



AI4Belgium

Kick-off of AI4GOV Belgium

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Setting the scene

AI use in public services in the EU

Francesco Pignatelli, Programme Manager, JRC, EC

Colin van Noordt, External Expert, TalTech

The views expressed are those of the author and may not in any circumstances be regarded as stating an official position of the European Commission.

Outline

1. Background, objectives and approach
2. Landscaping AI in public services in the EU: key findings
3. Overview of National AI strategies focused on public sector
4. Towards a methodology to assess impacts of AI in public services
5. Conclusions: take-aways and policy implications

1. Background, objectives & approach

The EU policy agenda for Human-centric AI



- "Building Trust in Human-Centric Artificial Intelligence" COM (8.04.2018) & AI Declaration (10.4.2018)
- "Maximising the benefits for AI in Europe" COM (25.4.2018) & Coordinated Action Plan "AI Made in Europe" (07.12.2018) establishing the **AI-Watch**
- **High Level Expert Group on AI - Ethics Guidelines & Policy & Investment Recommendations for Trustworthy AI**
- **2020 Strategy on Shaping Europe's digital future**
 - White paper on AI – A European approach to excellence & trust COM(2020) 65 final, 19/02/2020
 - A European Strategy for Data COM(2020) 66 final, 19/02/2020

AI Watch – the Knowledge Service to monitor the Development, Uptake and Impact of AI for Europe



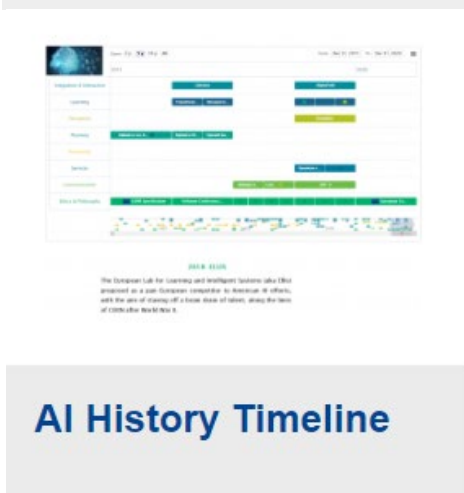
AI for the public sector



AI Landscape and Dashboard



Strategic Actions and Coordination



AI History Timeline



European Policy on AI



A Storymap on AI in Europe



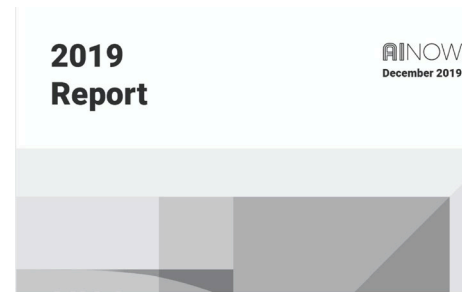
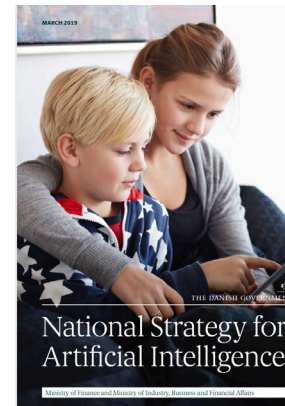
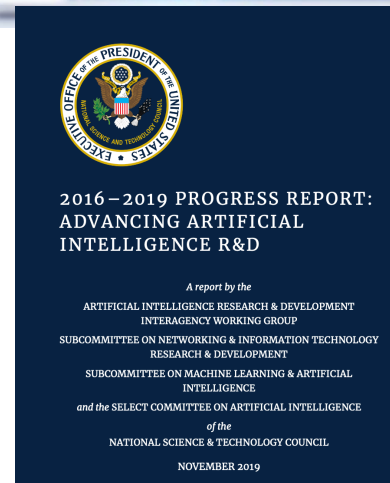
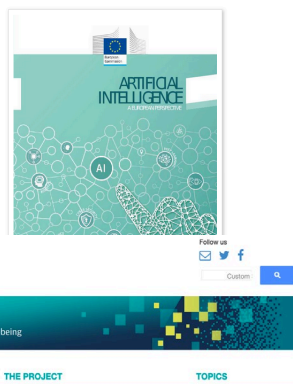
Background: hype & dilemmas of adopting AI in public sector



Artificial Intelligence: A European Perspective

Abstract:

We are only at the beginning of a rapid period of transformation of our economy and society due to the convergence of many digital technologies. Artificial Intelligence (AI) is central to this change and offers major opportunities to improve our lives. The recent developments in AI are the result of increased processing power, improvements in algorithms and the exponential growth in the volume and variety of AI data. The OECD is leading a project to explore the opportunities and challenges of AI for Europe. This report provides a high-level overview of the project and its findings. It also discusses the implications of AI for the European Union and the need for a coordinated response. The report is intended for policymakers and the general public.

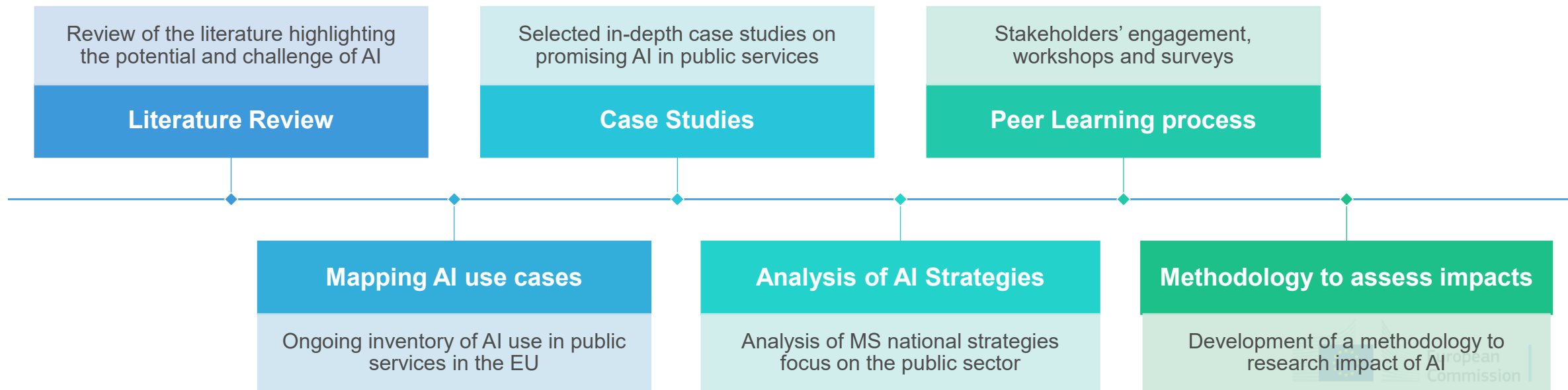


AI use & impact in public services



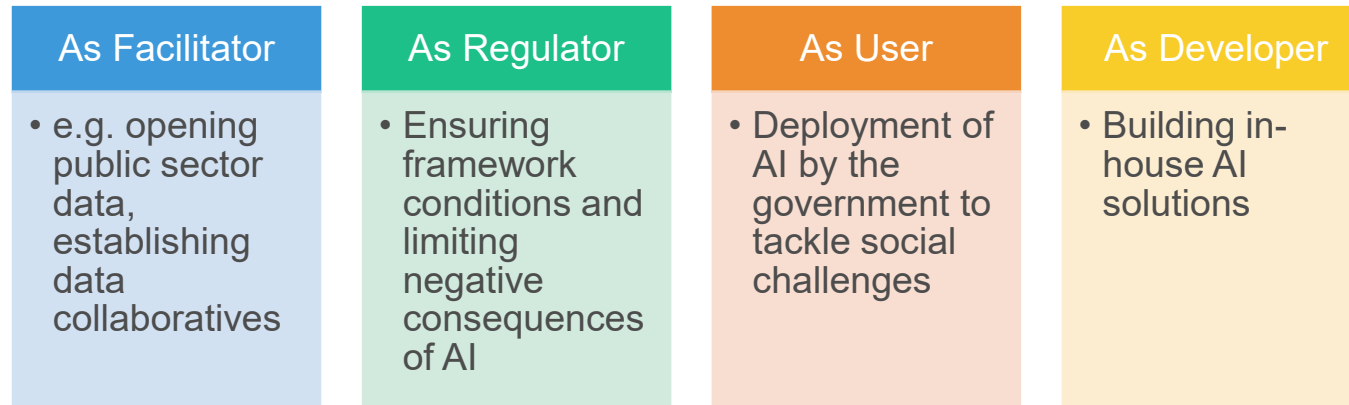
Objectives

- Overview of the use of AI in public services in Europe
- Methodology to assess impacts of AI in public services
- Roadmap and framework for use of AI in public services



Towards AI in government

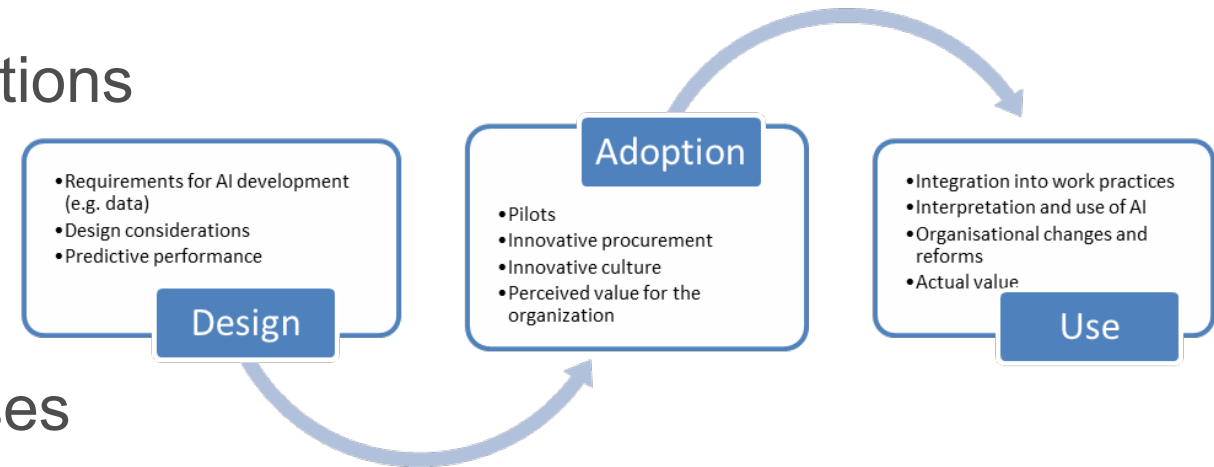
- Governments are often seen as a vital player in assisting the development and uptake of AI in society



- AI holds great promise to improve the operations of government and to improve social wellbeing of our countries
 - Improving policy making through use of (big) data
 - Improving public service delivery by personalizing or creating new access points
 - Improving internal operations through automation

Conceptualising AI-enabled innovation in the public sector

- Focus on adoption & use of AI applications
- Functional view of AI use:
 - Perception, Reasoning & Action
- AI typology derived from collected cases



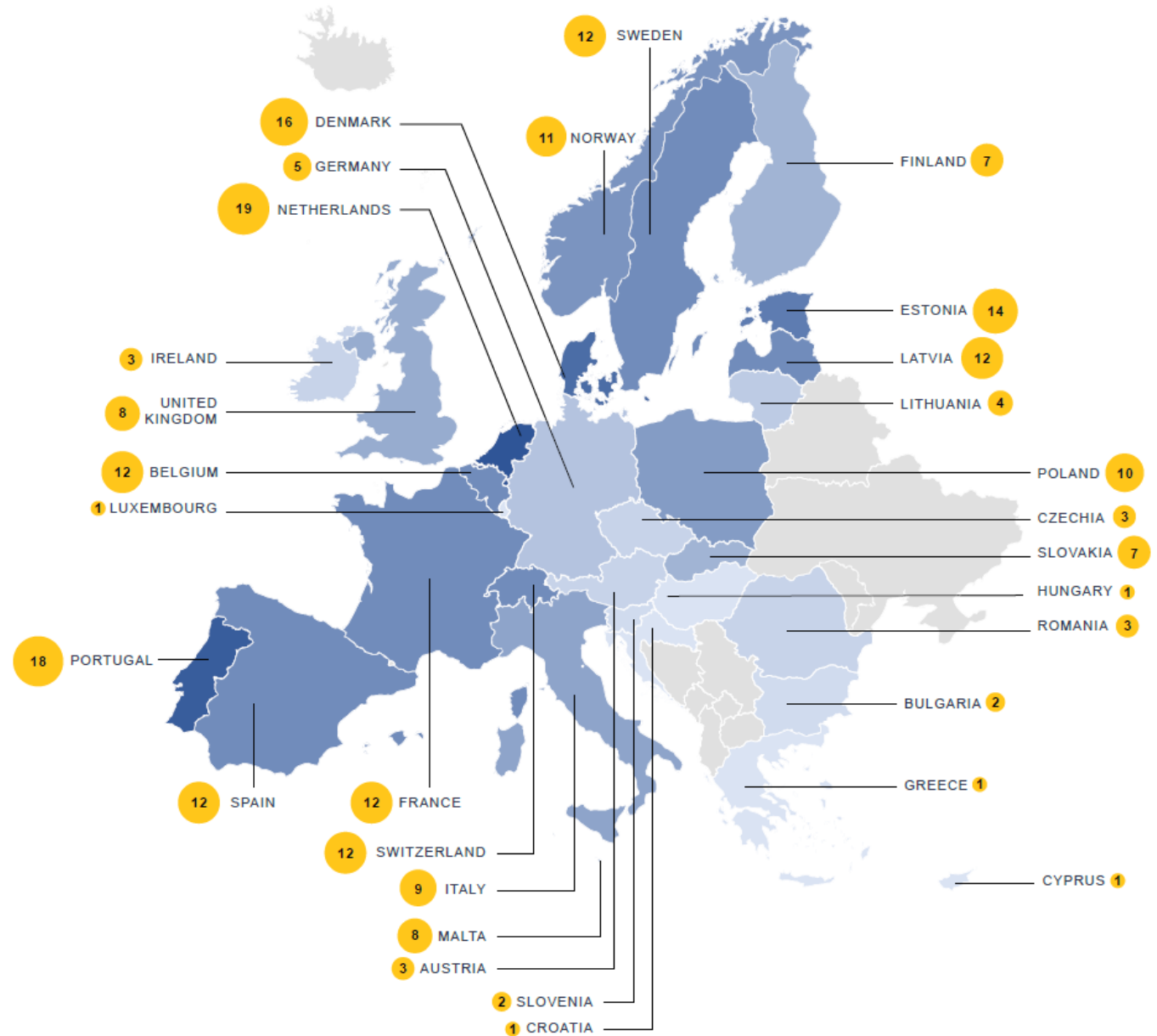
AI typology
Audio Processing
Chatbots, Intelligent Digital Assistants, Virtual Agents and Recommendation Systems Cognitive Robotics, Process Automation and Connected and Automated Vehicles
Computer Vision and Identity Recognition
Expert and Rule-based Systems, Algorithmic Decision Making AI-empowered Knowledge Management
Machine Learning, Deep Learning
Natural Language Processing, Text Mining and Speech Analytics
Predictive Analytics, Simulation and Data Visualisation
Security Analytics and Threat Intelligence



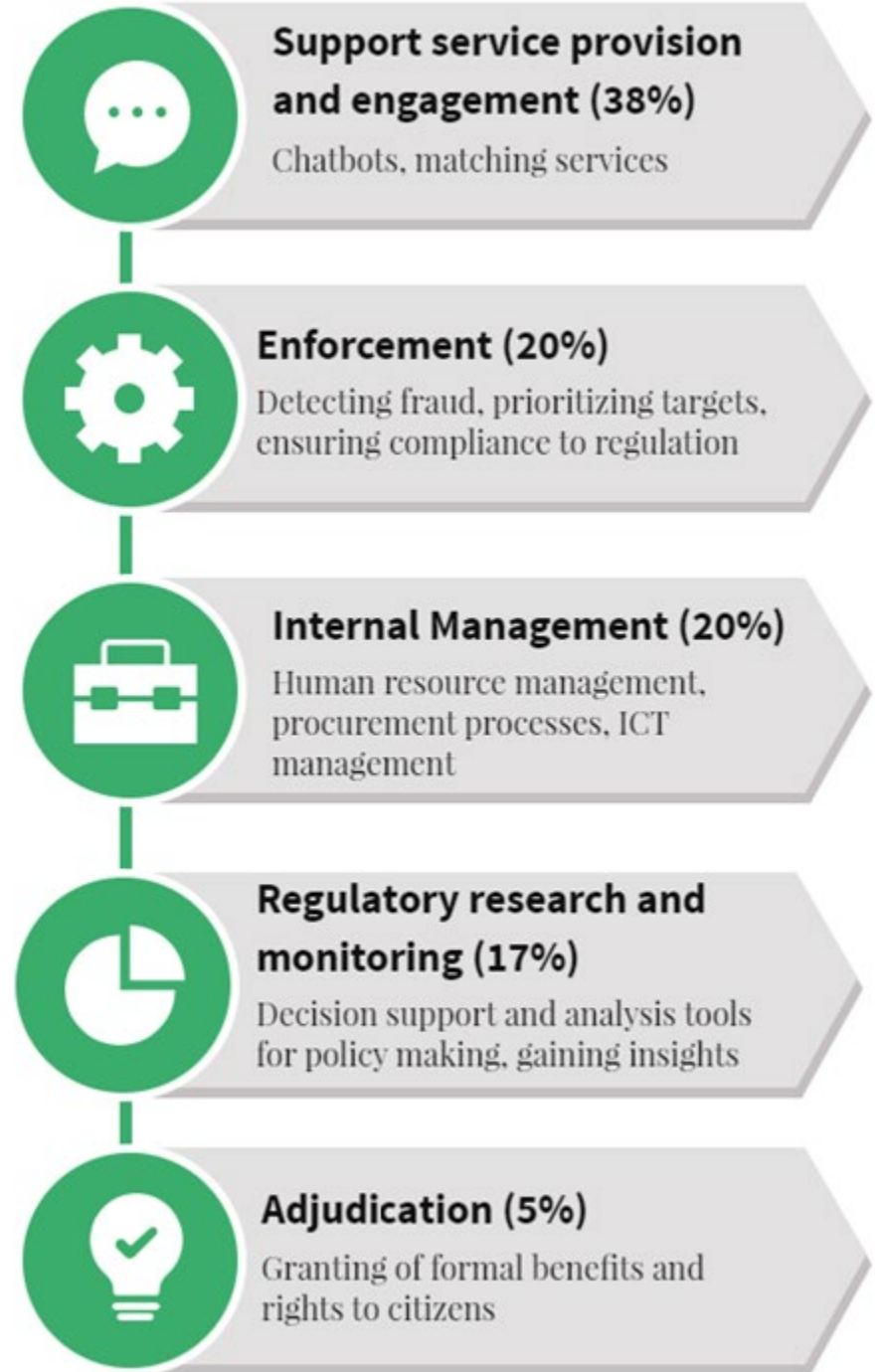
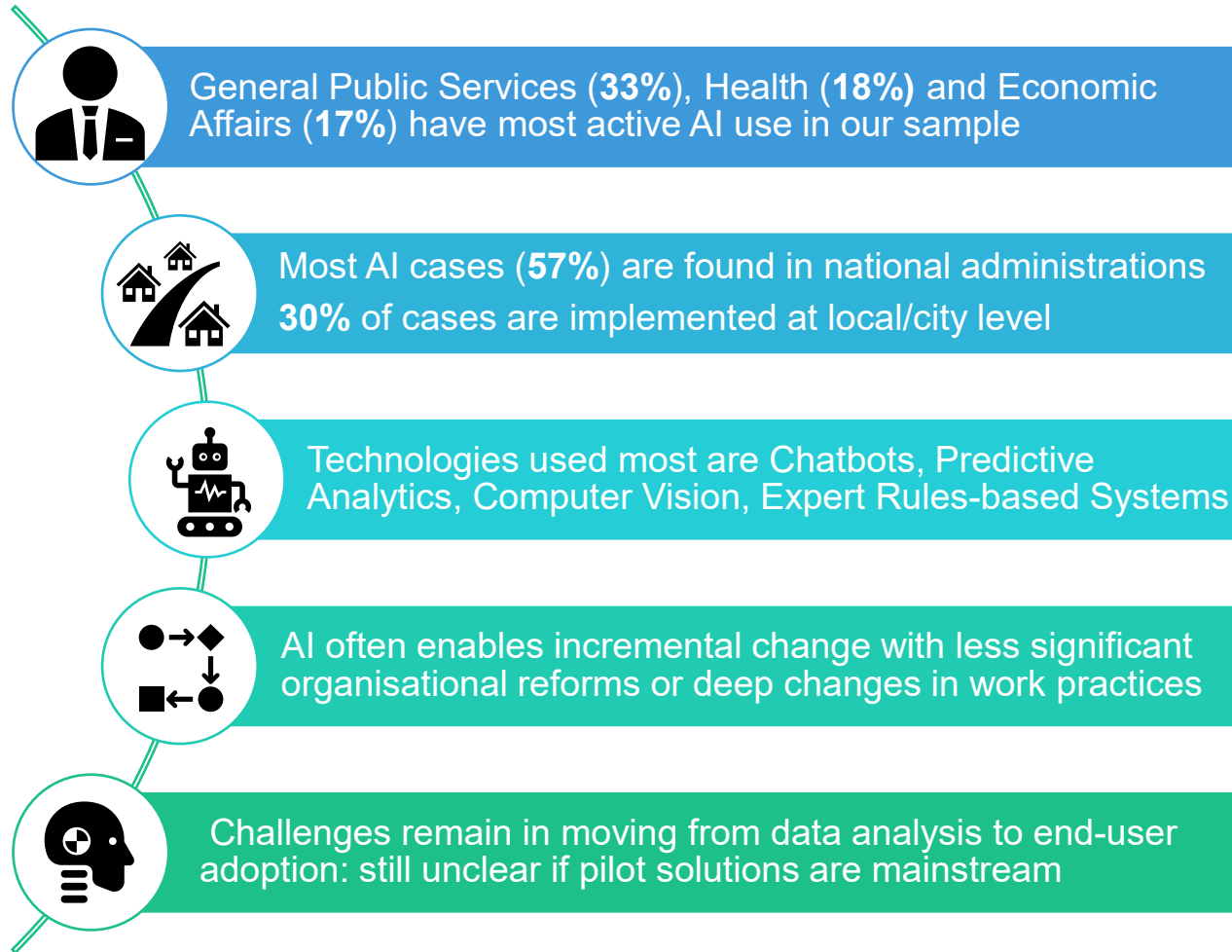
2. Landscaping AI in public services in the EU: key findings

Mapping AI use in public services in the EU

- **230 cases** (EU27 + CH, NO & UK)



Key findings



Examples of AI-enabled innovation potential

Incremental innovation



AI application in **single organisational processes** and services **without a clear follow-up**

e.g. text analysis of documents, predictive analytics without accompanying action, chatbots with very limited functionalities

Organisational innovation



AI application to **alter existing practices, changing organisational processes** and tasks of staff

e.g. robotic process automation, chatbots handling large amounts of requests, automatic decisions for declarations and similar

Disruptive innovation



AI application **to social protection and care, creation of new public services** to citizens based on AI, advanced chatbots with a variety of functions

e.g. social care data experiments (i.e. in Finland, UK, Denmark)

Radical innovation



AI application for **large scale changes** in policy/governance practices, reform of policy/service creation models, reforms of organisations

Planned - not in practice
e.g. AuroraAI in Finland, dispute settlement in Estonia, CitizenLab (BE)

Overview of cases

#	Initiative	AI Typology	Country	Administrative level	Purpose(*)	Policy sector (COFOG)	Key enablers	Expected impact
1	SATIKAS	Computer Vision and Identity Recognition	Estonia	Central	Enforcement	Economic Affairs	Satellite data, resource/data sharing, funding, trust	Improved administration and resource use, improved subsidy compliance
2	Predictive system	Predictive Analytics, Simulation and Data Visualisation	Belgium	Central	Enforcement	Health	Sharing of data/resources, high data quality, convincing staff of value	Improved inspection capabilities, improved welfare of children
3	Automated public services	Cognitive Robotics, Process Automation and Connected and Automated Vehicles	Sweden	Local	Adjudication	Social Protection	Developed online services, political leadership	Reduced waiting time, increased efficiency, improved citizens' experience
4	Chatbot UNA	Chatbots, Intelligent Digital Assistants, Virtual Agents and Recommendation Systems	Latvia	Central	Public services and engagement	Economic Affairs	Data on FAQ, external consultancy providing expertise	Reduced administrative burden and workload, improved public service, improved citizens' experience
5	Tengai	Predictive Analytics, Simulation and Data Visualisation	Sweden	Local	Internal Management	General Public Services	Consultancy assistance, Existing recruitment practices, culture for innovation	Unbiased recruitment services, higher quality personnel, lower recruitment costs and length
6	SyRi (Systeem Risico Indicatie)	Predictive Analytics, Simulation and Data Visualisation	Netherlands	Central/Local	Enforcement	Social Welfare	Sharing of data/resources, high data quality, political leadership	Improved inspection capabilities, improved social welfare, reduced misuse of public funds
7	Unemployed profiling	Expert and Rule-based Systems, Algorithmic Decision Making	Poland	Central / Municipal	Adjudication	Economic Affairs	Political leadership, Available data on unemployment, drive for modernization	Personalized public services, reduced unemployment, improved efficiency
8	VeriPol	Natural Language Processing, Text Mining and Speech Analytics	Spain	Central	Enforcement	Public Order and Safety	Collaboration with university, corpus of digital reports, integration into existing information system	Higher detection of false reports, higher productivity, reduced submission of fraudulent reports

Illustrative examples of AI use cases

Agricultural Registers and Information Board (ARIB) *Estonia*



SATIKAS

Detection of the mowing of grasslands with
COPERNICUS

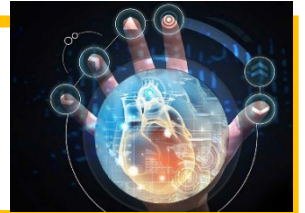
Description

The AI system combines machine learning methods to analyse satellite data together with other data sources. Used to optimize inspection capacity of ARIB and enforcement of subsidy requirements.

Lessons learned

Collaboration and sharing of resources crucial to ensure adoption and implementation.

Kind en Gezin agency *Flemish Region, Belgium*



Predictive system day-care services

Predictive model to detect day-care services in need of further inspections

Description

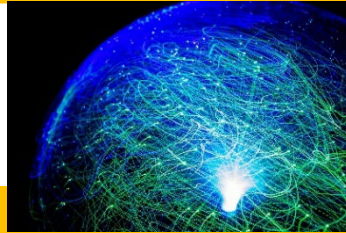
Aim of the system is to optimize inspection capacity and enhance inspection practices using a variety of data sources. Enables more targeted interventions.

Lessons learned

Civil servants need to see the system as an empowerment, rather than a replacement of their knowledge.

Illustrative examples of AI use cases

Municipality Upplands-Bro
Sweden



Tengai

Robot to make recruitment processes less biased than traditional interviews

Description

Tengai is a robot interviewer part of the recruitment and staffing agency of the municipality. It follows years long efforts of making recruitment less prone to bias

Lessons learned

Collaboration between humans and robots crucial to complement strengths and weaknesses

Various municipalities in NL
The Netherlands



SyRi (Systeem Risico Indicatie)

System to detect welfare fraud more effectively

Description

System developed by the Dutch government used by various municipalities to assist in tackling misuse of public funds. **The AI was controversial and judged to be non-compliant with Article 8 of ECHR.**

Lessons learned

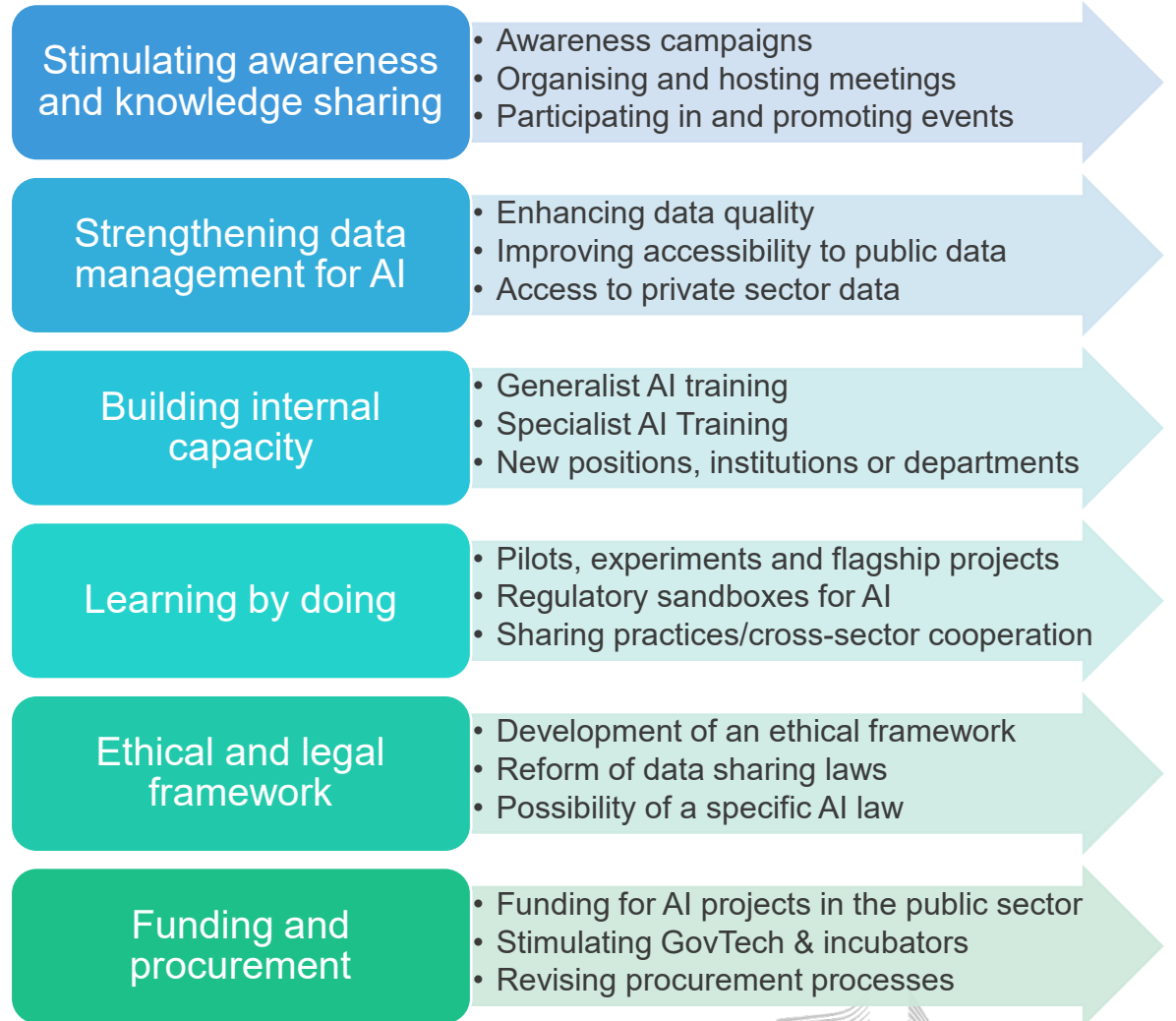
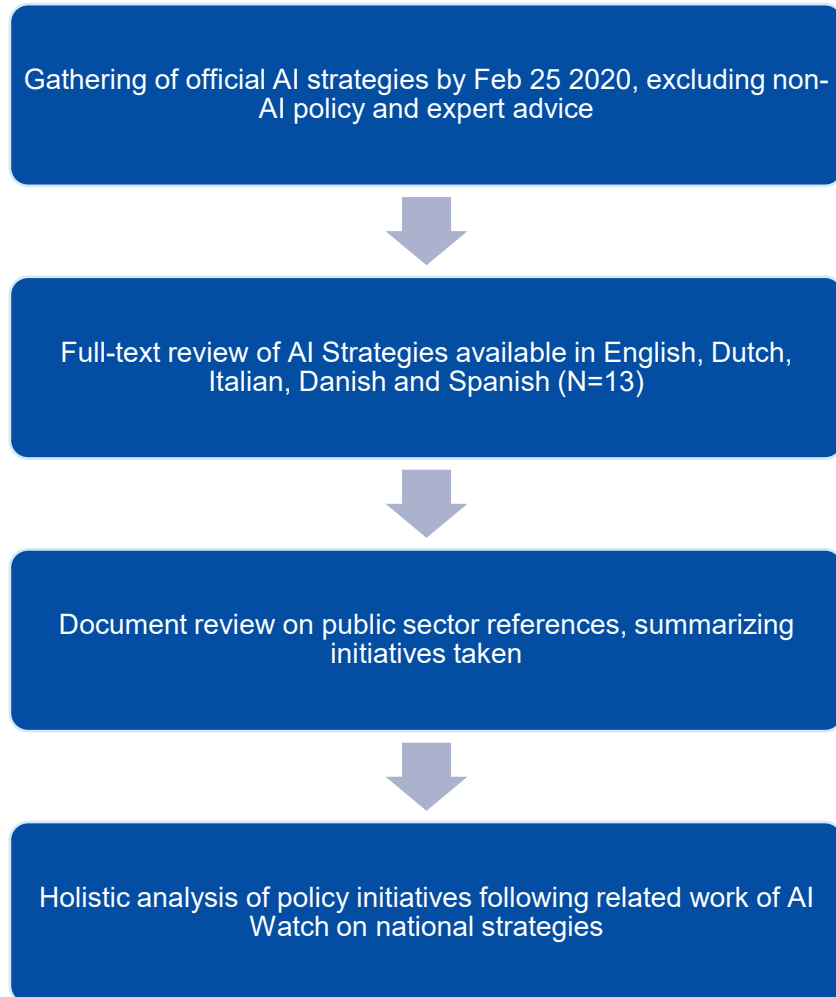
There is a balance to be found between economic interests of the state and social interests of privacy

Some of the other Belgium cases identified

- Agricultural Subsidy Monitoring
 - Walloon uses satellite imagery with AI to check subsidy requirements
- Jobnet AI
 - VDAB uses AI to match job seekers with vacancies
- NLP to classify telephone questions
 - 1700 Flemish Infoline uses AI to classify telephone questions of citizens
- Detection of batch numbers in vaccine
 - Child & Family explored use of computer vision to read numbers of vaccines
- PaveAI Visit Flanders
 - Experiment in using interpretation of Google Analytics using AI
- Detection of cooling towers
 - Agency for Care and Health used a tool to scan aerial photographs for cooling towers
- Detection of cyberattacks
 - De Watergroep has been using AI to detect and prevent security attacks
- Please assist us in finding AI use cases or provide us with more information about those already identified

3. Overview of National AI strategies focused on public sector

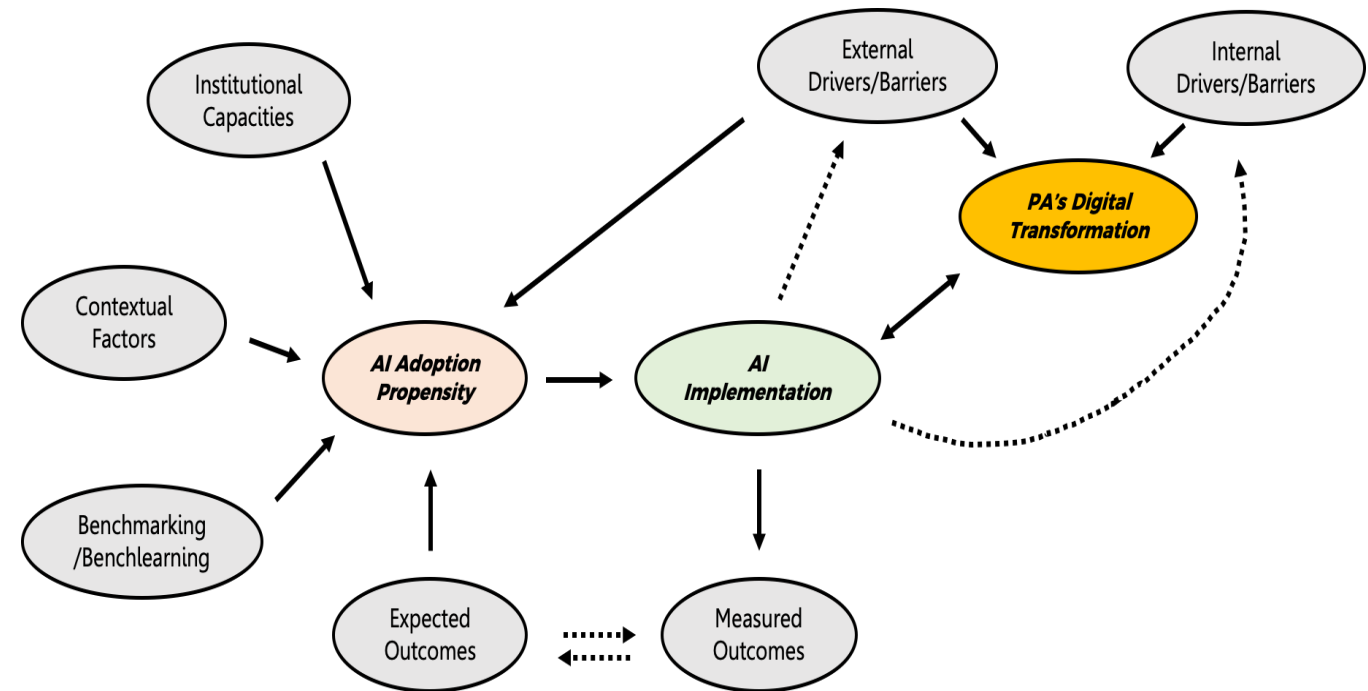
Overview of National AI strategies for public sector



4. Towards a methodology to assess impacts of AI in public services

Developing a methodology to assess impacts of AI in public services

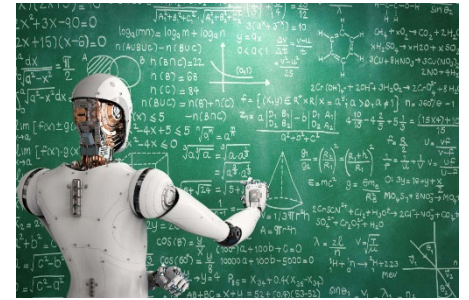
- Public value perspective & focus on AI adoption & effective implementation
- Addressing barriers which may prevent AI exploitation in the public sector's context
- Looking at potential benefits but also unintentional and unexpected risks/side effects
- Comparing ex-ante and ex-post impacts of AI use



Source: Misuraca, G, & van Noordt, C., 2020, JRC AI Watch – AI in public services

5. Conclusions: take-aways & policy implications

Open issues & Policy implications



- **High level of heterogeneity of AI use** across EU and unclear public value created
- Search for “**best practices**”: learn from success stories and replicate / scale out
- Ensure the path to institutionalise AI into mainstream services: **beyond “ever-piloting”**
- **Little evidence of what works** and what is actually threatening services quality
- **Varying scope and depth of strategies** to develop and adopt AI for the public sector
- Dual role of public sector in the **governance “with and of /by” AI**
- **Innovative Public Procurement & GovTech** crucial for adopting AI solutions

Conclusions: main take-aways

- 1. Growing interest on the use of AI in the public sector to redesign internal processes, enhance policy-making mechanisms and improve public services delivery**
 - All EU Member States are exploring the potential use of AI in the public sector at various level
 - There is imbalance between the transformative potential and the effective adoption and use of AI
- 2. Developing a baseline for the use of AI in public services is a much needed effort**
 - EU Member States are experimenting with a variety of AI technologies and policy domains
 - The AI Watch inventory is a first *reservoir* of knowledge that requires further input from EU MS
- 3. A methodology to assess impacts of AI in public services in the EU is needed**
 - High expectations from positive impact of AI not matched by clear/straightforward evidence
 - Ethical and political risks of using - and governing - AI in the public sector must be addressed
- 4. A common approach would be the 'game changer' for AI adoption in the public sector**
 - Re-use and sharing of AI based systems and solutions in public services across the EU
 - Engaging Member States and relevant stakeholders from academia and private sector

On-going research

1) Updated Overview of the use of AI in public services in the EU

- **Structured Mapping of AI in public services in the EU** – development of a dynamic database and portal, based on a modular approach to data collection
- In-depth analysis of **high-impact policy cases** involving the adoption & use of AI in EU countries

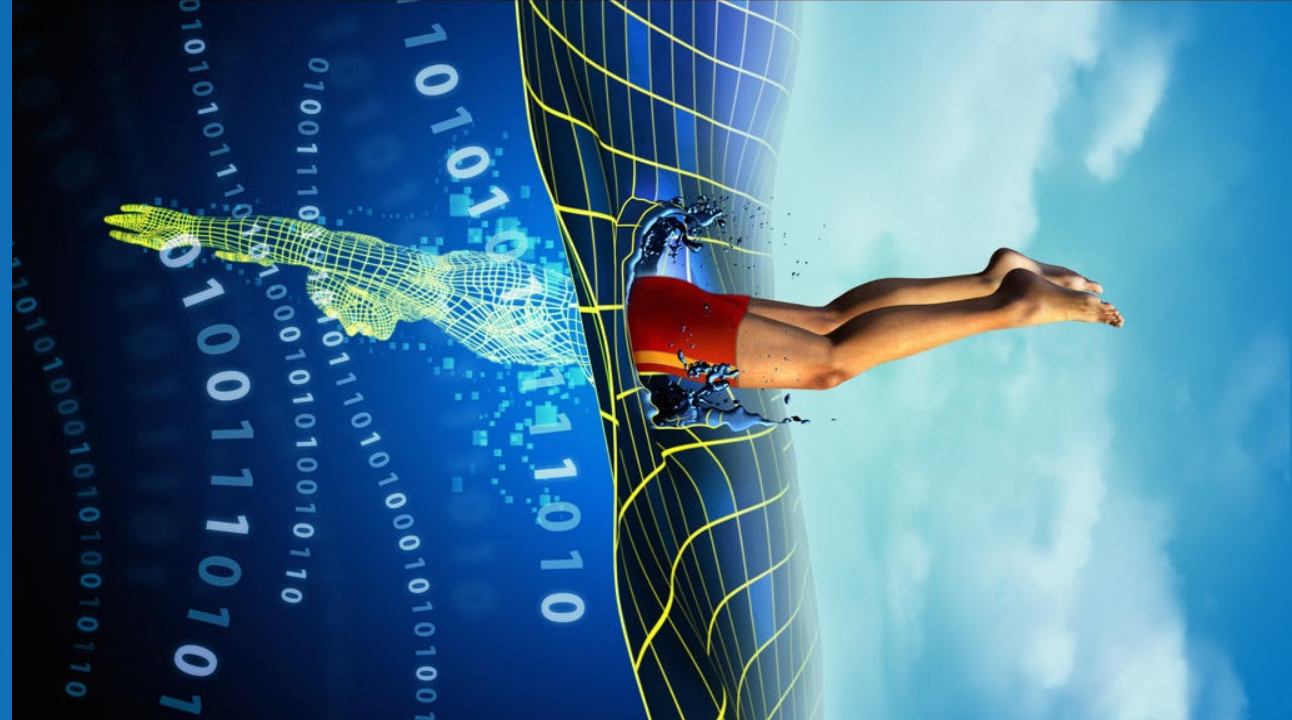
2) Methodology for assessing socio-economic impacts of AI in public services in the EU

- Development of a **proposal of a methodological approach to assess the social and economic impact of AI in public services** in the EU and case studies to test/refine the proposed approach
- Draw **recommendations on the way forward** to roll out AI-based systems and solutions in public services, based on best practices and potential for re-use

3) Roadmap for AI in public services in the EU

- Design a proposal of a **basic framework for the use of AI in public services**, defining guidelines and a generic implementation roadmap, identifying opportunities for collaboration among relevant stakeholders at EU and global level
- **Validating the roadmap for AI in public services in the EU** through engaging Member States and relevant stakeholders from academia and private sector

Thank you



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