Artificial Intelligence in the Public Sector

European Outlook for 2020 and Beyond

How 213 Public Organizations Benefit from AI

REPORT COMMISSIONED BY MICROSOFT AND CONDUCTED BY EY

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AI in Europe

A clear vision and strong leadership for success

AI is one of the most exciting technologies of our time, and I am hugely optimistic about what it can do for people, industry and society, in ways we are already seeing and in ways we can't yet imagine.

While much of the attention on AI innovation tends to focus on the private sector, there is ample room for Public Sector organizations and government bodies to adopt and implement cutting edge AI solutions in order to improve the lives of those they serve. AI will have a significant impact on the way citizens experience and interact with government, and it can be a great tool to increase government efficiency.

But as this report shows, the majority of Public Sector organizations have not yet been able to implement and scale AI solutions, and most organizations surveyed don't think they have the necessary AI competencies and skills.

To take advantage of all that AI has to offer, Public Sector organizations need a clear vision and concrete commitment from leadership to adopt AI in intelligent and transformative ways, and to ensure their workforce has the opportunity to learn the skills required to thrive in an AI-infused world. It is equally important that government and the private sector collaborate closely to ensure that AI is used in a responsible and ethical way, placing humans at the center of its development.

This report provides far-reaching insights to help you think about possible next steps to implement AI solutions in your organization. We hope you will find it useful.

Marianne Dahl
Vice President of Sales, Marketing & Operations,
Microsoft Western Europe

Addressing societal challenges with AI

The pace of digital transformation continues to accelerate, with technologies like Artificial Intelligence raising the bar ever higher for technology's potential to address some of society's biggest challenges. In the Public Sector, the opportunity is extraordinary, especially when looking at critical topics such as climate change, healthcare and social injustice. In short, with the help of AI, governments can create a better citizen experience.

For a deeper understanding of AI in the Public Sector, and to measure organizations' expectations and priorities around AI, Microsoft and EY conducted this study across 12 countries in Western Europe. With responses from over 200 Public Sector stakeholders, we see clearly that AI is top of mind for government decision-makers across Europe, and there is widespread interest in having a broad, unified approach to long-term AI development.

But there is still much work to be done to implement AI solutions at scale, to develop a workforce with the skills necessary to do so, and to take advantage of all that AI has to offer.

At Microsoft, we recognize the complexity inherent in strong AI development, as well as the deep responsibility we have as a technology provider to ensure that AI is developed responsibly and in a way that fosters trust and maintains privacy protections. Public Sector organizations must move forward with such technology thoughtfully, and we are deeply committed to working with these organizations and many additional partners to develop and deploy this technology in a way that benefits all people equally.

We hope that you will find this study helpful, and that it accelerates your organization's transition from AI adopter to AI innovator.

Ellen van Essen
General Manager, Public Sector,
Microsoft Western Europe

Public Sector Reboot

Reimagining public services

A new environment for governments and public organizations has emerged after COVID-19. The pandemic has changed the conditions under which they operate and their ability to deliver services. During the first phase of the pandemic it became evident that the sector had to accelerate the adoption and use of digital solutions and emerging tech to meet a new pace required in decision making and in the demands from citizens. This demand is here to stay.

The sector still has to deliver the same set of services, but the expectations for how they get delivered have changed, with digital taking a hugely prominent role. Health organizations have been particularly exposed during the pandemic, but the influence of COVID-19 has spread across all parts of the sector and society as a whole.

Public Administrations are expected to provide real-time information, decision-making to its citizens, while Public Transportation is expected to further utilize its resources to optimize capacity allocation, co-develop its services with citizens, industry and academia, and ensure increased passenger safety.

Humans at the center of AI development

The pandemic has highlighted the need for the sector to accelerate its digital transformation in order to meet demands from citizens and business, while adapting to new and evolving demands from employees and stakeholders. Embedding digital solutions into the core of the public services and accelerating the use of AI has demonstrated significant impact in combating unforeseen challenges.

While the importance of AI solutions to combat crisis has been displayed, the importance of being human-centric to get a deep understanding of citizens and their needs has proven essential. In times of crisis, humans want to know they matter and that they are being cared for. AI powered solutions have the potential to unlock personalized service that meet the demands and needs of citizens in real time.

The solutions that are developed need to be inclusive and cover all parts of society. If solutions are not developed with humans at the center, new policies will not have the intended effects and the Public Sector will not fulfil its commitment to serve all parts of society.

IRCCS San Raffaele Hospital

AI at the forefront of Healthcare

Public Health | Italy

2020 has been an unpredictable and transformative year for every industry. But no sector has felt the impact of COVID-19 quite as acutely as healthcare. Health institutions across the world had to adapt quickly to a situation that is changing and evolving every day.

IRCCS San Raffaele has partnered with industry leaders in the field of AI to create a new solution that can predict and protect the most vulnerable groups. Using AI on large datasets enables the organization to accurately and efficiently predict who would be most gravely affected by the virus. The AI platform used allows for the collection, processing, management and use of heterogeneous data that comes from multiple sources, with total respect for patient privacy.

The goal however is not only to utilize the situation for COVID-19, but to go beyond the initial step.

Innovative solutions through new partnerships and ecosystems

Public organizations need to foster ecosystems and establish new partnerships, as they cannot develop innovative solutions by themselves. COVID-19 showed the need for the Public Sector to combine knowledge and skills with relevant stakeholder to innovate on problems and develop shared solutions and platforms to ensure rapid response to unforeseen events.

New partnerships and ecosystems emerge to create innovative solutions, while utilizing digital strengths across organizations, sectors, regions and countries, allowing the Public Sector to create new and enhance existing services.

The need for public services to become more data-driven in order to deliver personalized and effective services is evident, while an increased willingness to share data to combat societal crisis and deliver effective services is emerging. The need to balance privacy and security with increased use of data is still highly important and will continue to be paramount.

Digital skills for the future

Public organizations, companies and political leaders must stand together and ensure the development of digital skills needed for the future, to ensure that no one – citizen or Public Sector employee – is left behind. The development of new skills is essential for the sector to develop and deploy new and innovative solutions.

Employees in the sector also want to see leadership that cares about everyday health and wellbeing. New ways of working enabled through digital collaboration tools are one way through which the employees can be empowered.

Scale response to the unpredictable

COVID-19 has shown the challenges of the Public Sector to develop solutions quickly and to scale these across functions, organizations and countries. Once new solutions have been developed and integrated into organizations, it is essential to scale these across the organization, the sector and ideally within countries to fully unlock their potential. This requires a change in the current mind-set, to ensure thinking and collaboration across current boundaries.

Emerging tech and increased use of digital platforms serve as keys to unlock public services at scale, ensuring personalization, inclusion and speed of services. Applying AI to predict and prevent future outcomes such as pandemics is essential to combat unforeseen challenges.

The faster public organizations utilize digital solutions and begin their digital transformation, the faster they can create and deliver better and more efficient services for all parts of society.

We want to develop transversal algorithms capable of identifying the subjects most at risk also in the general population, and not only in those with suspicion of having COVID-19.

— IRCCS San Raffaele
Carlo Tacchetti
Director of the Center of Experimental Imaging

The Message

Transforming public service delivery to improve society

Artificial intelligence (AI) is a powerful force of change and transformation in the Public Sector. AI has the potential to address complex issues like climate change, health care and social injustice. It can be used to arrive at better decisions more quickly, improve policy and citizen experiences, and achieve greater impact using fewer resources.

While many local, regional, and national governments recognize the potential of AI, only 5% of surveyed public organizations have put it into wide use. The Public Sector is struggling to move from AI pilots and silos to full-scale AI solutions that transform the way public services are delivered, benefitting citizens and creating a better, more livable society.

This study identifies leading practices regarding the adoption and impact of AI in the Public Sector. One group is setting an example of how AI can be used as a driver for transformation of public services. *Transformers*, making up 4% of respondents, are able to utilize AI to create better societies through increased sustainability and equality. AI is a key priority and embedded in the core of delivering public services for *Transformers*.

Original insights from Public Sector leadership in Europe

The study is based on data from +200 survey respondents, as well as interviews with more than 60 leaders in the Public Sector from 12 Western European countries, within three domains: Public Administration, Health, and Transportation. It provides original insights from key decision makers, as well as leadership practices and the most popular AI use cases, both in terms of current adoption and potential in the years to come.

With 71% of Health domain respondents having implemented one or more of the identified AI use cases, Health has the highest AI adoption rate, while 70% of Transportation respondents have implemented an AI solution and achieved the highest impact from the solutions. Based on survey responses, we have identified AI use cases with the highest expected impact within the near future. This provides a starting point for public organizations that are new to the game, and points to the future direction of AI in the Public Sector.

65%
of surveyed European public organizations view AI as a digital priority.

67%
of European public organizations have adopted one or more AI use cases.

Only
4%
of European public organizations have been able to scale AI and achieve a high outcome, resulting in organizational transformation.

Keeping the target in clear view

In April 2018, the European Commission adopted its first AI strategy, focusing on 1) increased investments; 2) making more data available; 3) fostering talent; and 4) ensuring trust. Based on these four pillars, many European countries have since published national perspectives on AI. Some groups of countries put more emphasis on securing investments, others stress the importance of ensuring trust, while yet another group focuses on specific transformational initiatives.

Key Public Sector Domain Findings Europe

Most organizations from Public Administration highlight the need to implement further AI solutions and scale these across organizational areas. The current capability to utilize multiple data-sources, is highlighted as a current strength across Public Administration.

Health organizations have the highest expectations towards AI, ranging from optimized processes to transformed services. They have been able to adopt few solutions, but experienced high impact from these.

Public Transportation highlights the need to work more structured with AI solutions, while the importance of developing strong Data Governance and the ability to access data is underlined.

Optimized Processes is the key benefit domain for

59%

of European public organizations.

71%

of European public organizations view data and technology as a highly important capability for AI success.

Only

11%

of European public organizations view themselves as highly competent in terms of AI skills.

The Most AI Mature Public Organizations

They have a high degree of commitment to AI by Top Management, and AI is considered a key strategic priority (44% of "AI Leaders" vs. 8% of "the rest").*

They expect AI to be highly important in transforming the delivery of public services within the near future (55% of "AI Leaders" compared to 19% of "the rest").

They expect AI to be highly important in promoting equality through advances in fairness and social balance (29% of "AI Leaders" compared to 4% of "the rest").

They have achieved significant external value by improving the quality and outcome of existing and new public services (33% of "AI Leaders" compared to 1% of "the rest").

* "AI leaders" defined as organizations that are within top 10% of the most impactful organizations, and "the rest" defined as the remaining 90% of the organizations.

This study shows that *Transformers* tend to have a stronger focus on objectives, including better experiences for citizens and employees, quality and risk management, making better decisions, and optimizing resources.

Transformers also have a stronger focus on "soft" targets, with more than 40% of *Transformer* respondents highlighting equality, accessibility, and sustainability as key targets.

Enabling functional management to drive transformation

The study highlights the importance of leadership commitment. Out of the +200 respondents, 27 experience high Political Leadership commitment, while only 9 respondents experience high commitment from Functional Management.

Transformers experience stronger commitment across all leadership levels – from political and executive, to projects and line functions – with the highest commitment coming from line functions compared to the other leadership levels.

The ability to infuse AI into core functions of government is a significant driver of success. This is where the promises of technology and specific needs and issues intersect. Organizations where AI is relevant for leadership that makes daily decisions directly affecting citizens are in a stronger position to succeed, enabling them to drive transformation.

A winning recipe for the Public Sector

Public organizations leading in AI view three elements as important:

1. Make sure that AI is sponsored by senior leadership. This ensures strategic focus, alignment with the organization's mission, and investment readiness.

2. Develop a formalized approach to ensure that AI is managed in a structured way. This can include guidelines, processes and procedures that address the why, when and how to use AI.

3. Cultivate an AI development mindset in the organization. Encourage and incentivize upskilling for hard skills like data science, engineering and domain expertise, and soft skills like innovation, change management and collaboration. The public workforce of tomorrow will need both sets of skills.

AI is highly important for us. There is almost no area where we can't see that AI can actively contribute.

— **TNO,** Research Organization
Frans van Ette
Head of AI

Our vision for AI and other emerging technologies is that it can enable us to solve problems that humans can't solve.

— **Informática del Ayuntamiento de Madrid,** Municipality Office
Maria Jesus Villamediana
CEO

Healthcare organizations

Using healthcare bots to help fight COVID-19

Healthcare organizations have developed and deployed Healthcare Bots in times of crisis to increase organizational efficiency. Solutions were quickly developed and integrated into the organizations and specific contexts, ensuring fast responses to the coronavirus pandemic.

Public Health | Europe

About Healthcare organizations

The Danish Region Hovedstaden supports and delivers healthcare for more than 1.8 million people. Lazzaro Spallanzani Hospital in Rome is an infectious disease hospital, while Helsinki University Hospital is the largest healthcare organization in Finland and one of the largest in Europe.

These healthcare organizations are using AI-enabled bots to assist staff in fighting COVID-19.

Healthcare bot for screening patients for COVID-19

Powered by Microsoft Azure, Microsoft's Healthcare Bot service uses Natural Language Processing technology to adapt to the specific context and organization. Healthcare organizations across the world have implemented the bot to help screen people for potential COVID-19 infection. The AI solution responds to inquiries from people with COVID-19 symptoms by providing information about next steps.

The bot was created and launched within two days for the Emergency Medical Service Copenhagen. It answered more than 30,000 calls on the first day, reducing the number of inquiries to the Danish emergency phone number and demand on healthcare workers. The solution was scaled across the entire country after proving its initial value.

Easy access to information and better service for patients

The Healthcare Bot can be easily developed and integrated into the organization, for instance at Rome's Spallanzani Hospital, where they developed and integrated the bot within a few hours. The bot made it easier for citizens to access consistent standardized information, which could prove to be essential in understanding the pandemic and in using the data moving forward.

Helsinki University Hospital emphasizes the importance of providing correct information and educating the public, especially in times of emergency or crisis. In addition, the Healthcare Bot can be developed and deployed for other organizational areas, thereby increasing organizational efficiency as well as service improvements for patients.

In these unprecedented times, it's so important to provide correct information and disseminate it openly and publicly.

— **Healthcare organizations**
Visa Honkanen
Director of Development

How to get started

Microsoft's Healthcare Bot service has been used by healthcare organizations for more than a year. It was originally designed to support common virtual healthcare assistance scenarios. Yet as the coronavirus pandemic took hold, the solution was quickly adapted to help screen patients for potential COVID-19 infections and to educate the public about the virus.

Fresh Insights

How does this study provide original perspectives?

Assessing how European AI policy is put into practice

The significance of AI for the Public Sector, citizenry, and society as a whole has evolved in recent years. This is underscored by the creation of EU guidelines for trustworthy AI, national AI strategies, and a general awareness of the possibilities and challenges provided by new technologies, and by AI in particular.

Europe has laid out a clear direction for the development of trustworthy and responsible AI, which is influencing the implementation and use of AI across countries. By acknowledging and understanding the role of European strategies and policies, this study illustrates how these policies influence the mindset and development of AI in the European Public Sector.

The main themes from European AI strategies and guidelines are the development of ethical and human-centric AI; increased focus on sustainability; cross-sector collaboration for a strong ecosystem; and ensuring the right skills for the future.

Identifying leading practices, key benefits and lessons learned

By collecting and combining quantitative and qualitative data with insights from European AI strategies, the study provides a comprehensive understanding of AI's role in the Public Sector across 12 Western European countries.

This holistic perspective is delivered through aggregated data sources, providing an understanding of the strategic AI agenda, organizational impact, and expected future benefits. In addition, it offers specific insights into capabilities needed to succeed with AI, as well as the surveyed organizations' respective levels of competency in these capabilities.

Included in this study is a quantitative analysis of the current adoption of AI solutions, and the expected future impact of AI solutions. These insights are illustrated with qualitative observations providing an understanding of the current state of specific AI solutions in the Public Sector, along with achieved outcome and lessons learned from the introduction of these solutions.

A robust research design recognizes and mitigates bias in survey and interview data

The study is largely based on self-assessment from participating organizations, which is recognized as a potential source of bias. The use of quantitative, qualitative, and secondary data sources serves as the basis for a robust research design that minimizes bias.

Public Administration | Denmark

Sikkerhedsstyrelsen
Government Agency

E-commerce surveillance to identify dangerous products

Applying Machine Learning and Image Recognition to identify potentially dangerous and illegal products sold on the Internet. The initial project clearly documented that the AI solution was more effective and accurate than the conventional manual process.

In an effort to further develop and strengthen collaboration between public entities, the AI solution will be scaled to cover other areas that involve market surveillance on the Internet.

"The AI search tool is an innovative solution in tackling a widespread challenge. It represents a pathway to development of shared public service solutions, that stretches across sectors as well as borders.

— Sikkerhedsstyrelsen
Lone Saaby
Director General

Survey of over 200 organizations provides a unique insight into AI agendas in the Public Sector

The study builds on survey responses from European public servants having a leading role in developing and managing their respective AI agendas. The survey covers AI from the strategic level to specific use cases.

Insights across countries and Public Sector domains offer a comprehensive quantitative dataset. This provides a foundation for deep-dives into the respective countries and domains use of AI, allowing for cross-country and cross-domain comparisons, serving as a basis for benchmarking.

More than 60 interviews highlight the need for developing a strong AI ecosystem

Qualitative data gathered from key Public Sector stakeholders provides insights into the Public Sector AI experience. Interviews highlight the strategic importance of AI, and how AI has evolved as a key digital priority.

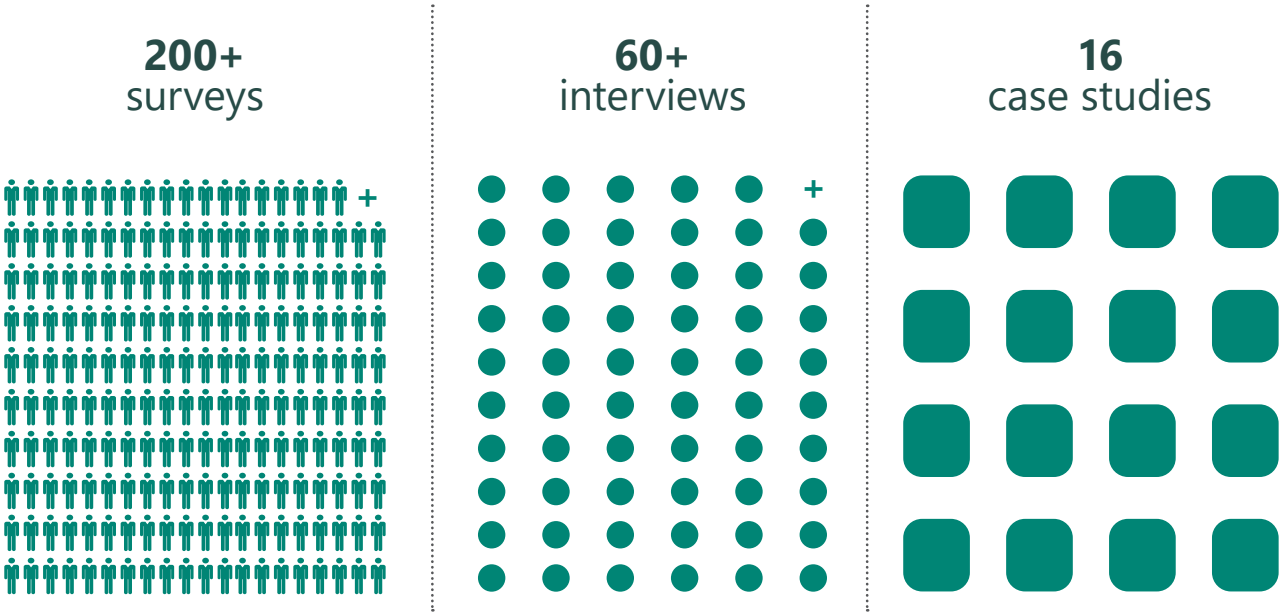
Conversations with political leaders and agenda setters underscore the need for specific initiatives and policies to create a strong ecosystem that enables the advancement of AI solutions.

16 case studies offer a real-world snapshot of the Public Sector

Actual use of AI and how organizations have laid down the foundation for these solutions serve as inspiration for how to get started with AI. By understanding the groundwork that's required to develop and derive value from AI solutions, organizations can learn from each other, harnessing the benefit of experience. We have collected +50 AI cases and present the 16 most relevant of these. As such, this study is designed to inspire both mature organizations as well as organizations that are just starting on their AI-journey.

Details about local respondents in the study

Breakdown by numbers



12 European Countries: Austria, Belgium, Denmark, Finland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland

Leadership Perspective

Who are the contributors to the study?

Insights from both policymakers and practitioners within public services

This study provides a broad perspective of AI in the Public Sector based on a diverse group of respondents, from those who shape policies to those who put those policies into practice.

Interviews with and responses from decision makers in 12 European countries and from the European Commission provide a strategic view of the current political and regulatory climate for AI. This allows a peek into the future as well as crucial initiatives that provide the foundation for developing robust Public Sector AI solutions. Insights from providers of public services offer a solid basis for understanding the application of AI in the delivery of these services.

By combining current perspectives and outlooks from policymakers and providers of public services, this study provides a glimpse into the future of AI's role in the Public Sector and society as a whole. These current perspectives and outlooks are essential for understanding how AI can improve the Public Sector and create value for society and individual citizens.

Primarily Directors and Department Heads

In terms of the roles of respondents in our study, 45% represent Director and Department Head levels, while 23% are at the Head of Unit level.

Respondents from these senior level positions provide our study strategic and political perspectives, as they play a large role in shaping the future agenda of AI in the European Public Sector.

Diverse perspectives from Central Management, Staff and Line Functions

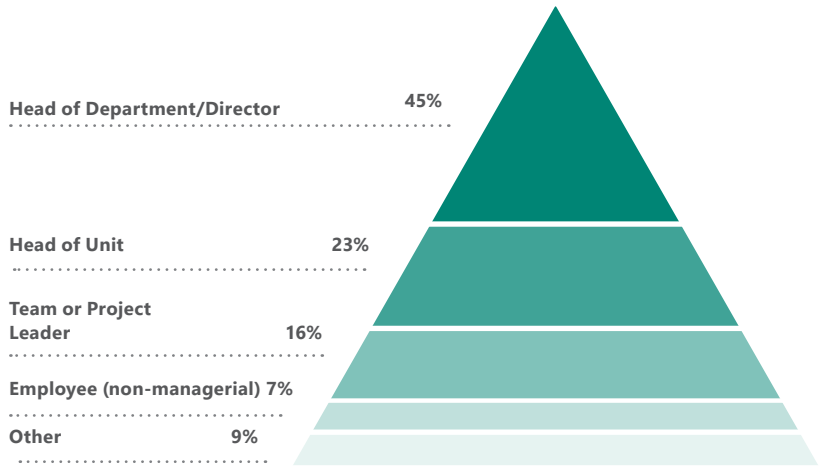
The total number of respondents represents functional diversity across organizations within the Public Sector.

Of the total, 39% represent Central Management, responsible for overseeing the entire organization.

In addition, 12% of respondents represent the Line Function, while 42% represent the Staff Function. The Line Function, which handles the public organization's core work such as social services and medical treatment, is the part of the organization that is in direct contact with users of the services. The Staff Function supports the organization in areas such as IT/Digital, Strategy, and Finance. Most of the respondents have a specific role within the AI agenda, providing strategic or technical perspectives.

Majority hold a Head of Department/Director position

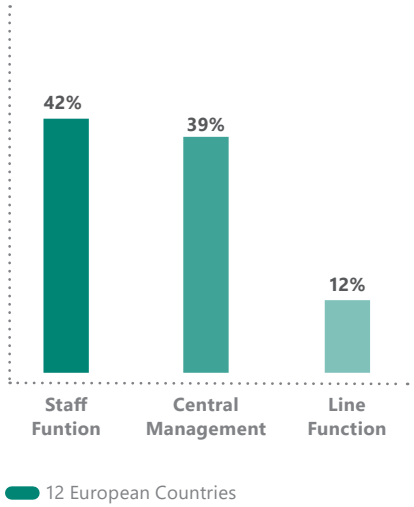
Organizational level of person participating in the study



12 European Countries

Respondents across organizational functions

Organizational function of respondents in the online survey



Note: Remaining percent "Other" responses

Broad representation across 12 Western European countries

Data was collected across each of the 12 European countries encompassed by this study, amounting to 213 participating organizations. This allows for country-specific insights as well as providing a solid basis for comprehensive insights into each of the three domains.

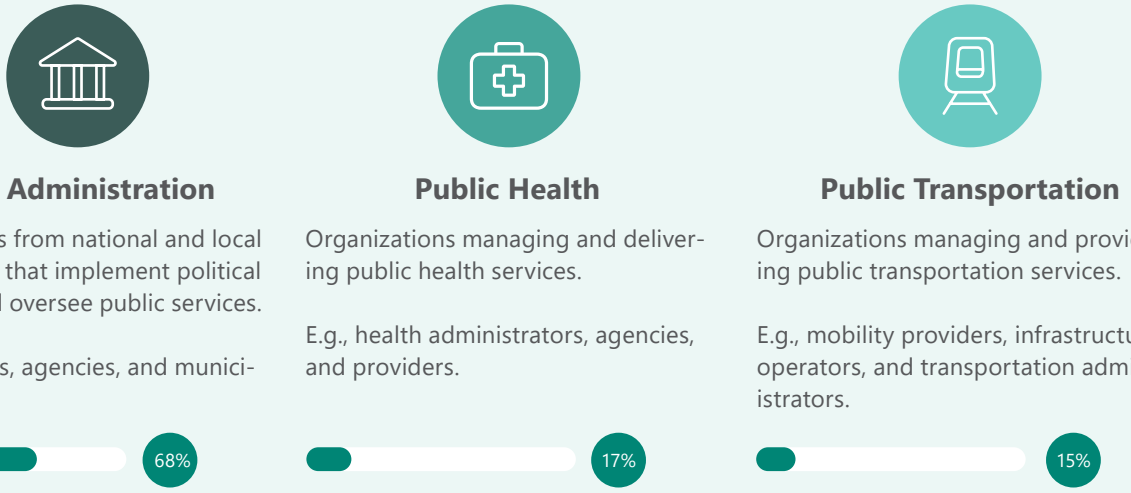
Perspectives and learnings from open-minded, innovative public organizations

A major element of this study is based on key European Public Sector stakeholders who took time to provide a glimpse into the current state of AI in the Public Sector. Public organizations and public servants across Europe will be inspired to get started with AI by learning from public organizations in this study that are far along on their AI-journey.

The willingness of participants to share their experiences and views for this study illustrates the growing importance of AI on the political agenda, as well as the importance of this specific topic in the Public Sector. In order to develop successful AI that transforms the Public Sector and delivers value for society and its citizens, it's important to acknowledge the essential role of collaboration and knowledge-sharing. By learning from each other, the Public Sector can boost the development of new AI solutions that improve public services.

Most participants from Public Administration

Participants representing the three domains in scope



213 Participating Public Organizations

ACI Informatica, Agentschap Informatie Vlaanderen, AGES - Agentur für Ernährungssicherheit, AMTEGA, An Garda Síochána, Apotti, Arbeitsmarktservice, Arbetsförmedlingen, ASFINAG, Associação Portuguesa dos Administradores Hospitalares, ASST Vimercate, Autoridad Portuaria de Gijón, Autoridade da Mobilidade e dos Transportes, Ayuntamiento de Málaga, Ayuntamiento de Mérida, Azienda Ospedaliero Universitaria Pisana, Azienda Ospedaliero Universitaria Consorziale Policlinico di Bari, Bergen Kommune, Beskæftigelsesministeriet, BMF - Finanzen, BMLV - Landesverteidigung, BMVRDJ, BroBizz, Brussels Regional Informatics Centre, Bundesministerium für Justiz, Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz, Bundesrechenzentrum, CCDR Algarve, CCDR Centro, CCDR LVT, CEiiA, Children's Hospital Group, CHUSJ, CIXTEC, Colegio de Registradores, De Vlaamse Waterweg, Departement Buitenlandse Zaken, Departement Economie, Wetenschap en Innovatie, Department of Defence, Department of Employment Affairs & Social Protection, Department of Public Expenditure and Reform, Diputación de Pontevedra, Direktoratet for Byggkvalitet, Direktoratet For Forvaltning Og Ikt, Direktoratet for samfunnssikkerhet og beredskap, DJI, DSB, Dublin City Council, DAA, EMT, Enisa, Fondazione Enpam, Ente Nazionale per il Microcredito, Enterprise Ireland, Erhvervshus Hovedstaden, Erhvervsstyrelsen, ERSAR, Eurispes, Federal Government of Belgium, FITSU, FMV, FOCA, FOD Volksgezondheid, FOITT, Fonds Soziales Wien, FPS Mobility and Transport, Frederiksberg Kommune, Gemeente Den Haag, Gemeente Rotterdam, Gemeindebund NÖ, Generalitat de Catalunya, Gerencia de Informática de la Seguridad Social, GÖG - Gesundheit Österreich GmbH, Helse Midt-Norge RHF, Helse Sør-Øst RHF, Helsedirektoratet, Helsingin Kaupungin Liikenne, Helsingin Kaupunki, Helst Vest RHF, IMEC, INAIL, Informática del Ayuntamiento de Madrid, Instituto da Segurança Social, I.P., Intervención General de la Administración del Estado, IPO Coimbra, IPO Lisboa, IRCCS Policlinico San Donato, Jessa Ziekenhuis Hasselt, Junta de Andalucía, Junta de Castilla y Leon, Junta de Extremadura, Jyväskylä Kaupunki, KABEG, Kansaneläkelaitos, Kantonsspital Aarau, Karolinska Universitetssjukhuset, Kela, Kunsthistorisches Museum, Kuopio, Københavns Kommune, Københavns Professionshøjskole,

All organizations, excluding organizations

Land Kärnten, Land Steiermark, Medizinische Universität Wien, METAS, Metroselskabet, Ministerie van Economische Zaken, Ministerie van Infrastructuur en Waterstaat, Ministerie van Justitie en Veiligheid, Ministerie van Landbouw, Natuur en Voedselkwaliteit, Ministero delle Infrastrutture e dei Trasporti, MIVB/STIB, Moderniseringsstyrelsen, Município de Braga, Município de Coimbra, Município de Évora, Município de Faro, Município de Guimarães, Município de Oeiras, Município de Setúbal, Município de Sintra, Nederlandse Spoorwegen, Norsk Helsenett SF, NÖGUS, Office of the Revenue Commissioners, Osakidetza, Oslo Kommune, Oulun Kaupunki, Palkeet, Pensionsmyndigheten, Posti, Presidência do Conselho de Ministros, Provincie Zuid-Holland, Puertos del Estado, Puolustusvoimat, Red.es, Region Jönköping, Region Skåne, Regione Basilicata, Renfe, Rijkswaterstaat, RIZIV, Roskilde Kommune, Rymdstyrelsen, Raad van State, SACE, Samferdselsdepartementet, SBB Infrastructure, Schloß Schönbrunn Kultur- und Betriebs GmbH, Secretaría de Estado de Digitalización e Inteligencia Artificial, SERI, Servicio de Salud de Castilla-La Mancha, Servicio Madrileño de Salud, Servicio Murciano de Salud, Servicio Público de Empleo Estatal, Sikkerhedsstyrelsen, Silkeborg Kommune, Skattestyrelsen, SNCB/NMBS, Social- og Indenrigsministeriets Benchmarkingenhed, Socialstyrelsen, Sosiaali- ja terveysministeriö, Sozialministerium, Sozialversicherung der Selbständigen, Spordrift, Sporveien, Stad Brugge, Stad Gent, Stad Hasselt, Stad Kortrijk, Stad Oostende, Stadt Wien, Stadt Wiener Neustadt, Statens Lånekasse, Statistics Netherlands, Statsbygg, Stortinget, Sund & Bælt, Sundhedsdatastyrelsen, Student Universal Support Ireland (SUSI), Swiss Post, Tallaght University Hospital, Tampere, Terveyden ja hyvinvoinnin laitos, The National Transport Authority (NTA), TNO, Traffic Management Finland Group, Trafikverket, Transport Infrastructure Ireland, Transportes Sul do Tejo, Transports Metropolitans de Barcelona, Transportstyrelsen, Tribunal de Contas, TUC RAIL, Tukes, Turku City Data, Turku Kaupunki, Udviklings- og Forenklingsstyrelsen, Uppsala kommun, Valtiokonttori, Valtiovarainministeriö, Vejdirektoratet, Verband der Kantonschemiker der Schweiz, Verohallinto, Vinnova, Vy, Västerbottens läns landsting, Västra Götalandsregionen, Vlaamse Overheid, Wiener Linien, ÖAD, ÖBB Group, Aabenraa Kommune

AI for Public Sector

What are the most impactful AI technologies in the Public Sector?

AI can solve complex problems and transform public services

There is a general expectation of the Public Sector to deliver better, faster and more personalized citizen services. Yet budget cuts, changing demographics, security threats and changing citizen expectations present challenges to current delivery models. AI can enhance the delivery of public services and transcend these challenges.

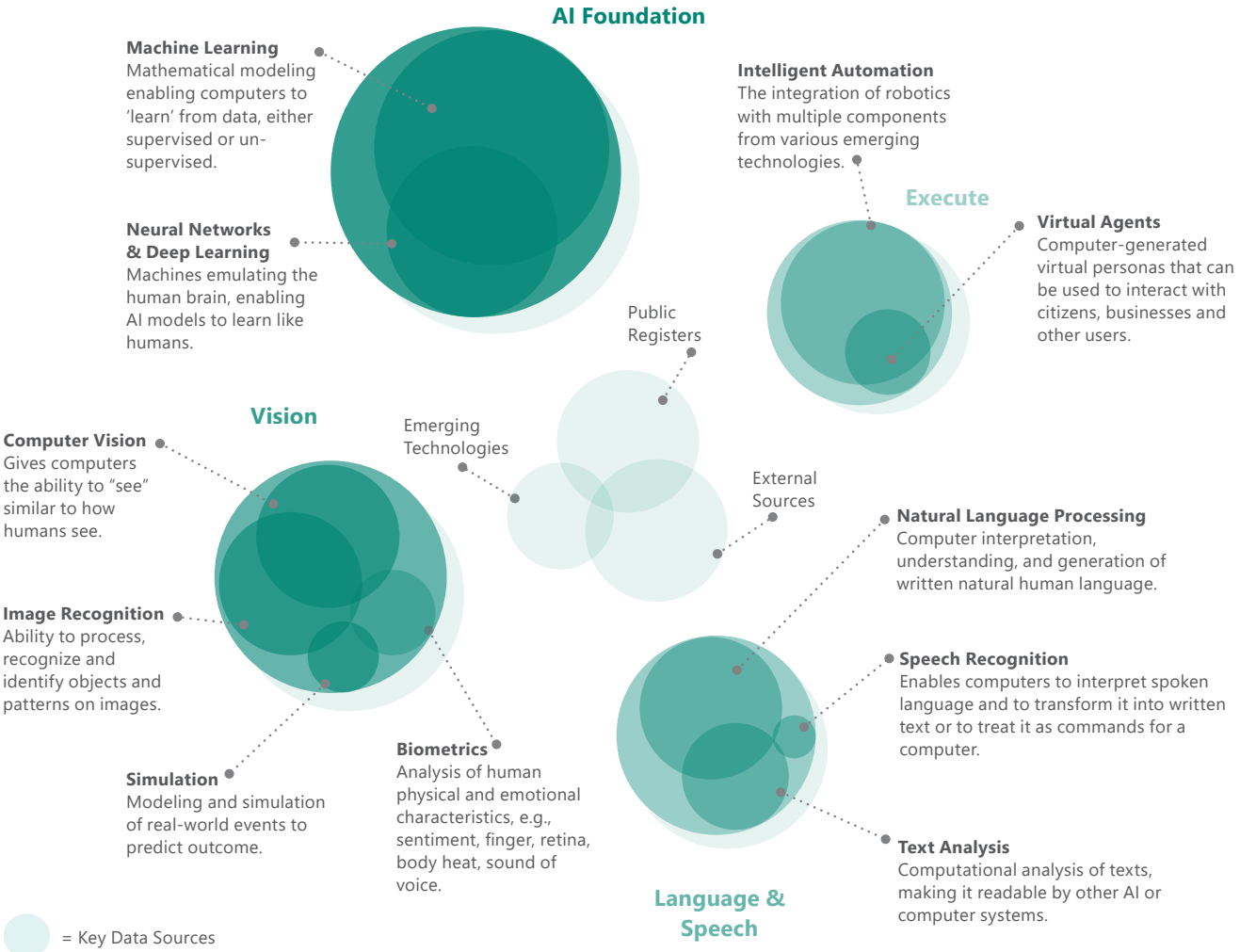
AI solutions can transform the Public Sector by empowering its employees and enabling new ways of delivering services that will create new roles, jobs and functions for these employees. Such a transformation is necessary for Public Sector innovation in order to ensure efficient citizen-centric delivery of public services while taking these challenges into consideration.

AI is an evolving technology, and the transformative journey has just begun

AI solutions are expected to increasingly influence both the Public Sector, Private Sector, and society as a whole.

AI solutions are constantly evolving

Technologies included in the definition of AI in this study



Specific AI technologies range from narrow AI that enables specific tasks, to broad AI that imitates human thinking, with new solutions and applications emerging.

The majority of AI technologies currently used by public organizations are narrow AI solutions that increase efficiency and quality, while enabling public employees to focus on value-adding tasks. The future of AI will include further development of broad AI solutions, which augment employees and enable new services that would not have been possible without the use of these technologies. This underscores the continuously evolving nature of AI technology, and its transformative potential for public services and society.

Machine Learning and Deep Learning are fundamental to AI in the Public Sector

Machine Learning and Deep Learning are fundamental technologies that augment other technologies, enabling intelligent services and solutions. The ability to develop intelligent solutions based on learning and insights into datasets is becoming a cornerstone of delivering personalized and efficient public services.

Natural Language Processing is a central enabler of a wide variety of speech and text centered technologies within the Public Sector. These technologies play an essential role in efficient, inclusive delivery of public services, and ensure steady availability of services for all segments of society.

While AI solutions have been implemented, the full potential is still being explored

AI is being experimented with across the Public Sector, yet it has not reached its full potential. Only a few public organizations have been able to utilize the full transformative potential of intelligent technologies, while the majority of organizations are reaping the initial benefits of their AI efforts.

Most public organizations are using AI to automate simple tasks, creating efficiency gains and allowing the workforce to focus on more valuable work. Yet some organizations have unlocked the full potential of AI, using AI to augment the workforce, and create new solutions and services. Public organizations expect AI to move into the organizational core in the future, contributing to the improvement of society.

AI transforming the Public Sector

Application of AI technologies across three domains

Public Administration

Natural Language Processing enables adaptive delivery of public services.

Virtual Agents driven by personal insights ensure 24/7 services.

Intelligent Automation enables automated case management for back-office efficiency gains.

Public Health

Deep Learning based on personal information allows targeted treatment.

Image Recognition increases accuracy of diagnoses, leading to fewer errors.

Speech Recognition enables automated care routing for increased efficiency.

Public Transportation

Computer Vision is enabling autonomous transportation.

Machine Learning for predictive maintenance in automated asset management.

Simulation of real-world events for optimized traffic planning.

A European Approach

Europe has laid a solid foundation for the development of trustworthy AI via national strategies and approaches. This provides a strategic path for AI-driven Public Sector development and innovation.

Policy actions and initiatives necessitate a strong AI ecosystem and the sharing of best-practices across sectors.

Leading the Next Wave

What is the European Commission's stand on AI?

The European Commission has a clear strategic direction towards ethical, human-centric AI

The European Commission's High-Level Expert Group (HLEG) on AI leverages ethical guidelines in order to lead the next wave of AI. These guidelines are enabling the cohesive development of trusted AI solutions through a coordinated plan and pan-European alliances.

The Framework for Trustworthy AI aims at embedding European values and earning the public trust by placing humans at the center of technology development. The framework operationalizes trustworthy AI based on three pillars: 1) ethical principles such as respect for human autonomy and fairness; 2) key requirements such as transparency and accountability; and 3) technical and non-technical methods to assess trustworthy AI based on codes of conduct, standardization, and the explanation of approaches to AI.

New solutions for sustainable, responsible development of the Public Sector and society

The need for new solutions to address many of the most pressing societal challenges and global concerns is highlighted by the European Commission, and the development of the Public Sector is seen as a catalyst for sustainable growth and innovation. This will be achieved by leveraging European participants in AI to lead the way in innovation, research, and the application of new technologies in order to support responsible action in the areas of sustainability, the environment, and the European Green Deal.

Security, robustness, and reliability are required for ensuring privacy and respecting individual rights

Technical robustness and security procedures are required to prevent harm from cyberattacks and other security threats. There needs to be trust in the accuracy of decisions made by AI, and clear guidelines must be developed for the reliability and accountability of AI. Privacy and data protection must be ensured throughout a system's entire lifecycle.

Ensuring an ecosystem of trust through new partnerships and investments across sectors

Collaboration between the Private Sector, the Public Sector, academia, and civil society will enable the advancement of AI knowledge across Europe. This can be facilitated by creating and fostering AI Centers of Excellence and testing centers that combine investments across sectors, as well as Horizon 2020/Horizon Europe grants for public/private partnerships in AI, Data, and Robotics.

> **Staff won't be replaced and that will be never be the goal. Decisions will always be made by a human.**
>
> **— Tribunal de Contas**
> Court of Auditors

Public Transportation | Austria

ASFINAG
Motorway Infrastructure

Motorway monitoring with AI Image Recognition

In providing the motorway infrastructure for Austria, ASFINAG uses AI for Image Recognition on toll stickers and license plates. There is also potential for real-time identification of dangerous situations on the roads, especially in tunnels, and for traffic flow optimization and infrastructure inspections.

Compared to conventional software, outcomes of AI for specific use cases are uncertain, and often cannot be assessed up front.

> **A prototype-driven approach to developing AI solutions and a fail-fast mindset are key to leveraging the business potential of AI.**
>
> **— ASFINAG**
> Christian Göltl
> *Lead IT Service Management*

Strategic Paths

What are the national AI strategies and approaches?

AI to power transformation, innovation and economic growth

European countries have described their strategic approaches to AI in their respective National AI Strategies, country visions, white papers, and guidelines.

These national strategies bear similarities between each other, and resemble the European Commission's guidelines to develop ethical solutions that ensure economic growth and societal wellbeing.

Despite overall similarities between the individual focus areas of these strategies, there are variations in their approaches to developing AI solutions for society. These differences in approach can be divided into three main clusters of countries.

Nurture economic growth by strengthening the ecosystem

One cluster of countries focuses their AI efforts on developing a strong R&D foundation to ensure future progress within AI.

They outline specific initiatives to foster a dynamic ecosystem centered around start-ups, private companies, and the Public Sector. Through this dynamic innovative ecosystem, they intend to expand knowledge and AI solutions, thereby becoming attractive countries for talent and developing the right competencies. This is expected to spill over into the Public Sector.

Driving Public Sector innovation by re-inventing the delivery of public services

A cluster of comparable countries are focusing their AI efforts on outlining and initiating specific initiatives to foster innovation in the Public Sector through policies and pilot projects.

Policy actions ensure ethical and sustainable use of new AI solutions in the Public Sector, and lay the foundation for more efficient public services that benefit all of society.

Pilot projects and Proofs of Concept are being launched in the Public Sector in order to experiment with AI, and provide the foundation for implementing new solutions as well as the future development of public services based on AI.

Strategic vision ensuring sustainable AI development for all of society

The final cluster of countries has developed wide-ranging approaches to AI that provide strategic direction for the development of society as a whole, and through consensus ensures long-lasting support and sustainable adoption.

By setting a broad yet clear path for the overall direction of AI, these countries are focusing on unified development of AI, centering around key aspects which can be formulated as specific initiatives and approaches for various areas and sectors.

Public Health | Italy

IRCCS Policlinico San Donato
University Hospital

Medical decision support through automatic Image Recognition

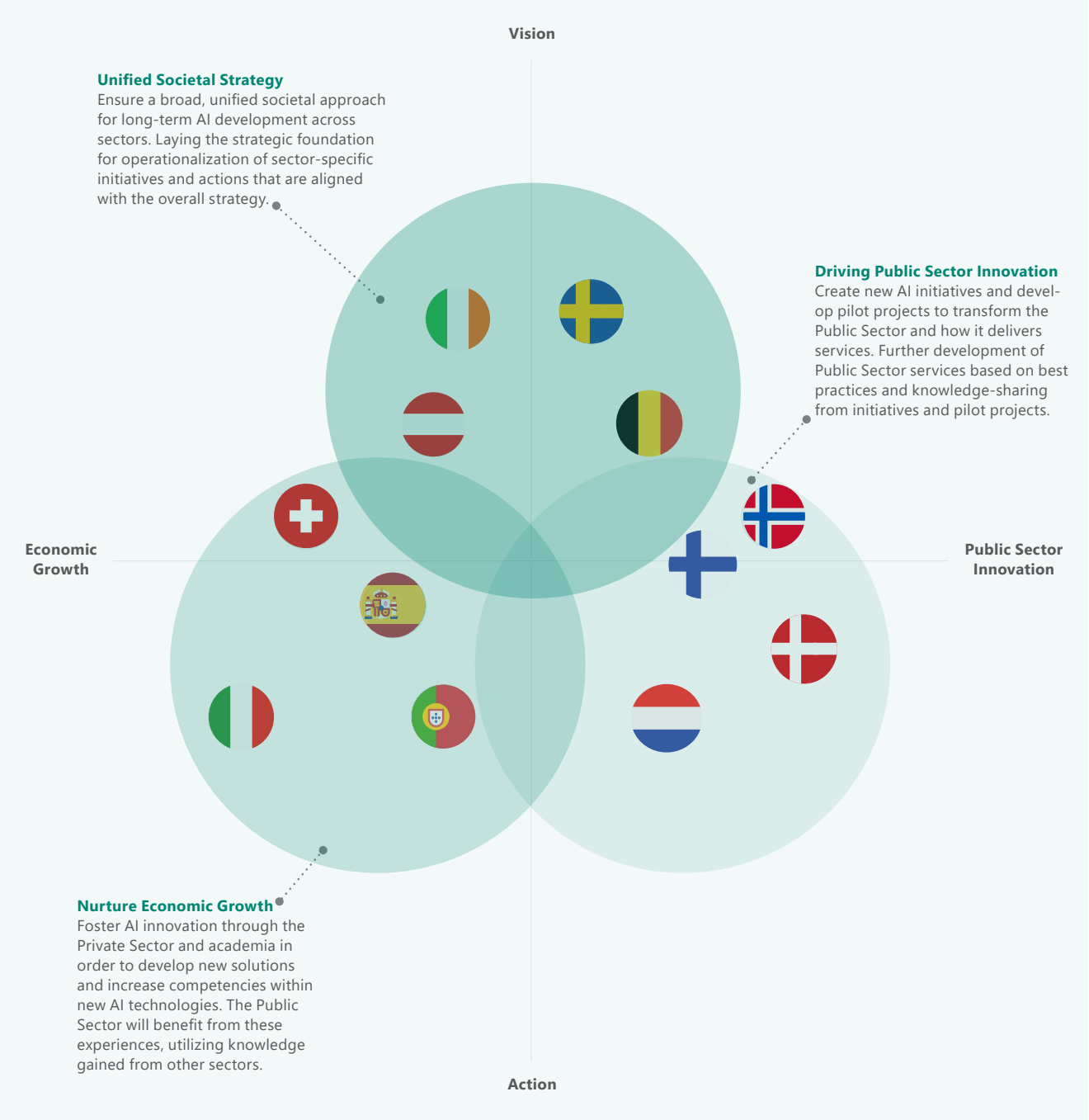
The organization is experimenting with AI in diagnostic imaging and electrocardiography. Automatic image reading ensures that radiologists can concentrate on interpreting complex pathologies. For doctors, these AI solutions are becoming a fundamental part of decision support, enabling more personalized treatment paths.

These and other AI diagnostic solutions are still in the pilot phase, yet are providing great value for medical staff.

> **AI can provide significant benefits in many areas, based on staff who are trained to use the technology in the right way and the proper context.**
>
> — **IRCCS Policlinico San Donato**
> Lorenzo Menicanti
> *Director of Cardiac Surgery*

Clusters of National AI approaches

What are the national AI approaches?



Powered by Policy

What are the initiatives that have led to successful AI?

Leveraging the ecosystem through partnerships, ensuring cross-sector collaboration and innovation

Interviews with public organizations highlight the importance of a strong AI ecosystem to ensure innovation, collaboration, and knowledge-sharing. Since the Public Sector operates under regulated conditions and boundaries, the importance of strategic partnerships to foster innovation is vital for the sector's successful development of AI.

Innovation hubs and knowledge centers including academia, the Private Sector and Public Sector are key to fostering innovation and sharing best practices. Centers of Excellence and testbeds promote an experimental mindset, opportunities to learn, and test solutions before scaling. In addition, respondents are showcasing initiatives of sharing non-sensitive public data with private entities and academia via regulatory sandboxes.

Attracting and developing AI talent through individualized career frameworks and learning tools

The majority of interviewed public organizations highlight the need for hiring new talent, yet also acknowledge the importance of developing internal AI capabilities and knowledge.

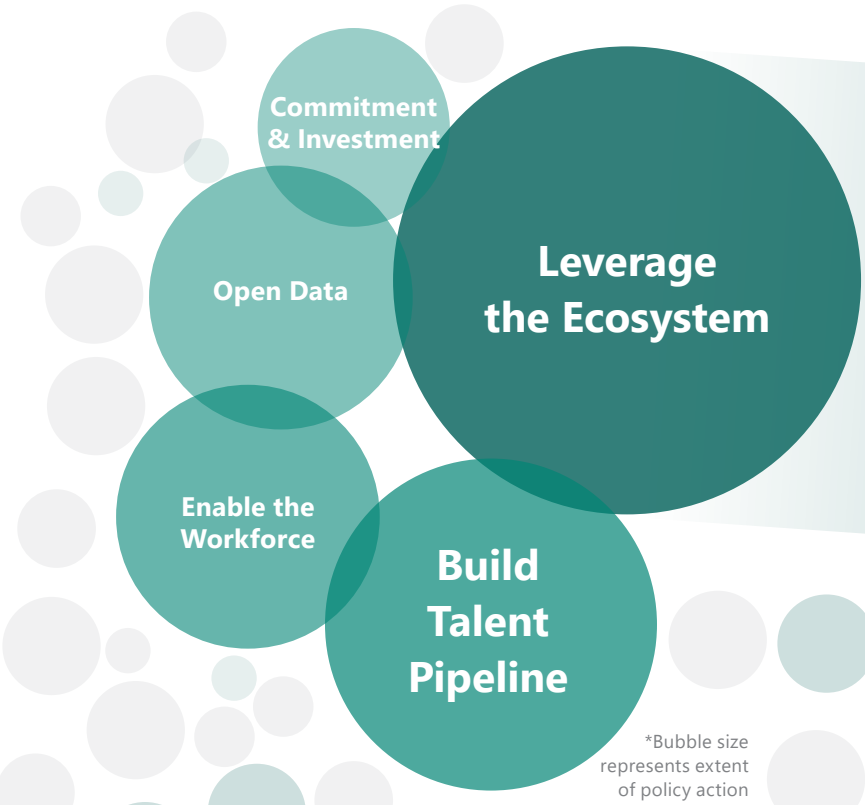
One way to attract external talent is by creating individualized career paths and exciting new job opportunities within the organization, although public organizations acknowledge that they may not be able to attract the necessary talent. Therefore, they need to develop and enhance internal AI skills as well, for instance though the creation of AI courses, offering online learning and external assistance.

Unlocking the potential of Public Sector data through open data initiatives and data-sharing

Governments and public organizations have large amounts of available data,

Leveraging the Ecosystem as a key policy

Highlighting the most important policies to succeed in AI



*Bubble size represents extent of policy action

Advanced AI technologies can improve the efficiency and quality of control processes in public administration.

— **IGAE**
José María Sobrino
Director of Budgetary Information Office

yet the full potential of these datasets has yet to be unlocked. Across countries, initiatives to share data and open data exercises between public entities and other collaboration partners are emerging. These initiatives will ensure the ability to combine data sources and increase the validity of data.

The European Commission has set up the Big Data Value Public-Private Partnership to enhance the data economy and foster a dynamic ecosystem and strong networks across sectors.

Public Health | Finland

Nordic Interoperability Project

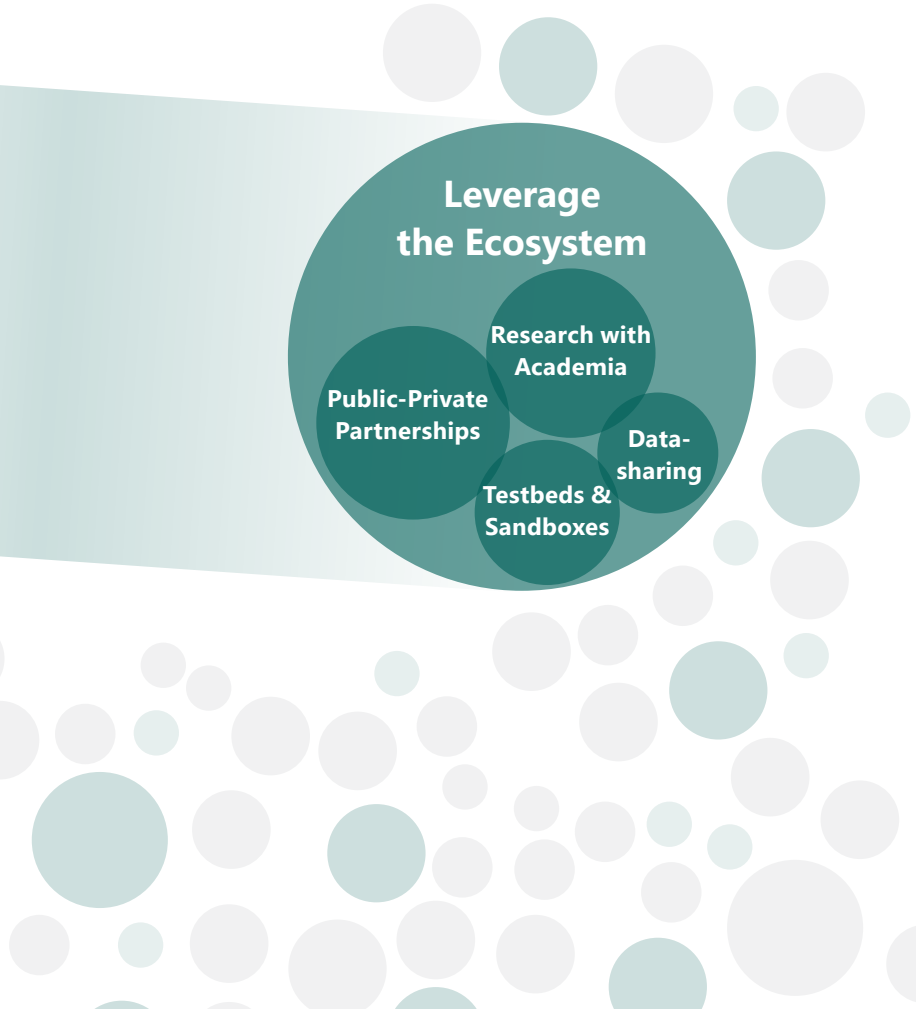
Hospital District of Helsinki and Uusimaa

Several examples of initiatives to establish and enhance dynamic ecosystems are appearing in various countries. An example is the Nordic Interoperability Project that the Hospital District of Helsinki and Uusimaa (HUS) is part of, which works on standardizing data sharing and technology sharing agreements between four Nordic countries.

The project centers around shared use of patient data between Nordic Health organizations and the establishment of a Nordic Digital Medication Platform. This will lead to new ideas and solutions in the future, while developing new interoperability solutions for Nordic healthcare.

Public-Private Partnerships essential for the ecosystem

Highlighting specific actions to Leverage the Ecosystem



Enhancing data literacy and knowledge about AI to enable the workforce of the future

Educating the wider Public Sector workforce about AI has been identified as an important element in ensuring that employees view AI as supportive. Organizations have put in place several initiatives to enhance employee knowledge about AI and increase data literacy through courses, strategic implementation, and pilot projects. The European Commission recognizes the importance of educating the workforce and broader society about AI, and increasing trust in AI's future role in society.

Developing Proof of Concepts to ensure organizational commitment and investment

Some respondents highlight the challenges in securing investments, yet by partnering with other organizations, they have been able to deliver results quickly and thereby showcase the value of their AI solutions. Systemizing the development of solutions and showcasing positive business cases helps build commitment to AI throughout the organization.

Impacting the Public Sector

Most public organizations have begun their respective AI journeys, and some are at the verge of realizing the organizational impact of their AI solutions.

Leading public organizations have utilized the transformative power of AI to reshape the delivery of services and augment the workforce, enabling the creation of internal and external value.

Value at Scale

What is the effect of AI within the Public Sector?

Public organizations have begun their AI journey, and have plenty of opportunity to increase scalability

The majority of public organizations have begun experimenting with AI technologies and solutions. Not many solutions have been implemented, yet the solutions that have been developed are beginning to spread across organizational functions.

Creating the proper AI setup and management structure are areas where many organizations are still in the initial phases. Guidelines and processes for managing AI are starting to appear, yet few organizations have created successful processes for developing, testing and managing their solutions.

Setting up structured processes for the management of AI solutions and increasing the number of developed solutions are emerging as areas of focus for public organizations.

Early stage solutions are creating value for citizens and enabling more efficient ways of working

AI solutions that have already been developed and implemented are having an effect on the respective organizations' internal ways of working, for instance by reducing repetitive tasks such as document processing and simple inquiries. Externally, AI solutions are creating value by enhancing citizen-centric and business-centric services and service delivery through increased accessibility and personalization.

AI is enabling organizational capabilities to solve complex problems by optimizing processes, yet only in a few cases is AI solving problems that couldn't be solved otherwise.

For most public organizations, the best way to start their AI journey is with small steps by developing and implementing a limited number of AI solutions, and prove the organizational value before developing additional solutions.

> **AI is a strategic topic, particularly in our sector that produces a huge amount of data. Allowing machines to 'learn' as much as possible guarantees ever higher reliability of results.**
>
> **— IRCCS Policlinico San Donato**
> Hospital and Healthcare
> Lorenzo Menicanti
> *Director of Cardiac Surgery*

Public Administration | Spain

Colegio de Registradores
Public Law Corporation

Automatic intelligent extraction of unstructured data

Colegio de Registradores is using automatic intelligent extraction of information through Natural Language Processing to turn unstructured information from PDF's into a structured format. This results in efficient information processing.

The implementation of the solution offers short-term gains such as lower costs and reducing time spent on processing documents. It also allows for integrating the structured information into databases and management applications, which can lead to further benefits and enhancement of services.

> **It is strategic for us to be at the forefront of new technologies, including Artificial Intelligence.**
>
> **— Colegio de Registradores**
> José María de Pablos
> *Director of Information Systems Service*

Organizational Impact

A majority of respondents are in the early stages of their AI journey

Public Sector organizations self-reported the current impact AI has on their respective organizations, based on scale and outcome.

The ability to scale and achieve outcome defines AI's impact on public organizations

The study measures the impact of AI on Public Sector organizations, based on their ability to scale AI and achieve a significant outcome.

Scalability is determined by the organization's ability to manage AI solutions, the number of solutions implemented, and the capability to implement these solutions across organizational functions.

Outcome focuses on the ability to create and realize both internal and external value through AI-based solutions.

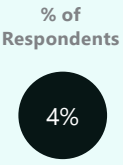
AI leaders are transforming public services, while the majority are still exploring AI's full potential

A majority of Public Service organizations have initiated their AI journey and have begun to implement solutions where AI is moving towards the core, gradually being integrated into the organization.

4 percent of Public Sector organizations have transformed their services, and are realizing value from new AI solutions, while the majority of organizations are still at the beginning of their AI journey, experimenting with early stage solutions that have not yet had an impact on the organization.

Transformers

AI enables the improvement of society through increased sustainability and equality. It is a key digital priority transforming the delivery of public services and is embedded in internal processes, allowing for new ways of working and augmenting employee capabilities across organizational functions. Transformers think and act beyond Proofs-of-Concept, and highlight the importance of having a structure that allows for monitoring and continuous improvement to increase transparency and explainability.



Innovators

AI is improving the core services of the organization and is embedded in the digital strategy. AI is enhancing services for stakeholders, while replacing low value-add work across organizational functions, enhancing employees' ways of working. Guidelines and clear processes for the management of AI have been established, and Innovators are starting to work across organizational areas and functions when developing AI solutions.

Adopters

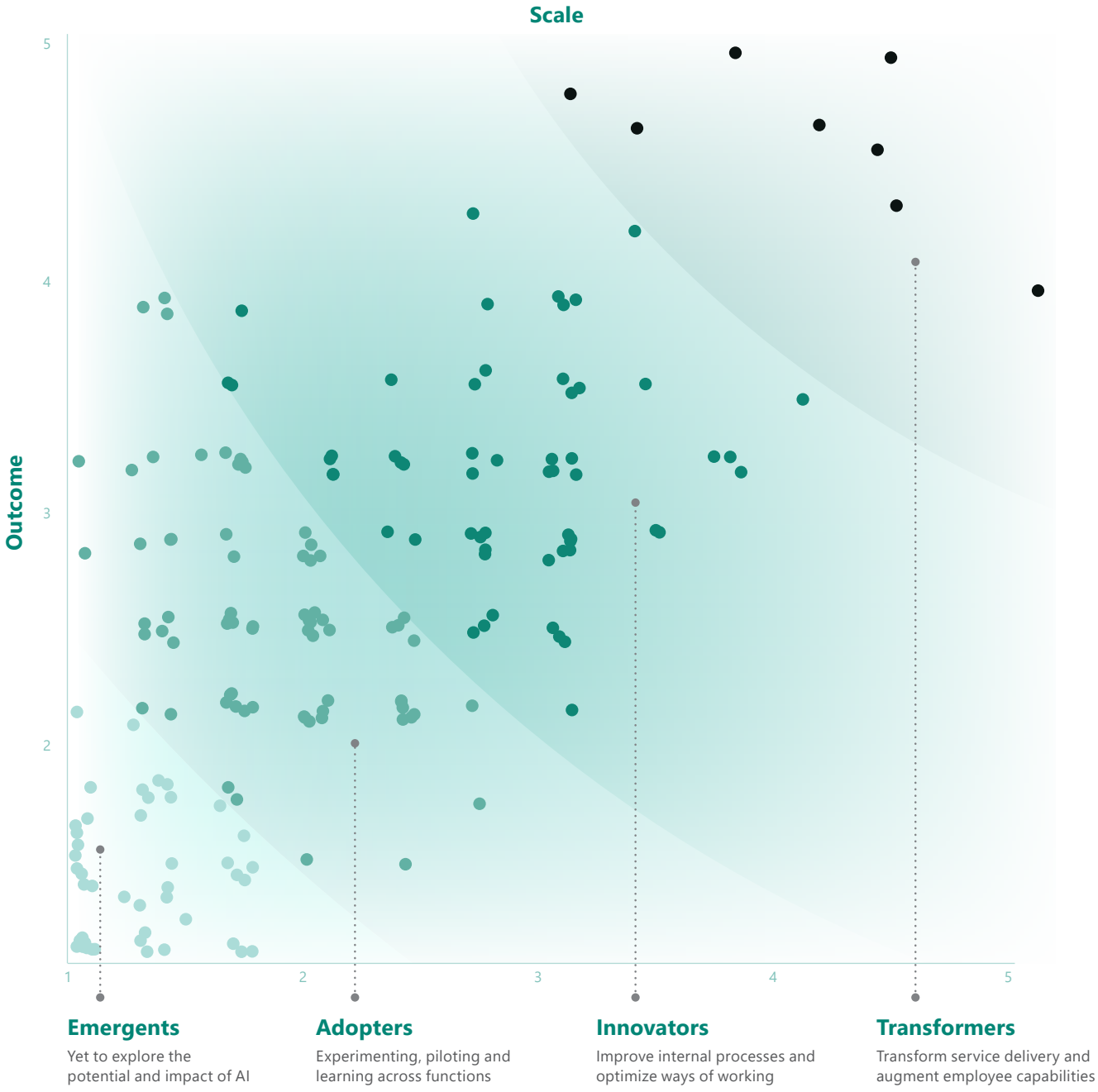
AI is improving processes, but not the core services. The organization is beginning its efforts with AI, and has experimented with early stage solutions and pilot projects. Opportunities with AI are recognized, but it's still far from the organizational core. Adopters are trying to identify the right technologies and use-cases to demonstrate the value of AI and further develop new AI solutions.

Emergents

AI is not integrated into the organization, and is not yet a strategic priority, and therefore hasn't impacted the organization so far and the value of AI has yet to be defined. The organization recognizes the importance of AI for the future, but has yet to begin its AI journey. Cross-functional teams with an experimental mindset still need to be created.

A majority of Public Sector organizations have adopted AI, while only a few organizations have transformed their services

What is the Impact of AI on Public Sector organizations?



Note: Organizations were asked to rank themselves between 1-5 within scale and outcome.

Scale questions:
How structured is your company's work with AI?
In how many functions in your organization have you implemented AI?
How many AI solutions have been implemented in your organization?

Outcome questions:
How is AI creating value for the external stakeholders of your organization?
How is AI affecting employees and ways of working within your organization?
How does AI improve your organization's ability to solve problems?

12 European Countries

Achieving Impact

What is the current state of scale and outcome of AI?

Leading Public Administration organizations are implementing AI broadly

While the majority of respondents within the Public Administration domain have implemented AI in only some of their respective organizational areas, AI leaders within Public Administration have implemented AI in a significant number of organizational areas.

Most respondents within the Public Administration domain have established some AI structure through guidelines and management processes, yet AI leaders in Public Administration don't have comprehensive structures or clear guidelines and management processes in place for their AI solutions.

AI leaders in Health and Transportation are ensuring scalability and value creation

In terms of getting AI right in the long term and having the ability to scale, respondents highlighted AI management as a key element. AI leaders in Health and Transportation have been able to successfully operationalize their AI structures.

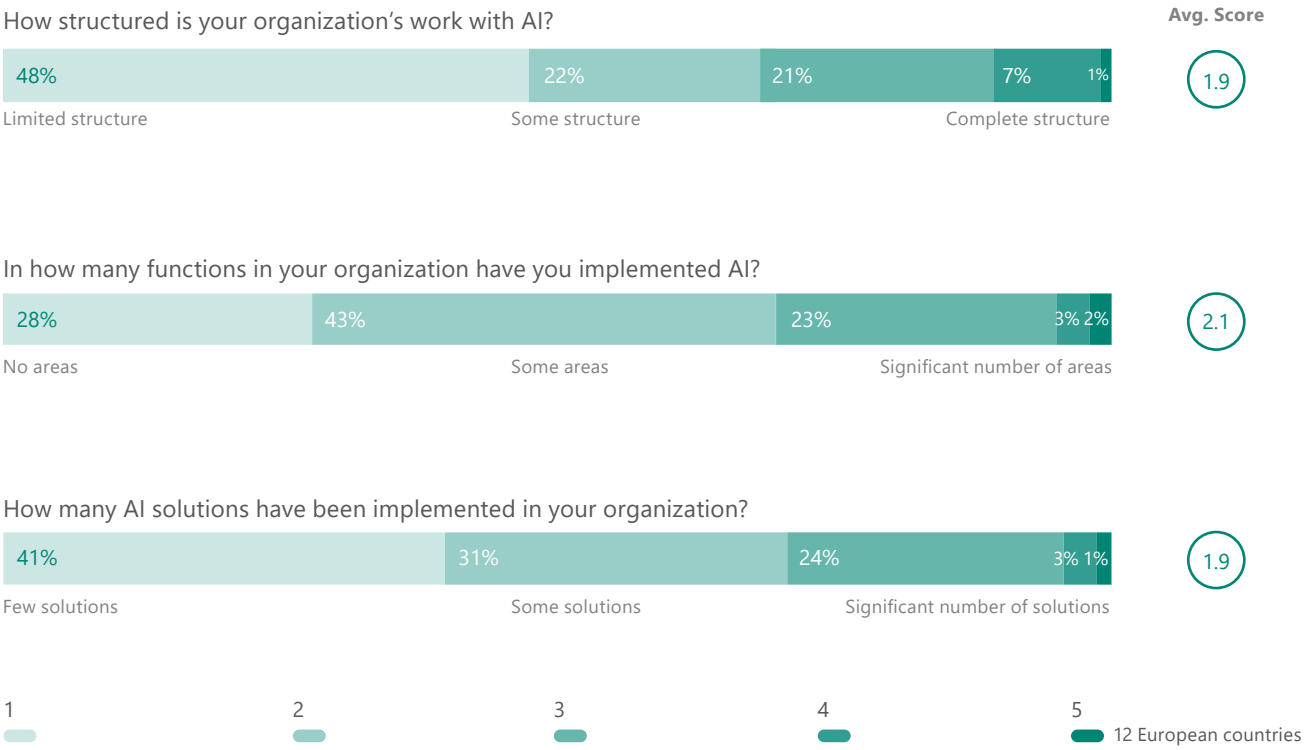
However, the majority of organizations in Transportation have no formalized structure for planning, developing or maintaining their AI solutions.

Early stage innovation dominates the Public Sector, with few solutions broadly rolled out

Public Sector organizations in all domains have highlighted the importance of experimenting with AI to improve the organizational AI environment and build internal capabilities before moving on to develop additional solutions and scale these across the organization.

Most organizations have been able to build early stage AI solutions, and are utilizing knowledge from these to further scale AI development.

The Public Sector has yet to scale AI solutions



Note: 'Don't know' responses excluded from visualization

Even with few implemented solutions, organizations recognize the ability of AI to create value

While Public Service organizations are still at the early stage when it comes to scaling AI solutions, across all domains they highlight realized value and outcome based on AI solutions.

External value created for citizens and businesses through the enhancement of services is emerging across all domains. Public Administration has been achieving internal and external value by reducing low value-add repetitive tasks and enhancing services for citizens and businesses.

Transportation is experiencing the largest outcome by improving ways of working and enhancing services

AI is enabling most Transportation organizations to optimize processes and deliver better results. Based on AI solutions, leading Transportation organizations have improved the quality of existing services and created new services.

Public Administration and Transportation are experiencing the ability of AI to augment employees by creating new value-adding tasks and increasing efficiency.

AI is enabling Public Service AI leaders to address and solve problems of critical importance

Transportation organizations are leading the pack when it comes to utilizing AI to address problems of critical importance that aren't possible to address without AI.

In contrast, Health organizations have yet to experience AI's ability to solve complex problems.

AI is demonstrating the ability to create value

Note: 'Don't know' responses excluded from visualization

Stadt Wien

Adopting an AI strategy for the city

The City of Vienna has developed an AI strategy that ensures an ethical, trustworthy implementation of AI. The city is utilizing multiple technologies to enhance its delivery of services to citizens and businesses.

Public Administration | Austria

About Stadt Wien

Vienna is the capital of Austria, with approximately 2 million inhabitants. It offers a wide range of services for citizens and commercial enterprises, covering education, health, social benefits, culture, and many other essential aspects of society.

Utilizing digital solutions and enhancing the delivery of its services is essential to being able to serve all of the city's citizens and businesses.

AI as a key driver for digital development

Stadt Wien has developed a detailed AI strategy as part of its Digital Agenda 2025. At the heart of the strategy are the inhabitants of the city. Digital development and AI are seen as forces that are increasing equality in and efficiency of city services, addressing all segments of society.

The city has implemented several AI solutions within various areas of service. Text Analysis and Virtual Agents are enhancing citizen services. The city has also implemented a Digital Twin, similar to Google Street View, but with much higher resolution, which enables the localization and categorization of road damage, traffic signs, and other features of the city.

A human-centric approach to AI

The AI strategy of the city has a human-centric approach that focuses on transparency and explainability of AI solutions. Together with other parts of their AI ecosystem, Stadt Wien concentrates on the role of humans when developing AI solutions. AI is therefore seen as decision support, not as an autonomous decision-maker.

New AI-enabled solutions are already contributing to an increase in operational efficiency, enabling the city to work faster and in a more structured way. It also enables an increased focus on the city's inhabitants. The goal is to constantly identify new areas where AI can improve the city, and thereby the quality of life for its inhabitants. This strategy is part of the city's ambition to become a digital capital of Europe.

The goal is not to create successful Proofs-of-Concept, but to develop production-grade AI solutions integrated with the IT landscape.

— **Stadt Wien**
Sandra Heissenberger
CISO

How to get started

Developing and implementing an AI strategy as part of a digital agenda is the initial step in fully realizing the potential of AI. Through new pilots that focus on increasing the quality of services, the city can identify the best applications of AI, and focus on integrating and scaling these solutions across various segments of city society.

Transforming the Public Sector

The application of AI is set to be a transformative force in the development of the Public Sector. The study reveals key capabilities and functionalities required to unlock key benefits of AI such as Optimized Operations and Transformed Services.

The strategic importance of AI is highlighted across leadership levels in public organizations.

Unlocking the Benefits

How can the Public Sector unlock the potential of AI?

Unlocking Public Sector objectives and reaping the benefits with a comprehensive framework

AI is expected to be highly impactful for public organizations, and key benefits are expected to be enhanced through new AI solutions. Based on insights from this study, a comprehensive framework to unlock these benefits and objectives has been identified. The framework reveals the functionalities of AI and the organizational capabilities needed to unlock these Public Sector benefits.

The following pages highlight four main benefit domains and nine tangible objectives that respondents expect from AI within the near future.

Respondents highlight Optimized Processes and Employee Enablement as the two most important benefits across public organizations, leading to tangible key objectives such as Increased Efficiency and Employee Satisfaction.

Technical and organizational capabilities needed to succeed with AI

For public organizations to become successful in their AI journey, five overall capabilities are needed. The overall capabilities cover technical aspects such as Technology and Data, while organizational Culture, Talent and Ethics are also essential.

Within each overall capability, the current specific competencies such as Data Governance, Data Access and Data Quality are highlighted.

Advancing capabilities to connect functionalities with benefits

To reap the benefits and objectives of AI, organizations must succeed in connecting functionalities with capabilities. Six different functionalities of AI within the Public Sector have been identified. These functionalities allow organizations to enhance their services, for example through automation, adaption, and prevention.

The functionalities will be highlighted through specific current and future impactful AI use cases. The preventative ability of AI solutions is highlighted across the three domains, where it currently is being used in Transportation for Predictive Maintenance, while Health has high expectations towards Epidemics Prevention within the near future.

> **Taking an AI model into production is easier said than done. It requires certain skills and know-how, certain infrastructure, and certain competencies to make it happen.**

— Posti
Postal Service

Public Health | Sweden

Karolinska Universitetssjukhuset
University Hospital

Decision support for health organizations

Using AI as a support tool in decision making about patient health in areas where Karolinska University Hospital needs specialists, such as in pathology and radiology, enables increased productivity while ensuring better quality of service and a better patient experience.

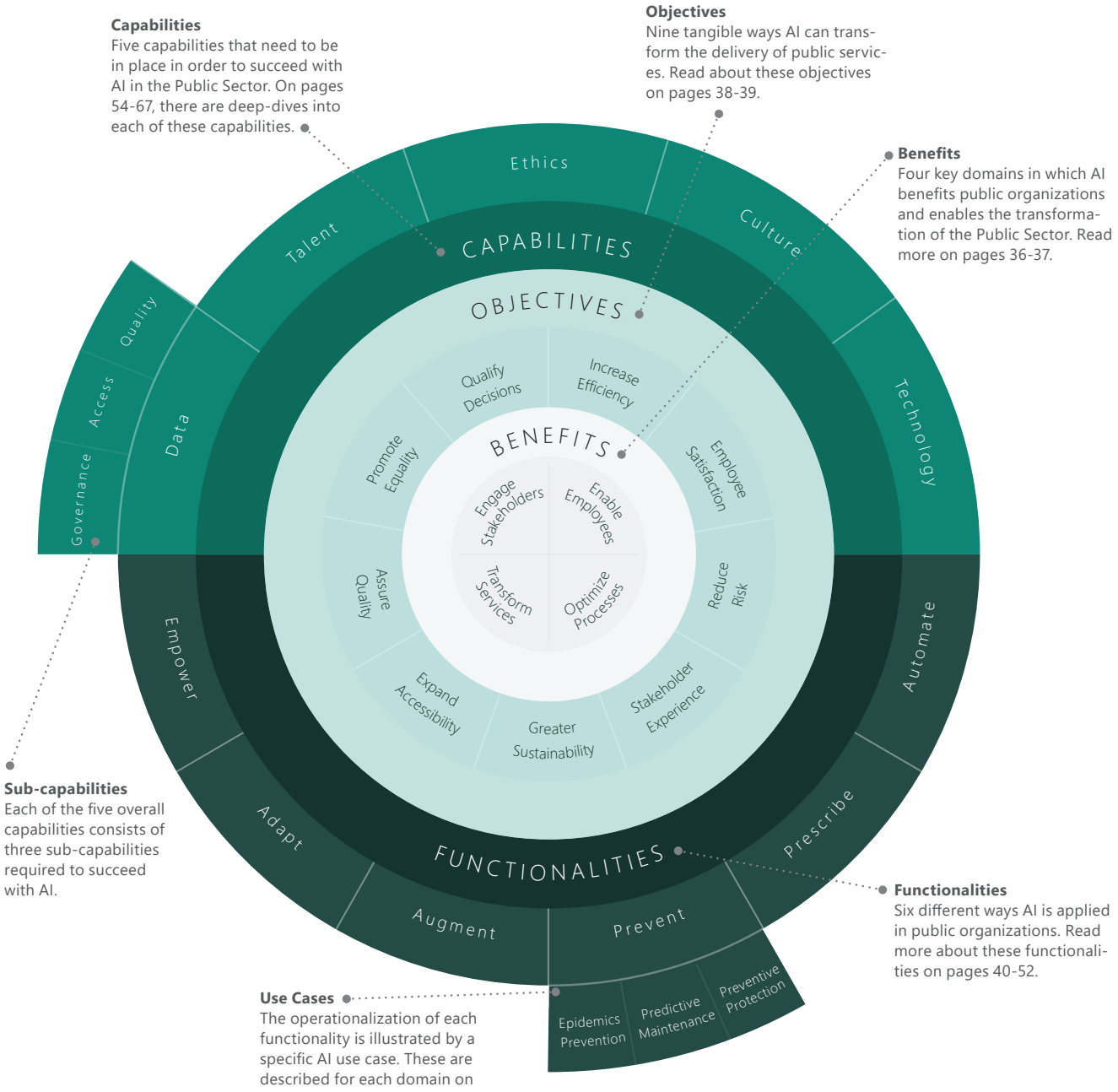
The ability to identify, collect and structure relevant data is fundamental to further work with AI technologies such as Machine Learning and Deep Learning.

> **The ability to utilize data efficiently is extremely important for increasing the productivity of health organizations.**

— Karolinska Universitetssjukhuset
Stefan Vlachos
Head of the Center of Innovation

AI can unlock benefits in the Public Sector by connecting capabilities with functionalities

A comprehensive AI framework to unlock benefits for the Public Sector



Strategic Priority

What is the extent of leadership commitment to AI?

Putting AI on the political agenda sets a clear strategic direction

Leadership commitment to AI is key to ensuring the development of AI solutions and new technologies. There is an emphasis on the importance of leadership commitment at all leadership levels.

Organizational commitment to AI is important from the political perspective, where AI is on the agenda and a key political priority, and with specific projects and programs where AI plays an essential role.

The need to have a clear strategic direction from the top Political level and Top Management is highlighted to ensure a unified effort in developing Public Sector AI.

Health organizations are experiencing the highest leadership commitment on all levels

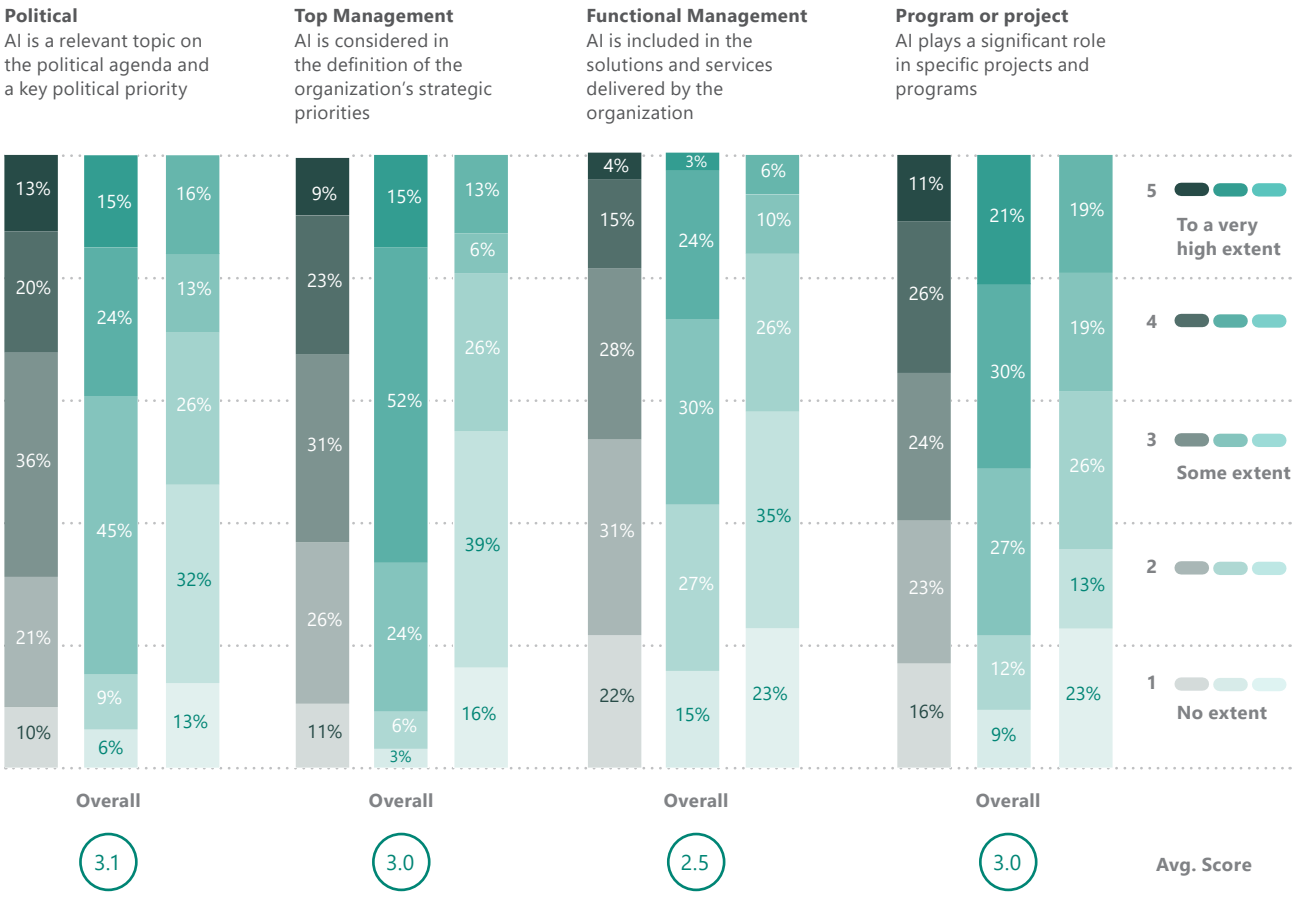
The highest overall leadership commitment is within Health organizations. Top Management in Health is committed to AI, which to some extent is becoming a strategic priority.

A majority of Health organizations are experiencing commitment to AI across leadership levels, with only a few organizations experiencing very little commitment.

Transportation has the highest AI commitment in specific projects and programs, whereas Public Administration has the highest commitment from the Political level. This highlights the importance of advocating AI across leadership levels.

Leadership commitment on all levels

What is the extent of AI commitment across each leadership level in your organization?



Demonstrating value through lighthouse projects to increase prioritization in the organization

Across all domains, Functional Management stands out as the organizational leadership area with the lowest organizational commitment, with only very few organizations experiencing very high commitment.

Having a strong commitment from Functional Management is key to anchoring the development of new AI solutions within the organization. There's recognition that bottom-up commitment through tangible lighthouse projects that prove the value of AI can increase the likelihood of Functional Management adopting an AI commitment stance. The ability to start small and scale fast is key to ensuring organizational commitment.

AI is one of many digital priorities, yet not the key priority

A majority of public organizations recognize AI as one among many digital priorities, yet only a few organizations view AI as the most important digital priority.

Every Health organization surveyed has begun to define AI as their strategic priority, whereas a substantial number of Transportation organizations have not yet begun to do so. On the other hand, a large number of public organizations within Transportation identify AI as their most important digital priority.

Laying the technological foundation before steering towards AI

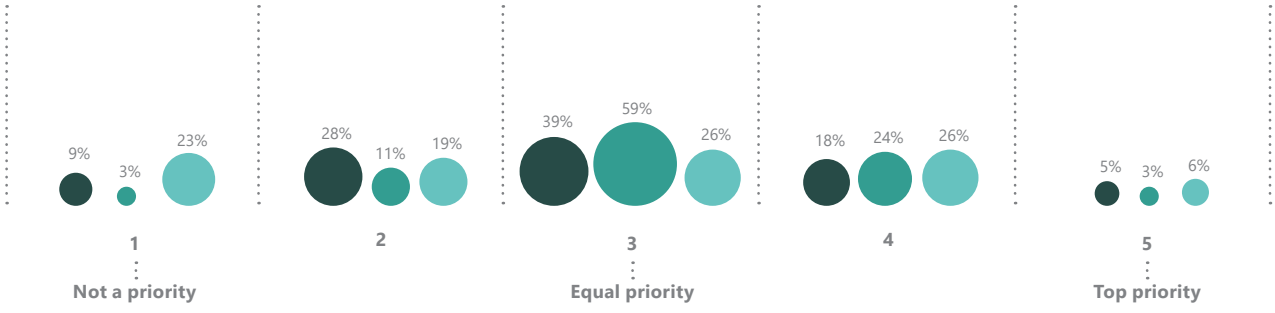
Even though AI is increasingly becoming a digital priority, respondents highlight the need to prioritize and develop technological foundations in the Public Sector.

Respondents recognize that the Public Sector has increased its focus on the broad digital agenda and is becoming more digital, with investments in new technologies and infrastructure. The focus on becoming digital is a key enabler for working with AI, as it lays the technological foundation needed to experiment and learn from data. The foundation is essential, as public organizations fear missing the AI train.

> **Advanced AI technologies can improve the efficiency and quality of control processes in public administration.**
>
> **— IGAE**
> José María Sobrino
> *Director of Budgetary Information Office*

AI is seen as one of many digital priorities - but rarely the most important

How important is AI relative to your organization's other digital priorities?



Note: 'Don't know' responses excluded from visualization

Harnessing the Benefits

What is the expected outcome of AI in the Public Sector?

Improved delivery of service with optimized processes and increased efficiency

When implementing AI in the Public Sector, the expectation is that it will be an important component in the transformation of the sector across domains. Health has the highest expectations for all four benefit domains, expecting AI to be highly important for all benefits.

Public organizations have the highest expectation when it comes to optimizing processes. Process improvements will be through increased productivity, enabling additional efficiency of workflows, and delivery of service.

Health organizations have the highest expectations towards AI, specifically to increase efficiency and reduce errors by enhancing the accuracy of diagnoses through solutions such as medical imaging.

Organizations in the Public Administration domain expect to optimize their workflows by using AI to route inquires, and enabling automation of redundant work.

Transforming services through increased personalization and development of new services

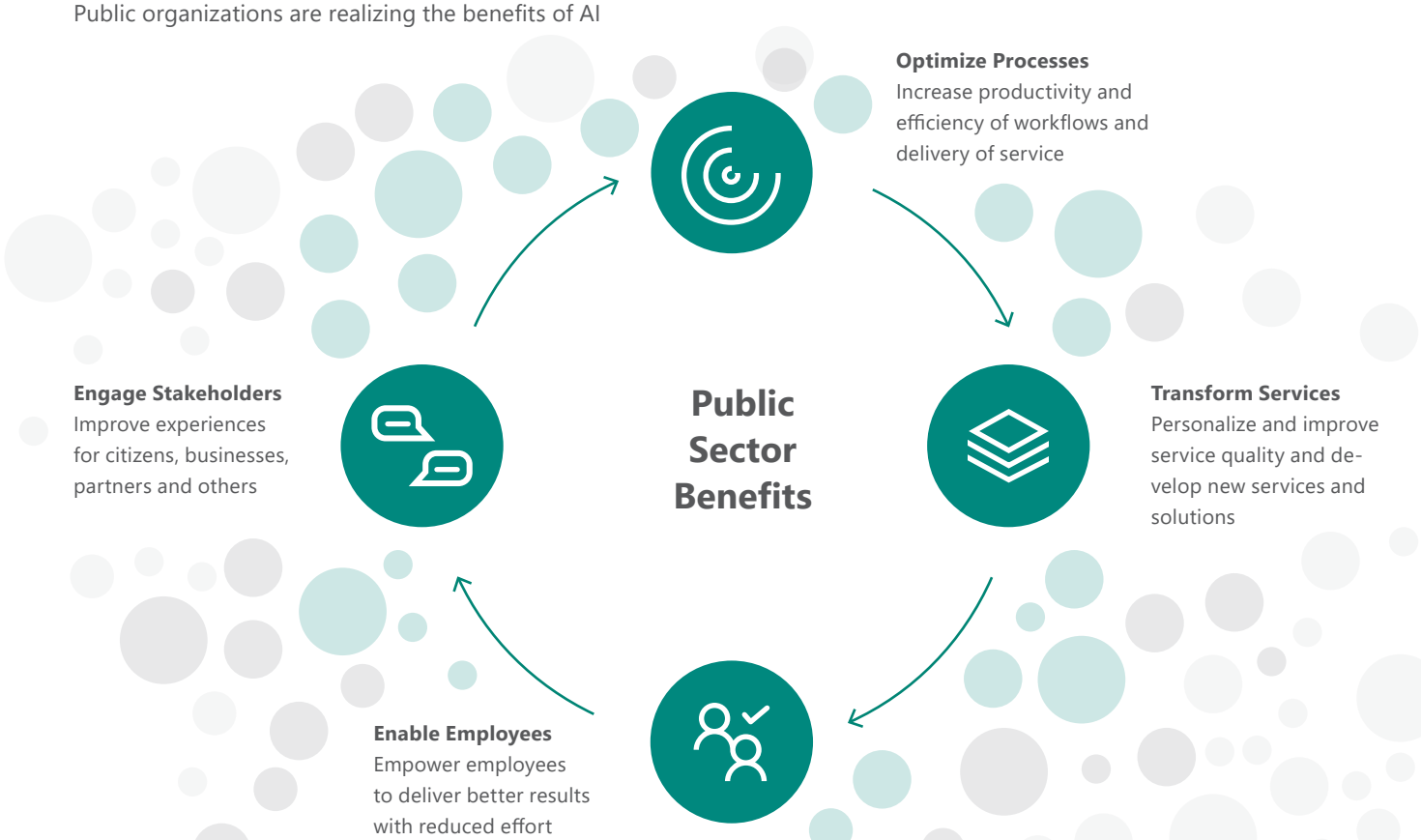
Respondents from the Health domain expect AI to have a large impact on their services by enabling increased quality, based on personalized treatment that uses individual patient information.

New services and solutions are expected to appear in Transportation as AI is applied to create autonomous transportation and enabling Mobility-as-a-Service.

Public Administration emphasizes the opportunity to offer personalized services through adaptive digital journeys across various offerings, enabling personalized experiences for citizens and businesses.

AI impacts the Public Sector in four benefit domains

Public organizations are realizing the benefits of AI



Real-time recommendations and 24/7 services for citizens and businesses will ensure that public services are always available for users, and can provide guidance in navigating Public Sector offerings.

Decision support for better results and empowered employees

Overall, Health has high expectations that AI will benefit them in each of the four areas identified. The application of AI solutions is expected to fundamentally transform Health, and change the roles of its employees, for instance by offering decision support and surgery assistance.

In Public Administration, virtual assistants are expected to reduce time employees spend replying to inquiries, thereby increasing productivity and employee efficiency. Analytics and Predictions can serve as decision support to ensure informed decisions by public servants.

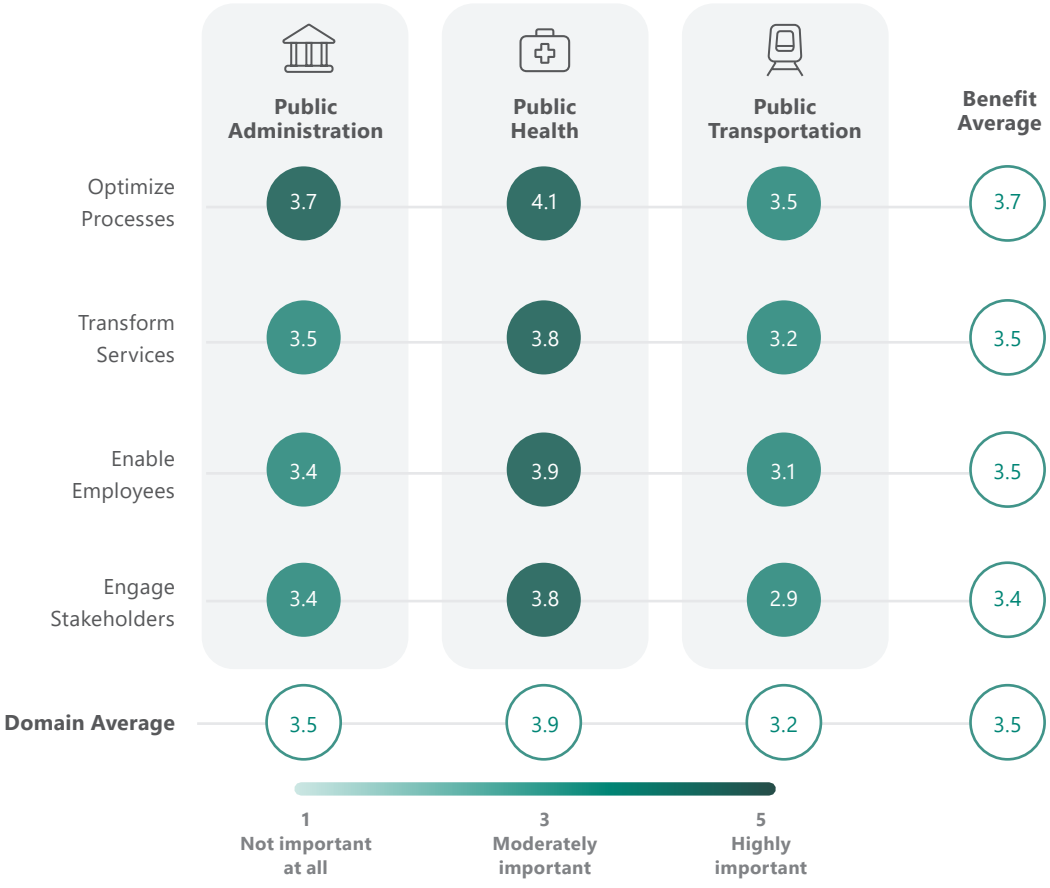
Engaging users of public services more effectively through enhanced user experience

AI has great potential to engage citizens, businesses, and other users of public services in new ways. Conversational and virtual agents are examples that can increase the user experience by understanding and answering written and verbal inquiries. Agents and bots can handle simple tasks, and ensure the right point of contact for more demanding tasks.

In Transportation, AI can enhance the user experience by offering services on demand, and predict the demand of users based on historical and real-time data, ensuring that the services are always available at the right time.

Optimizing Processes as the most important benefit

How important do you expect AI to be within each benefit in the next 24 months?



AI Targets

What are the most important AI objectives?

Increased efficiency and reduced risk are key objectives for the Public Sector

A majority of public organizations expect AI to be an important asset in achieving a wide range of objectives for improving public services in the near future.

The importance of AI enabling increased efficiency through optimized workflows is highlighted across public organizations, with Health organizations having the highest expectations of AI.

Reducing risk by identifying issues and concerns is also highlighted as an essential objective for the future, where Health organizations expect AI to identify and mitigate health concerns. In Public Administration, AI will reduce the risk of fraudulent benefit claims.

Transparent decision-making and quality assurance for public services

AI's ability to serve as a foundation for decision support, increase transparency of decisions, and enable more informed and correct conclusions, is considered a main objective. In Public Administration, this will ensure that key social decisions are based on a better informed foundation, while in Health it can ensure the correct treatment of patients.

The ability of organizations to make decisions that are consistent and assure quality of service is also viewed as key objectives in creating services that can be trusted and live up to a high expectation of standards.

Reducing environmental impact through new transportation solutions

Ensuring greater sustainability in service delivery is an objective that is especially relevant within Transportation. AI technologies are expected to optimize the delivery of Transportation solutions, creating an improved flow of public transportation that will reduce congestion and minimize environmental impact.

> **Internally we expect that AI can increase our efficiency, but we also expect that it can be highly important to solve broader societal issues such as the environment.**
>
> **— Vinnova**
> Innovation Agency
> Daniel Rencrantz
> *Head of the Innovation Management Division*

Public Administration | Norway

Direktoratet for Byggkvalitet
Government Agency

Automatically providing building site information

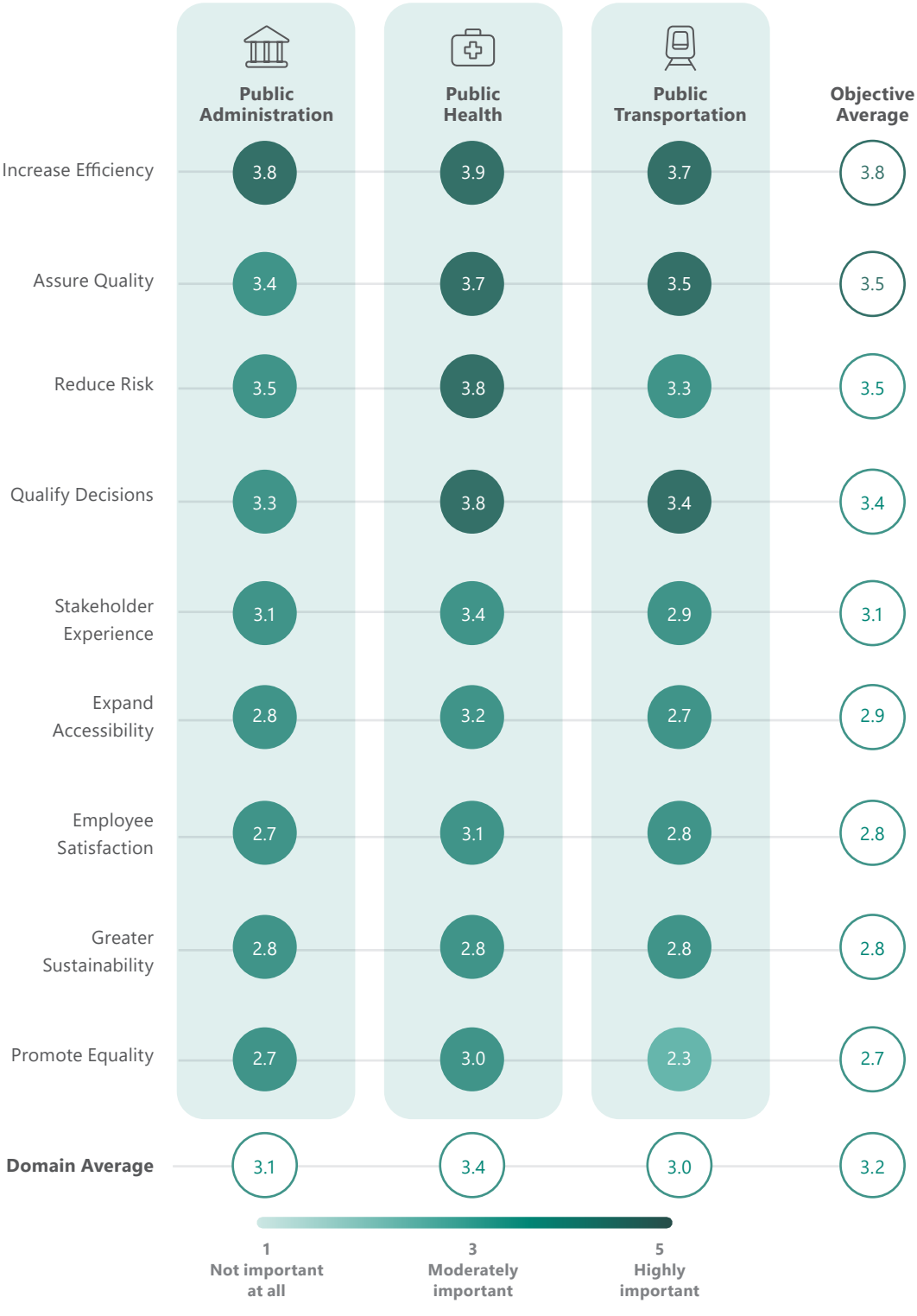
The Norwegian Building Authority wanted to create an intelligent algorithm that interprets regulatory plans, and structures the information for an automated construction case management solution.

Using available municipal data and planning regulations, the goal was to automatically provide answers regarding what can be built on a given site. With Machine Learning, planning information was made easily accessible by tagging essential content.

> **The project has shown the need for standardization of planning regulations in order to automate more construction cases.**
>
> **— Direktoratet for Byggkvalitet**

Increased efficiency and assuring quality as the key objectives

How important do you expect AI to be within each benefit in the next 24 months?



Put into Practice

For each domain, putting AI into practice is highlighted by the most adopted AI use cases that already have an impact on the Public Sector, and are expected to increase their impact in the near future.

Public organizations expect AI solutions to expand and impact new organizational areas.

Real-Life Cases

What are the top most adopted AI cases in the Public Sector?

Health leads in AI adoption, while Transportation has achieved the highest impact

A clear majority of Health respondents have implemented one or more of the identified AI solutions in their organizations. Some AI solutions have been widely adopted, and are actively contributing to improving and transforming Health organizations, while many other AI solutions are still in their initial stages and have yet to show impact.

Transportation organizations have adopted and deployed AI solutions across organizational areas such as asset management and mobility, where AI is becoming a key advantage for optimizing operations and enhancing delivery of service.

Public Administration organizations have adopted solutions that focus specifically on back-office processes to increase operational efficiency, while AI solutions within delivery of public service are expanding the user experience.

AI is expected to increase its impact on Public Sector organizations within the near future

Across each of the three domains, it's clear that within the next two years, Health organizations are planning to adopt new solutions that are expected to make positive contributions to organizational areas and the transformation of public services.

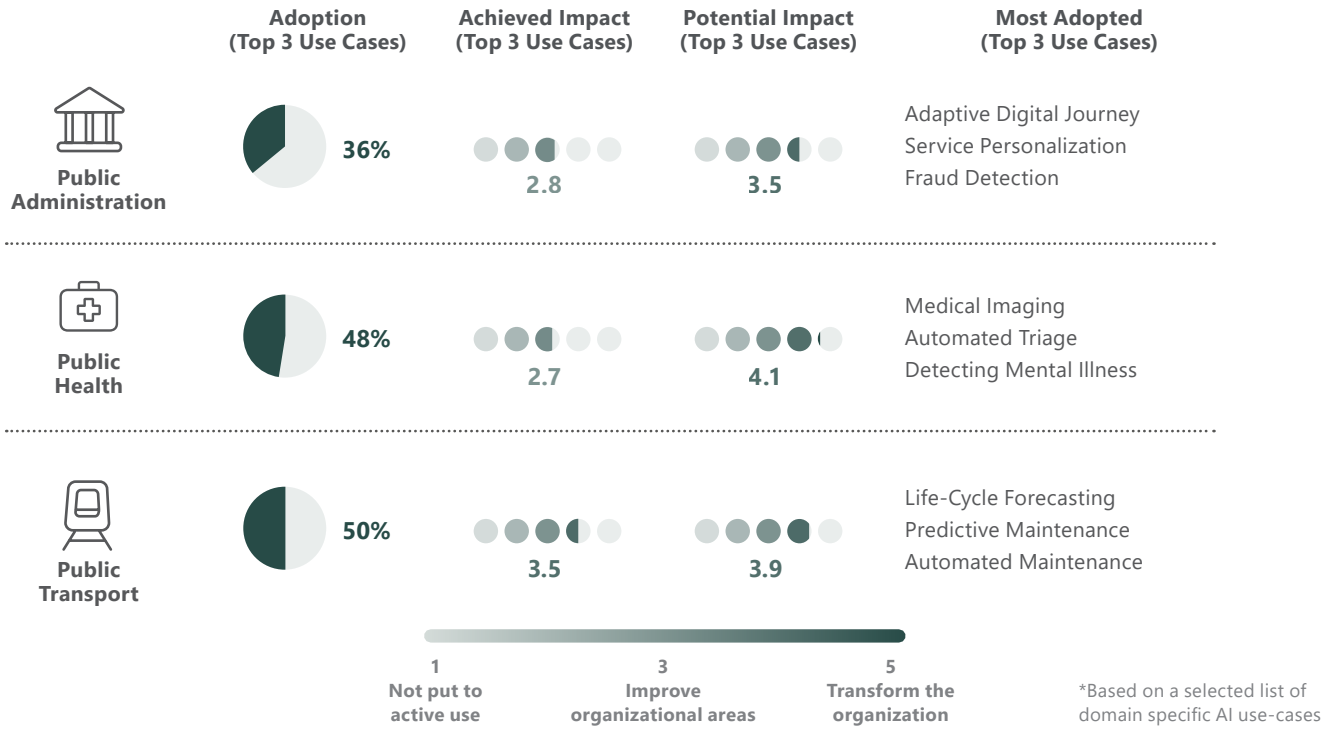
While AI is currently mostly adopted and having an impact in organizational areas such as back-office processes, diagnostics, and asset management, respondents highlight the expectation that AI will expand into new areas such as policy development, treatment, and infrastructure management.

When developing new solutions, we need to focus on our customers – who are our citizens.

— **Informática del Ayuntamiento de Madrid**
Municipality Office
Maria Jesus Villamediana
CEO

The three most adopted and impactful AI cases in each domain

What are the most adopted AI cases in the Public Sector?



*Based on a selected list of domain specific AI use-cases

Automate and Adapt

What are the most significant AI cases in Public Administration?

Improving user experiences with Adaptive Digital Journey

As Public Administration offers a broad range of public services designed for very diverse groups of people and organizations, it can be a challenge for users to navigate these services.

AI can enhance the user experience and ensure that users are directed towards relevant channels. Real-time segmentation of users across digital channels allows digital public services to become adaptive to and relevant for users. This not only improves the user experience, but also increases the chance that users find the content they are looking for, thereby reducing time spent on replying to inquiries.

Combining several data sources to identify indicators of fraud

Public Administration organizations have a broad range of tasks involving stakeholders such as citizens and businesses, which often involves transactions between the Public Sector and its users. Machine Learning based on large datasets, both historical and current, is used to identify fraud within social benefits, taxes, VAT and other areas where the Public Sector offers services.

Creating and offering services tailored to individual user needs

User demand of public services is constantly evolving and increasing, making it more and more relevant for Public Administration to deliver services tailored to individual needs. By combining specific data about the user with historical data from similar users, AI can offer personalized insights and recommendations that are relevant to the individual user.

Identifying vulnerable citizens with Preventive Protection

The ability to utilize holistic risk modeling and cross-government data input allows for the identification of vulnerable citizens. By working together across governmental organizations and sharing relevant information, Public Administration enhances its capability to identify vulnerable citizens, allowing for protective preventative measures.

Top 3 most adopted AI use cases in Public Administration

Which of the following use cases have you adopted?

	Adoption	Impact	Potential	Description
Adaptive Digital Journey	39%	3.0	3.4	Improve the user experience through real-time segmentation and routing of user journeys across digital channels
Fraud Detection	35%	2.7	3.6	Combine transaction history with multi-modal data to identify indications of fraud: tax, VAT & sales tax, government benefits, money laundering, etc.
Service Personalization	35%	2.8	3.5	Tailor services to individual needs based on user-specific data covering previous information, interactions, location, etc.

1 Not put to active use — 3 Improve organizational areas — 5 Transform the organization

Automated Case Management enables more efficient back-office processes

Automated Case Management assists public servants working with back-office processes across organizations. Intelligent Automation enables the replication of mundane tasks in back-office processes, easing employee workload.

By drafting documents and processing permits, applications, etc., Automated Case Management increases Public Administration efficiency, enabling employees to focus on more valuable tasks.

Virtual Agents enabling improved accessibility of services

Virtual Agents impact the back office by serving as a helping hand for employees in responding to basic citizen inquiries and requests.

For the delivery of public services, Virtual Agents can ensure citizens 24/7 service, while guaranteeing increased accessibility for all of society. Through speech recognition, all segments of society, including citizens with special needs, can access public services.

When we develop AI solutions, it is important to think beyond the initial phase, and think about how we will handle AI models in production.

— **Bundesrechenzentrum**
Federal Computing Center
Günter Stessl
Head of AI Department

Runners-up, not as widely adopted as the Top 3 cases

What is the impact of the adopted use cases?

	Adoption	Impact	Potential	Description
Preventive Protection	33%	2.7	3.1	Identify vulnerable citizens through holistic risk modeling and cross-government data input
Automated Case Management	30%	2.4	3.5	Replicate back office processing for applications, permits, tax auditing, etc.
Improve Accessibility	27%	2.4	3.3	Improve access to Government services for citizens with special needs, e.g., through text/speech recognition

1 Not put to active use
3 Improve organizational areas
5 Transform the organization

Policy Enhancement

What are the most exciting AI prospects for Public Administration?

Enabling relevant policies for the community and ensuring intended outcome

Public Administration is expecting AI to actively contribute in the future to the ability to develop policies that are relevant for the community. Through analysis of multiple data sources, Community Engagement is a way for Public Administration organizations to take into account various points of view in terms of citizens, businesses and other uses, thereby enabling policies that are appropriate and adapted to users of public services.

With Policy Performance Forecasting, Public Administration organizations are able to monitor the correlation between intended and actual outcome of implemented policies. This enables policymakers to enhance policy relevance and ensure that policies are creating the value for which they were intended.

Increased regulatory compliance through automated supervision

In the area of Public Administration policy, AI has yet to be adopted and therefore make an impact. However, respondents emphasize that AI is expected to make its impact in this area over the coming years.

Compliance Automation allows Public Administration to be more efficient, ensuring regulatory compliance through market surveillance and misconduct analysis. This can be used to automate internal compliance processes, and to a large degree oversee and ensure compliance across domains and organizations.

Yet to be widely adopted, but high potential impact (Top 3)

What impact do you expect in the next 24 months?

	Adoption	Potential	Description
Community Engagement	8%	3.2	Analyze complex stakeholder input from different data sources to inform policy decisions
Enhanced Policy Analysis	8%	2.9	Combine macro-economic variables, proprietary data, and external data to assess policy impact
Policy Performance Forecasting	7%	3.1	Monitor correlation between intended and actual outcomes of implemented policies

1 Not put to active use — 3 Improve organizational areas — 5 Transform the organization

... and the others

Automated Compliance (3.3)

Predictive Financial Management (3.3)

Resource Optimization (3.3)

*Potential of use cases in parenthesis

Efficient Procurement (3.1)

Regulation-as-a-platform (2.9)

Adaptive Employment (2.8)

Erhvervsstyrelsen

Assistance for businesses in Denmark during COVID-19

Applying a mixture of intelligent controls enabling the processing of more than 180.000 applications within a very limited timeframe. AI has enhanced organizational effectiveness and can empower the transformation of the organization to meet new demands.

Public Administration | Denmark

About Erhvervsstyrelsen

The mission of the Danish Business Authority (Erhvervsstyrelsen) is: In partnership with others we make it easy and attractive to run a responsible business and create development throughout Denmark.

The Danish Business Authority governs the Central Business Register (CVR) that contains primary data on all businesses in Denmark, as well as auditing reports on Danish businesses.

Intelligent controls for increased efficiency

Tasked with handling applications for economic assistance the agency applied a mixture of intelligent controls. Within a very limited timeframe, more than 180.000 applications where submitted to a combination of logical controls, network analysis and machine learning. This was made possible by the agency's focus on applying machine learning solutions to support its core control tasks.

The demand for increasing effectiveness has transformed the agency towards being a data-driven organization. The modern public authority is met with demands for better services to its customers and effective fraud prevention, at a lower cost naturally. However, the trustworthiness of the authority cannot be allowed to suffer because of these apparently contractionary terms.

Putting ethics into practice with increased transparency

In order to achieve a high degree of transparency the Danish Business Authority has chosen to create a close collaboration amongst its own data scientists and domain specialists. Therefore, assuring that business needs are driving the technological effort, and in turn that there is an understanding of the technological possibilities.

A mature technological foundation, data governance, GDPR and security are prerequisites for putting AI into production. Central components to this have been cloud computing, data event sourcing and knowledge graph. Ensuring these fundamentals lay the foundation for further AI advancement. The Danish Business Authority can only be effective and ethical when controlling the technology. When AI is put into production the agency needs to continuously evaluate and monitor to ensure that the effect of algorithms in the real world follow our intentions.

> **Ethics must not only be articulated, it must be put into practice.**
>
> — **Erhvervsstyrelsen**
> Katrine Winding
> *Director General*

How to get started

Having a strong technology and data foundation is fundamental to advance once AI efforts are moving from pilots to production. Ensuring a cross organizational understanding of possibilities and limitations of the technology is a basis for driving the development of AI that is driven by business needs.

Prevent and Empower

What are the most significant AI cases in Public Health?

A majority of Health organizations are improving diagnosis accuracy with Medical Imaging

AI solutions are primarily being deployed in diagnostics, where they serve as support for increased accuracy and quality of diagnoses, as well as in back-office processes where they are increasing operational efficiency and workflows.

The most widely adopted use case in Health is Medical Imaging, which is powered by historical and current radiology images to detect diseases and symptoms, for instance in early stage cancer detection. It is already actively contributing to the improvement of specific organizational areas, and in many organizations it's also impacting the organization itself in a transformative way. Expectations for the near future are that Medical Imaging will actively contribute to transforming the majority of organizations.

Automated Triage is beginning to enable more effective prioritization of patients

The process of sorting patients based on their need for medical treatment and ensuring the correct prioritization of patients is an area where Health organizations have begun to apply AI to create data-driven Automated Triage.

This enables more efficient patient workflow and minimizes pressure on Health staff, while ensuring that patients receive proper care and advice.

Back-office improvements through Accelerated Information Processing

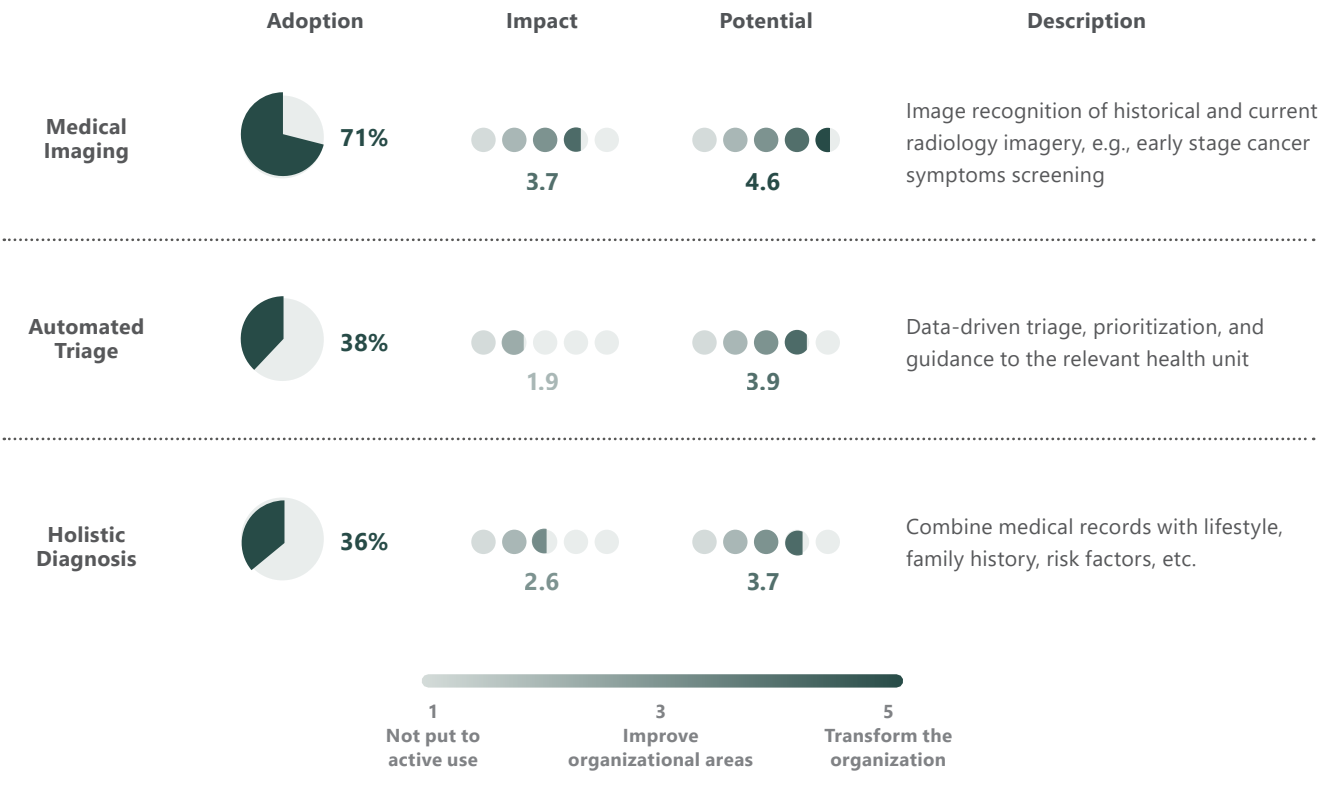
Diagnosis is not the only area where AI has already made its debut and impacted organizational processes, but also in the operational area, where it is used to improve and optimize processes. Accelerated Information Processing enables organizations to replicate administrative processes, ensuring faster, higher quality services.

Combining medical records with other factors for Holistic Diagnostics

AI technology such as Machine Learning and Deep Learning are already improving organizational areas with

Top 3 most adopted AI use cases in Health

Which of the following use cases have you adopted?



Holistic Diagnosis. By combining medical records with lifestyle, family history, and risk factors, Health organizations are able to get a broad view of patients and ensure that diagnoses take numerous factors into consideration.

Use of Facial Recognition to help providers detect mental illness

The overall mental health of society is increasingly an area of focus for Health organizations, and a substantial number of respondents are already using AI to assist them in detecting signs of mental illness. Examining a patient using Facial Recognition and Biometrics as well as changes in sentiment, language and behavior can help support the detection of mental illness.

Empowering patients' ability for self-care through Self-Diagnostics

An important part of the future development of Health is to expand the ability of patients to take increased responsibility for their own health. One way of achieving this is through Intelligent Self-Diagnostics, which provides patients with best-practice suggestions, as well as screening and treatment based on historical patient data and medical best practice.

"By providing reliable predictions, algorithms are sophisticated tools for planning clinical outcomes.

— ASST Vimercate
Hospital and Healthcare
Guido Grignaffini
Director

Runners-up, not as widely adopted as the Top 3 cases

What is the impact of the adopted use cases?

	Adoption	Impact	Potential	Description
Accelerated Information Processing	23%	2.2	3.8	Replicate administrative processes to ensure faster, better qualitative service
Detecting Mental Illness	23%	1.8	3.0	Using AI and/or Facial Recognition and Biometrics to help support the detection of mental illness
Intelligent Self Diagnostics	21%	2.0	3.5	Best-practice suggestions of self-service screening and treatment based on historical data and medical best-practice

1 Not put to active use
3 Improve organizational areas
5 Transform the organization

Disease Prediction

What are the most exciting AI prospects for Public Health?

Identify re-admission risk and predict future outbreaks of diseases and epidemics

The ability to predict and prevent is an area where Health organizations identify a large potential for the near future. Through Health Risk Identification, organizations can identify individual health and re-admission risks. By combining health data and medical records, Health organizations can use these insights to prevent potential health risks.

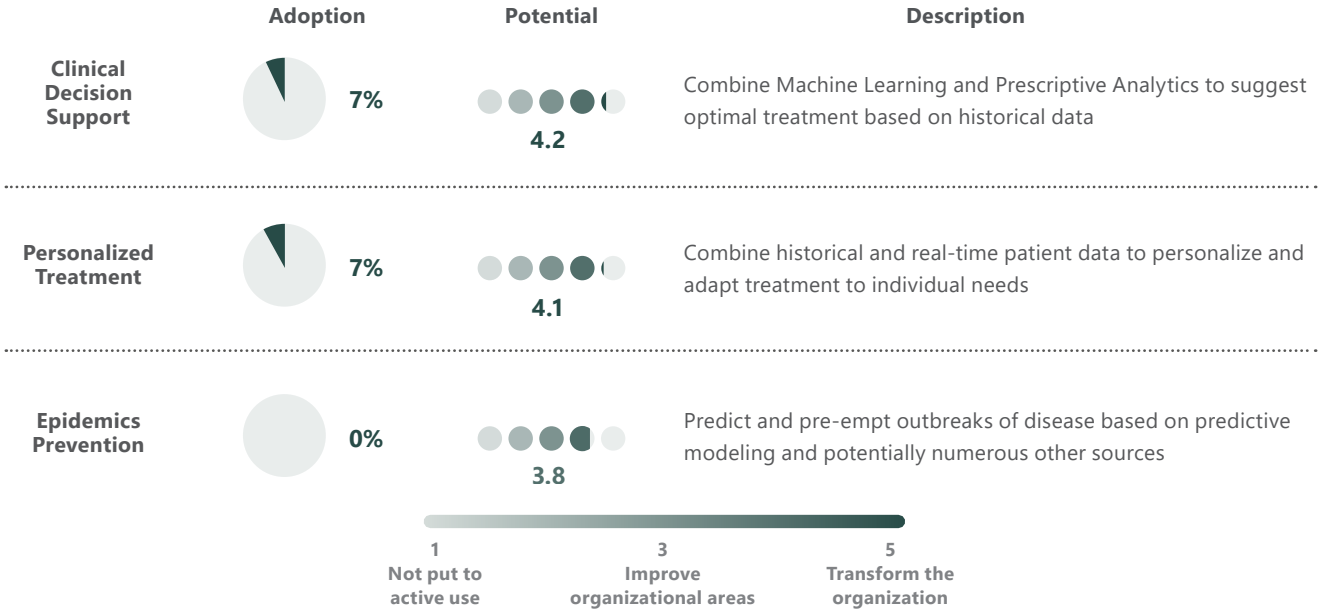
The influence of diseases, epidemics and pandemics on society is more relevant than ever before, and AI can be key to addressing these critical societal issues. Through predictive modeling and Deep Learning using numerous data sources, Health organizations can utilize AI to predict and preempt outbreaks. The speed of AI technologies is key to ensuring that Health organizations can quickly react based on indicators of outbreaks.

Rethinking treatment through personalized treatment

Whereas the current focus of AI is within diagnosis and operational improvement, there is a clear expectation that in the future, AI will augment the ability of Health organizations to treat patients. Through a combination of historical and real-time patient data, new solutions can enable Personalized Treatment to address the needs of individual patients. This will improve the quality of treatment as well as the patient experience.

Yet to be widely adopted, but high potential impact (Top 3)

What impact do you expect in the next 24 months?



... and the others

- Health Risk Identification (4.6)
- Personal Health Monitoring (4.0)
- Medication Safety Management (3.8)
- Clinical Variation Management (3.7)
- Improved Patient Flow (3.6)
- Optimized Medical Supply Chain (3.4)
- Surgery Assistance (3.4)
- Medication Adherence (3.3)
- Suicide Prevention (3.3)
- Increased Healthcare Accessibility (3.2)
- Adaptive Rehabilitation (3.1)
- Targeted Fitness & Diets (3.1)
- Virtual Companionship (3.1)
- Fraud Detection (3.0)

*Potential of use cases in parenthesis

INAIL

Optimizing citizen services using Virtual Agents

Chatbots enable a better understanding of external user intent and addressing inquiries, while internal Intelligent Automation enables more efficient back-office processes through the structuring of documents.

Public Administration | Italy

About INAIL

Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro (INAIL) is a non-economic public body that manages compulsory insurance against accidents at work and occupational diseases.

INAIL contributes through research in safety in the workplace, training and advice for organizations, and through many other initiatives.

Applying Virtual Agents to citizen services, and Intelligent Automation to the back office

The application of Virtual Agents such as chatbots on an external user portal has provided INAIL the ability to quickly understand user intent. The organization utilizes this knowledge to directly address simple inquiries, and route more complex inquires to the relevant organizational entity. This has led to a dramatic decrease in staff time spent on interactions for simple requests, enabling them to focus on more demanding tasks.

Using Intelligent Automation on unstructured documents relating to technical advice on risk and prevention has provided structure to more than 300,000 documents, increasing operational efficiency in back-office processes.

Increased time spent on high value-add tasks

The introduction of both Virtual Agents and Intelligent Automation began two years ago. They have already proven to be significant components in improving organizational efficiency, ensuring more time spent on high value-add tasks, and creating more structured processes. One of the expected benefits experienced is a large decrease in user interaction with the call center, as most requests are now handled by Virtual Agents.

In the back office, Intelligent Automation has increased the structure of documents, creating more efficient processes, and it has also facilitated better defined guidelines for documents. This has led to increased employee and user satisfaction.

AI is a very strategically important topic for us. Our goal is to make AI cross-sectional throughout the organization.

— **INAIL**
Paolo Guidelli
General Coordinator
Technological Innovation

How to get started

INAIL started their AI journey by bringing into the open knowledge that was otherwise hidden in the organization, and instituting structured and standardized processes that enabled the use of AI solutions. Based on active employee involvement and commitment, the role of AI is clear for employees across the organization, who view it as an important organizational asset.

Prescribe and Augment

What are the most profound AI cases in Public Transportation?

Optimizing maintenance interventions with Predictive and Automated Maintenance

The maintenance of assets is another area where AI is actively improving Transportation organizations. Through intelligent scheduling of maintenance based on Machine Learning, organizations can forecast when intervention is necessary. Predictive Maintenance based on usage history, performance monitoring, and deviation detection is expected to further improve Transportation organizations in the near future.

Automated Maintenance is another area where AI technologies are used to perform maintenance inspections and interventions, with minimal or no human input. This ensures that employees can spend their time on more demanding tasks.

Life-Cycle Forecasting of assets to forecast renewal and prescribe investments

Asset management is a key operational area for Transportation organizations in their adoption of AI technologies. Mobility through the offering of transportation solutions is another area where the implementation of AI is having organizational impact.

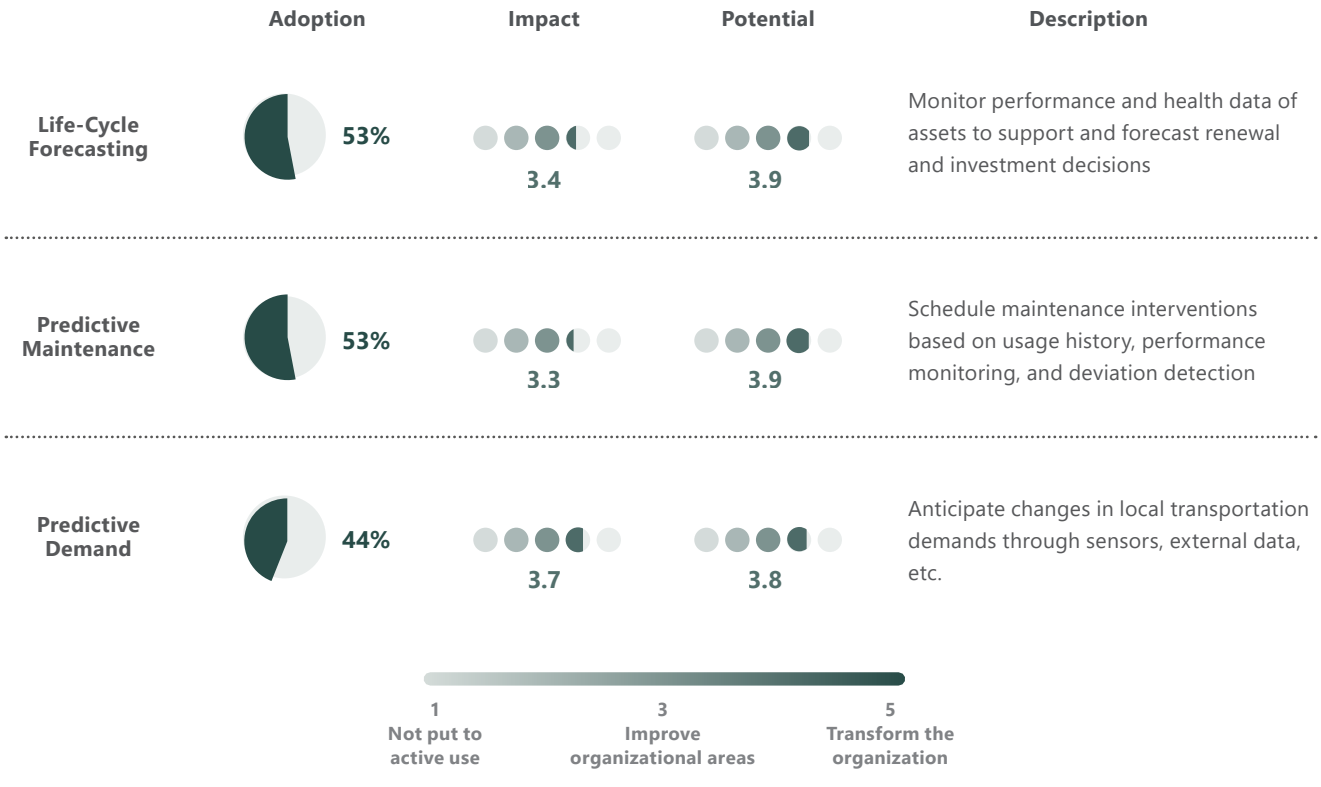
Through Life-Cycle Forecasting, Transportation organizations are able to monitor performance and health data of assets in order to forecast asset renewal and suggest investments. This is enabling organizations to become more cost-efficient and optimize operations.

Utilizing multiple data sources to Predict Demand of transportation

The offering of mobility solutions is a key activity for Transportation organizations. With Deep Learning technologies, organizations can anticipate changes in demand for transportation, using sensors and other external datasets to enable more effective, tailored transportation offerings.

Top 3 most adopted AI use cases in Transportation

Which of the following use cases have you adopted?



Improving safety of mobility and access with Autonomous Transportation

One application of AI that has received great attention is Autonomous Transportation. Through the use of AI technologies such as Computer Vision and Deep Learning, mobility solutions are becoming increasingly autonomous, thereby improving access to public transportation as well as enhancing safety. Autonomous Transportation is already impacting Transportation organizations, and is set to further increase its impact in the coming years.

Augment user experience with Mobility-as-a-Service

The importance of connecting mobility solutions with transportation networks is essential for the ability of citizens to get from A to B effectively. Through the analysis of traffic, weather and asset distribution, as well as the connection of various mobility solutions with each other, Mobility-as-a-Service enables on-demand public transportation, improving user experience and making available new ways of delivering transportation services.

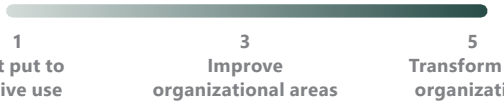
Clinical and management decisions are increasingly based on collected data, and not based on feelings.

— CHUSJ
University Hospital
José Pedro Almeida
Director of Big Data Analytics

Runners-up, not as widely adopted as the Top 3 cases

What is the impact of the adopted use cases?

	Adoption	Impact	Potential	Description
Autonomous Transport	44%	2.9	3.4	Improve access, safety, and mobility through autonomous transport solutions
Automated Maintenance	41%	2.8	3.5	Carry out maintenance inspection and/or intervention activities with minimal or no human input
Mobility-as-a-Service	38%	3.4	3.9	Utilize virtual agents to deploy resources for public services based on more real-time demand and availability



Optimizing Infrastructure

What are the most exciting AI prospects for Public Transportation?

Improving infrastructure investment with Predictive Planning

Transportation infrastructure is an area where a minority of Transportation organizations are beginning to implement and adopt AI solutions, yet where the majority have not yet adopted AI. Respondents highlight that they expect AI to have an impact and actively contribute to infrastructure based on several use cases.

Predictive Planning is a use case not yet widely adopted, yet expected to have an impact within the near future.

Through the use of predictive modeling, Transportation organizations can improve infrastructure investment models based on expected future use. This enables these organizations to invest in suitable infrastructure and optimize operations.

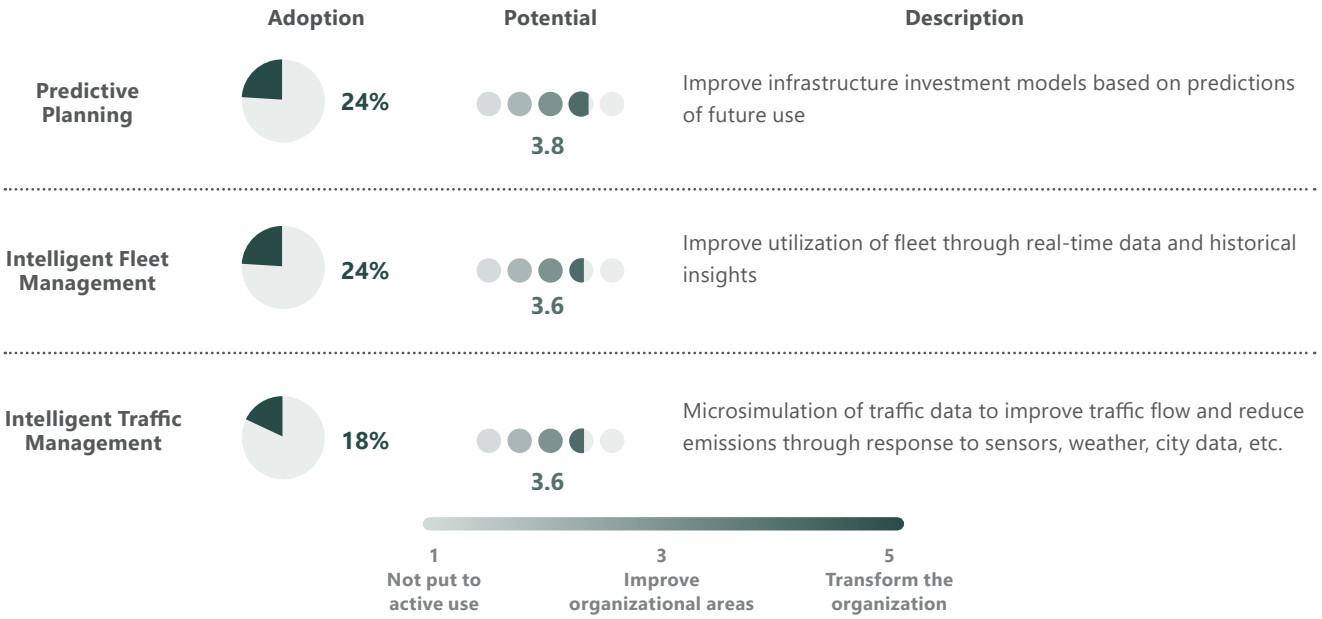
Intelligent management of mobility infrastructure for optimized processes

Through improved utilization of fleets using real-time data and historical insights, Intelligent Fleet Management enables Transportation organizations to manage infrastructure assets more efficiently, and optimize delivery of Transportation services. This internal optimization of processes enhances the delivery of Transportation solutions for citizens.

Simulation of traffic data combined with sensor, weather and city data to improve traffic flow is another area where AI is expected to have an impact on Transportation infrastructure. Through Intelligent Traffic Management, Transportation organizations are able to reduce carbon emissions.

Yet to be widely adopted, but high potential impact (Top 3)

What impact do you expect in the next 24 months?



... and the others

- **Autonomous Safety Management (3.8)**
- **Accident Detection (3.7)**
- **Financial Planning (3.7)**
- **Incident Simulation (3.6)**
- **Relieve Congestion (3.4)**
- **Smart Parking (3.1)**
- **Adaptive Pricing (3.0)**
- **Fare Evasion Detection (2.9)**

*Potential of use cases in parenthesis

Sporveien

Game-based algorithm finds optimal solutions

AI initiatives are taking hold at Sporveien, with new pilots under development and being tested. To aid in planning, learning-algorithms are optimizing train switching in the rail yards, while Machine Learning uses historical data to predict rail system errors before they occur.

Public Transportation | Norway

About Sporveien

Sporveien is a municipal corporation accounting for the majority of public transportation in Oslo. It owns, develops and manages subway and tram infrastructure, including rails, stations, tunnels, terminals, buildings, and signals.

The organization has overall responsibility for operating public transportation, including maintenance and upgrades of rolling stock, rails and other infrastructure.

Machine Learning for error prediction in rail systems

When Sporveien tested the use of Deep Learning to optimize train switching in the rail yards, it used a game-based algorithm where the computer played to find the optimal solutions. This pilot was very successful, and will be put into operation.

Sporveien also developed a Machine Learning pilot that uses historical data to predict rails system errors before they occur. However, they realized that they can't use several maintenance systems simultaneously, as this will lead to multiple maintenance procedures for the same equipment. What the organization learned is that in AI development, it's necessary to focus on the value of the purpose of the solution, and that there's no benefit in adding new systems and solutions without phasing out the old systems.

Optimizing planning through combining multiple sources of data

One of the many benefits of implementing and actively using AI solutions is the optimization of planning for scheduling work as well as the use of rolling stock. Beside commercial value-add, AI provides benefits such as internal and external job profiling, and attracting potential employees. Sporveien has also tested an AI visual pilot where smart cameras monitor screens. As there are many screens that need to be monitored simultaneously, the benefit of this pilot is increased monitoring capacity.

A large project coming up is adding many more sensors and smart systems to new trams compared to existing trams. Systems include condition-based maintenance, which will provide great opportunities if implemented and used correctly.

We want to take advantage of the opportunities that lie in the technology and data to improve the strength of our AI solutions.

— **Sporveien**
Marius Sommerseth
Head of Digitalization and Innovation

How to get started

Sporveien established a broad collaboration in relation to its AI initiatives, involving the cooperation of research institutions, academia, partners, and suppliers. They held frequent meetings to achieve smooth project collaboration. Having a common approach is important for all parties to benefit from the collaboration, and is key to successfully creating solutions together.

How to Succeed with AI

Data and technology are the two fundamental capabilities for AI in the Public Sector. The ability to attract and develop talent, ensure trustworthy solutions, and have an experimental culture are also highly important.

While public organizations have built up some competencies, there is still a gap between current and needed competencies to succeed.

Getting it Right

Which competencies are needed to get AI right?

Data and technology are the two most important capabilities in the Public Sector

Looking at the most important capabilities for future success with AI, data and technology stand out as the ones respondents rate as most important. These two capabilities are also the ones in which public organizations rate themselves as being most competent.

Data governance and the ability to utilize structured and unstructured data as key competencies

Capabilities where respondents view themselves as most competent are the development of strong Data Governance with clearly defined responsibilities and roles for data management decisions, as well as the ability to utilize multiple structured and unstructured data sources.

Ensuring security with respect to privacy and integrity without impeding innovation is also an area where organizations view themselves as being above moderately competent.

Challenges to attract and develop the right AI talent and skills

The Public Sector has challenges in attracting the right talent and skills. AI talent is in very high demand, which is why salary requests for this talent are very high. Public organizations have a challenge in matching Private Sector salaries, yet by developing new exciting career paths, they are able to attract AI talent.

Respondents emphasize that once a public organization has succeeded in its AI efforts and has created a proper foundation to develop internal capabilities, external talent will view the organization as an exciting prospect for their future career development.

Ensuring fairness and transparency when developing AI solutions

Creating ethical AI solutions is particularly important in the Public Sector, considering the societal decisions involved. The ability to identify and mitigate bias while ensuring transparent decisions and training methods are essential for the development of trusted AI and coherent systems.

Respondents highlight European and national guidelines for developing ethical AI solutions, and some have even implemented their own framework for ethical AI.

> **Fostering innovation should be embedded in the entire organization so it becomes part of everything we do.**
>
> **— Terveyden ja hyvinvoinnin laitos**
> Health Agency

1 Data

Defining data governance, using multiple data sources, and the ability to improve data quality provides the foundation for AI.

2 Talent

Attracting and developing AI skills, enabling a growth mindset, and building a strong, dynamic ecosystem to boost talent.

3 Ethics

Identifying and mitigating bias, introducing transparent solutions, and actively engaging and involving civil society to ensure ethical development.

4 Culture

Leadership for strategic focus, openness and experimentation, while co-creating with stakeholders the appropriate organizational culture.

5 Technology

Creating a framework for technology architecture, ensuring security without impeding innovation, and access to scalable infrastructure.

AI Capability Model

Data and Technology are considered the most important AI capabilities

How important is each of the capabilities for your future success with AI?
How competent is your organization within these capabilities?

Data

Defined data governance, utilizing multiple data sources, and enhancing data quality.

Importance 4.5 3.4 Competency

Technology

Ensuring security without impeding innovation and access to scalable infrastructure

4.2 3.1

Talent

Attracting and developing skills, enabling a growth mindset and a dynamic ecosystem

3.9 2.7

Culture

Strategic focus, openness and experimentation, while co-creating with stakeholders.

3.7 2.9

Ethics

Mitigating bias, ensuring transparency, and actively engaging and involving civil society.

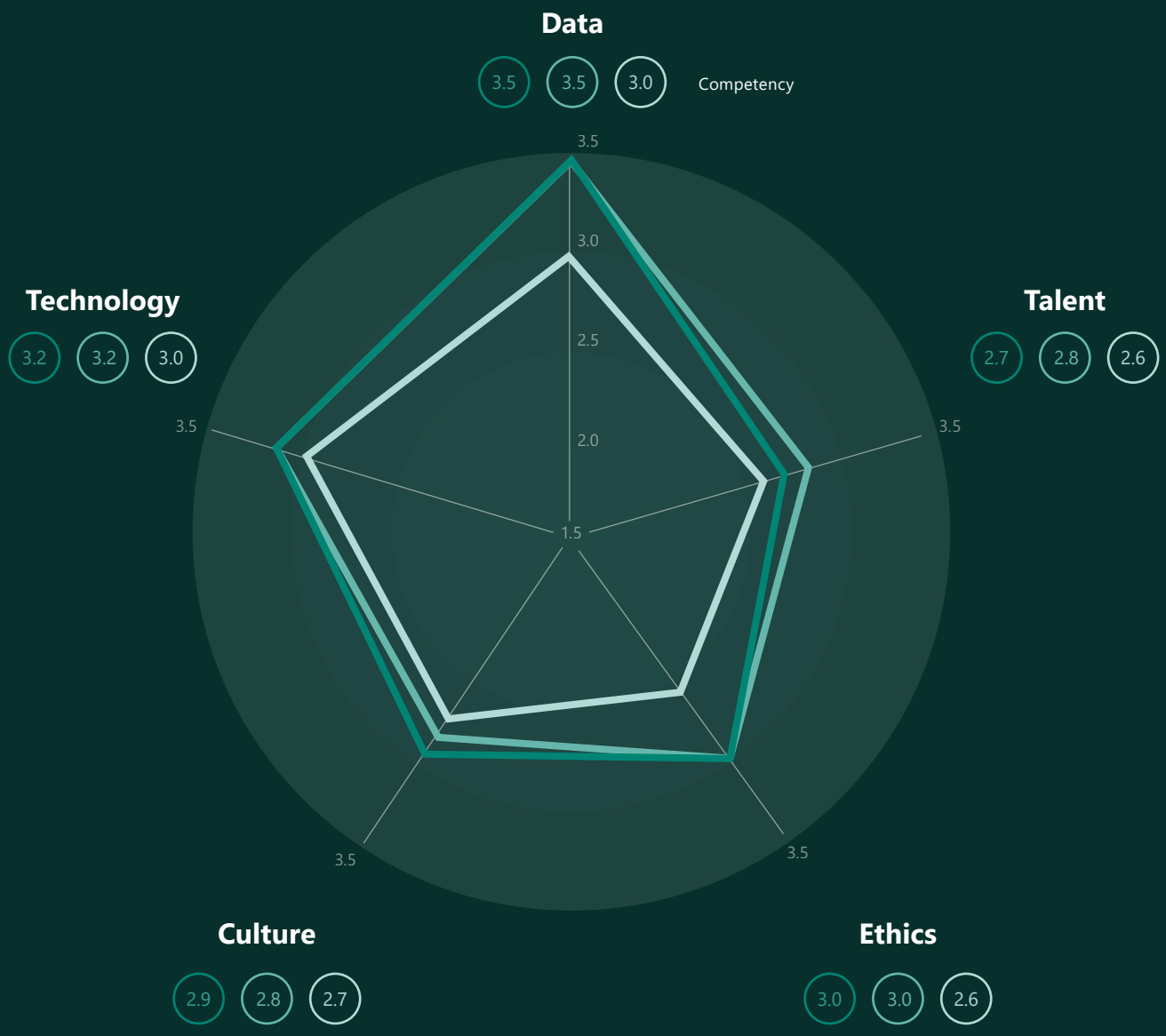
3.7 2.9

Note: 'Don't know' answers not included in average score.
Average competency and importance for 12 European countries (1: lowest – 5: highest).
Capabilities ranked according to highest importance in 12 European countries.

12 European countries

Public Administration and Health lead in AI competencies

How competent is your organization within these capabilities?



Note: 'Don't know' answers not included in average score.
Average competency by domain (1: lowest – 5: highest).

Public Administration Public Health Public Transportation

Sourcing Information

Which data competencies are needed to succeed with AI?

Data governance, access, and quality are key to the future success of AI in public organizations

Data is highlighted as the most important aspect of AI success in the future. This includes the ability to structure work with data based on clear governance and with well-defined responsibilities for data management in place.

Public organizations possess large amounts of data, and they emphasize the challenge of utilizing all this data properly and effectively. Several initiatives are being launched that structure existing data and ensure a higher quality of future data.

Health has clear data governance, while Public Administration utilizes multiple data sources

A key element in enabling the ability of organizations to work with data in a structured way is setting up strong data governance. Respondents within Health have for the most part succeeded in setting up such a structure, with clear defined roles and responsibilities for data management decisions.

Public Administration is succeeding in the area of data access competencies. Such competencies include the ability to utilize multiple internal and external data sources, as well as the ability to work with both structured and unstructured data. As highlighted by respondents, the ability to actively utilize large amounts of Public Sector data and combine it with other sources of data is essential in generating relevant insights.

Transportation is still trying to crack the code of enhancing data quality

Data quality is the area with the lowest current competencies in the Public Sector. The quality of data can differ significantly between public organizations, and respondents point out that even though the Public Sector has large amounts of data, the quality of this data is not always adequate.

Transportation organizations are still searching for ways of becoming reasonably competent in their ability to prepare and convert data in order to ensure reliability, accuracy, validity and consistency. This is extremely important when developing and implementing AI solutions, as it affects whether or not these solutions can be trusted.

> **The biggest challenge with AI is to obtain control and good data governance of the large amounts of data necessary, as this is of vast importance.**
>
> **— Sporveien**
> Transportation Operator
> Marius Sommerseth
> *Head of Digitalization and Innovation*

Public Administration | Belgium

Vlaamse Overheid
Regional Government

Experimenting with Deep Learning & Computer Vision

The Flemish Government has set up several initiatives and pilot projects within the field of Computer Vision, using Image Recognition and Image Processing to increase the speed and quantity of insights that public organizations can produce based on geospatial data that already exists within the organization.

A close collaboration between several services within the Flemish government which have geospatial imagery provides a foundation for additional AI initiatives.

> **It is important to collaborate across government entities and with other partners, as it is not possible to have the proper resources within each public organization.**
>
> **— Vlaamse Overheid**

Organizations generally consider themselves moderately to highly competent with Data

How competent is your organization within data?

The importance of identifying and handling potential bias in data cannot be overstated.

— **Arbeitsmarktservice**
Employment Service

What to learn from Public Sector AI leaders:

1. Develop a robust approach to data management, and define clear roles and responsibilities for employees.
2. Increase access to multiple data sources through data-sharing initiatives, while embracing structured and unstructured data.
3. Establish a clear setup to ensure reliable, accurate and valid data, and provide proper training for AI solutions.

Fostering Internal Talent

Which skills are needed to succeed with AI?

Finding the right talent and skills to succeed with AI is not easy

The ability to attract, develop and retain AI talent such as data scientists, engineers and domain experts is recognized as an area where public organizations currently have the lowest competencies. The ability to hire the right competencies can be a challenge, as public organizations are often restricted by budgetary constraints, and wage demands for relevant AI profiles can be quite high.

Respondents highlight the need to create new roles and career paths that can attract new talent through new opportunities that have greater responsibility.

Enhancing internal talent and creating hybrid roles

Organizations emphasize that the ability to train talent internally and reskill current employees is a fundamental way to develop necessary AI capabilities. This ensures deep domain knowledge as well as technical abilities, creating hybrid roles for employees.

Putting in place learning programs and providing employees the ability to change career paths is vital in developing and retaining internal AI skills. Respondents emphasize that when they have a setup that fosters internal AI talent and have established a Growth Mindset, it becomes easier to hire external talent as well.

Developing an ecosystem through open, inclusive partnerships

The ability to build open, inclusive partnerships with other government entities, academia, the Private Sector, and start-ups is an area that has begun to make strides. Public organizations are increasingly establishing formalized partnerships that ensure a collaborative, experimental mindset.
These partnerships enable a Dynamic Ecosystem where the Public Sector can learn from other participants and vice versa. The ability of a public organization to take solutions developed together with other organizations and scale them for their own use is highlighted as an area that needs further improvement.

“ We are increasingly able to hire the right talent and see that people are motivated to contribute to societal development.

— Provincie Zuid-Holland
Local Government
Jan van Ginkel
Concern Director

Public Health | Portugal

CHUSJ
University Hospital

Big Data supporting medical decisions

The project takes advantage of big data to improve the diagnoses and treatment of patients through massive analysis of unstructured information that is otherwise difficult to process.

An AI-based data mining platform automatically reads recorded patient information, and uses keywords to tag patient pathologies, allergies, surgeries and medication to create an easily accessible portrait of the patient for the doctor.

“ We store several terabytes of information, but the greatest asset is the way we correlate it and how we manage to transform it into knowledge that helps in diagnoses.

— CHUSJ
José Pedro Almeida
Director of Big Data Analytics

Organizations highlight the need to develop AI talent

How competent is your organization within talent?

The importance of developing and training employees for the future cannot be underestimated.

— Departement Economie, Wetenschap en Innovatie
Local Government
Simon Verschaeren
Policy Advisor

What to learn from Public Sector AI leaders:

1. Train current employees and build internal skills to combine deep domain knowledge with an improved understanding of AI and new technologies.
2. Create new roles dedicated to working with emerging technologies such as AI, providing an interesting career path for future employees.
3. Enhance your ecosystem through open, inclusive partnerships with other public organizations, the Private Sector, and academia.

Trustworthy Solutions

Which ethics competencies are needed to succeed with AI?

Enabling trustworthy services in Health and Public Administration

Ethics in AI, which is rooted in the ability to identify and mitigate bias, make transparent decisions and engage civil society in designing AI solutions, is important specifically in Health and Public Administration. Both domains use AI to make important decisions that influence the health and everyday life of all of society, and therefore there's an increased focus on Ethics in these domains compared to Transportation.

The ability to develop trustworthy solutions and handle data with respect to privacy is emphasized not only as an important area, but also an area that can be difficult to balance. Current regulation is highlighted as an important guideline in ensuring the integrity of privacy.

Transparent decisions and mitigation of bias for ethical AI

AI is used to make vital decisions for citizens, businesses and other segments of society, and therefore the ability to identify and mitigate internal and external sources of bias is an essential part of developing new AI solutions. To ensure reliable models and ethical systems, public organizations have implemented ethical AI frameworks and created structures that ensure data is used in a responsible way.

The role between machine and human is also underscored as key to ensuring that the decisions made can be trusted. By having humans in the loop and ensuring that employees make the final decision, public organizations assure the quality of suggestions generated by AI.

Engaging and involving civil society as an area of further improvement

A capability in which public organizations in all three domains are lagging is in ensuring an inclusive environment that involves civil society in the design of AI in order to ensure accessible, user-friendly solutions.

Involving civil society in the development of AI can increase trust in AI solutions, and increase society's understanding of AI. It can also ensure services and solutions that are designed with users in mind, leading to increased accessibility and inclusiveness in AI solutions.

> **There needs to be a systematic approach to AI. Citizens and the nation as a whole have to see the value of AI to exploit its full potential.**
>
> **— TNO**
> Research Organization
> Frans van Ette
> *Head of AI*

Public Administration | Netherlands

Rijkswaterstaat
Agency for Infrastructure and Water Management

Inspecting bridges and viaducts using drones and AI

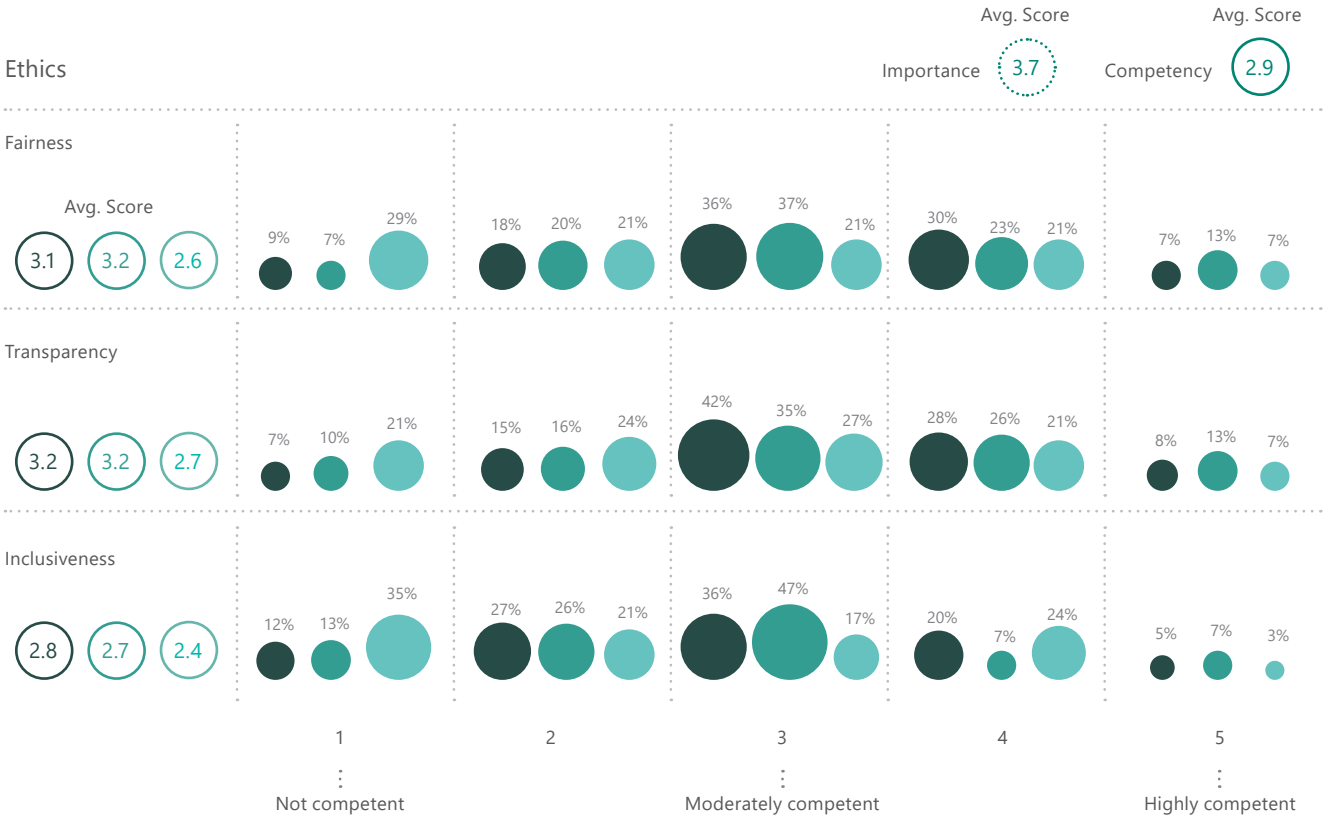
Inspections of bridges and viaducts are performed using drones and Deep Learning to detect damage. Inspections by drone are more safe than manual inspections.

Based on insights, Rijkswaterstaat can assess if particular damage should be addressed immediately or as part of the regular maintenance plan. Using Deep Learning, the large amount of visual data produced can also be analyzed for continuous improvement of performance.

> **The ultimate goal is to use drones for the inspection all suitable bridges and viaducts by 2021, and apply Deep Learning to detect damage.**
>
> **— Rijkswaterstaat**

Organizations generally consider themselves moderately competent with Ethics

How competent is your organization within ethics?



We need to have and will see deeper ethical discussions when AI technologies are further developed in the Public Sector.

— Vlaamse Overheid
Regional Government
Hans Arents
Senior Advisor Digital Government

What to learn from Public Sector AI leaders:

1. Create organizational frameworks, guidelines and principles for the ethical application of AI.
2. Follow and be engaged in the development of European and national AI strategies to ensure trustworthy development of AI.
3. Human-in-the-loop to ensure that the final decision is made by humans, with a clear structure for checking AI output.

Open and Experimental

Which organizational culture is needed to succeed with AI?

Leadership commitment for strategic focus and increased investment

Respondents highlight the importance of having an organizational culture that nurtures an experimental mindset, and where leadership sets a clear strategic direction. For AI to successfully thrive in a public organization, it needs to be prioritized by leadership.

Leadership commitment is identified as an area where public organizations view themselves as most competent within Organizational Culture. AI is increasingly becoming an integrated part of public organizations, which is often expressed through detailed AI strategies or incorporated into the organization's overall strategic plan.

Further focus on cross-functional teams and an experimental mindset

Working in cross-functional teams is an area where public organizations have increased their focus. For public organizations across domains, breaking down barriers between organizational functions and the ability to foster an experimental mindset can be a challenge, and initiatives to enhance an experimental mindset are materializing. Innovative culture is nurtured through dedicated innovation hubs and testbeds.

Enhancing the ability to work across functions and involving various parts of the organization when creating new solutions are emerging areas of additional focus. Respondents highlight the importance of setting up interdisciplinary cross-functional teams that utilize knowledge of domains and technology.

Co-creating value with and for all stakeholders

To ensure internal commitment to and use of newly developed AI solutions, it's important that employees are actively involved in the process. By inviting internal stakeholders when developing new AI solutions, employee involvement in and understanding of AI increases. External stakeholders, such as citizens and businesses, are also invited to take an active role in the creation of new AI solutions for public services.

> **An open data exercise has been deployed so Madrid start-ups can use EMT data to generate use cases, and experiment with new solutions.**
>
> **— Empresa Municipal de Transportes Madrid**
> Local Transport
> Alberto Alonso Poza
> *CFO*

Public Health | Finland

Finnish Health Organizations

Using AI-based image processing to analyze MRI brain imaging

One example of the areas where healthcare can expect AI related benefits is the use of AI-based image processing to analyze MRI images in identifying and classifying neurodegenerative disease – a challenging task for even the best human experts.

In the future, the use of AI can improve the accuracy and speed of many imaging-based diagnoses and increase knowledge of how symptoms manifest in a patent, thereby saving time and improving health outcomes.

> **Comparing AI to aviation, in many application areas the technology is still similar to the Wright brothers testing their first airplane, yet we would like the convenience and reliability of purchasing tickets for a commercial jet flight.**
>
> **— Apotti**

Organizations generally consider themselves moderately competent with Culture

How competent is your organization within culture?

We need to ensure a morally responsible digital transformation.

— **Provincie Zuid-Holland**
Local Government
Jan van Ginkel
Concern Director

What to learn from Public Sector AI leaders:

1. Create internal AI councils and innovation hubs to foster the development of an experimental culture.
2. Actively engage stakeholders such as employees and citizens when developing AI solutions, thereby increasing understanding of AI.
3. Identify relevant organizational areas for improvement, and develop AI in limited settings before scaling AI solutions.

Technology Development

Which technology competencies are needed to succeed with AI?

Technology foundations with a clear framework for processes and data

The importance of having a solid technological foundation in order to succeed with AI is highlighted. Setting up cross-functional frameworks for value streams, processes, technologies and data is key to building an effective technology architecture.

Balancing AI innovation with security and privacy in Health and Public Administration

Public organizations possess large amounts of sensitive personal information. Therefore, security is an area of great importance for public organizations, especially within Health and Public Administration. The ability to ensure integrity and confidentiality is an area where public organizations view themselves as moderately competent, and therefore they are continuing to develop capabilities within this area.

However, it's noted that it can be a challenge to balance innovation and the development of new AI solutions with concerns about privacy, security and operational stability. European and national regulations are essential to ensure compliance in the areas of privacy and security, and public organizations that follow these regulations are enabling the development of new AI solutions without compromising privacy or security.

Using cloud technologies to ensure flexibility and scalability

Setting up the proper infrastructure ensures flexible access to scalable, cost-efficient, high-performance computing, storage and network resources. Cloud computing enables these, and leading organizations emphasize that they have moved or are moving to cloud solutions, allowing increased scalability.

Respondents highlight that cloud solutions must be respectful of privacy and security, and public organizations might need to revise their data governance in order to fully utilize the potential of cloud solutions. Ease of use and flexibility are key advantages when using cloud solutions.

> **We are training specific people in the team in emerging technologies. The idea is to extend this training to other employees in the organization.**
>
> — **ENISA**
> Information Security Agency
> Jose Antonio Bayon
> *CEO*

Public Administration | Ireland

Department of Public Expenditure and Reform
Federal Government

Public Service innovation through AI

The Irish Revenue Commissioners investigated the potential of AI to provide taxpayers more efficient, effective public service. A pilot project using a Virtual Digital Agent based on Natural Language Processing was introduced, and it quickly showed its value, leading to full implementation.

Up to 50% of calls were handled from start to finish by voicebot. Only 10% of calls had to be transferred to a human due to a failure in understanding what was being said.

> **Exploring the potential for AI and other emerging technologies in the Irish Public Sector is a core focus of the Innovation team.**
>
> — **Department of Public Expenditure and Reform**
> Philip McGrath
> *Public Service Innovation Lead*

Organizations generally consider themselves moderately to highly competent with Technology

How competent is your organization within technology?

The biggest risk when working with AI is the potential for security breaches. It is of critical importance to keep data safe.

— **FMV**
Defence Agency
Rebecca Ihrfors
CIO

What to learn from Public Sector AI leaders:

1. Establish clear guidelines and processes to ensure security and respect the privacy of citizens without impeding innovation.
2. Identify relevant emerging technologies and AI solutions, and match them with anticipated organizational challenges.
3. Utilize cloud solutions to gain access to flexible, scalable technology.

Getting Started

How to get started and take AI to the next level?

1. Focus attention and investments on the government mission and specific problems

AI can help governments deliver better, faster, more effective public services; address complex issues; and give public employees a stronger sense of purpose. Public organizations need to define how AI can accelerate their core mission, such as delivering citizen-centric municipal services, promoting and protecting citizen health and social well-being, building greener cities, stimulating economic growth, improving infrastructure, or providing mobility services. Problems that need to be solved can be low complexity like handling more inquires with fewer resources, or high complexity like developing fast, inexpensive personalized medical treatment. By developing clear problem statements, public organizations can identify approaches and technologies that deliver improved results and ensure ongoing support for AI.

2. Implement common frameworks and guidelines to ensure trust and enable action

Citizens need to trust governments to make fair, balanced decisions based on facts. Public organizations must apply ethical frameworks and guidelines to AI solutions in order for citizens and society to trust these solutions. Stakeholder confidence can be boosted by embedding privacy in AI solutions, mitigating bias, and responding to changes in technical and regulatory policies throughout the AI solution lifecycle. Public organizations must identify and assess potential risk factors across their AI portfolio, and create a dynamic approach to risk management.

3. Ensure senior leadership focus and engage practitioners as agents of change

Government executives must take ownership of the AI agenda and define a strategic vision to ensure AI is aligned with and enables the organization's overall strategy. By creating a culture that embraces agile ways of making decisions and implementing changes, as well as promoting an experimental culture that focuses on innovation rather than the fear of failing, senior leadership can foster innovation and transformation within public services. Governments must identify and incentivize AI advocates within their ranks across leadership levels and functions, ideally in a combination of bottom-up and top-down approaches that ensure strategic focus and local ownership.

4. Create regulatory sandboxes to attract talent and foster ecosystem innovation

In order to accelerate AI adoption, governments must participate in or actively facilitate dynamic ecosystems that foster collaboration between government entities, the Private Sector, and academia. Utilizing the full potential of these partnerships requires identifying complimentary capabilities, and recognizing strengths and weakness. Testbeds and regulatory sandboxes are key initiatives that enable collaboration and experimentation, and provide essential insights for policy discussions and future AI regulation.

5. Integrating AI into the existing IT-landscape using the right data strategy

The Public Sector controls vast amounts of data that can provide the basis of AI systems. When developing AI pilots and Proofs-of-Concept, focus should be on integration into the existing IT-landscape, ensuring scalability and increasing the organizational impact. Data Strategy and Management that ensures clear data ownership and definitions of quality and labels is key to having quality structured and unstructured data. It's essential to ensure data access and derive value through key data insights. Visualization tools and Advanced Analytics are fundamental to delivering digital services and predicting future AI development.

6. Strike the right human-to-machine balance

When designing and implementing AI solutions, public organizations must consider the respective roles of humans and machines. Designing AI with people in mind provides the ability to augment employee capabilities and deliver citizen-centric services. In most scenarios, machines serve as decision-support and enable more effective processes, while the emotional understanding of citizen needs is left to employees who can make nuanced final decisions. Placing humans at the center of technological development and Public Sector innovation ensures public services for all segments of society, enabling increased accessibility and social inclusion.

Explore guidelines, resources and tools to help put responsible AI into practice
https://www.microsoft.com/en-us/ai/responsible-ai-resources

Empowering healthcare around the world with AI for Health
https://www.linkedin.com/pulse/introducing-ai-health-new-philanthropic-program-gregory-moore-md-phd/

Taking a closer look at the Top 10 policy issues of the 2020's
https://www.linkedin.com/pulse/dawn-decade-top-ten-tech-policy-issues-2020s-brad-smith/

Unlocking the full potential of data with an Open Data Differential Privacy Platform
https://www.linkedin.com/pulse/microsoft-harvards-institute-quantitative-social-science-john-kahan/

Balancing privacy with the transformative power of AI
https://www.linkedin.com/pulse/dialogue-open-data-innovation-policy-europe-erich-andersen/

Who to Contact

from Microsoft

The team in Western Europe that can empower your organization to achieve more with AI

Ellen van Essen
General Manager, Public Sector
Microsoft Western Europe

In her role as General Manager for Public Sector at Microsoft Western Europe, Ellen's goal is to help organizations in Government, Healthcare and Education improve citizens' lives across the region. She is responsible for leading the sales, marketing and strategy teams that work with these organizations to help them use technology to improve efficiencies and directly improve frontline services.

Previously, part of the Senior Leadership Team of Vodafone Group, Ellen was leading Vodafone Shared Services, providing Finance, HR, Supply Chain, IT & Technology services to all Vodafone Operating Companies. Ellen has held other senior roles including part of the Executive Committee of Accenture, the Netherlands, responsible for the Operations, Infrastructure, Cloud & Security practice.

Pekka Horo
General Manager, Marketing & Operations
Microsoft Western Europe

Pekka is leading the marketing, business operations and planning teams for Microsoft's Western Europe area. Prior to his current role, he was the country General Manager for Microsoft's subsidiary in Finland starting in that role in 2015. Pekka joined Microsoft through the Nokia devices & services business acquisition in 2014. Pekka began his career as a consultant at McKinsey & Company, and then over a 10 year career at Nokia, he held various global and regional leadership roles in business management, product and portfolio management and strategy & business development.

Pekka is inspired by Microsoft's mission to empower every person and every organization on the planet to achieve more. He sees significant growth and value creation opportunities that can be achieved through digital transformation.

Aydin Gencler
Regional Marketing Director AI and IoT
Microsoft Western Europe

Aydin has more than 25 years of experience in software development, consulting, business development and marketing. Aydin started his career as a software developer and shortly after joined the consulting team at Oracle EMEA implementing business intelligence solutions. In 2000, started a new role at Oracle Headquarters in Redwood Shores, California, USA, as a product marketing manager and led the Business Intelligence team. In 2008, Aydin joined Microsoft Middle East and Africa Headquarters based in Istanbul, Turkey managing the data platform marketing.

In 2016, Aydin took over a new role at Microsoft in Western Europe to lead the IoT business end to end. Recently, Aydin has added AI in his scope and is leading IoT and AI business in Western Europe. Aydin holds an MBA in marketing and MSc in Computer Engineering.

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Arnauld leads EY Global Government & Public Sector consulting services, bringing together thousands of professionals around the world to help governments build stronger administrations. He also serves state modernization departments, United Nations agencies, the World Bank, the Organization for Economic Co-operation and Development (OECD) and international organizations on their development aid programs.

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Thomas is passionate about creating innovation-led cultures that understand and validate emerging technologies' potential while successfully building market-ready solutions when the time is right, thereby turning digital trends such as AI into tangible solutions that help clients solve their most pressing business problems.

Thomas has more than 20 years of experience consulting with clients worldwide to define and execute their digital strategies.

Based in Mannheim

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Morten is a Director at EY Consulting Denmark and is responsible for digital transformation in the public sector. He has extensive experience from consulting and from the public sector, working at the City of Copenhagen. He has been leading projects within digital strategy, implementation of IT and digitalization, and the design of development and management models.

Morten has established business cases for new digital solutions and consolidated existing solutions to optimize efficiency and drive innovation at public organizations.

Based in Copenhagen


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