

Kuwait National AI Strategy Framework

Empowering Kuwait through AI

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1 Foreword



Antonio De Palmas

Vice President Global Market Development, WorldWide Public Sector, Microsoft

“In the AI era, the imperative for governments to cultivate and modernize national AI strategies is paramount. Aligning with the rapid pace of AI advancements is not merely an option but a necessity for shaping a future where innovation thrives and societies flourish.”

In the rapidly evolving era of AI, governments face a critical imperative: to develop and modernize their national AI strategies. These strategies are not just blueprints but lifelines, guiding nations through the dynamic landscape of technological advancement. By updating their approaches, governments can ensure alignment with the accelerating pace of AI innovation, fostering environments where progress flourishes and societies thrive. Embracing this challenge isn't just an option—it's essential for shaping a future where the benefits of AI are maximized for the betterment of all.



Didier Ongena

WorldWide Government Industry Leader, Microsoft

“As AI reshapes industries, governments must harness these advancements to revolutionize key sectors, aligning with their priorities. Embracing AI's transformative power empowers governments to lead innovation, driving progress and prosperity for their citizens.”

In the ever-evolving landscape of technology, the transformative force of AI is reshaping industries at an unprecedented pace. Recognizing this tide of innovation, governments have a unique opportunity to leverage AI advancements to revolutionize key sectors in alignment with their strategic priorities. Embracing AI's potential enables governments to lead the charge in driving progress, fostering resilience, and ultimately, enhancing the well-being of their constituents.

2 Introduction

Artificial Intelligence (AI) has emerged as a focal point in discussions about digital transformation, with governments globally showing keen interest in its potential to revolutionize economies, streamline governance, and enhance public services. As the Kuwaiti Government advances its own internal conversations and works towards establishing its National AI Strategy to support the country and its citizens realize the benefit of AI responsibly, Microsoft developed this whitepaper, leveraging Microsoft's Global National AI Strategy Framework, with a proposed set of recommendations for the Government's consideration, as well as supporting information and analysis to help it along its planning and implementation AI journey.

In particular, this whitepaper analyses Kuwait's current technology and AI landscape and highlights the importance of developing and deploying AI responsibly and with privacy and security in mind. It also proposes initiatives to help advance Kuwait's AI goals under Kuwait's Vision 2035 and outlines strategic recommendations for the Government as it develops Kuwait's National AI Strategy, together with a potential implementation roadmap aligned with [Kuwait's Vision 2035](#) [1] and systematic methodologies for the monitoring of progress to help enable the strategy to be adaptable and responsive to evolving requirements and technological advancements.

At the outset, we propose setting foundational principles to serve as a guide to the Government to support Kuwait's AI national transformation and development of its National AI Strategy. The strategic framework set forth below meets this objective. The framework is comprised of several pillars aimed at fostering leadership and enabling strategic utilization of AI to bolster economic development and societal prosperity.





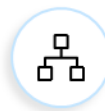
National AI Strategy Implementation

This pillar combines critical steps for executing the National AI strategy, including enhancing AI infrastructure, workforce upskilling, stakeholder collaboration, and strategic roadmap development. It emphasizes ongoing monitoring and adapting the AI initiatives to ensure they remain effective and aligned with national goals.



Sectoral Transformation through AI

This pillar aims at the strategic integration of AI technologies across various sectors to revolutionize service delivery, operational efficiency, and sectoral outcomes.



Regulatory Framework and Governance

This pillar is dedicated to establishing a comprehensive regulatory framework and governance model that promotes responsible AI practices, and ensures data privacy and security.



Current AI Landscape

This pillar focuses on understanding and evaluating country-specific current AI capabilities and potential through a comprehensive AI Maturity Model and SWOT analysis.



Strategic Objectives Definition

This pillar emphasizes the importance of aligning strategic objectives for the government's AI initiatives with the overarching governmental vision, ensuring that each goal directly contributes to the broader national agenda.



Vision for AI

This pillar encapsulates the foundational elements of the leadership and the strategic utilization of AI to catalyze global competitiveness, economic growth and enhance social prosperity.

Figure 1: Microsoft Proposed Framework for Development of National AI Strategy

We are grateful for the opportunity to contribute to this important initiative, in cooperation with the Central Agency for Information Technology (CAIT). The establishment of a National AI Strategy in Kuwait is an important step towards laying the groundwork to support the integration of AI across sectors and enabling the Government and its citizens to harness the transformative power of AI for the advancement of the nation.

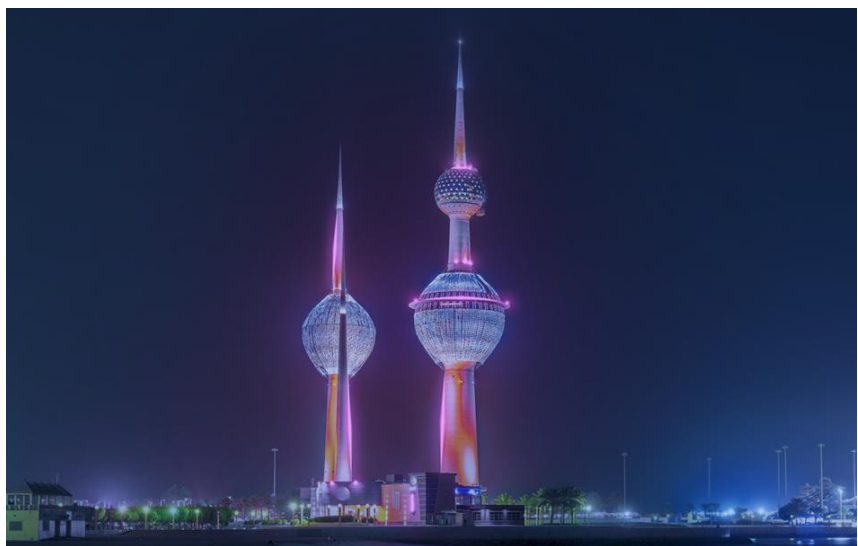
3 AI Shaping the Future of Kuwait's 2035 Vision

As we look towards Kuwait 2035, the Government is exploring ways it can embrace AI to advance its goals of driving innovation, boosting productivity, and enhancing the quality of life for its citizens.

This is not unique to Kuwait. Governments around the world are motivated to leverage AI due to its substantial potential to drive economic growth, enhance social development, and boost productivity. In fact, by 2030, AI technologies are expected to contribute up to \$15.7 trillion to the global economy, marking a notable 14% [increase in global GDP \[2\]](#). This surge is attributed to AI-driven productivity enhancements, the creation of new markets, and the innovation of products and services. Specifically, the [productivity boost \[3\]](#) is expected to increase by 15% to 40%, estimated at \$480 billion, alongside the [creation of 133 million new jobs \[4\]](#). This underscores the anticipated role AI will play in driving future economic expansion and reshaping employment sectors.

On the societal front, AI's deployment within government operations signifies a leap towards more efficient and responsive public services. By automating routine and administrative tasks, AI has the potential to alleviate the paperwork burden, which 53% of state and local officials report as a [significant challenge \[5\]](#). This automation is expected to translate into substantial time and financial savings. Beyond operational efficiencies, AI-powered analytics and decision-making tools are expected to enhance government services' quality and accessibility, offering more personalized and effective solutions to citizen needs. Furthermore, AI's application in fraud detection will help safeguard social welfare systems against fraudulent claims, thereby enabling resources to be allocated more efficiently and equitably.

In Kuwait specifically, the adoption of AI can play a pivotal role in accelerating the achievement of Kuwait's 2035 Vision by supporting Kuwait's efforts to enhance economic diversification, improve public services, and contribute to overall societal well-being. In order to realize the benefit of AI, it is important to proactively identify actionable steps and develop a plan of focused and prioritized execution. This approach is in line with the insights provided in the previously published whitepaper on [Kuwait's Digital Landscape \[6\]](#), which emphasizes the importance of AI in shaping the country's future.



While the elements below represent the pillars of Kuwait's 2035 Vision, they can also be used to build a roadmap for Kuwait in the context of AI. By focusing on data infrastructure, engaging stakeholders, securing investments, defining clear goals, and aligning with the long-term vision, Kuwait can harness the transformative power of AI for the benefit of its citizens and the nation as a whole. The integration of AI into various sectors as outlined in the [PwC report \[7\]](#), further reinforces the potential for AI to be a key driver in achieving the objectives of Kuwait's 2035 Vision.

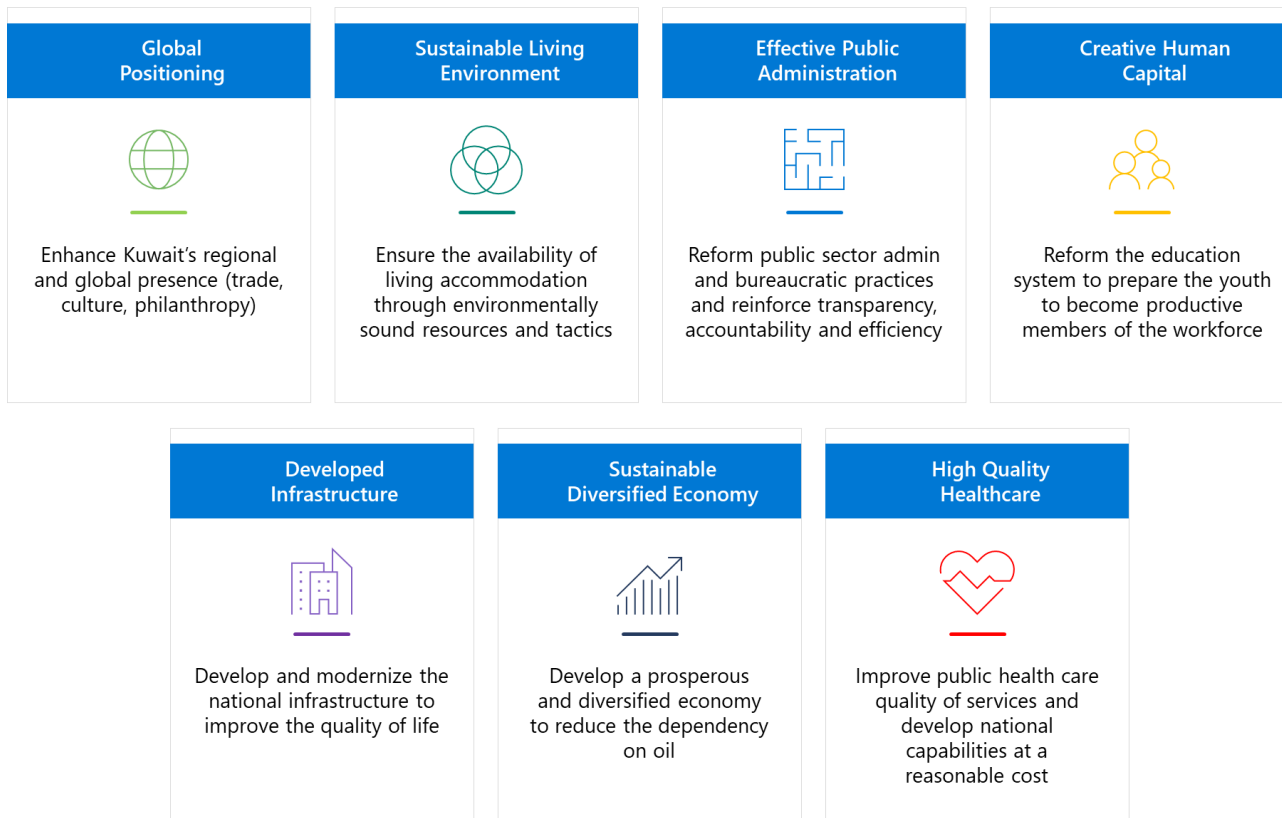


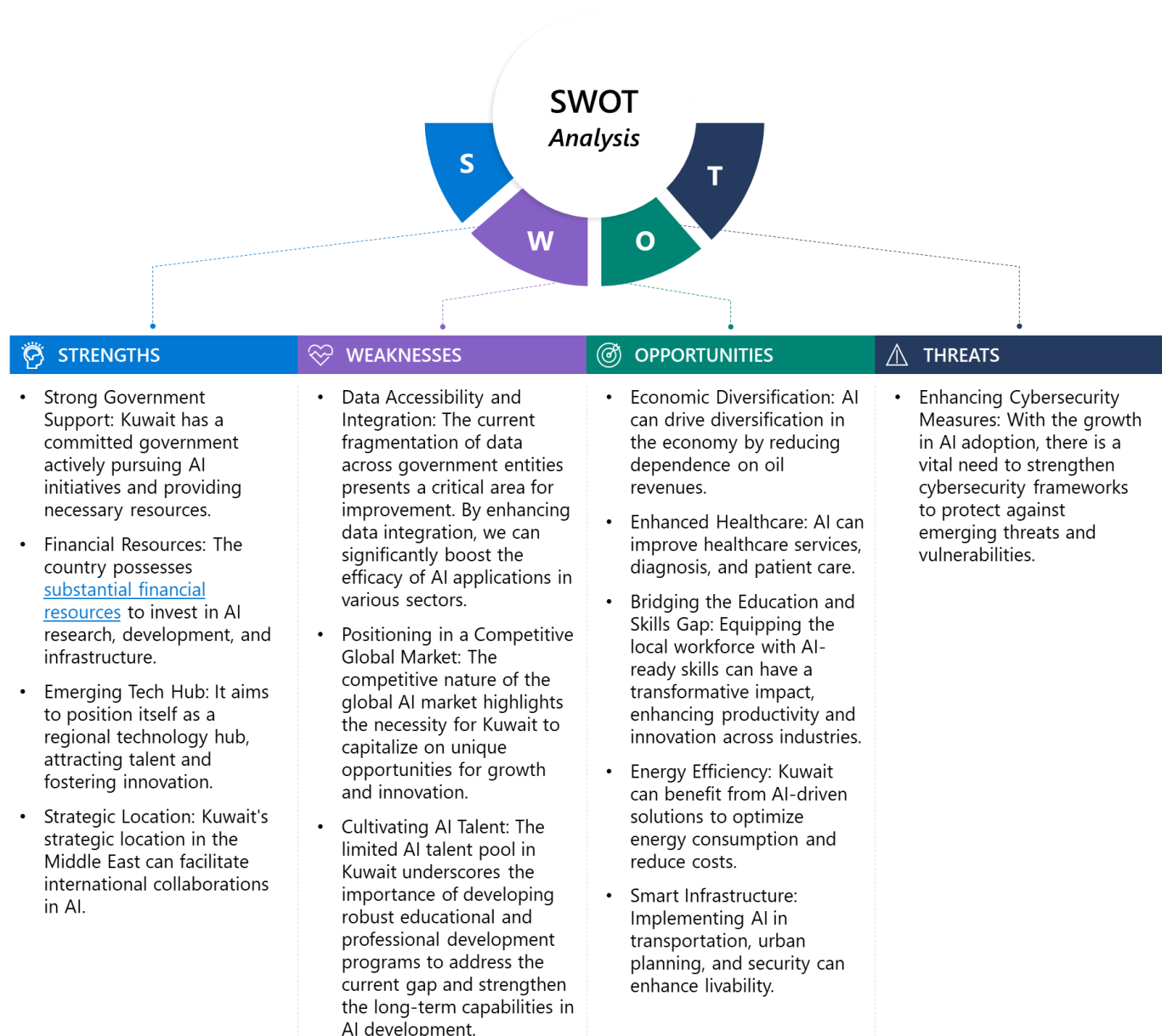
Figure 2: Kuwait 2035 Vision Pillars

Enabling Kuwait's vision for 2035, the strategic integration of AI technologies can help advance the nation towards its socioeconomic objectives. By leveraging AI-driven solutions across various sectors such as healthcare, education, transportation, and energy, Kuwait can enhance efficiency, optimize resource allocation, and foster innovation. AI is also a tool that can be used to streamline government processes, improve service delivery to citizens, and facilitate data-driven decision-making. Additionally, AI-powered initiatives can help drive sustainable development, promote diversification of the economy, and foster a knowledge-based society, aligning with Kuwait's aspirations for a prosperous and inclusive future.

4 Kuwait Current AI Landscape

To navigate and harness AI's potential, it is recommended that Kuwait government utilize AI maturity models and conduct SWOT analysis. This combined approach provides a thorough understanding of the strengths, weaknesses, opportunities, and threats associated with AI adoption, while also highlighting current capabilities and future aspirations, taking into account both internal and external factors.

As Kuwait seeks to establish itself as a leader in AI, these practices will help the government assess its AI maturity. Additionally, conducting a comprehensive analysis of its strengths, weaknesses, opportunities, and threats (SWOT) will help it understand the internal capabilities and external factors influencing Kuwait's AI ecosystem and support stakeholders navigate challenges, leverage opportunities, and chart a path towards sustainable growth and competitiveness in the rapidly evolving AI market. This strategic approach will not only aid effective utilization of resources but also foster innovation and drive economic development in Kuwait's AI sector.



5 Strategic Objectives

In embarking on Kuwait's journey towards becoming an AI-driven nation, defined, strategic objectives are essential to drive transformation across various sectors. The comprehensive AI strategic framework outlined below suggests strategic objectives for consideration by the Kuwaiti government, including establishing Kuwait as an AI hub, revolutionizing key sectors, building a robust AI ecosystem, transforming government and public services, and empowering the future-ready workforce. Through collaborative efforts and strategic planning, Kuwait aims to harness the full potential of AI while ensuring responsible deployment, to achieve its vision for 2035. An important part of realizing these objectives, is turning them from vision to execution which we cover in [section 8](#) below:

Establish Kuwait as an AI Hub	To position Kuwait as an AI innovation hub, concerted efforts will need to focus on creating state-of-the-art research facilities and collaborative environments. Attracting globally renowned AI researchers, fostering partnerships between academia and industry, and incentivizing groundbreaking AI projects will be crucial. Encouraging the exchange of knowledge and ideas through conferences, workshops, and international collaborations will be the cornerstone to establishing Kuwait as a distinguished AI hub.
Revolutionize Key Sectors through AI	Revamping Kuwait's key sectors involves strategic integration of AI technologies to revolutionize operations and services. Tailored AI applications in government, healthcare, education, energy, justice, and finance has the potential to significantly enhance public services and productivity. Collaborative initiatives between government and industry players are imperative to ensure effective deployment and seamless integration of AI technologies across these sectors.
Transform Government and Public Services	Revolutionizing government services with AI-driven solutions involves streamlining operations and improving service delivery for citizens. Implementing AI-powered automation in administrative processes, introducing AI chatbots for citizen support, and utilizing data analytics for decision making will mark the transformation. Ensuring transparency, accessibility, and user-friendliness will be central to this transformational process.
Building a Robust AI Ecosystem	Creating a robust AI ecosystem entails nurturing an environment that encourages innovation and entrepreneurship. Facilitating startup incubation programs, providing funding support, and establishing policies that incentivize collaboration between startups, established companies, and research institutions will lay the foundation. Fostering an environment that promotes knowledge sharing and collaboration will be pivotal in creating a thriving AI ecosystem.
Empower Future-ready Workforce and Talent	It is important for governments to develop effective strategies to manage the transition of their workforces into the era of AI. This entails the establishment of comprehensive educational programs tailored to meet the needs of AI-driven industries.

6 Key Sectors Revolutionized through AI

It is important to recognize the transformative impact of AI across key sectors around the world. From enhancing government operations to revolutionizing healthcare, education, and energy sectors, AI is proving to be a pivotal tool in driving efficiency and innovation. In the financial sector, AI is reshaping services and systems, while in justice, its contributing to fairer and more efficient processes. The transportation sector is witnessing a shift towards smarter and more sustainable solutions, and urban development is being reimagined through AI-enabled planning and management. Each of these sectors plays a vital role in the AI-powered realization of Kuwait's 2035 Vision, showcasing the breadth and depth of AI's potential in shaping the future of the industries.



Government



Healthcare



Education



Energy



Finance



Justice



Transportation



Cities and Urban Infrastructure

7 AI Governance, Privacy and Security

Around the world, governments and organizations are looking for guidance on how best to govern AI. How can we use this technology to solve our problems? How do we avoid or manage new problems it might create? There is, of course, no single or right approach. However, after several years of working to ensure Microsoft's own AI systems are safe, secure, and trustworthy, Microsoft offers ideas and suggestions to empower other governments and organizations on their responsible AI journey.

Towards this end, in May 2023, Microsoft published [Governing AI: A Blueprint for the Future \[8\]](#), a whitepaper to address several current and emerging AI issues through public policy, law, and regulation. The whitepaper proposes the following five-points, each of which is thoroughly explained in the whitepaper.

A five-point blueprint for governing AI	
01	Implement and build upon new government-led AI safety frameworks. We believe one of most effective ways to move quickly is to build on recent advances in governmental work that advance AI safety. A new AI Risk Management Framework introduced by the U.S. Department of Commerce's U.S. National Institute of Standards and Technology is a great example of this.
02	Require effective safety brakes for AI systems that control critical infrastructure. We propose new AI safety requirements for controlling the operation of designated critical infrastructure; part of a comprehensive approach to system safety that would keep effective human oversight, resilience, and robustness top of mind.
03	Develop a broader legal and regulatory framework based on the technology architecture for AI. We believe that regulatory responsibilities should be placed on organizations based upon their role in managing different aspects of AI technology, such as at the applications layer, the model layer, and the infrastructure layer of AI technology.
04	Promote transparency and ensure academic and public non-profit access to AI. We believe a critical public goal is to advance transparency and broaden access to AI resources. Our commitment is to inform the public about our AI policies, systems, performance, and progress through an annual transparency report and take other steps to expand transparency for our AI services.
05	Pursue new public-private partnerships to use AI as an effective tool to address the inevitable societal challenges that comes with new technology. We have witnessed what democratic societies can accomplish when they harness the power of technology and bring the public and private sectors together. We need to work together to use AI to protect democracy and fundamental rights, provide broad access to the AI skills that will promote inclusive growth, and use the power of AI to advance the planet's sustainability needs.

In this section, we share more details about Microsoft’s approach to responsible AI and Microsoft’s privacy and security recommendations and commitments to customers and society at large. For more information, you can also reference the following blogposts:

- <https://blogs.microsoft.com/on-the-issues/2023/02/02/responsible-ai-chatgpt-artificial-intelligence/>
- <https://blogs.microsoft.com/on-the-issues/2023/05/25/how-do-we-best-govern-ai/>
- <https://blogs.microsoft.com/blog/2023/06/08/announcing-microsofts-ai-customer-commitments/>
- [Responsible AI dashboard | Microsoft AI Lab](#)
- <https://github.com/microsoft/responsible-ai-toolbox#introducing-responsible-ai-dashboard>

7.1 Microsoft’s Commitment to Developing AI Responsibly

In 2016, Microsoft Chairman and CEO Satya Nadella set Microsoft on a clear course to adopt a principled and human-centered approach to its investments in AI. Since then, Microsoft has been hard at work to build and deploy products that align with Microsoft’s values. As it designs, builds and releases AI products, six values – transparency, accountability, fairness, inclusiveness, reliability and safety, and privacy and security – remain its foundation and guide Microsoft’s work every day. These values underly the responsible-by-design approach utilized by Microsoft.

In addition, for the past seven years, Microsoft has worked to advance responsible AI – artificial intelligence that is grounded in strong ethical principles. Microsoft has approached its work with humble recognition that trust is not given but earned through action, and a deep understanding of its responsibility, not just to Microsoft but to the community broadly. This has led Microsoft to be focused both on meeting its commitments and helping its customers and partners to do the same.

To further advance its transparency practices, in July 2023, Microsoft committed to publishing an annual report on its responsible AI program. The inaugural report was published in May 2024. Click [here](#) to read the full report. In the report, Microsoft provides insight into how it builds applications that use generative AI; makes decisions and oversees the deployment of those applications; supports customers as they build their own generative applications; and learns, evolves, and grows as a responsible AI community. Microsoft invites the public, private organizations, non-profits, and governing bodies to use this first transparency report to accelerate the incredible momentum in responsible AI already seen around the world.

7.2 Data Privacy and Security

Building on its long-standing practice of protecting customers’ information, Microsoft has built its approach to Responsible AI on a foundation of privacy and remains dedicated to upholding core values of privacy, security, and safety in all of its generative AI products and solutions. The privacy commitments Microsoft customers have long relied on for its enterprise cloud products also apply to its enterprise generative AI solutions, including Azure OpenAI Service and Copilots. This includes:

Microsoft's privacy commitments apply to AI



We will keep your organization's data private.



Your organization's data is not shared.



You are in control of your organization's data.



Your organization's data security and privacy are protected by design.



Your access control and enterprise policies are maintained.



Your organization's data is not used to train foundation models.



Our products and solutions comply with global data protection regulations.

Figure 3: Microsoft's Privacy Commitments

For further details on Microsoft's commitments to customers and approach to privacy and security, please see the following blogpost: <https://blogs.microsoft.com/on-the-issues/2024/03/28/data-protection-responsible-ai-azure-copilot/>.

7.2.1 AI application security consideration for Governments

As the Government develops and deploys its own AI technology, it is important to ensure that application safety systems are built to protect the AI application from malicious activities. The safety system provides deep inspection of the content being used in the Metaprompt sent to the AI model. The safety system also inspects the interactions with any plugins, data connectors, and other AI applications (known as AI Orchestration). One way government agencies can incorporate this in its own IaaS/PaaS based AI application is to use the [Azure AI Content Safety \[9\]](#) service. Other capabilities are available depending on specific needs.

As with cloud services, government customers have options when implementing AI capabilities. Depending on the option chosen, the customer takes responsibility for different parts of the necessary operations and policies needed to use AI safely. As with all its products, Microsoft approaches its AI products through a shared responsibility with customers, as there are some aspects that are best suited to be the responsibility

of Microsoft and some that more appropriately sit with the customer. The following diagram illustrates the shared responsibility model between Microsoft and its customers for its AI solutions:

AI shared responsibility model

		Customer		Microsoft	
		Shared		Model dependent	
		IaaS (BYO model)	PaaS (Azure AI)	SaaS (Copilot)	
AI usage	User training and accountability	Customer	Customer	Customer	Customer
	Usage policy, admin controls	Customer	Customer	Customer	Customer
	Identity, device, and access management	Customer	Customer	Customer	Microsoft
	Data governance	Customer	Customer	Customer	Microsoft
AI application	AI plugins and data connections	Customer	Customer	Customer	Microsoft
	Application design and implementation	Customer	Customer	Microsoft	
	Application infrastructure	Customer	Customer	Microsoft	
	Application safety systems	Customer	Shared	Microsoft	Microsoft
AI platform	Model safety and security systems	Customer	Shared	Microsoft	Microsoft
	Model accountability	Customer	Model dependent	Microsoft	Microsoft
	Model tuning	Customer	Model dependent	Microsoft	Microsoft
	Model design and implementation	Customer	Model dependent	Microsoft	Microsoft
	Model training data governance	Customer	Model dependent	Microsoft	Microsoft
	AI compute infrastructure	Shared	Microsoft	Microsoft	

7.2.2 Security Baseline for Azure Open AI

Another important security consideration for the Government in implementing AI solutions is the establishment of a robust security baseline. As AI technologies become increasingly integrated into various aspects of business operations, safeguarding sensitive data and mitigating cybersecurity risks become critical. A security baseline provides a structured approach to identify potential vulnerabilities, establish protective measures, and enforce compliance with regulatory requirements. With the proliferation of AI-driven applications across industries, maintaining a secure environment not only protects valuable assets but also fosters trust among users and stakeholders. By adhering to established security standards and best practices, organizations can proactively address security challenges and ensure the integrity and reliability of their AI implementations.

It is recommended to leverage the security baseline guidance outlined in the [Microsoft cloud security benchmark version 1.0 to Azure OpenAI \[10\]](#) to ensure the robust security of Azure OpenAI solutions. This benchmark offers comprehensive recommendations tailored to securing cloud environments on Azure, organized according to the defined security controls. The guidance provided is specifically relevant to Azure OpenAI deployments, ensuring alignment with industry-leading security standards.

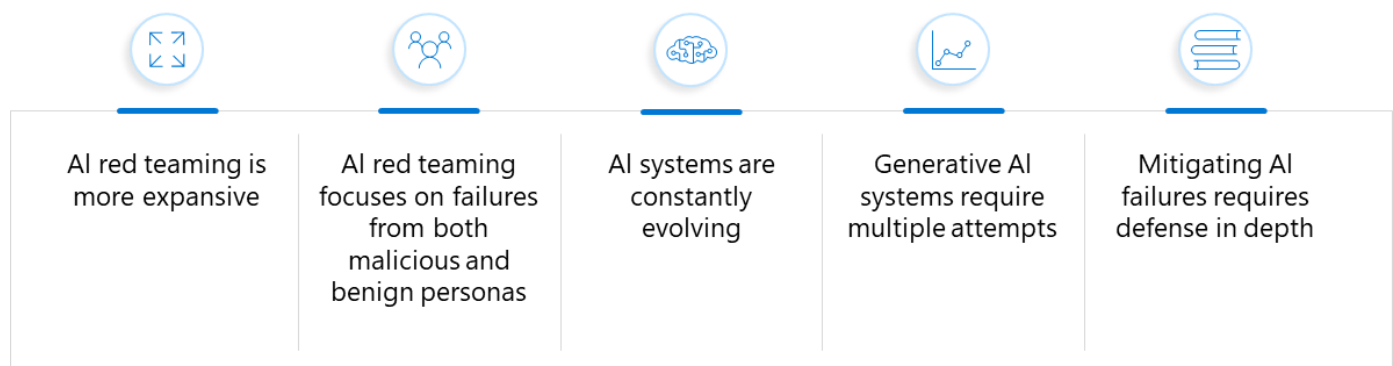
7.2.3 Red Teaming for AI

From Microsoft's perspective, an essential aspect of the development and deployment of AI solutions is red teaming. Red teaming broadly refers to the practice of emulating real-world adversaries and their tools, tactics, and procedures to identify risks, uncover blind spots, validate assumptions, and improve the overall security posture of systems. However, the practice of AI red teaming has evolved to take on a more expanded meaning: it not only covers probing for security vulnerabilities, but also includes probing for other system failures, such as the generation of potentially harmful content.

AI systems come with new risks, and red teaming is core to understanding those novel risks, such as prompt injection and producing ungrounded content. AI red teaming is not just a nice to have at Microsoft; it is a cornerstone to responsible AI by design. As Microsoft President and Vice Chair Brad Smith [announced](#) [11], Microsoft recently committed that all high-risk AI systems will go through independent red teaming before deployment.

Security-related AI red teaming is part of a larger responsible AI red teaming effort that focuses on Microsoft's AI principles of fairness, reliability and safety, privacy and security, inclusiveness, transparency, and accountability. The collective work has had a direct impact on the way Microsoft ships AI products to customers. For instance, before the new Bing chat experience was released, a team of dozens of security and [responsible AI](#) [12] experts across the company spent hundreds of hours probing for novel security and responsible AI risks. This was in addition to the regular, intensive software security practices followed by the team, as well as red teaming the base GPT-4 model by RAI experts in advance of developing Bing Chat. Microsoft's red teaming findings informed the systematic measurement of these risks and built scoped mitigations before the product shipped.

AI red teaming



Together, probing for both security and responsible AI risks provides a single snapshot of how threats and even benign usage of the system can compromise the integrity, confidentiality, availability, and accountability of AI systems. This combined view of security and responsible AI provides valuable insights not just in proactively identifying issues, but also to understand their prevalence in the system through measurement and inform strategies for mitigation.

AI is shaping up to be the most transformational technology of the 21st century. And like any new technology, AI is subject to novel threats. Earning the trust by safeguarding products remains a guiding principle as Microsoft enters this new era – and the AI Red Team is front and center of this effort.

For the full blog, please visit: [Microsoft AI Red Team building future of safer AI | Microsoft Security Blog](#)

8 Kuwait National AI Strategy: From Vision to Execution

In this section, our focus will be on how to progress from vision to execution of the National AI Strategy. We outline key next steps the Kuwaiti Government may consider to realize the value of AI and establish critical foundations essential for its adoption.

1	Advancing Responsible AI	Ensuring AI is developed and deployed responsibly within Kuwait is a critical piece of the AI puzzle. As the Kuwait government considers its own AI governance, we invite policymakers to consider the policy and regulatory recommendations proposed by Microsoft in the five-point blueprint referred to in Section 7.
2	Strengthening Data and Technological Infrastructure for AI Advancement	Building robust foundations for AI implementation by investing in data infrastructure, cybersecurity measures, and cutting-edge technological platforms.
3	Identifying and Engaging Key Stakeholders for AI Governance	Fostering collaboration among key stakeholders across government entities, private sector, academia, and civil society to maximize the benefits of AI and address potential challenges.
4	Empowering the Workforce for an AI-Driven Future	Implementing initiatives to upskill and reskill the workforce, equipping them with the necessary skills and resources to thrive in an AI-driven economy.
5	Proactively Introducing and Executing a National AI Strategy	Below, we outline strategies for short-, medium-, and long-term plans to navigate the evolving landscape of AI implementation, balancing immediate successes with sustainable, forward-looking actions.
6	Monitoring and Evaluating on an On-going Basis	Introducing a monitoring and evaluation plan to support effective execution and continuous improvement.

8.1 Advancing Responsible AI in Kuwait

In setting the stage for Kuwait's AI-driven transformation, we recommend you consider Microsoft's five-point blueprint developed to help guide governments and policy makers along their regulatory and governance journey. In particular, amongst other recommendations, we suggest governments implement and build upon new government-led AI safety frameworks, such as the US Department of Commerce's U.S. National Institute of Standards and Technology. One of the most effective ways to move quickly is to build on recent advances in governmental work that advance AI safety. Also, effective safety brakes for AI systems that control infrastructure are required. We propose new AI safety requirements for controlling the operation of designated critical infrastructure; part of a comprehensive approach to system safety that would keep effective human oversight, resilience, and robustness top of mind. Finally, we call for the development of a broad legal and regulatory framework based on the new technology architecture for AI.

We believe that regulatory responsibilities should be placed on organizations based on their role in managing different aspects of AI technology, such as at the applications layer, the model layer, and the infrastructure layer of AI technology.

As a global technology company and a pioneer in AI research and innovation, Microsoft is committed to advancing and supporting responsible generative AI in collaboration with policymakers and industry and civil society stakeholders. We have an opportunity to bring public and private sectors together to use AI as a tool to improve the world, including by countering the challenges that technological change inevitably creates. We look forward to continuing to work together and expand our partnership to help advance responsible AI in Kuwait and beyond.

8.2 Strengthening Data and Technological Infrastructure for AI Advancement:

In an era driven by data, Kuwait's pursuit of AI advancement necessitates a dual focus on strengthening both data management and digital infrastructure. Addressing challenges such as data fragmentation, security concerns, and the need for enhanced data quality assurance is paramount to unlocking the full potential of AI. Simultaneously, enhancing data management and digital infrastructure are important steps to support AI integration and to help maximize the benefits of AI-driven solutions.

8.2.1 Data Management Enhancement:

For data management enhancement, we recommend the following:

- Conduct an extensive audit of existing data management to identify strengths, weaknesses, and gaps.
- Develop comprehensive data governance policies and standards focusing on security, privacy, quality, and access.
- Establish secure protocols and platforms for data sharing among government entities, research institutions, and businesses, ensuring data privacy and security.
- Implement centralized data repositories, data quality assurance mechanisms, and comprehensive data security protocols to safeguard sensitive information.

8.2.2 Digital Infrastructure Enhancement:

For digital infrastructure enhancement, we recommend the following:

- Allocate resources towards digital infrastructure enhancement, including the adoption of cloud services, to bolster the AI ecosystem's expansion.
- Develop a strategy for cloud migration and adoption to leverage the flexibility, scalability, and cost-efficiency of cloud platforms in managing and analyzing vast datasets.
- Strengthen cybersecurity measures, employing encryption, multi-factor authentication, regular audits, and compliance checks, to protect against data breaches and security threats.

By concurrently strengthening data management and digital infrastructure, Kuwait can create an enabling environment for more effective AI integration, driving innovation, efficiency, and competitiveness across sectors. Strategic investments in digital enablement and cybersecurity measures will support Kuwait in its goal to be at the forefront of AI adoption, unlocking new opportunities for economic growth and societal advancement.

8.3 Identifying and Engaging Key Stakeholders for AI Governance in Kuwait

To enable the successful execution of Kuwait’s National AI Strategy, it is advisable for the Government to adopt an efficient and collaborative approach among key stakeholders in the Kuwait ecosystem. The following organizational chart presents a suggested structure to facilitate coordination and cooperation:

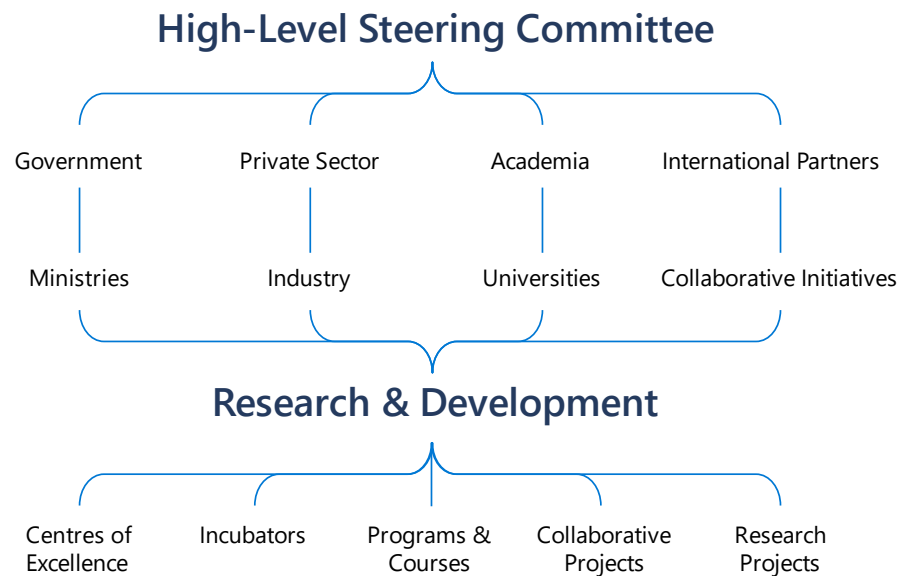


Figure 4: Proposed Stakeholders Organizational Chart

This proposed structure envisions a High-Level Steering Committee at the top, representing government bodies, private sector leaders, academic institutions, and international partners. This Committee serves as the central decision-making and coordination body, with sector-specific task forces formed to delve into individual sectors, identify AI-integration opportunities and design sector-specific AI solutions.

This proposed structure contemplates government ministries continuing to oversee policy and regulatory development and the private sector contributing by providing industry expertise and practical feedback. Academia would also play a key role sharing research and helping to foster and educate future AI talent. In addition, international industry partners would be critical to share global best practices and thought leadership and to engage in collaborative initiatives with the Government.

Finally, various entities would be expected to be part of the ecosystem that contributes research and development to the High-Level Steering Commitment, including Centers of Excellence, incubators, and various educational programs. Collaborative research projects and initiatives are conducted would be conducted across these entities.

In sum, organized collaboration across these various segments of society is an example of how the Government may be able to support a cohesive and coordinated effort across Kuwait’s AI ecosystem.

8.4 Empowering the Workforce for an AI-Driven Future

The skills gap in AI is an important consideration for governments as the demand for AI expertise across the globe exceeds the supply of qualified professionals. This discrepancy is becoming increasingly pronounced as AI technologies advance and permeate various sectors, from healthcare to finance. According to a report by the World Economic Forum, by 2025, AI and machine learning could create 97 million new roles

worldwide, but the lack of skilled professionals poses a significant barrier to filling these positions. Furthermore, a survey by Gartner revealed that 54% of Chief Information Officers identified the skills shortage as the biggest challenge in adopting AI technologies, highlighting the critical need for education and training programs to bridge this gap. This skills' gap not only hampers the adoption and implementation of AI solutions but also threatens to widen the technological divide across regions and industries, underscoring the urgency of addressing this challenge through concerted efforts in education, workforce development, and policy-making.

In response to the transformative impact of AI on industries and societies, key actions have been identified to bolster workforce transition. These encompass implementing skill development programs, enhancing educational curricula, facilitating scholarships and internships, and conducting public awareness campaigns. These initiatives aim to equip individuals with the necessary skills, knowledge, and awareness to thrive in an AI-driven environment while fostering responsible development and usage of AI technologies.

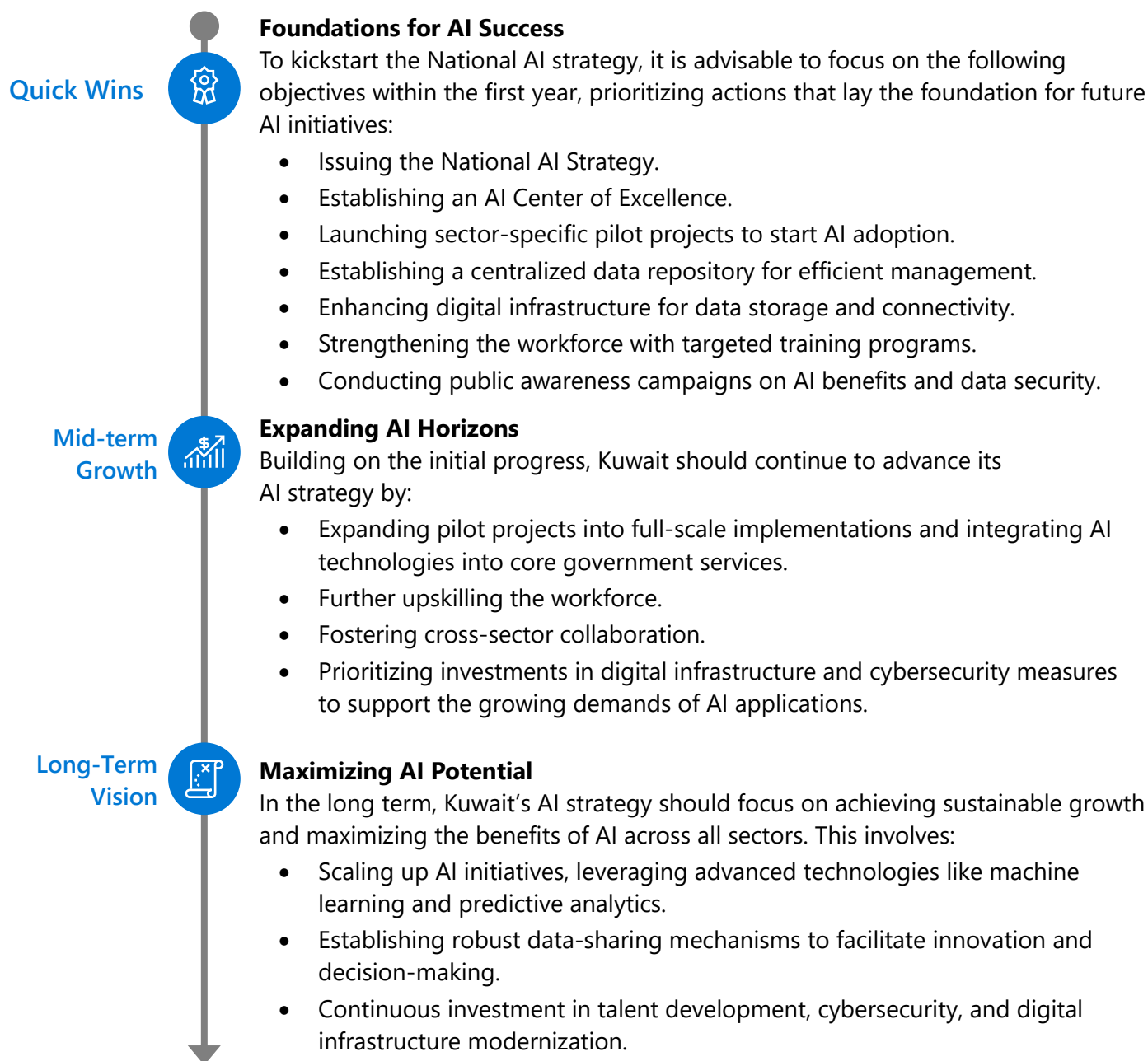
Key actions to bolster workforce transition encompass:

A	Skills Development Programs	• Launch comprehensive skills development programs in Kuwait tailored to the needs of different industries and job roles, focusing on AI-related skills such as data analysis, machine learning, and AI programming. • Collaborate with educational institutions, industry partners, and training providers in Kuwait to design and deliver targeted training courses, workshops, and certification programs aimed at building AI proficiency among employees. • Establish AI centers of excellence or innovation hubs within organizations in Kuwait to provide hands-on training, mentorship, and support for employees to experiment with AI technologies and develop practical skills.
B	Promoting Digital Literacy and Public Awareness	• Promote digital literacy initiatives in Kuwait to enhance the understanding of AI concepts and technologies among the general population, including citizens, students, and non-technical professionals. • Launch public awareness campaigns and educational programs in Kuwait to demystify AI, raise awareness about its potential benefits and implications, and empower individuals to make informed decisions in the AI-driven world. • Provide accessible and user-friendly resources in Kuwait, such as online courses, tutorials, and interactive tools, to facilitate self-paced learning and skill development in AI-related topics
C	Fostering Collaboration and Knowledge Sharing	• Encourage cross-sector collaboration and knowledge sharing platforms in Kuwait to facilitate the exchange of best practices, lessons learned, and innovative ideas in AI implementation. • Establish communities of practice or professional networks in Kuwait where AI enthusiasts, practitioners, and experts can connect, collaborate, and learn from each other's experiences.

By empowering the workforce with the requisite skills, knowledge, and resources, Kuwait can seek to cultivate a thriving ecosystem of AI-driven innovation and entrepreneurship, driving sustainable economic growth and societal development in the digital age. Through concerted efforts to invest in human capital development and promote lifelong learning, Kuwait can advance its objective to position itself as a leader in harnessing the transformative potential of AI for the benefit of its workforce and citizens.

8.5 Charting the Course: Kuwait's AI Journey

As Kuwait embarks on its journey towards harnessing the transformative potential of AI, it is crucial to establish a solid foundation at every stage of implementation. In this section, we outline foundational areas that can offer potential short-term opportunities, some more medium-term areas of potential growth and development, and, finally, strategic opportunities that require long-term planning and implementation. Each of the proposals below are suggestions for consideration by the Government as it advances Kuwait's AI strategy progressively over a timeline to align with Kuwait 2035 vision, with a focus on the Government's stated strategic objectives.



By adhering to a strategic roadmap that prioritizes data and infrastructure enhancements, Kuwait can pave the way for a future powered by AI, in line with its 2035 development vision.

8.6 National AI Strategy Implementation Progress Monitoring

Monitoring the progress of National AI Strategy implementation is essential to ensure that Kuwait Government achieves its strategic objectives effectively. By implementing a comprehensive AI implementation progress monitoring approach, Kuwait can ensure that its AI strategy remains on course, achieves its objectives, and ultimately contributes to the nation's growth, development, and competitiveness in the global AI arena. Below are the key aspects of National AI Strategy implementation progress monitoring:

Key Performance Indicators (KPIs)

It is recommended that Kuwait establishes a set of KPIs aligned with its strategic objectives. These KPIs should be measurable, specific, and relevant to each objective.

Data Collection and Analysis

Implementing a data-driven approach is crucial for effective progress monitoring. It is advised to collect relevant data on an ongoing basis, encompassing data related to AI project outcomes, financial investments, and user feedback.

Regular Reporting

It is recommended that Kuwait establishes a reporting mechanism that offers regular updates on AI implementation progress.

Adaptive Management

Kuwait is encouraged to adopt an adaptive management approach, allowing for flexibility in strategy implementation.

Independent Evaluation

Periodic independent evaluations conducted by external experts can provide an unbiased assessment of AI implementation progress. These evaluations can offer recommendations for improvement and help in optimizing resource allocation.

Public Awareness

It is essential to keep the public informed about AI progress to build trust and garner support. Regular updates through various communication channels can engage citizens and stakeholders, making them aware of the positive impacts of AI on society.

Lessons Learned

Kuwait is advised to promote a culture of learning from both successes and failures. Documenting and sharing lessons learned from AI implementation can guide future initiatives and prevent the repetition of mistakes.

Continuous Improvement

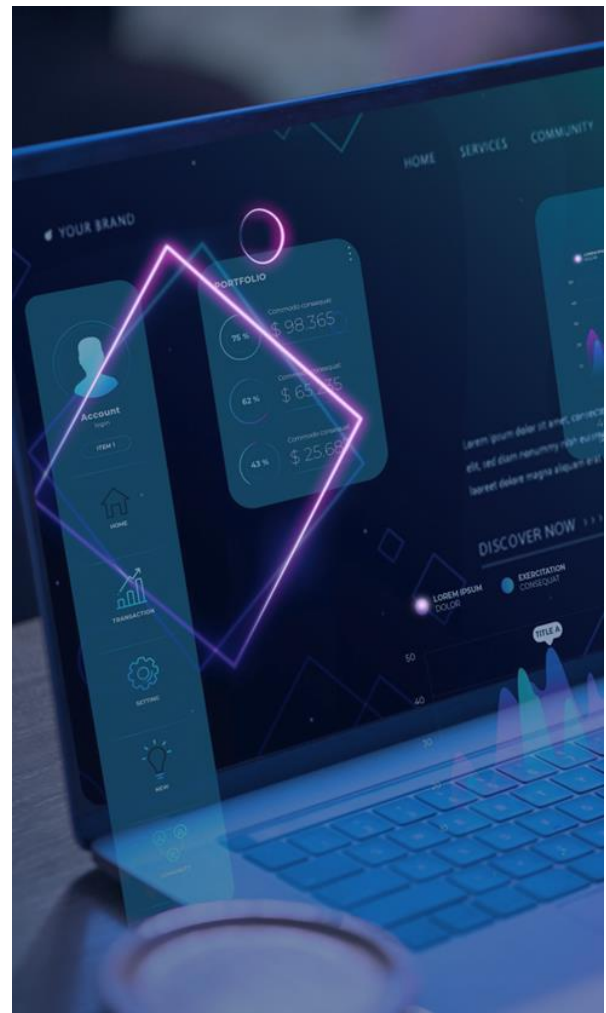
AI implementation progress monitoring should be an ongoing process, with a focus on continuous improvement. Feedback loops and iterative adjustments will enable Kuwait to stay responsive to changing dynamics and emerging opportunities in the AI landscape.

9 Next Steps

In summary, this framework serves as a proposed guide for Kuwait to systematically develop its National AI Strategy. By focusing on these fundamental pillars, Kuwait has the potential to create a solid foundation for fostering AI-driven advancements and innovation across various sectors and to advance its goal to drive economic growth and societal progress in alignment with its 2035 Vision.

To fully realize the benefit of AI, Kuwait is encouraged to prioritize the swift development and implementation of its National AI Strategy. It is also recommended that, moving forward, Kuwait continues to build on this collaborative foundation with a focus on continuous learning, innovation, and adaptation to emerging AI technologies. This collaborative effort will ensure that the strategy remains dynamic and responsive to both national and global AI advancements.

The journey to digital transformation is a constantly evolving one and thus continued dialogue and collaboration with industry remains extremely important. Towards this end, it is our aim to follow up with a series of workshops, during which we will engage in deeper discussions on each of the key pillars, and in the spirit of true collaboration, continue to seek feedback on how we can advance our partnership. Through our [in-country team](#) and Microsoft's Worldwide Public Sector team, we look forward to continuing the National AI Transformation conversation with Kuwait Government in the months and years to come.



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“AI is not the future, it is now. Most IT vendors have adopted AI solutions to supplement their products and are enhancing their products to make AI crucial to their success. Those vendors that are only now considering AI are at a considerable disadvantage to IT vendors that have AI-based products already in production, and AI is becoming crucial to the capabilities of many products.”

– Mike Glennon, Senior Market Research Analyst, IDC

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