NTNU | Norwegian University of Science and Technology

The role of data in developing public services

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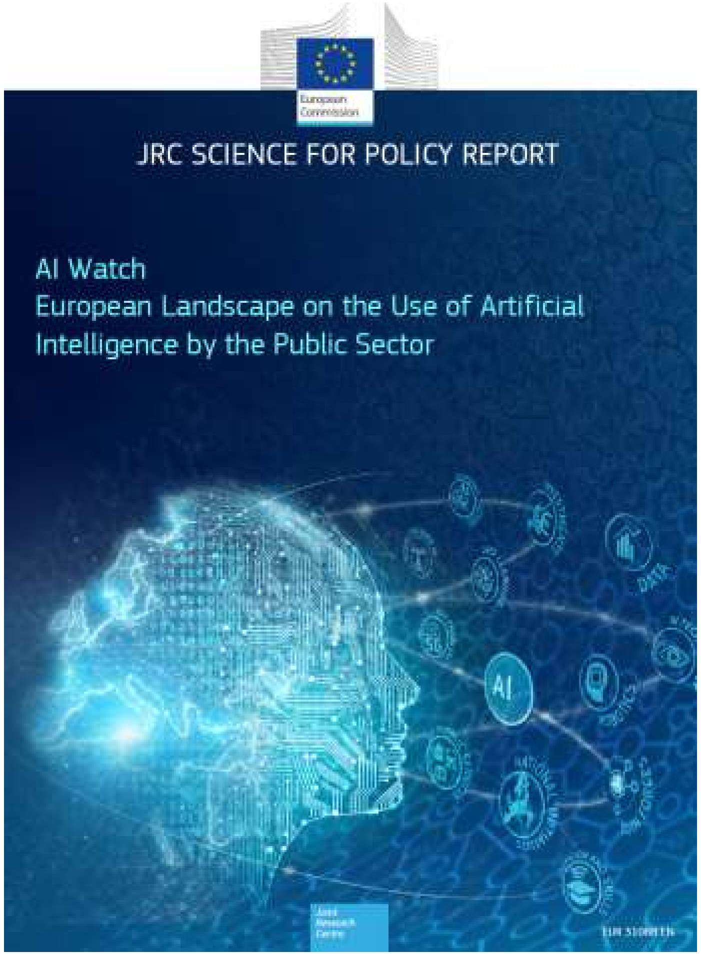
European Commission
JRC SCIENCE FOR POLICY REPORT
AI Watch
European Landscape on the Use of Artificial Intelligence by the Public Sector
AI
DATA


Austria: Public Sector dimension of AI Strategy
Bulgaria: Public Sector dimension of AI Strategy
Cyprus: Public Sector dimension of AI Strategy
Czech Republic: Public Sector dimension of AI Strategy
Denmark: Public Sector dimension of AI Strategy
Estonia: Public Sector dimension of AI Strategy
Finland: Public Sector dimension of AI Strategy
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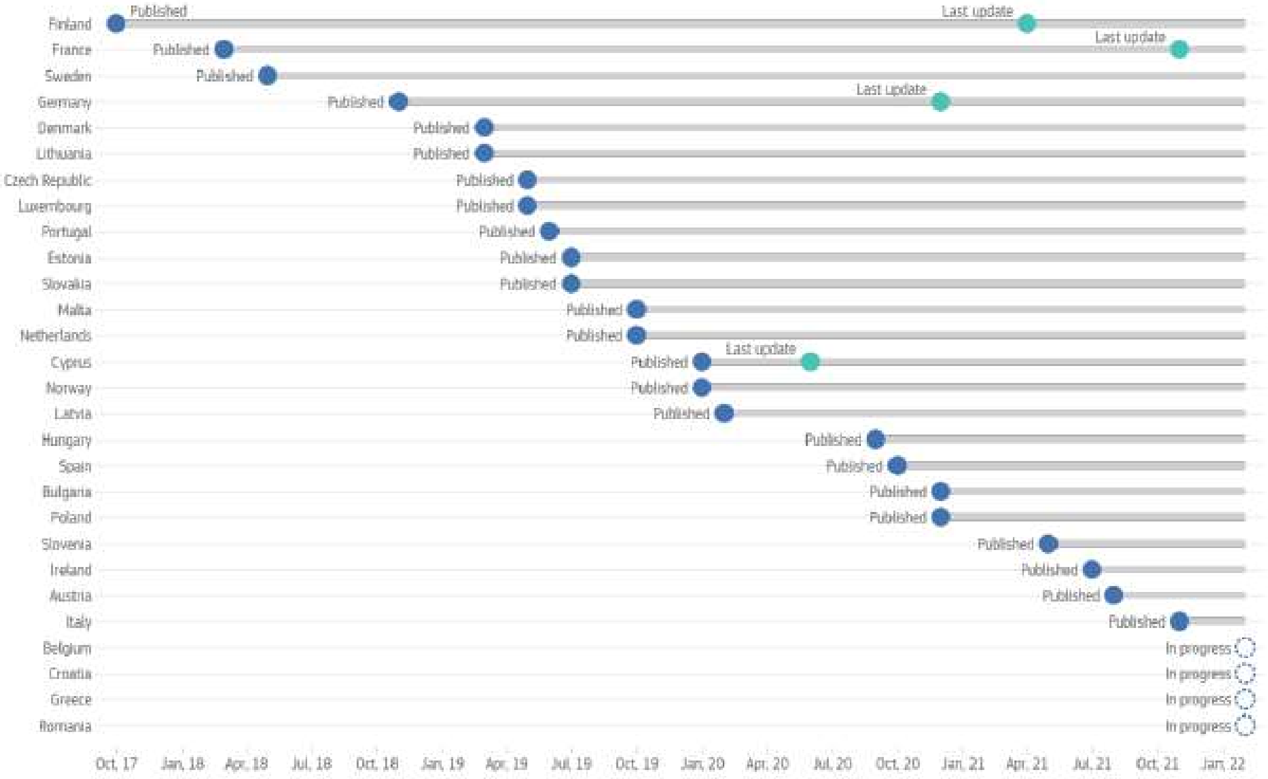
Slovenia: Public Sector dimension of AI Strategy
Spain: Public Sector dimension of AI Strategy
Sweden: Public Sector dimension of AI Strategy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Austria
Italy
Belgium
Croatia
Greece
Romania
Published
Last update
In progress
Oct. 17
Jan. 18
Apr. 18
Jul. 18
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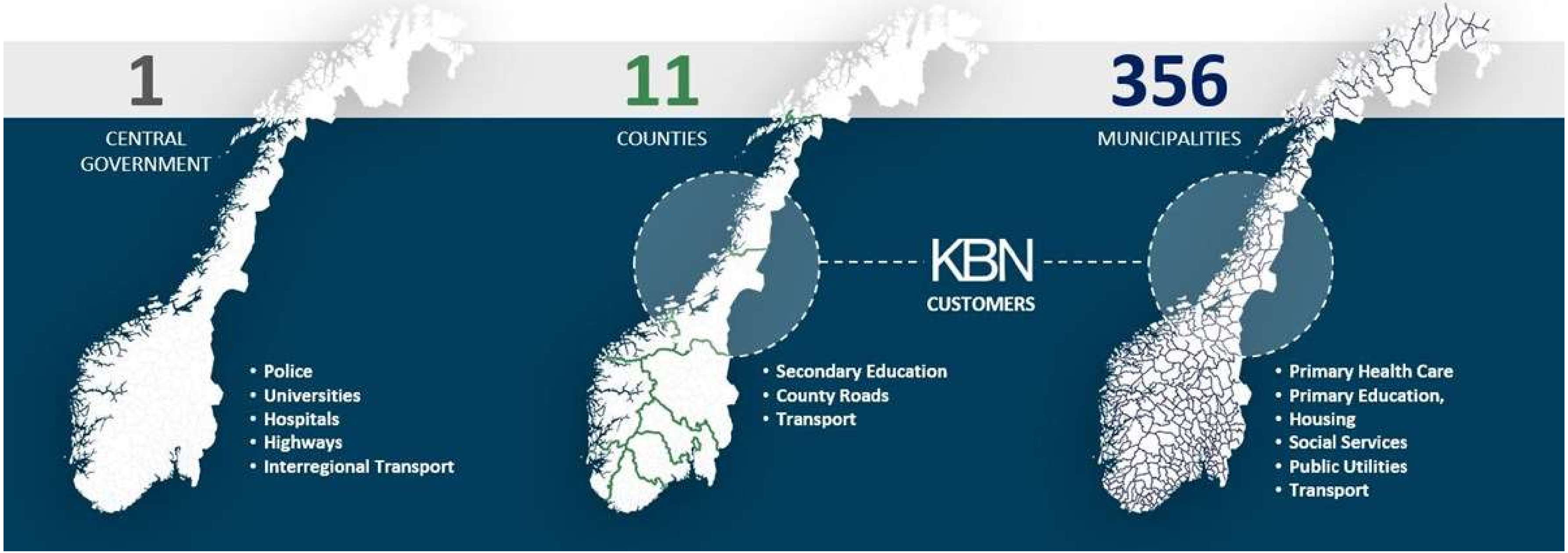
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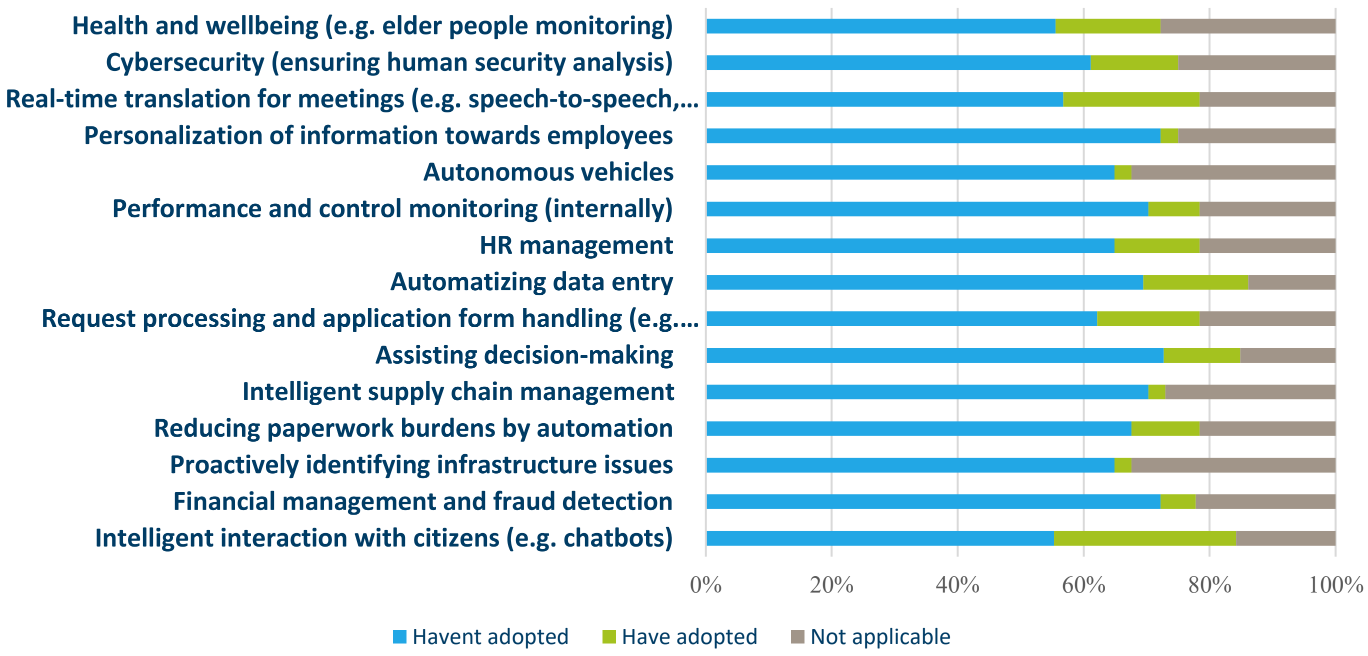
CENTRAL GOVERNMENT
• Police
• Universities
• Hospitals
• Highways
• Interregional Transport
11
COUNTIES
• Secondary Education
• County Roads
• Transport
KBN
CUSTOMERS
356
MUNICIPALITIES
• Primary Health Care
• Primary Education,
• Housing
• Social Services
• Public Utilities
• Transport

Artificial Intelligence goes public

AI has gained traction in public bodies. However, we need to know:

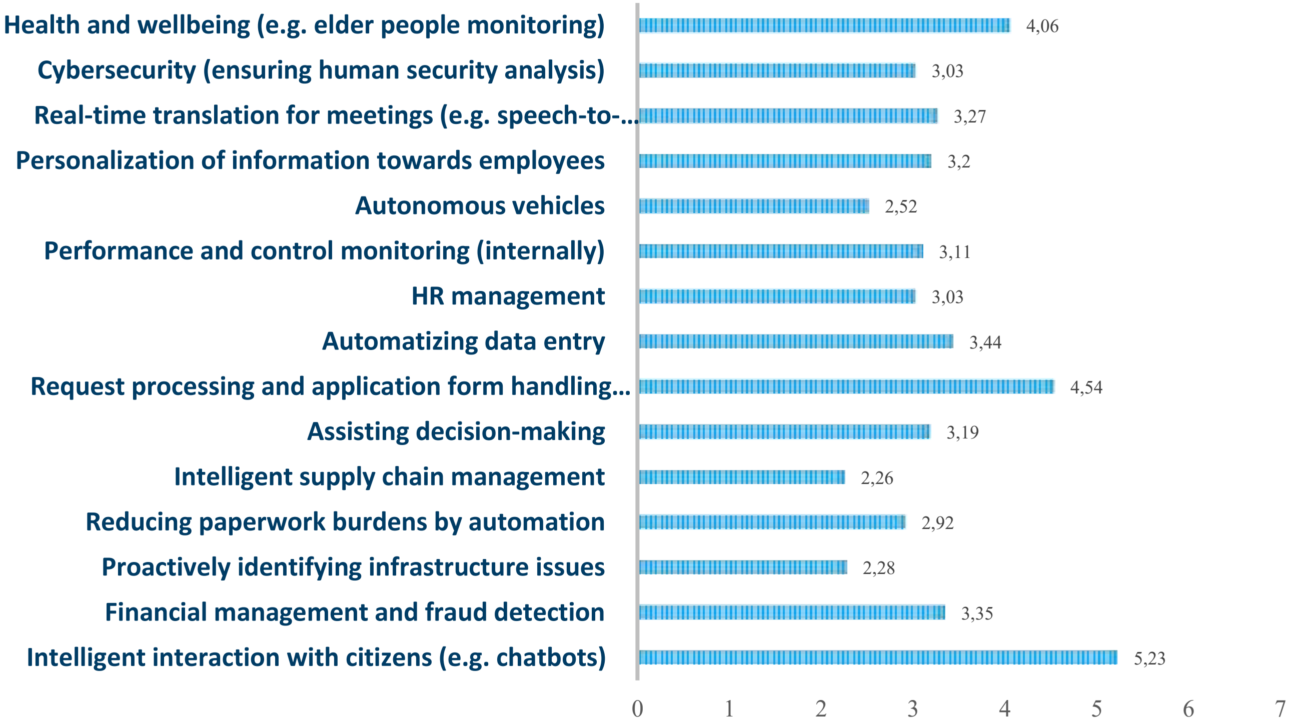
- Where do public bodies use AI?
- Where will they focus their efforts in the next years?
- What major challenges do they face?

Level of adoption by area of use



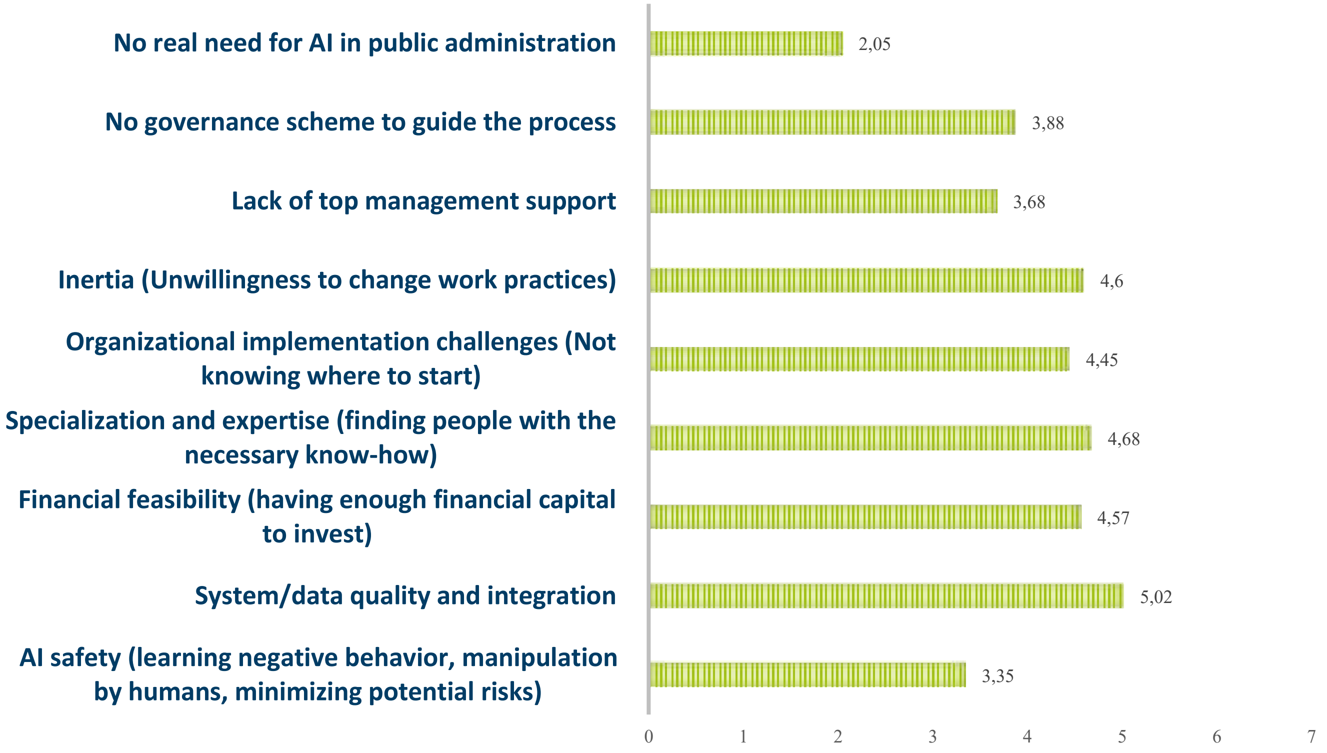
- Intelligent interaction with citizens most adopted (28.9%)
- Speech-to-speech and speech-to-text applications (21.1%)
- Request processing and application handling (15.7%)

Future intention to adopt AI



- Intelligent interaction with citizens ranks highest (5.23)
- Request processing and application form handling (4.54)
- Health and well-being applications of AI (4.06)

Challenges in adopting AI



- System/data quality ranks highest (5.02)
- Specialization and expertise is an important concern (4.68)
- Inertia – Organizational "Stickiness"(4.60)
- Financial feasibility (4.57)

European landscape on AI

1. Analysis of the AI national strategies with a focus on the public sector

2. Inventory of use cases of AI in the public sector

3. In-depth case studies

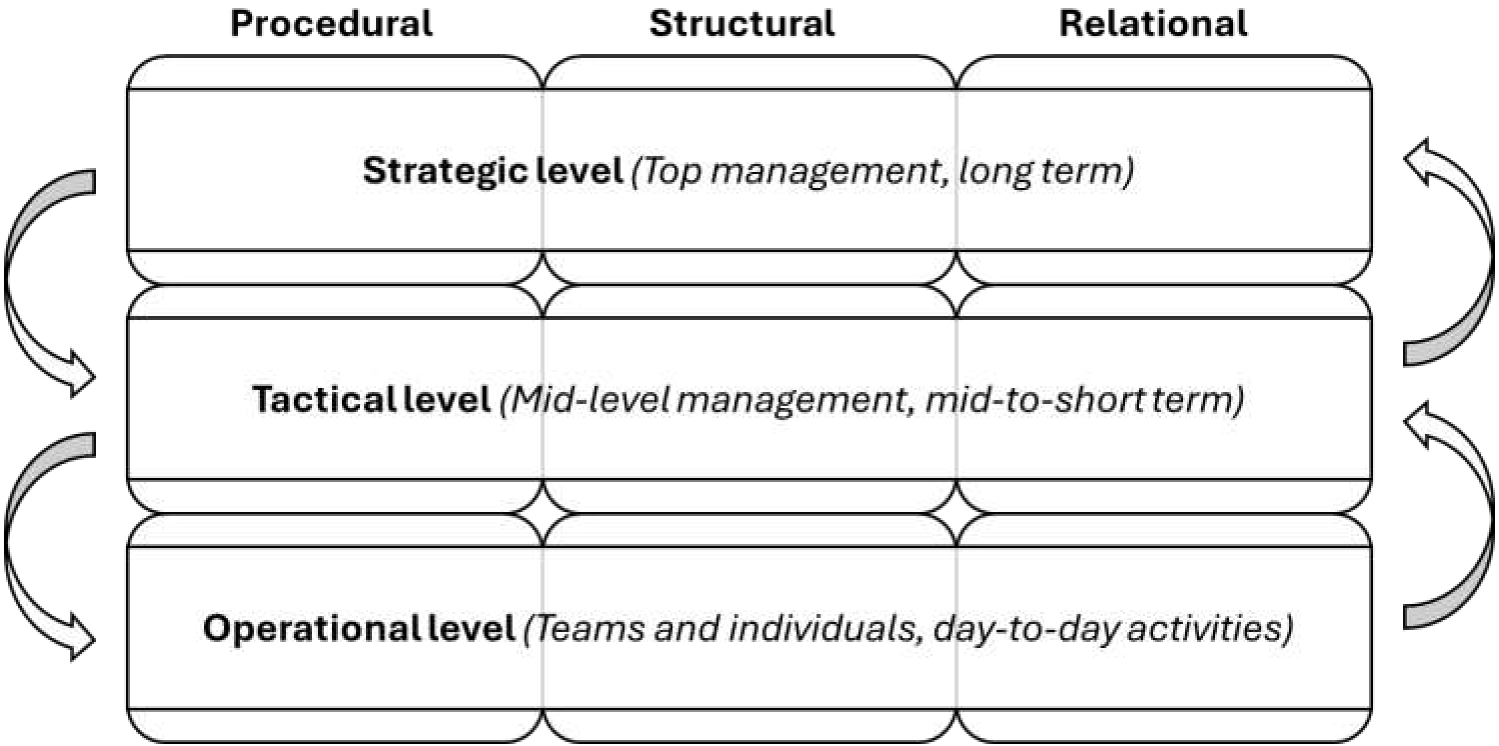
The importance of governance

Structural practices are responsible for determining key IT and non-IT decision makers and their corresponding roles and responsibilities when it comes to data ownership, value analysis, and cost management.

Operational practices are revolved around the processes and ways by which organizations execute information governance (e.g. data migration, data retention, cost allocation, data analytic procedures).

Relational practices are concerned with the formalized links between employees of the technical and business sides. They encapsulate practices and means of knowledge sharing, education and training, and strategic planning

Governance


Procedural
Structural
Relational
Strategic level *(Top management, long term)*
Tactical level *(Mid-level management, mid-to-short term)*
Operational level *(Teams and individuals, day-to-day activities)*

Governance practices for AI in the public sector

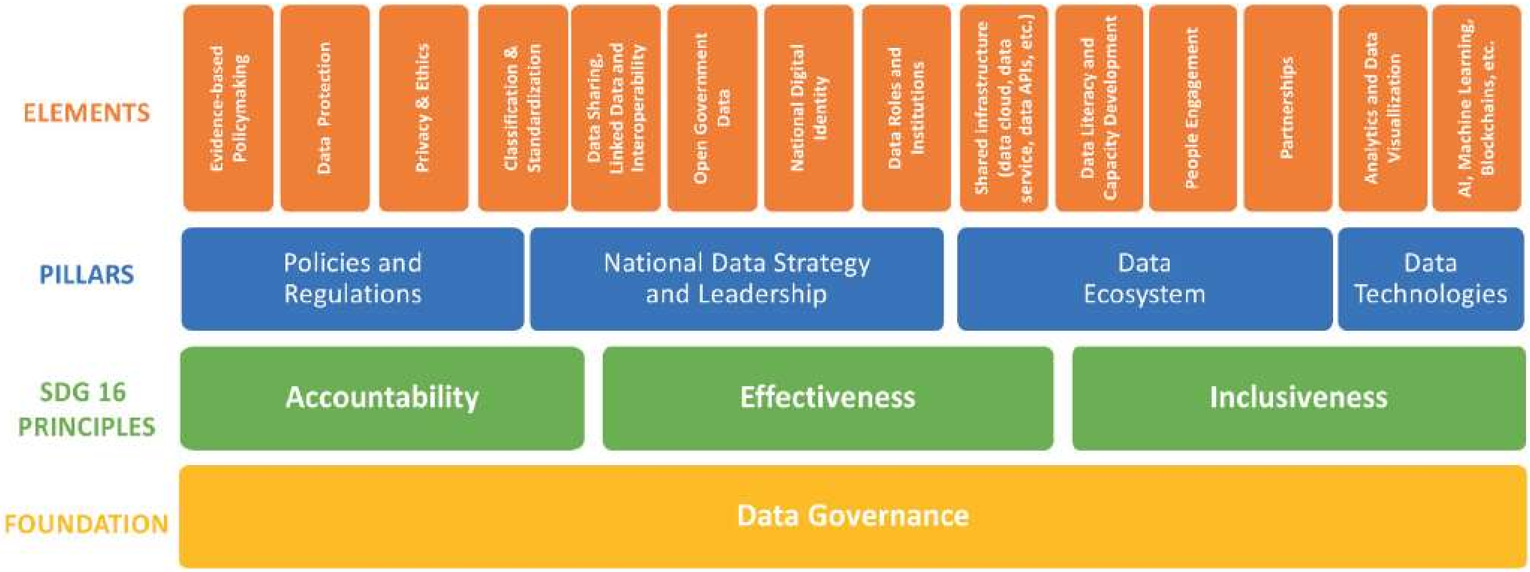
	Procedural	Structural	Relational
Strategic level	• Developing ethical AI guidelines • Compliance protocols • Establishing accountability procedures	• Defining data stewards • Establishing independent ethics committees • Developing an ethical code of conduct • Establishing cybersecurity department	• Establishing communities of practice • Stakeholder education and training • Experimentation and idea generation • Fostering knowledge transfer
Tactical level	• Minimizing authorization to access data • Developing explainability frameworks • Monitoring AI usage • Developing AI protocols for standardization • Ensuring security of algorithmic operation • AI lifecycle management processes	• Safety barriers to prevent misuse • Establishing algorithmic registries • Defining project ownership • Developing steering group • Elimination of algorithmic censorship	• Negotiating and contracting with vendors • Promoting society-in-the-loop activities
Operational level	• Data management • Establishing system/and data integration • Developing processes for elimination of bias • Establishing algorithmic transparency • Model reusability	• Process-based interactions between people and AI • End-user participation in AI development and evaluation • Ensuring human monitoring and supervision of AI decision-making	• Promoting collaborative efforts between stakeholders • Educating users to develop trust towards AI

Data governance for e-government

United Nations

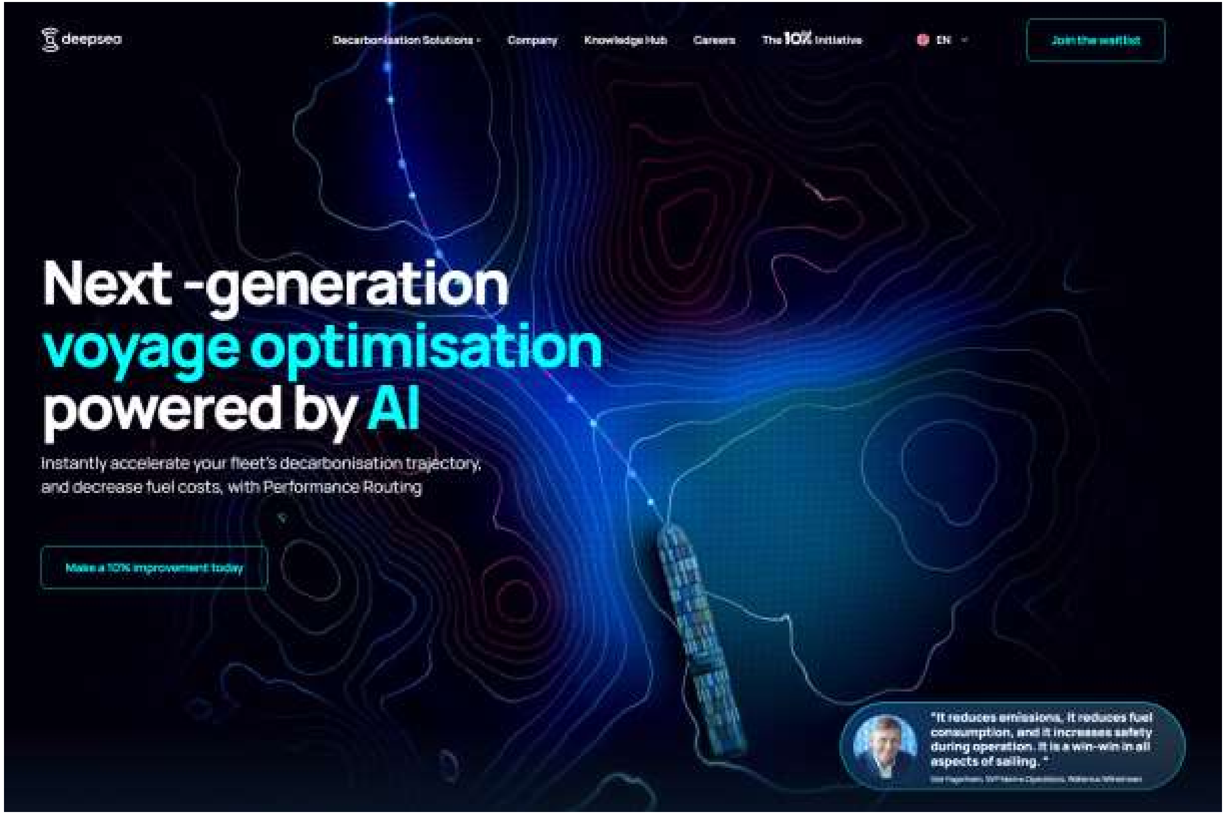
Figure 1

Illustrative data governance framework for e-government



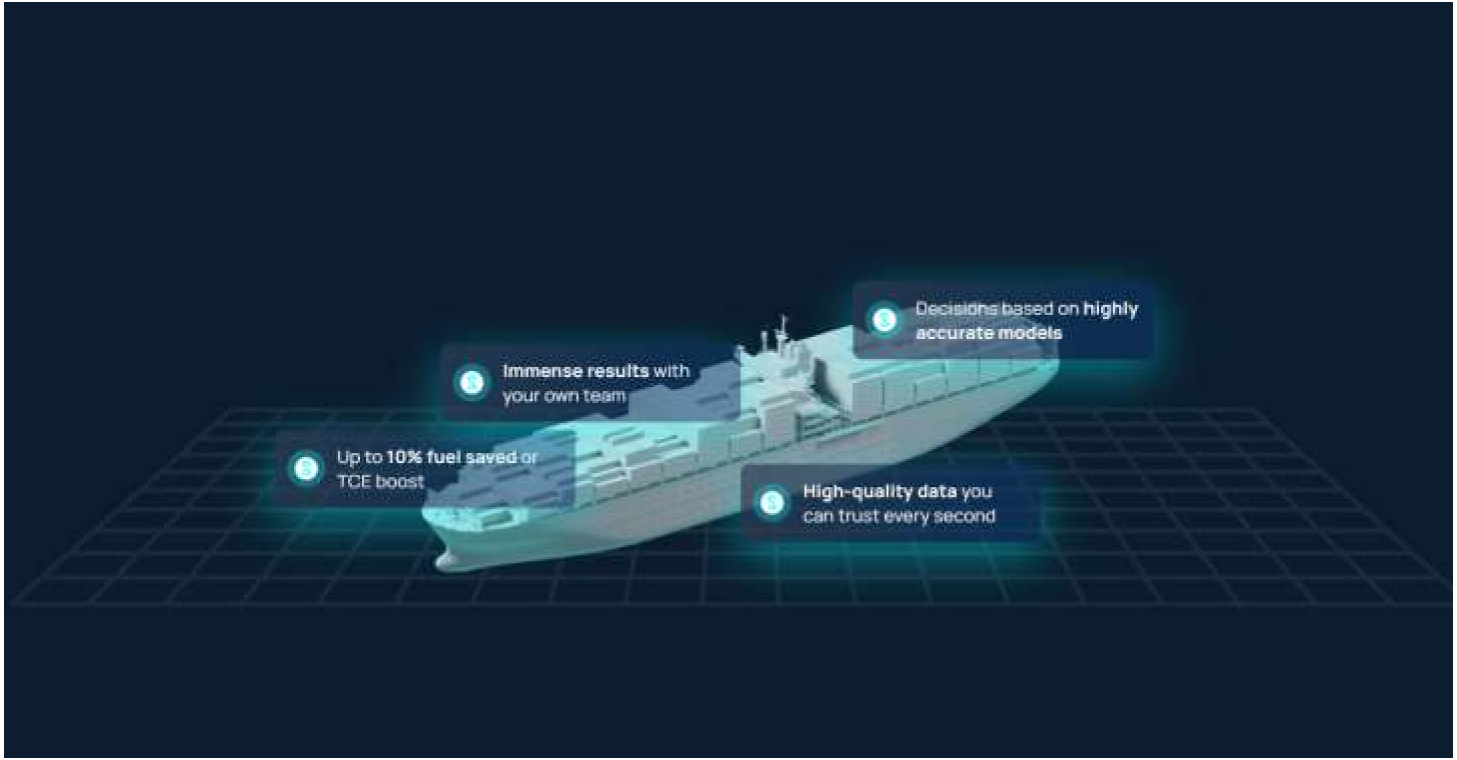
Source: UN DESA (2020). UN E-Government Survey 2020, p. 166.

Data in use

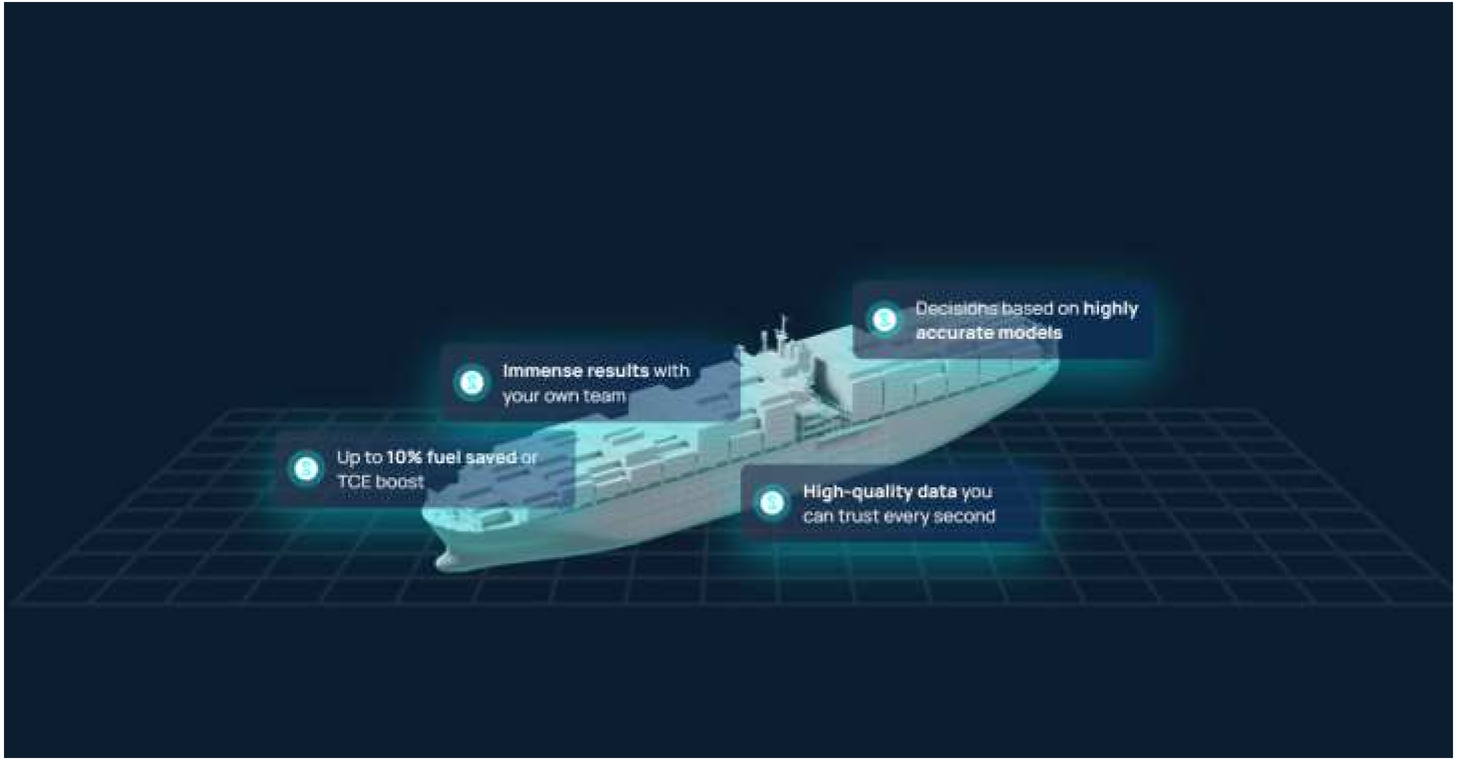


deepsea
Decarbonisation Solutions
Company
Knowledge Hub
Careers
The 10% Initiative
EN
Join the waitlist
Next -generation
voyage optimisation
powered by AI
Instantly accelerate your fleet's decarbonisation trajectory, and decrease fuel costs, with Performance Routing
Make a 10% improvement today
"It reduces emissions, it reduces fuel consumption, and it increases safety during operation. It is a win-win in all aspects of sailing."

Data in use


Decisions based on highly accurate models
Immense results with your own team
Up to 10% fuel saved or TCE boost
High-quality data you can trust every second

Data in use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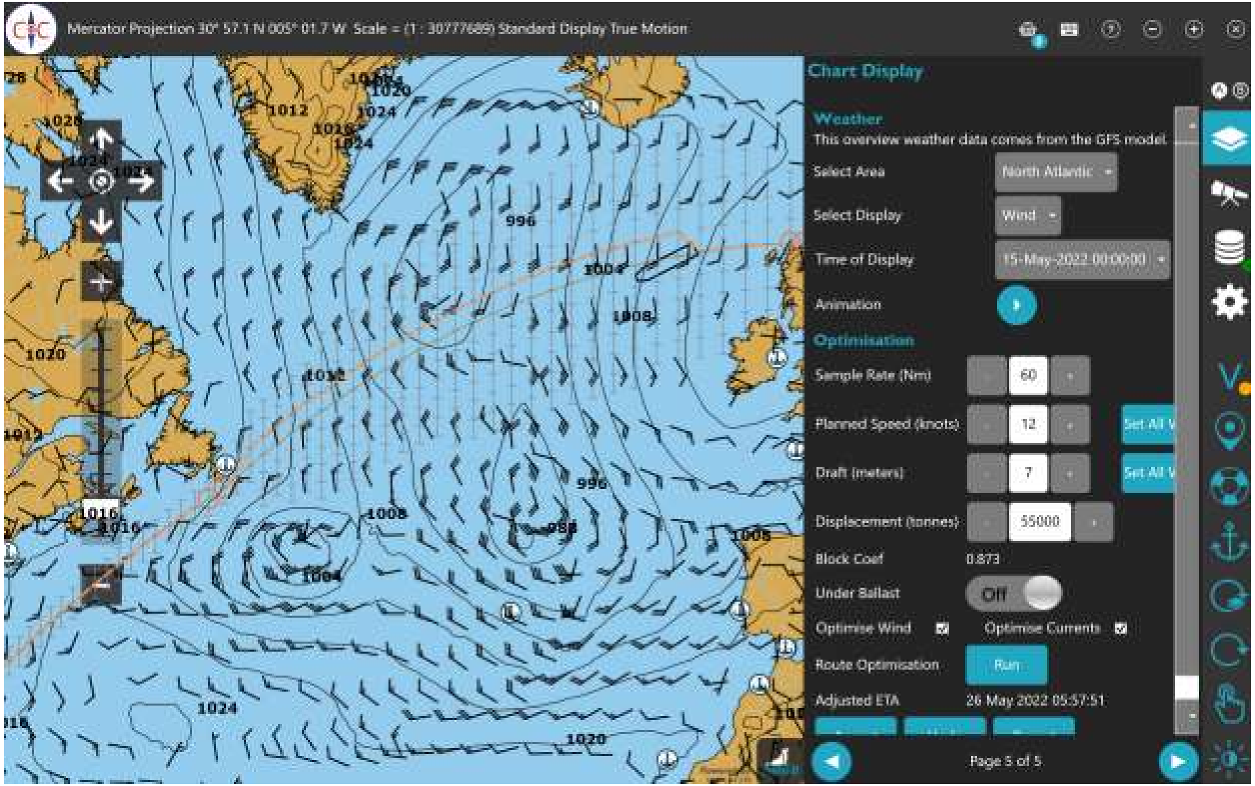

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Chart Display
Weather
This overview weather data comes from the GFS model.
Select Area
North Atlantic
Select Display
Wind
Time of Display
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Animation
Optimisation
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Planned Speed (knots)
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Draft (meters)
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Optimise Currents
Route Optimisation
Run
Adjusted ETA
26 May 2022 05:57:51
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Data in use

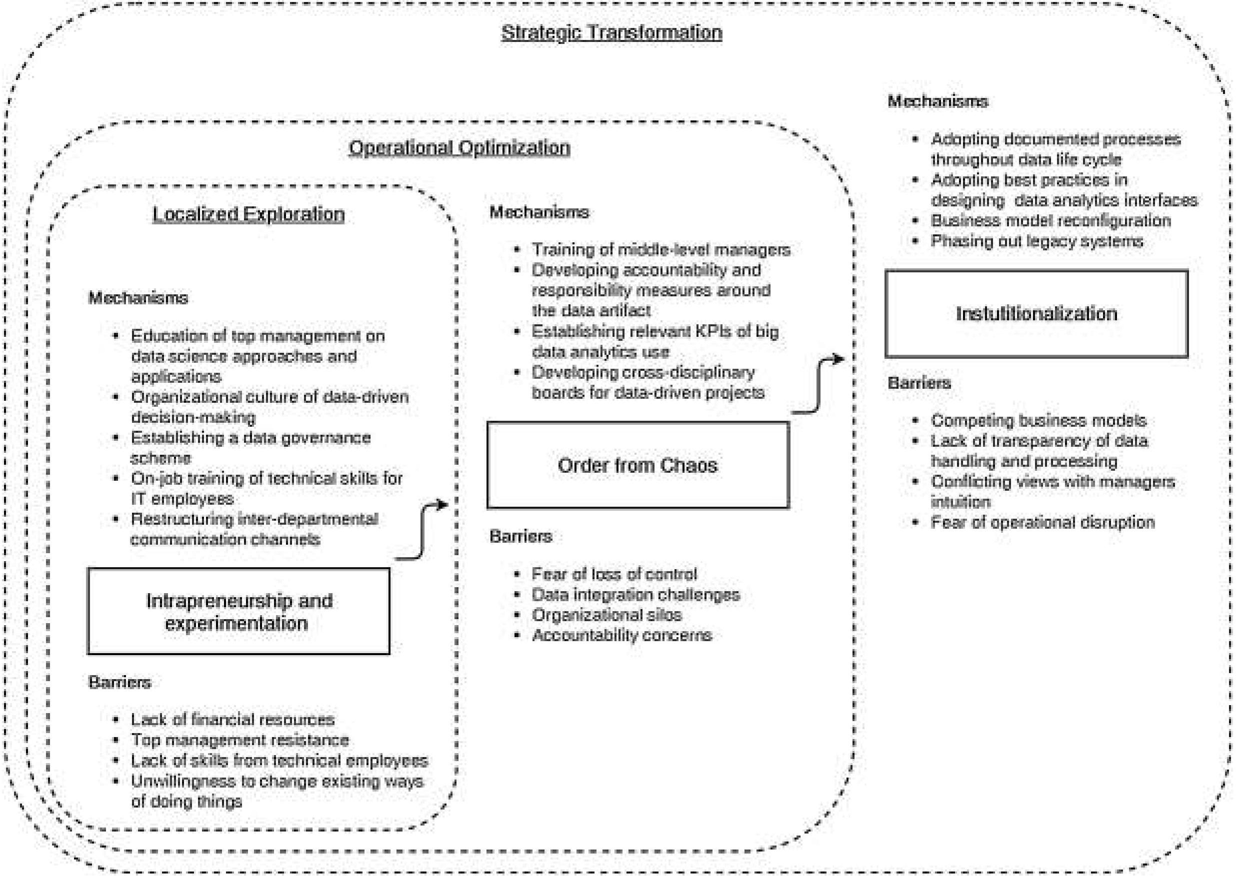
The ambiguity of data

Lag effects in realizing productivity gains from BDA investments

Following the adoption of BDA projects, according to studies it typically takes at least one year, with an average of two years, before most firms begin to witness tangible improvements in terms of performance gains. This delay differs from the adoption of other technologies that these firms commonly embrace. The lag effects are attributed to the multifaceted requirements of BDA, which necessitate substantial preparatory work, experimentation, and testing before its applications can be effectively integrated into operations.

The effects of BDA are contingent upon industry and application uses

Studies suggest that the malleability of BDA depends on both internal and external factors. BDA applications can be applied to a wide range of industries, and their ability to create value depends on both the specific industry in which they are implemented and the processes they are intended to automate or enhance. For instance, certain industries that use physical devices to generate and collect data can more closely monitor and optimize processes. In addition, firms that operate in the same industry can have vastly different uses for their BDA investments, resulting in differentiating productivity gains.


Strategic Transformation
Operational Optimization
Localized Exploration
Mechanisms
• Education of top management on data science approaches and applications
• Organizational culture of data-driven decision-making
• Establishing a data governance scheme
• On-job training of technical skills for IT employees
• Restructuring inter-departmental communication channels
Intrapreneurship and experimentation
Barriers
• Lack of financial resources
• Top management resistance
• Lack of skills from technical employees
• Unwillingness to change existing ways of doing things
Mechanisms
• Training of middle-level managers
• Developing accountability and responsibility measures around the data artifact
• Establishing relevant KPIs of big data analytics use
• Developing cross-disciplinary boards for data-driven projects
Order from Chaos
Barriers
• Fear of loss of control
• Data integration challenges
• Organizational silos
• Accountability concerns
Mechanisms
• Adopting documented processes throughout data life cycle
• Adopting best practices in designing data analytics interfaces
• Business model reconfiguration
• Phasing out legacy systems
Instutitionalization
Barriers
• Competing business models
• Lack of transparency of data handling and processing
• Conflicting views with managers intuition
• Fear of operational disruption

Discussion and Questions

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