Making the case for Artificial Intelligence (AI) in Transforming Public Services

Based on AI deployments in Public Sector across the world

Microsoft

Foreword

In this era of unprecedented technological acceleration, public sector leaders around the globe are addressing the widespread impact of Artificial Intelligence (AI) on all facets of governance and society. They are seeking strategies to effectively meet the need to make public services more accessible, efficient, and inclusive within constrained budgets in a sustainable manner. As public sector leaders strive to deliver better services and outcomes, their need for a well-structured AI transformation strategy with demonstrable return on investment becomes more pressing than ever. Through our extensive interactions with public sector professionals, we have gained valuable insights into how they are evaluating and successfully adopting public cloud and AI capabilities.

This paper, developed by Microsoft, focuses on customer stories with tangible return on investment, AI adoption strategies, and resources aimed at empowering public sector leaders. This paper summarizes those insights and uses real-world examples and practical strategies to highlight how governments are successfully navigating the complexities of an ever-evolving technology landscape.

Our goal is to support public sector leaders in strategic planning, continuous learning and maximizing the potential of AI deployment in public services. We hope that this paper serves as a valuable resource for public sector leaders, enabling them to maximize their return on investment in AI, drive sustainable innovation and transform public services.

Madhavi Gosalia

Director, Business Strategy

Global Market Development, Worldwide Public Sector

Microsoft Corporation

This paper was authored with input from teams across Microsoft, acknowledging contributions from Andrew Cooke, Arzu Yazd, Andreas Stahl, Amit Pawar, Alvaro Vitta, Colby Raley, Elena Casas, Elizabeth Emmanuel, Greg Wilson, Ilona Tomaszewska, James Collins, Jennica Andersson, Jonathan Beesley, Kirk Arthur, Kate Maxwell, Vanessa Riley

Table of Contents

1. Introduction

Recent Artificial Intelligence (AI) developments present us with transformative moments akin to the introduction of the Graphical User Interface (GUI) or the Internet. The GUI allowed all of us to use computers without knowing computer programming and the Internet helped us to be deeply interconnected & revolutionized our workplaces. Similarly, generative AI (GenAI) enables us to interact with our machines and data in natural language and enables them to create text, images, and music.

By using GenAI as an interface for a wide range of AI capabilities we can enhance efficiency and improve decision-making across various fields. These include data analysis, business process automation, customer support, code generation, fraud detection, learning, security. The ability to use GenAI as natural language interface for harnessing the power of AI is affording us a transformative moment to reimagine every aspect of our organizations, institutions, and business.

Public sector leaders have taken note of this pervasiveness of AI across sectors including education, defence, social services, healthcare, public administration & governance. Across the world, over 70 countries[1] have published National AI policies & strategies and other countries are evaluating the next steps.

Source: https://oecd.ai/en/dashboards/overview

As public sector leaders consider AI adoption approach and strategies, the questions they frequently ask are:

1. **How do we evaluate the Return on Investment (ROI) from AI initiatives?**
2. **Are there reference case studies of AI driven public sector transformations with tangible ROI?**
3. **How do we get started with AI adoption?**

This paper describes an approach to ROI calculation and real-world case studies with quantifiable benefits. It provides a compelling argument for the broad adoption of AI technologies in the public sector followed a by step-by-step approach to getting started for successful adoption, as well as resources to dive into each topic.

2. Making the business case for AI solutions in Public Sector

While AI adoption, maturity and ROI will vary across industries, we anticipate few organizations will have as widespread an impact from AI adoption as those in the public sector.

The pandemic ushered in widespread changes in terms of new digital experiences. **Constituents' expectations** for engaging with government services have been influenced by the private sector: for example, think about how easy it is to pull out your phone and order groceries, check your online bank account or book a flight. In one survey[2], **85% of respondents expected digital government services to match or exceed those offered by the private sector.**

Governments face these high expectations amid **staffing shortages and resource pressures**. According to the Rockefeller Institute of Government[3], **there are nearly a million fewer state & local government employees now than in 2019**. In a very real sense, government is expected to do more, with fewer people. Generative AI technology will help fill empty roles and empower existing employees, not take away jobs.

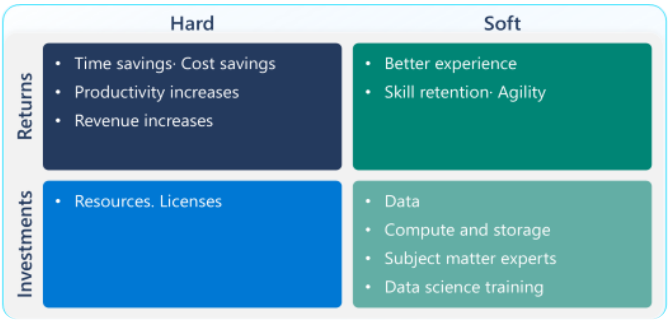
Legacy technology presents a drain on resources for many governments, both in terms of costly upkeep and the time IT teams spend managing these systems. A Deloitte-NASCIO study found that **96% of state and local IT decision makers surveyed felt that critical infrastructure is at risk due to legacy applications or systems**[4]. Governments aspire to ambitious digital transformation goals, but legacy technology and code present a sizable obstacle.

We observe similar trends across education, defence and other public sector services with their respective nuances.

Our perspective is that it is this intersection of public sector needs and the maturity of digital technology that is compelling public sector leaders to consider AI adoption approach and strategies. As they set about modernizing their organizations with AI, they will need to demonstrate that the benefits from these investments will be greater than their cost i.e. a positive ROI.

In simple terms, ROI[5] is a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments.

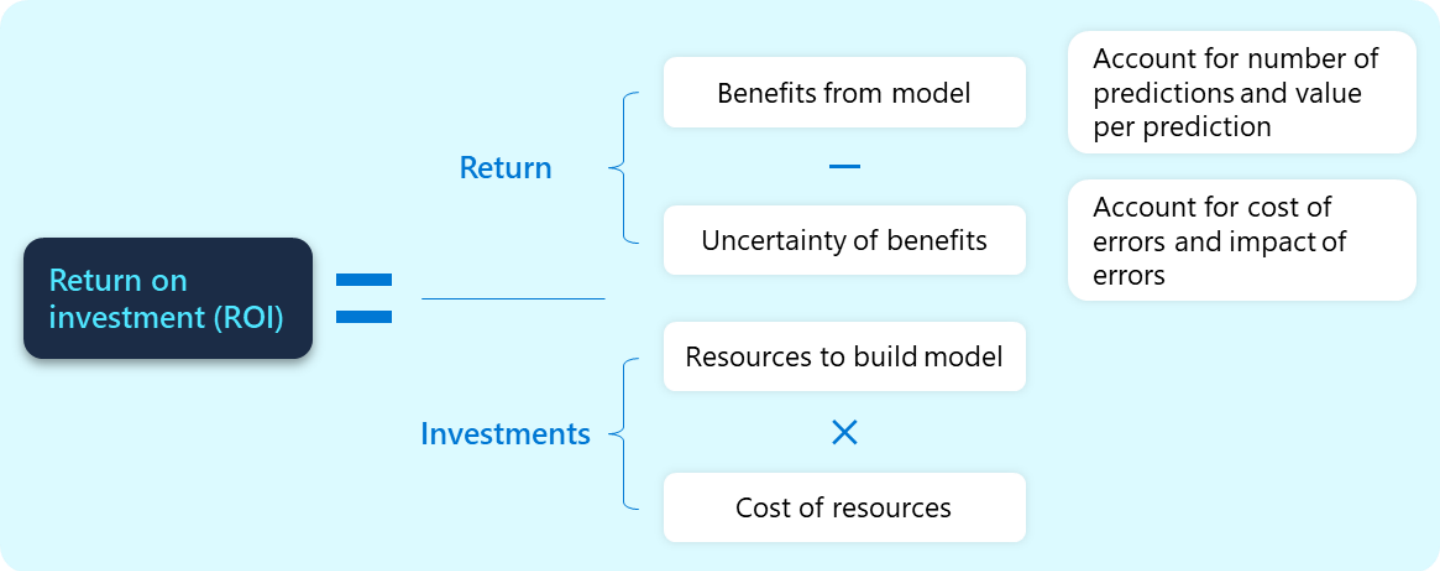
Returns can manifest[6] as hard savings and/or soft savings. **Hard savings** include tangible benefits like cost and time savings that can be quantified such as higher employee productivity, better revenue collection, reduction in fraud, waste & abuse. **Soft savings** include intangible benefits such as enhanced service delivery, improved employee morale, ability to attract & retain talent, greater inclusion, and accessibility.



Source: Defining and measuring return on investment for AI: PwC

Investments refer to the cash outlay for licensing, people and other tangible assets required to operationalize the project. Investments that are directly related to the project are considered **hard investments**. When they are related to other projects but benefit the project under review, they are considered **soft investments**.

To calculate ROI, the hard savings of an investment are divided by the cost of the investment. The challenge is that the costs tend to be upfront, the returns tend to be spread out over uncertain future periods, and it doesn't account for the intangible benefits. **It is important to weigh these decisions by not only considering money spent in a budget period but also to evaluate future savings and benefits i.e. returns from the investment.** When the returns outweigh the investment and the project is aligned with organizational priorities, it signifies a well-justified project.

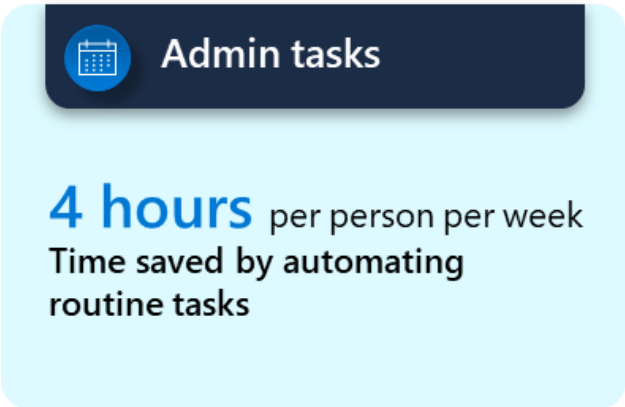


Source: Defining and measuring return on investment for AI: PwC

Many research firms have published studies on how best to perform such an evaluation, what the impact of AI adoption is among the workforce and on business performance.

In September 2018 the McKinsey Global Institute modelled trends in AI adoption and estimated that AI could potentially deliver an additional global economic output of about $13 trillion by 2030, boosting global GDP by about 1.2 percent a year[7]. However, with breakthroughs in GenAI, research firms are predicting much higher ROI from AI adoption. A 2024 GenAI opportunity study[8] by International Data Corporation (IDC) found that for every $1 an organization invests in generative AI, the ROI is $3.70. A different study by Boston Consulting Group estimated **$1.75 trillion per year in potential productivity improvements across all levels of government** from GenAI globally[9] by 2033.

There are also government level studies about the impact of GenAI. Harnessing the Power of AI for the UK Public Sector[10], a report from Microsoft, found that automating routine bureaucratic processes with GenAI tools could save **four hours a week per person** on average for nearly six million public sector employees – nurses, doctors, police officers, social care workers and council employees. It translates to an overall **potential saving of 23 million hours, every week**. By adopting Gen AI, **UK's public sector could save £17bn by 2035**, but even a five-year delay in implementation could lead to the country foregoing £150bn in economic benefit. A similar study about New Zealand's Generative AI Opportunity[11], by Accenture, revealed that the **adoption of gen AI could add a staggering $76 billion per year to New Zealand's economy by 2038**.



While aforementioned studies are focused on the market, Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) research – to examine the projected financial benefits organizations may realize by deploying its AI services

The 2024 Total Economic Impact study about the impact of Copilot for M365' (Copilot) study in public sector organizations estimated that the ROI **from Copilot use could be between 70% and 364%**. This variability is dependent on providing users with the training and resources they need to become AI savvy among other factors. Copilot is an AI-powered workplace productivity tool. It assists users reduce repetitive tasks, automates processes, and accelerates creativity in a secure environment. It provides real-time input tailored to their context based on information from their M365 applications.

Microsoft commissioned similar studies in for its Azure Open AI services. This service uses advanced AI to help automate tasks and improve workflows, all with the security and reliability of Azure. Internally, it can improve decision-making and enable public sector to anticipate needs and allocate resources more effectively. Externally, it can encourage public engagement by making services more interactive and personalized. The 2023 Forrester Total Economic Impact study [12] found that adopting AI and machine learning solutions can generate 284% ROI over three years. A similar study in 2024[13], evaluated its impact on different functions in an organization. It found that Azure OpenAI services can lead to a **10% – 50% reduction in customer service calls** requiring human interaction. It can also lead to **10% – 60% productivity gain in content generation**.

These studies underscore the potential of AI to revolutionize public sector operations. However, public sector leaders are looking for success stories where their peers have successfully adopted AI-powered solutions and demonstrated tangible ROI. They need to be able show that adopting AI can help deliver results within budget constraints while managing confidentiality, privacy concerns, enabling its workforce to adopt AI, and bolstering security. In the next section we dive into real-world examples that you can use to bolster your business case for investment in AI technologies transforming public sector.

Furthermore, in order to proceed you need to provide a reasonable estimate of the cost and benefits within your own environment. No matter where you are in your cloud and AI transformation journey, Microsoft can help develop a business case. For more on how to get started in your AI transformation journey, visit Microsoft AI.

3. AI-Driven Public Sector Transformation Case Studies with ROI

The imperative to adopt AI is strong. According to the 2024 Work Trend Index Annual Report[14], over 75% of knowledge workers worldwide are already using GenAI in some capacity and 78% of those users are bringing their own AI to work[15]. As public sector organizations consider how to incorporate AI, they must respond quickly to ensure that AI is used in a responsible and compliant manner while safeguarding privacy and confidentiality. Public sector leaders can leverage real-world case studies in this section to build a compelling case for AI adoption within their organizations.

Since GenAI is a relatively new AI technology, many public sector customers are experimenting and running pilot programs to understand its impact. We will first look at a few examples of how they are encouraging innovation with GenAI and quantifying the ROI. Thereafter we will dive into case studies that demonstrate how broader AI capabilities such as robotics, natural language processing, speech recognition, computer vision, translation, etc. have transformed public services and are delivering impressive ROI for Government, Education, and Defence & Intelligence.

Across these examples you will notice that the impact is highlighted in both the monetary and efficiency value and the broader impacts on public sector employees and the communities they serve.

I. GenAI pilot programs

In April 2023, GovTech Singapore[16], powered by Microsoft's Azure OpenAI Service, debuted LaunchPad[17] to provide an AI innovation and experimentation platform and education tool. It has sparked more than 400 ideas and 20 prototypes, laying the foundation for the government to harness the power of generative AI.

> *Our aim is to enhance productivity significantly and advance the capabilities of public officers to better serve citizens, and we've been exploring how generative AI can assist us in performing tasks that were previously unattainable or perform them faster and more efficiently,"*
>
> ***– Jason See***
> *Senior Director of the Data Science and AI Division (DSAID) at GovTech.*

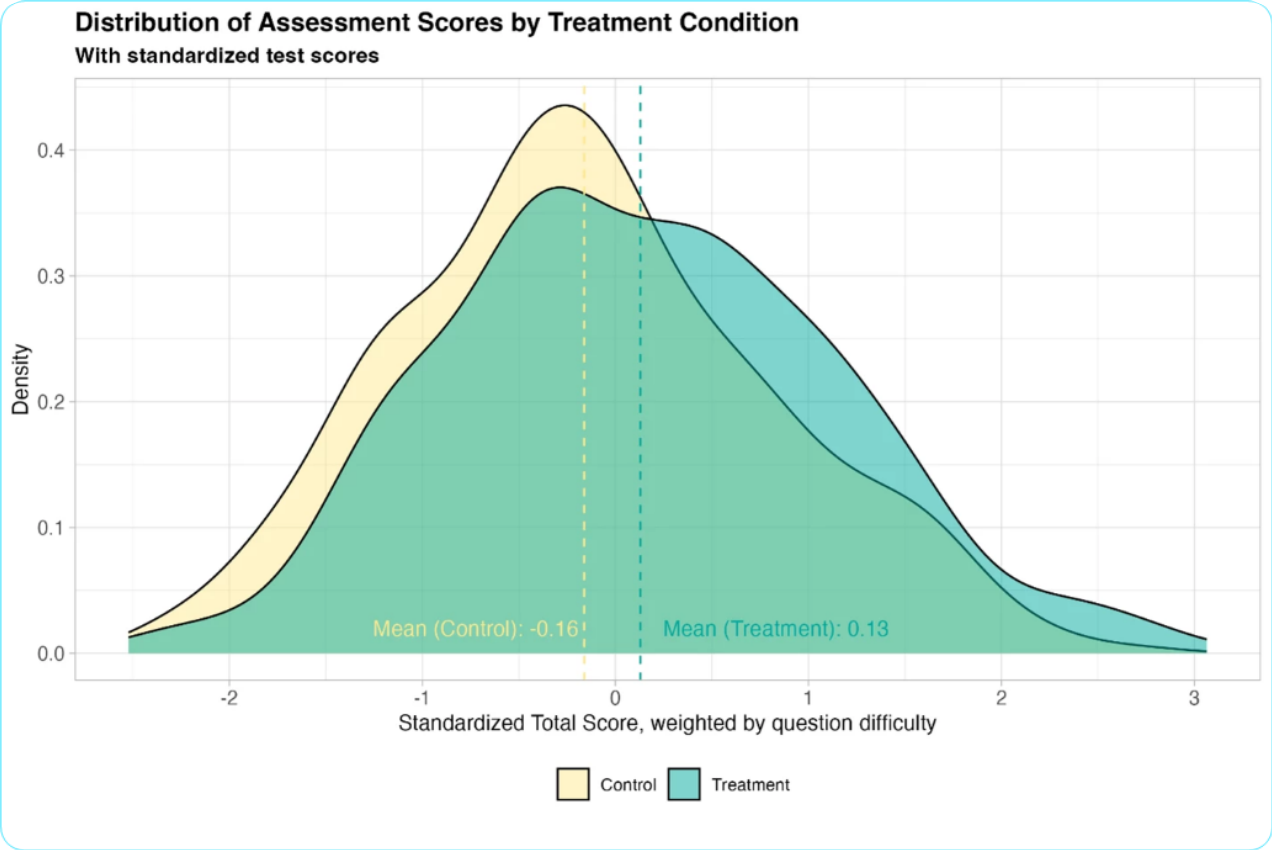
The Australian Government conducted a 6-month whole-of-government trial[18] of Microsoft 365 Copilot, starting in November 2023 covering 5,765 users across 56 agencies. 69% of survey respondents in the trial agreed that Copilot improved the speed at which they could complete tasks **– Summarization, first draft preparation, and information searches – Saving about an hour each workday.**

Digitaal Vlaanderen[19], Belgium conducted a Copilot study with 300 users across 20 entities, with 235 active copilots. Based on data from the final survey, they found the **average annual savings (time)** with M365 Copilot, calculated for 1 Copilot based on 220 working days, as follows: **102 hours for Administrative and support staff; 51 hours for Policy and advisory professionals; 40 hours for ICT and data specialists; 33 hours for Communication and project managers and 18 hours for HR and financial staff.**

> *With Copilot by my side, I have experienced how my writing not only became faster but also more creative and better. It's like having an extra pair of hands and a creative partner who helps me bring my ideas to life."*
>
> ***– Yves Impens***
> *Project Manager, Department of Mobility & Public Works Digitaal Vlaanderen.*

The University of Manchester[20] is evaluating the impact of Copilot on 300 faculty & staff members. Faculty members report creating multiple choice test question sets has gone down from hours to minutes. In research, Copilot expedites the process of identifying key themes within data sets and frees up time for deeper analysis. For staff, it **reduced administrative tasks during meetings by 98% and resulted in cost savings of 48%.**

In 2024, Edo State, Nigeria[21] selected Microsoft Copilot for a six-week randomized evaluation with 800 students. They assessed student performance improvement in three key areas English language, AI knowledge, and digital skills. Students used Copilot in their computer lab twice a week, guided by teachers to tackle selected topics and grammar/writing tasks. A pen and paper test at the end of **the pilot showed their scores improving .3 standard deviations, the equivalent of almost 2 years of learning**[22].



Source: From chalkboards to chatbots: Transforming learning in Nigeria, one prompt at a time

More public sector customers continue to evaluate the benefits of GenAI. New Zealand recently published results of study evaluating real world benefits of GenAI[23] and found **a 287% ROI based on the average hourly rate of trial participants**. Brisbane Catholic Education (BCE) 'AIGenesis' M365 Copilot Pilot[24] found that **each teacher saved 9.3 hrs per week in admin and planning tasks.**

These initial evaluations underscore the potential of AI to revolutionize public sector operations. A common theme across these evaluations was that **public sector organizations started with technologies and applications that are familiar, and on which can AI be deployed seamlessly. They focused on use cases that improved productivity, enabled delivery of personalized services, and enhanced cybersecurity.**

II. AI case studies

A. Government

A 1. Achieving ROI by delivering personalized, inclusive, and accessible citizen services

Governments are harnessing the power of AI to expand the scope and availability of personalized citizen services at any given time, to improve accessibility by extending reach to vulnerable populations and to deliver services efficiently.

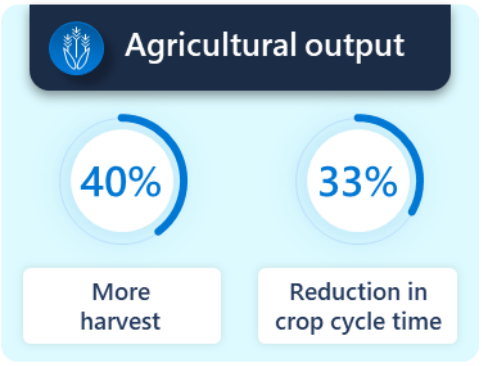
Case studies:

City of Madrid[25] created an AI virtual assistant that offers tourists accurate, real-time info and **personalized responses in 95-plus languages** at any time of the day. The service, powered by using Microsoft Azure OpenAI Service, **helps city officials identify trends, create more targeted and effective marketing** campaigns and makes Madrid more attractive to visitors.

Rijksmuseum[26] harnessed the power of Copilot to make art accessible at scale by joining forces with Microsoft to improve and **expand the art experience for blind and low-vision** community members.

> *We're trying to push the boundaries of the art of what's possible. It's been a continual process of experiment, refine, and demonstrate what we can do with Azure AI to help make society more accessible for all."*
>
> ***– Aidan Forman***
> *Director of Technology and Digital Transformation, RNIB.*

Agricultural Development Trust (ADT) of Baramati[27] leveraged AI to maximize sugar cane crop yield by combining weather and soil data with satellite and drone imagery as well as historical data and analysed to generate simple daily alerts via a mobile app. The sugar cane test plot using this approach yielded **stalks that were taller and thicker – weighing 30 to 40 percent more at harvest – and yielding 20% more sucrose**. The plot required less water and fertilizer, and the **entire crop cycle was shorter – 12 instead of 18 months.** This will help local farmers improve their crop yield and harvest returns.



Jugalbandi[28], an AI chatbot has enabled **villagers to access information about 171 government programs via WhatsApp in 10 of India's 22 official languages**. Built on generative AI (powered by AI4Bharat and Microsoft Azure OpenAI Service) it enhances accessibility, improves service delivery & build trust.

> *We saw this Jugalbandi as a kind of 'chatbot plus plus' because it's like a personalized agent. It understands your exact problem in your language and then tries to deliver the right information reliably and cheaply, even if that exists in some other language in a database somewhere."*
>
> ***– Abhigyan Raman***
> *Project Officer AI4Bharat, open-source language AI center.*

City of Burlington[29] **reduced building permit approval process from 15 weeks to 5–7 weeks by creating two AI-powered solutions**: MyFiles system using Microsoft Power Platform for building permits and CoBy, a 24/7 customer support assistant using Microsoft Copilot Studio.

A.2. Achieving ROI by empowering government workforce

Public sector employees are expected to meet the growing expectations of citizens for efficient and effective government services within limited budgets and ever-expanding administrative demands. AI-driven tools can address talent shortages in public sector by providing intelligent solutions for workforce management, optimizing resource allocation, and ensuring that critical services are maintained even in the face of staffing challenges.

In addition to improving productivity, GenAI could improve inclusivity and accessibility in the workplace particularly for people who are neurodiverse, with disability or from a culturally and linguistically diverse background[30].

AI can also enhance, attract, and retain talent in the public sector by offering personalized training and development programs. A recent study[31] found that 54% of early-in-career and individual contributor employees said that access to AI would influence their choice of employer.

Case studies:

Qatar Post[32] deployed Azure AI services to automatically process thousands of documents daily, **increasing parcel sorting efficiency by 60%.** This automation not only speeds up operations but also reduces the administrative burden on employees across business functions, allowing them to focus on more complex tasks.

Hellenic Cadastre reduced delays and inefficiencies that blocked citizens from legally owning their property for months or even years. They addressed this by building a system that reads and categorizes property contracts, applies legal rules, and provides assessments for approval using Azure OpenAI Service. **Now property transaction assessments take less than 10 minutes instead of hours. The cost per assessment has reduced from €15 to €0.11**. The system also enhanced property owners' legal security and boosted the Greek economy by enabling transactions to be completed sooner.

Natural England is transitioning from the manual process of mapping 3 million hectares of peatlands (which would take 10 years) to a holistic solution that leveraged aerial imagery and Light Detection and Ranging (LIDAR). They leveraged Department for Environment, Food and Rural Affairs' Data Analytics and Science Hub (DASH) platform, built on Microsoft Azure and Azure Databricks, to develop AI models that map damage to England's peat. It will **save £6M over 10 years, accelerate their ability to gain insights early and address timely manner**.

A.3 Achieving ROI by transforming Government Operations

AI-driven analytics can help in optimizing resource allocation, improve the quality and speed of decision-making processes and can assist in identifying patterns and trends that are not immediately apparent through traditional methods. This can be particularly beneficial in areas such as faster emergency response, disaster management, better traffic congestion management, efficient delivery of welfare programs, improved tax collection and reduction in fraud, waste, and abuse. Automated systems can detect anomalies and inefficiencies, leading to more effective and transparent operations. AI can also optimize infrastructure management, ensuring better maintenance and resource allocation, resulting in improved public services and cost savings. There is a myriad of use cases in the realm of transforming government operations.

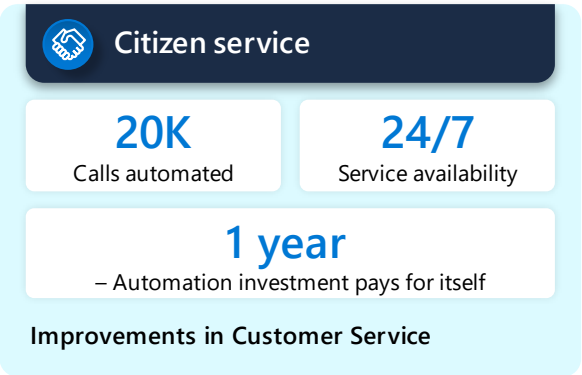
Case studies:

Serbia's Statistical Office[33] uses machine learning and the cloud to collect and publish census results in record time. It significantly reduced the time **to publish results from 18 months to just six months by implementing a paperless process** leveraging tools like Azure, SQL Server, and Power BI.

> *"Before, the process of manually encoding responses to open-ended questions from seven million paper responses was done nine months after the forms were filled. Now, encoding is done paperless and in two hours, thanks to machine learning technology and cloud solutions."*
>
> ***– Miladin Kovačević***
> *CEO, The Statistical Office of Republic of Serbia*

Alberta Wildfire[34] deployed an AI tool to predict wildfire occurrences and optimize resource allocation. It has helped **save between CA$2 to CA$5 million annually by reducing unnecessary standby resources.**

Ville de Laval[35] in Quebec integrated AI into its 311 non-emergency hotline to **automate and accelerate responses to citizen inquiries for at least 20,000 of 250,000 calls they received annually**. AI enabled real-time transcription in virtual consultations **ensured inclusion** by serving people with hearing disabilities in addition to those listening to presentations. They enabled more people to simultaneously understand and contribute to discussions about proposed projects. This Azure AI **solution paid for itself within a year.**



A.4. Achieving ROI by Securing Government Data and Protect Resources

By 2027, IDC predicts that **95% of nations will have experienced a major cyberattack** caused by threat actors using generative AI[36]. According to that same report, **only 30% will be resilient enough to prevent significant disruptions and breaches**. It is critical that public sector organizations are prepared to counter them by automating threat detection and response with AI-tools, thereby reducing the risk of human error. Public sector entities that implement an AI-centric cyber defence platform, are able to considerably enhance cybersecurity capabilities and protect digital ecosystems. Recent data indicates that **AI-driven cybersecurity systems have reduced the time to detect and responding to threats by 50% and improved overall security posture by 30%.**

Case studies:

City of Lokeren[37] detects, block and investigates ransomware threats, that would've gone unnoticed, quickly and **system engineers are able save a day's work on updates and server management** by transitioning to Azure's cloud & AI powered services.

> *"In the past, whenever we would be targeted by ransomware, it would have taken us a while to detect it. That's something that we've improved significantly since being on the cloud."*
>
> ***– Harry Vyvey***
> *Helpdesk Manager, City of Lokeren*

Dominican Republic's National Cybersecurity Center (CNCS)[38] faced challenges in managing and analysing scattered data from various cyber threats, hindering effective incident response. By implementing Dynamics 365 for case management and Azure Data Explorer for data analysis, they **improved incident processing speed by four times**, significantly increasing productivity and enabling quicker notifications to institutions for preventive actions against cyber threats.

B. Education

B.1. Achieving ROI by Accelerating Learning

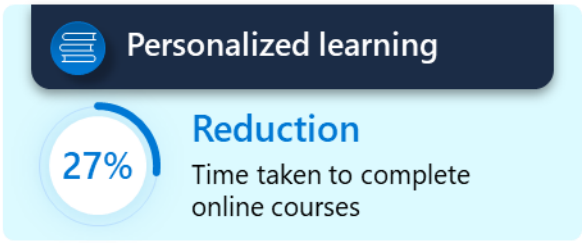
Educational institutions are leveraging AI capabilities to personalize and accelerate learning, to improve institutional efficiencies, and to prepare students for the future through targeted AI curriculum.

Case studies:

South Australia Department for Education[39] was reticent about AI technologies until it implemented EdChat using Azure AI Content Safety with built-in measures and controls. Over an eight-week trial involving 1,500 students and 150 educators, they were able ensure that the safety measures worked. They also noted that **24/7 availability of the chatbot proved to be a key asset, breaking down barriers to information access** during students' moments of curiosity. It ultimately fostered deeper classroom discussions, delivered improvements in creativity and critical thinking.

> *"EdChat is a truly inspiring example of how the education sector can embrace generative AI to deliver value to its most important stakeholders – students"*
>
> ***– Veli Mati-Vanamo***
> *CTO (APAC) of Insight Enterprise*

IU International University of Applied Sciences (IU)[40] developed *Syntea*, an AI avatar integrated into Microsoft Teams and Microsoft 365 Copilot, to make learning more personalized, autonomous, and flexible. It drove a **27% reduction in the time students need to complete online courses.**

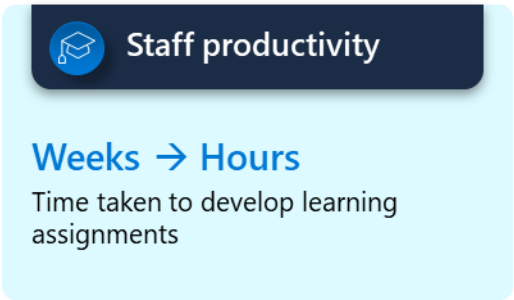


B.2. Achieving ROI by boosting productivity for faculty and staff

Faculty and staff are leveraging AI tools to glean insights from multiple data sources to rapidly advance analysis, research, and innovation. They are automating routine tasks to reduce time to publication, streamlining class preparation and developing differentiated content to focus on what matters most.

Case studies:

In Wichita Public Schools[41], 5600 teachers have access to Microsoft Copilot via their Microsoft 365 A5 account. They have been experimenting with developing lesson planning, emails, and creating personalized content for 50,000 students who speak 112 languages. Some teachers have reported being able to near-instantly create an entire quarter-long project-based learning assignments which would otherwise have taken weeks to develop.



University of South Florida[42] alleviated the burden of repetitive, time-consuming tasks such as generating summaries, crafting presentations, and analysing data within minutes by implementing is using Microsoft 365 Copilot. Faculty and staff can now spend their time on creatively solving problems, conducting critical research, establishing stronger relationships with peers and students and using their expertise to forge new, innovative paths.

> *"With AI tools such as Microsoft Copilot and Azure OpenAI, we've been able to give our staff and faculty a starter kit for how to create an app with just a bit of training and guidelines. Now we can tell other departments, 'Go out and create something yourself that meets your specific needs and achieves your specific goals."*
>
> ***– Sidney Fernandes***
> *Chief Information Officer and Vice President for Technology, University of South Florida*

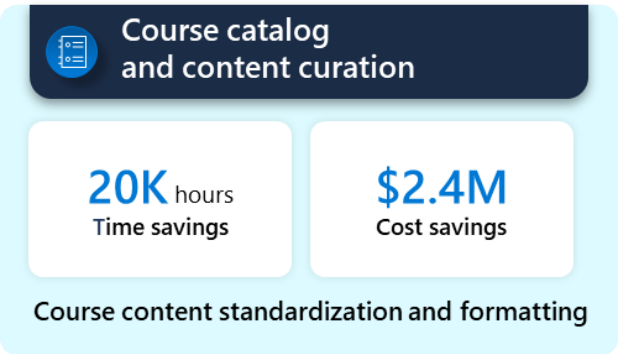
Oxford University Hospitals NHS Foundation Trust[43] staff reported productivity improvements after using M365 Copilot – **complex formatting tasks were completed in a matter of seconds compared to 15–20 mins earlier, summarizing meeting in 30 mins rather than 90 mins,** freeing up time to deliver frontline services.

B.3. Achieving ROI by Improving Efficiency

Educational institutions face the challenge of improving efficiency while accelerating innovation. Educators and administrators view AI-driven innovation as key to redefining educational experiences and simplifying administrative tasks to better serve students, teachers, and staff. By incorporating AI, they are automating routine tasks, freeing up time for strategic innovation and enhancing the overall educational journey.

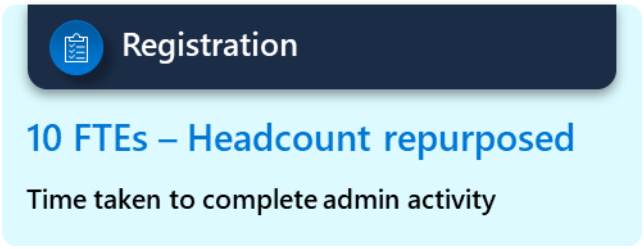
Case studies:

Torrens University[44] was transitioning from an old learning management system (LMS) to a modernised LMS. They leveraged AI to reorganise the existing content into a standardised format, focusing on user-preferred layouts, such as placing videos prominently at the top of the page and standardising colour schemes and templates. Using AI resulted in **20,000 hours in time- and $2.4 million cost-savings.**



California State University, San Marcos[45] **automated an onsite event journey for 500 prospective students** and their families**. Everyone was checked in within the first 40 mins eliminating long lines,** providing visibility into who attended. It allowed the team to focus on ensuring prospective students enjoyed learning about the campus rather than focus on logistics and coordination.

Tecnológico de Monterrey[46] **fully automated their student registration** process by implementing an AI powered virtual assistant. This allowed them to **reassign all 10 people dedicated exclusively to answering registration related questions over to other higher value tasks.**

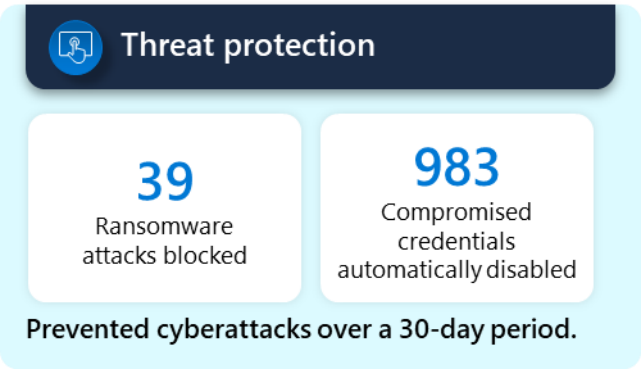


B.4. Achieving ROI by Securing IT Systems

80% of all malware attacks occur in education[47]. Moreover, it is the number one most attacked segment in the world for ransomware by nation state actors after IT[48]. Around the world, institutions are united by a consistent goal: to provide a safe and secure environment that maximizes teaching and learning time for its administrators, educators, IT professionals, and students. The use of AI in educational institutions has bolstered the security of learning systems. By implementing advanced monitoring and threat detection capabilities, schools are protecting sensitive student information and ensuring a safe learning environment.

Case studies:

Fulton County School District[49] deployed AI powered cyberthreat protection solution and prevented 39 ransomware attempts, all contained and eradicated; **712 malware attempts, all blocked; 983 compromised credentials, mitigated by automated disabling of accounts; and 254,255 phishing attempts, of which nearly 89% were not delivered.** All within a 30-day period. This ensured that students could continue to learn without disruption.



Arizona Department of Education[50] created a data management system with Azure to automate and consolidate student data. The system managed thousands of data points, **enhancing efficiency and fortifying security within the existing budget**.

> *As a state agency, we're budget constrained in a time of rapid change and development. Navigating this is easy with Azure because the costs are very transparent, and the cost controls are straightforward."*
>
> ***– Edward Block***
> *Head of Production Services, Arizona Department of Education*

Oregon State University[51] adopted AI-driven cybersecurity tools from Microsoft including Security Copilot for its Security Operations Center after a massive cyberattack. It now **detects threats proactively within minutes as compared to reactively in weeks or longer**. By offering these tools to students & interns, OSU also achieves its mission to produce next generation workforce. And it is able to foster an open, collaborative approach to research while ensuring that sensitive data is protected to ensure its overall reputation.

> *Our research is a huge priority for the university, but sometimes it can be difficult to secure, and getting vulnerability management can be difficult. But with Copilot, we can find better solutions that are more secure for those researchers and really push the limits of human knowledge and research at OSU."*
>
> ***– Emily Longman***
> *Manager of OSU's Security Operations Center (SOC)*

C. Defence and Intelligence

AI is revolutionizing the defence and intelligence sector globally, delivering substantial returns on investment by enhancing efficiency, accuracy, decision-making speed, and operational effectiveness in delivery of national security specific capabilities. Defence organizations are leveraging AI to improve many unique capabilities such as mission planning and execution, fusion of multiple data sensors, predictive maintenance, and human-

machine teaming, resulting in increased productivity and cost savings. The global defence AI market is set to skyrocket from $6.3 billion to $30.4 billion by 2027[52].

Many defence organizations have started on this journey by proactively reviewing their stance on utilizing public cloud and looking for solutions that provide resilience, decision advantage and operational efficiency while maintaining highest standards of security. For example, NATO[53] **is spearheading efforts towards data centricity by creating a classified cloud system in which 32 member nations can share secret information.**

Given the sensitive nature of defence use cases this section presents case studies that illustrate the nature of AI engagements without disclosing specifics. In some cases, it focuses on how the Defence Industrial Base is transforming capability by adopting AI solutions.

C.1. Achieving ROI through a Secure Trusted Digital Backbone

Government, research institutions (education), defence and intelligence departments/agencies, and the defence industry are amongst the top ten industry's targeted by nation-state cyber threat actors[54]. A secure digital backbone is crucial for safeguarding data and accessing AI. However, this will be difficult to achieve without trusted cloud and AI solutions and partners.

The 2024 Cybersecurity Workforce Report[55] identifies a global shortfall of 2.8 million cybersecurity professionals with less than four qualified professionals to fill every five cybersecurity jobs. In a time when cybersecurity is paramount, the acute shortage of skilled cybersecurity workers is top of mind for most leaders. AI-enabled cyber defence measures are playing a critical role in mitigating this skills gap.

Case studies:

Australian Signals Directorate[56] (ASD) has enabled Australian businesses, government agencies and critical infrastructure organizations to proactively send and receive real-time information, insights and techniques through Cyber Threat Intelligence Sharing program (CTIS). To bolster cybersecurity operations and **benefit from Microsoft's global threat analysis of more than 78 trillion signals every day,** it jointly engineered a capability to integrate CTIS into Microsoft's cloud native, AI-powered Sentinel offering. This has helped ASD **address many threats in near real time, such as deterring ransomware attacks** from Black Basta Ransomware Group by offering detailed information on the group's operations and tailored mitigation advice to its stakeholders.

> *"Cyber security is a team sport, and the collective efforts of both the public and private sectors are vital to defend our nation. We value working alongside organisations like Microsoft to make it easier for their local customers to become bilateral threat-sharing partners in CTIS. We are actively engaging with industry stakeholders to emulate approaches like this. By fostering such partnerships, we can more quickly identify threats, combat threat actors and make a lasting impact on Australia's state of security."*
>
> ***– Rachel Noble PSM***
> *Director-General of the Australian Sigotts Directorate,*
> *Said of the collaboration.*

UK Ministry of Defence (MoD)[57] Department of Equipment and Support (DE&S) embraced a GenAI chatbot, hosted on the MoD Cloud to streamline cyber and security compliance processes. With **24/7 access to critical compliance information via the AI chatbot, DE&S was able to reduce risk,** support informed decision-making, and allow experts to focus on essential procurement decisions with better data-driven insights.

> *"It's also crucial because it's available 24 hours a day, seven days a week and means delivery teams can access up to date accurate information ensuring compliance and reducing risk."*
>
> ***– Paul Fox***
> *Digital Information Assurance Lead at DE&S*

C.2. Achieving ROI by Transforming Capability Lifecycle

Defence and intelligence organizations need to continually invest in developing new capabilities in order to fend off their near-peer adversaries. Through cloud-based technologies and digital tools, this capability development process is quicker, more cost effective, and yields better results.

Case studies:

BAE Systems[58] adopted Azure Cloud and AI technology to support the Global Combat Air Program (GCAP), an international endeavour between United Kingdom, Italy, and Japan to develop a next generation fighter aircraft. Adopting cloud and AI enabled tools will **accelerate software design, development and testing of a system that can deploy new software and speed up the deployment of software** to Uncrewed Air Vehicle, modern fighter jets and other operational military platforms.

> *"The data available to the defence sector and armed forces is often highly complex and comes from hundreds of thousands of sources, whether that's satellite and radar feeds, intelligence gathered by ships at sea or even social media. Our innovative agreement with Microsoft will give us easier access to tools that help us make sense of this information for our customers – allowing armed forces to stay ahead of rapidly evolving threats, whilst maintaining the highest levels of security."*
>
> ***– Julian Cracknell***
> *Chief Technology and Information Officer at BAE Systems*

C.3. Achieving ROI by Optimizing Decision Advantage

Decision advantage is crucial for modern militaries as it enables commanders to make informed, timely, and effective decisions in complex and dynamic environments. More recently, militaries are integrating increasingly sophisticated AI-based decision support systems into their decision-making processes.

AI-enabled data fusion and processing of complex datasets can increase situational awareness and speed up decision-making by completing tasks within hours instead of several days required by human analysts.[59]

Case Studies:

Australian Army[60] adopted an AI-infused platform to **transcribe combat net radio to optimize process and speed up decision making** powered by Azure AI services. AI is being used to interpret and to search communications in order to infer insights about the battle with an end-user presentation layer through Power BI.

> *"Employing artificial intelligence tools through a reliable, secure and resilient platform to consolidate battlefield Communications is an important step toward the creation of a decision support engine to create decision advantage in the future."*
>
> ***– BRIG Ian Langford***
> *Director General, Australian Army Future Land Warfare Branch*

US Air Force[61] leverages C3.ai's Readiness platform powered by Azure AI services[62] to improve USAF fleet availability and cost effectiveness at scale. **With this platform it monitors 3110 U.S. Air Force aircraft across 16 platforms. It has experienced a 30% reduction in parts replacements, and supply needed; and up to 25% improvement in mission capability.**

C.4. Achieving ROI by Enhancing Interoperability

In military terms, interoperability refers to the ability of different military forces, units, or systems to work together seamlessly. It enhances the overall effectiveness of military operations by reducing duplication, pooling resources, and creating synergies among allied forces. To achieve interoperability, defence organizations require secure data sharing for seamless collaboration.

Case studies:

NATO successfully conducted Griffin Shock23[63] in Poland with over 3,000 troops from multiple nations with the aim of strengthening NATO's deterrence initiatives. It utilized various advanced technologies including AI-powered real time language translation services[64] to promote seamless interaction among multinational forces.

4. Approach to AI Adoption to Maximize ROI

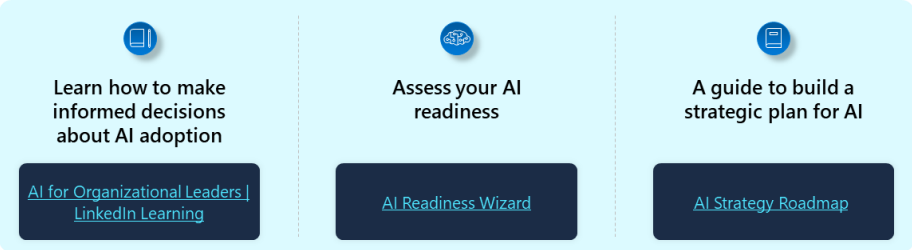
Many public sector organizations operate within legacy on-premises environments, which presents challenges for modern AI adoption. In order to leverage the full potential of AI services it is important to transition to the public cloud. This shift requires careful management of compliance and regulatory requirements for data handling. Microsoft offers additional controls to help customers be compliant with local sovereignty requirements, where applicable. This approach assists with the secure and efficient deployment of AI solutions, allowing public sector entities to fully realize the benefits of AI-driven transformation.

As noted in the previous section, many public sector organizations have successfully navigated these requirements and are deploying various use cases, in the public cloud. With strategic planning and robust governance frameworks, public sector leaders can navigate these complexities and harness AI to enhance operational efficiency, improve community engagement and optimize service delivery.

AI can generate significant value for every public sector organization, but success depends on defining a clear strategy and laying strong foundations. To ensure successful AI adoption leaders need to incorporate the following five elements in their plan:

1. Define key outcomes & success metrics

Identify the key outcomes you want to achieve with AI so that you can adopt the right solutions and processes to accomplish those outcomes and track relevant metrics to measure success



2. Train your workforce

Workforce training for AI tools and on responsible AI standards is crucial to ensure that they are ready to embrace the technology in their daily workflows. Links to skilling resources provided in the next section.

3. Prepare your data

Success is directly related to the availability of clean and organized data that can be integrated with any AI-powered tools you introduce to your organization.

4. Partners

Crucially, you will need to work with trusted technology partners that understand your requirements and the intricacies of serving, educating, and protecting your community.

5. Responsible AI Governance

Ensure responsible use of AI by establishing governance frameworks. Organizations must address issues such as data privacy, fairness, and transparency to develop trust in and wide adoption of AI solutions.

5. Skilling resources to get started

The successful integration of AI technologies in public sector hinges on several key factors. From data management to ethical considerations, the journey to harnessing the full potential of AI requires a nuanced approach. This section includes links to essential skilling resources specifically tailored for public sector customers to understand fundamental elements necessary for successful AI implementation.

Public Sector Center of Expertise and Digital Skills	Microsoft Public Sector Center of Expertise
LinkedIn and other Learning Collections	Public Sector Center for Digital Skills
Generative AI for Public Sector	Enhance public sector services with generative AI
Security for Public Sector	Foundations of a modern public sector security operations center
AI skilling – getting started	AI Skills – Training and Resources
AI Technical skilling resources	AI learning hub – Start your AI learning journey and build practical AI skills
Microsoft Learn for Educators (MSLE) AI Skilling	MSLE Program – Applied AI Skills for Teaching & Learning AI Skilling Bootcamps for Educators

6. Microsoft's approach to AI

Microsoft offers a complete range of proven, best-in-class AI and cloud technologies that work together to meet the public sector's unique needs—whether you are in government, education, or defence and intelligence. These solutions are engineered to offer customers a range of customization and integration options to suit their specific needs. They can be categorized as:

- **Out-of-the-box Gen AI** (Copilot Chat, M365 Copilot, GitHub Copilot, Security Copilot etc.) which allows organizations to activate and unlock productivity by integrating AI capabilities into various Microsoft products and services.
- **Composable Gen AI** (M365 & Business Agents, Copilot Studio) which allows organizations to empower employees by enabling them to develop automations and interact with internal and external data sources.
- **Build-your-own Gen AI** (AI Stack, Azure AI Foundry, Microsoft Fabric) which allows organizations to use various AI services such translation, computer vision, and customize a wide range of models from key providers like OpenAI, Microsoft, Meta, Mistral, Cohere, and others for your specific needs. In addition, our AI data platform provides one common way to reason over your data, no matter where it lives.

All these solutions come with built-in security and world class cloud infrastructure. These solutions are constantly evolving. You can find the most up to date information at Microsoft AI.

Microsoft has developed a robust network of local, regional, and global partners, who are capable of providing comprehensive support at every stage of your transformation journey. By leveraging our partner network, public sector organizations can seamlessly integrate Microsoft's cutting-edge AI and cloud technologies, to achieve their strategic goals with confidence.

Our commitment[65] to advancing AI driven by ethical principles ensures all our **solutions provide fairness, inclusivity, transparency, accountability, reliability, and safety. We also build AI systems to provide data security and privacy at every step—and we will not use your data to** train or enrich foundation AI models.

In-depth information about Microsoft's approach to Responsible AI and tools to support responsible implementation in your organization are available at Empowering responsible AI practices | Microsoft AI

7. Next steps

In this paper, we have provided many successful examples of how public sector leaders are experimenting with, evaluating, and implementing AI. We have showcased how AI technologies offer substantial ROI for the public sector, enhancing efficiency, reducing costs, and transforming service delivery. By adopting a strategic approach and leveraging successful case studies, senior leaders can advocate for the broad adoption of AI, driving significant benefits for their organizations and constituents.

This paper also included an overview of what we consider to be the essential components of such a strategy. As this journey of digital transformation remains a constantly evolving one, please contact us to learn about the latest insights, success stories, and ideas. No matter where you are in your journey, we are here to help you.

Additional Resources

Microsoft AI solutions	Artificial Intelligence Solutions | Microsoft AI
How to procure AI?	IDC, "Moving from Why AI to How to AI – A Playbook for Governments Procuring AI and GenAI," November 2024
Top five AI trends	IDC's 2024 AI opportunity study: Top five AI trends to watch – The Official Microsoft Blog
Measuring AI's impact on your business	Introducing Copilot Analytics to measure AI impact on your business | Microsoft Community Hub
AI use cases across industries	How Copilots are helping customers and partners drive pragmatic innovation to achieve business results that matter – The Official Microsoft Blog
Microsoft point of view – Industry Blogs	• Defence & Intelligence • Education • Government
Find more public sector customer success stories	• Defence & Intelligence • Government • Primary & Secondary Education • Higher Education

References

[1] OECD's live repository of AI strategies & policies – OECD.AI

[2] Citizen Satisfaction with Digital Government Services Doubles in Two Years, Accenture Report Shows

[3] The Great Resignation's Impact on Local Government | Rockefeller Institute of Government

[4] 2024 Deloitte-NASCIO Cybersecurity Study | Deloitte Insights

[5] What Is Return on Investment (ROI) and How to Calculate It

[6] Defining and measuring return on investment for AI: PwC

[7] AI in government: Capturing the potential value | McKinsey

[8] IDC's 2024 AI opportunity study: Top five AI trends to watch

[9] Generative AI: Scaling Impact in Government | BCG

[10] Public sector workers could save 23 million hours a week using AI, report finds – Source EMEA

[11] New Zealand's Generative AI Opportunity

[12] Forrester TEI of Azure AI | Microsoft Azure

[13] Revolutionizing Public Sector Service Delivery with Microsoft Azure OpenAI Service

[14] AI at Work Is Here. Now Comes the Hard Part

[15] AI at Work Is Here. Now Comes the Hard Part

[16] GovTech Singapore

[17] LaunchPad

[18] Australian Government trial of Microsoft 365 Copilot | digital.gov.au

[19] Slot event Copilot

[20] University of Manchester drives value from Microsoft 365 Copilot with emphasis on creative thinking and continuous learning | Microsoft Customer Stories

[21] From chalkboards to chatbots in Nigeria: 7 lessons to pioneer generative AI for education

[22] From chalkboards to chatbots: Transforming learning in Nigeria, one prompt at a time

[23] How generative AI is driving results in New Zealand's public sector – New Zealand News Centre

[24] Brisbane Catholic Education to deploy Microsoft 365 Copilot to 12,500 educators and support staff, in largest rollout for K-12 globally – Microsoft Australia News Centre

[25] Transforming tourism in Madrid with Azure OpenAI Service | Microsoft Customer Stories

[26] Access to art is a human right – Microsoft Unlocked

[27] Chasing peak sugar: India's sugar cane farmers use AI to predict weather, fight pests and optimize harvests - Source Asia

[28] With help from next-generation AI, Indian villagers gain easier access to government services – Source Asia

[29] The City of Burlington embraces AI in its digital transformation and boosts speed to innovation with Microsoft Copilot Studio | Microsoft Customer Stories

[30] Summary of evaluation findings | digital.gov.au

[31] AI Data Drop: What the Future Workforce Really Cares About

[32] Qatar Post processes thousands of documents daily and runs smoother postal services with Power Automate | Microsoft Customer Stories

[33] Revolutionizing census: Serbia's Statistical Office collects and publishes results in record time using Microsoft Cloud | Microsoft Customer Stories

[34] Fighting Canada's wildfires with a combination of AI and intuition

[35] Ville de Laval speeds up community response systems with an Azure AI solution | Microsoft Customer Stories

[36] IDC FutureScape: Worldwide National Government 2024 Predictions

[37] City of Lokeren uses Microsoft Security to drive operational efficiency and optimization | Microsoft Customer Stories

[38] Dominican Republic repels cyberattacks with help from Microsoft Dynamics 365 and Microsoft Azure | Microsoft Customer Stories

[39] Learning in the AI era: How South Australia's Department for Education is empowering students and teachers with AI in the classroom – Microsoft Australia News Centre

[40] German ingenuity meets the power of AI to shape the future of industries | The Microsoft Cloud Blog

[41] Wichita Public Schools personalized learning for students using Microsoft Copilot | Microsoft Customer Stories

[42] The University of South Florida drives innovation and acceleration with Microsoft Copilot | Microsoft Customer Stories

[43] Oxford University Hospitals innovate with Microsoft Copilot to deliver efficiencies and improve workforce well-being | Microsoft Customer Stories

[44] Torrens University leverages generative AI to uplift its online learning experience, saving 20,000 hours and $2.4 million in time and resources - Microsoft Australia News Centre

[45] CSUSM prioritizes the student lifecycle journey with Dynamics 365 Customer Insights | Microsoft Customer Stories

[46] The Instituto Tecnológico de Monterrey Speeds Up Attention to Microsoft Azure-Powered Community | Microsoft Customer Stories

[47] Microsoft Security Intelligence

[48] Microsoft Digital Defense Report 2024

[49] How Microsoft Helps Prevent Cybersecurity Attacks in Schools | Microsoft Education Blog

[50] Arizona Department of Education boosts backup capability, compliance, and data privacy on a tight budget

[51] Oregon State University: Taking cybersecurity to the next level with Microsoft Copilot for Security | Microsoft Education Blog

[52] Defense Industry Statistics: AI Market Soars to $30.4 Billion – AI Solutions & Development Agency

[53] NATO CIO: Alliance-wide classified cloud system is in the works – Breaking Defense

[54] Microsoft Digital Report 2024

[55] 2024-cybersecurity-workforce-report.pdf

[56] Microsoft and ASD Join Forces: Uniting Sentinel and CTIS for Enhanced Cyber Resilience – Microsoft Australia News Centre

[57] DE&S exploits AI to drive efficiencies – ADS Advance

[58] baesystems.com/en/article/bae-systems-and-microsoft-join-forces-to-equip-defence-programmes-with-innovative-cloud-technology

[59] How Modern Militaries are Leveraging AI

[60] Australian Army and Microsoft collaborate on AI-infused platform to transcribe combat net radio – Microsoft Australia News Centre

[61] C3 AI Readiness

[62] C3 AI + Microsoft Azure

[63] Strength and speed – the Griffin Shock 23 exercise | Instant Connect Push-to-Talk

[64] Military & Tactical Communications | Instant Connect Push-to-Talk

[65] Empowering responsible AI practices | Microsoft AI