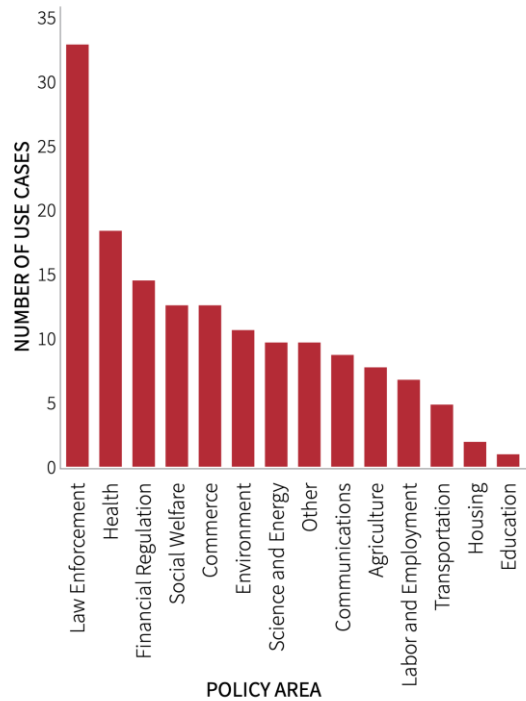
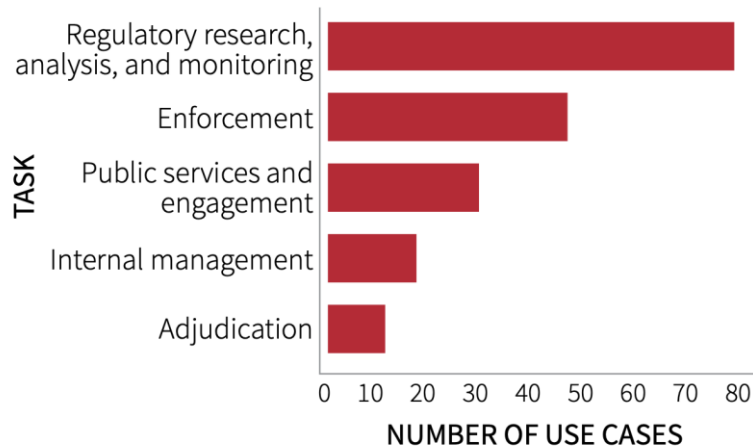


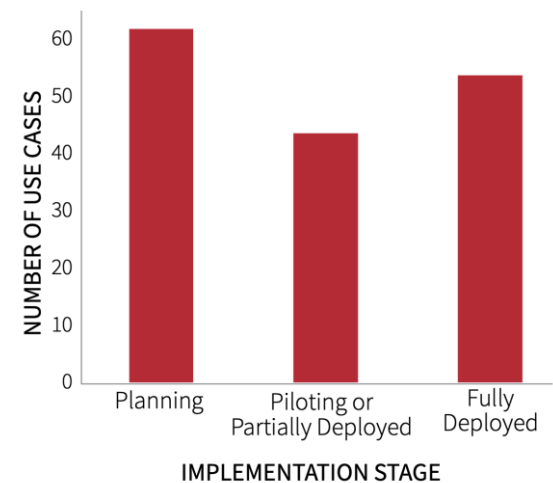
FIGURE 2. AI USE CASES BY GOVERNANCE TASK



Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies



FIGURE 3. AI USE CASES BY IMPLEMENTATION STAGE



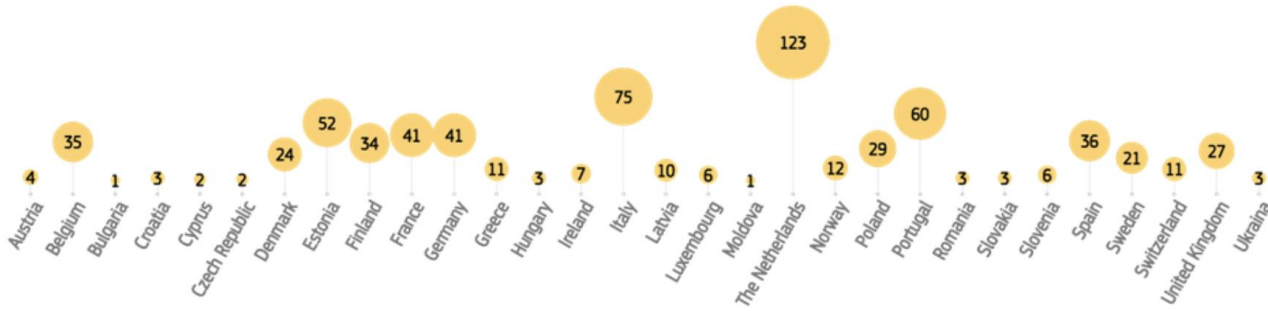


Figure 4. Mapping the use of AI in the public sector in Europe

Source: JRC own elaboration



Figure 5. Historical progression of AI cases
Source: JRC own elaboration

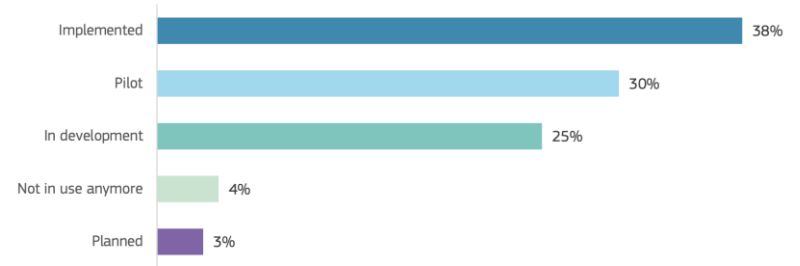


Figure 9. Development Level of AI cases
Source: JRC own elaboration

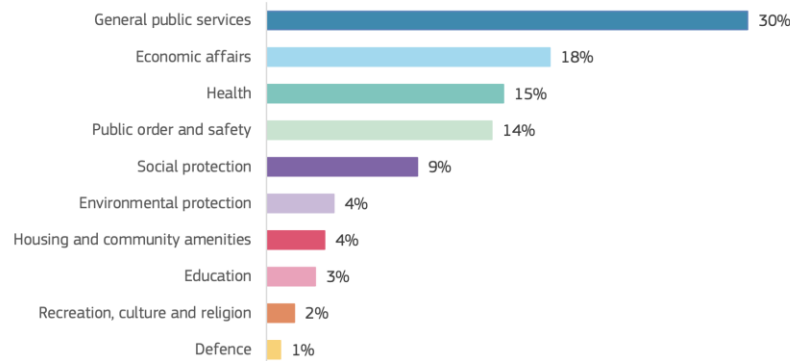


Figure 8. Governmental functions (COFOG Level I)
Source: JRC own elaboration

How and why?

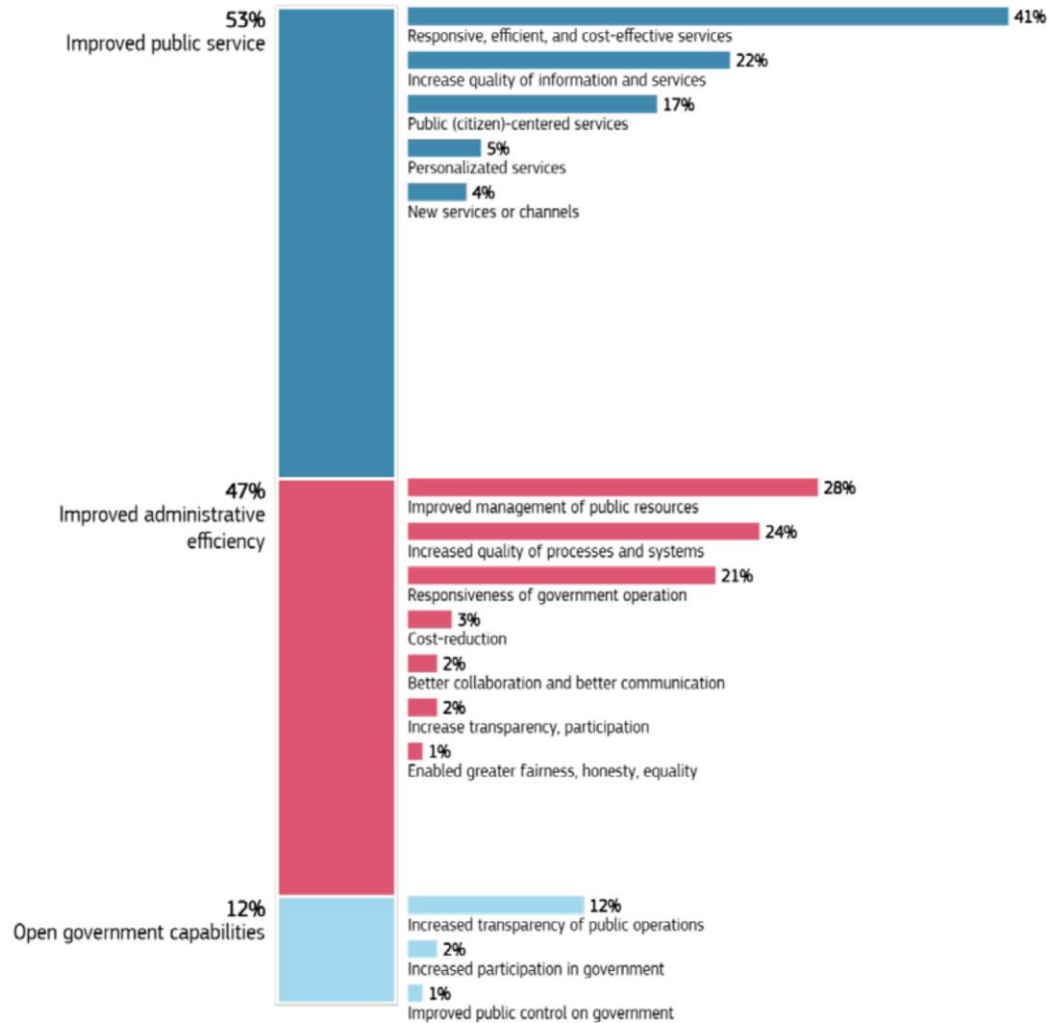
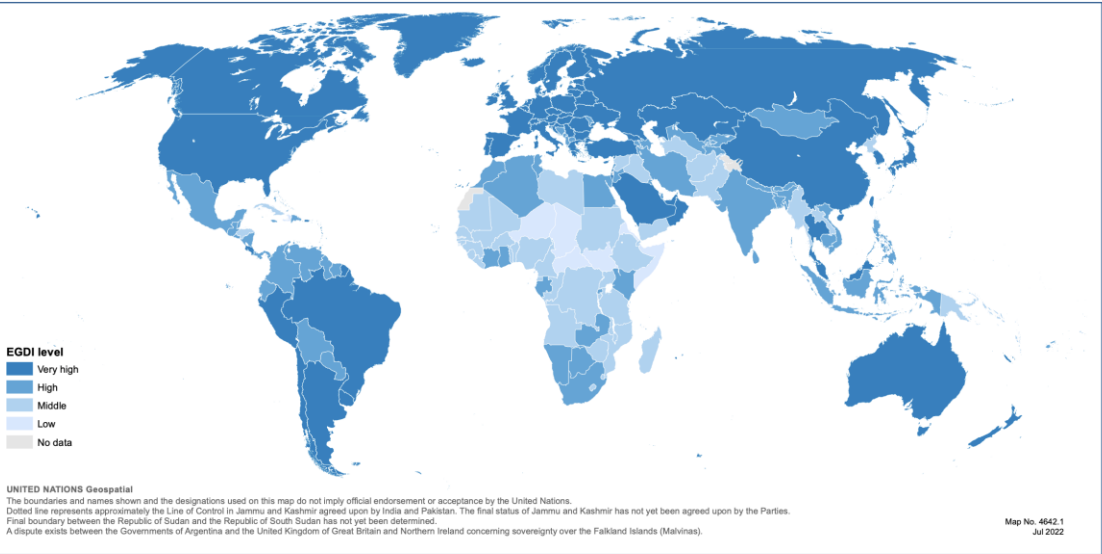


Figure 14. Public Value of E-Government AI Services

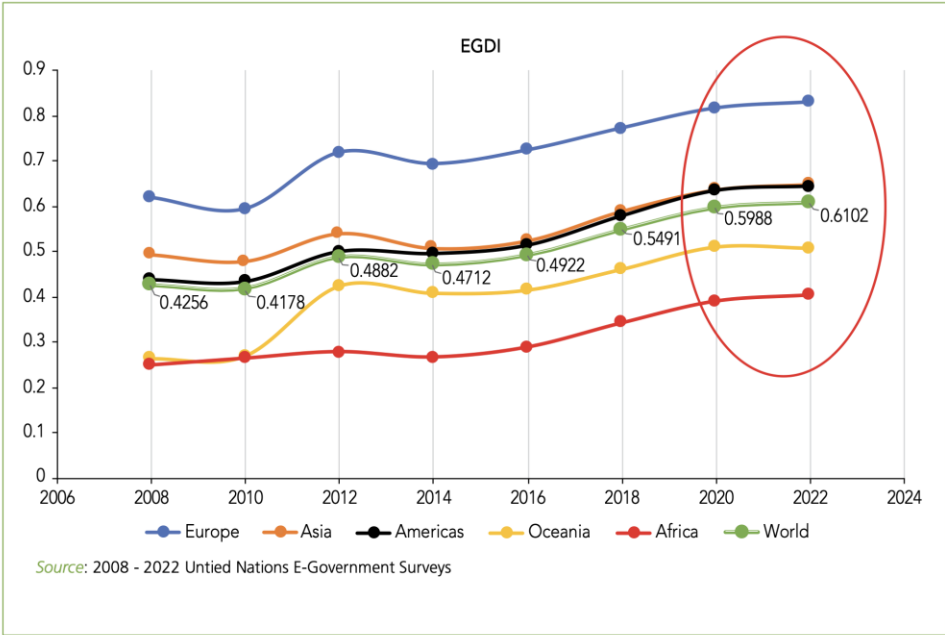
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- The 2022 UN E-Government Survey
 - Most governments provide digital services, with increasing use of emerging technologies like AI.
 - But also digital divides between regions and income levels
 - Urgent demand to develop digital skills and capabilities to support digital government transformation.

Figure 1.1 Geographical distribution of the four EGDI groups, 2022



Source: 2022 United Nations E-Government Survey.

Figure 5.1 EGDI Global and Regional Average Value



Building AI systems in government

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Things to consider

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- data quality
 - fairness
 - accountability
 - privacy
 - explainability and transparency
 - costs

Biggest Q: Is AI the right solution?

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- there's data containing the information you need, even if disguised or buried
 - it's ethical and safe to use the data
 - you have the right sort of data for the AI model to learn from
 - the task is large scale and repetitive enough that a human would struggle to carry it out
 - it would provide information a team could use to achieve outcomes in the real world



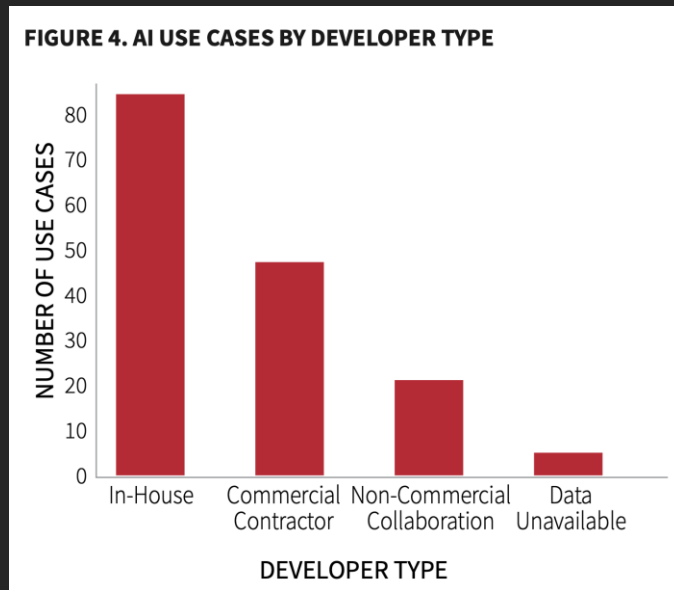
Build or buy?

- Procurement strategy as with any other tech
- Are the needs you're trying to meet unique to your organisation or you could fulfil users' needs with generic components?
- What is the maturity of commercially available products that meet those needs?
- How your product needs to integrate with your existing infrastructure?
- Are there sufficient skills to build in-house? Can operations run and maintain the AI solution?
- Whether you buy or build the solution still needs to be integrated into the decision-making pipeline or end-to-end service for users.

Importance of internal capacity

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Why build internal capacity?



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- Guaranteeing data privacy and security
 - Ensuring compliance and accountability
 - Incorporating domain, political, and organisational expertise
 - Making informed procurement and collaboration decisions
 - Assuring integrative and iterative development
 - Focusing on long-term sustainability

Traditional AI skills

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- AI
 - machine learning
 - deep learning
 - computer vision and natural language processing
 - Data science
 - big data
 - cloud computing
 - Solution development
 - causal inference
 - decision theory
 - development and operations
 - ethics and law
 - human-centred design and agile
 - governance and policy-making

Generative AI effect

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Capacity building in Generative AI context

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- Governments and citizens are becoming empowered by GenAI (ChatGPT)
 - Spectrum of skills, with some offloaded to GenAI
 - Prompt engineering skills are becoming more important
 - “Text to model” instruction also makes it more difficult to outsource building robust and sustainable solutions

Conclusion

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- AI systems across all government functions
 - Digital divides and skills gap
 - “Buy or build” for AI systems in government
 - Internal capacity is important
 - GenAI shifts skills gap debate
 - GenAI makes traditional “buy or build” choice more complicated

The Centre for Artificial Intelligence in Government (CAIG)

Connecting social sciences and artificial intelligence

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