



Emerging Technologies Adoption Readiness in Government Agencies 2025

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Preamble

1. Preamble

Based on Council of Ministers Resolution No. (418), dated 25/07/1442H, which approved the establishment of the Digital Government Authority, and pursuant to Paragraphs (5) and (10) of Article (4), the Authority is entrusted with the responsibilities of "issuing measurements, indicators, tools, and reports to assess the performance and capabilities of government agencies in the field of digital government, as well as beneficiary satisfaction," and "providing support to government agencies regarding digital government services to facilitate the adoption and enablement of emerging technologies."

In line with the Authority's commitment to effectively supporting government agencies in achieving their objectives and ensuring compliance with the "Digital Government Policy," which emphasizes the integration of emerging technologies to accelerate digital transformation across various sectors, the Authority has launched the "Emerging Technology Adoption Readiness Index." This index is designed to assist government agencies in assessing their current readiness to adopt emerging technologies, identifying gaps and opportunities for improvement, and providing the necessary plans to develop capabilities that align with their institutional needs, ensuring the strategic and sustainable realization of the intended benefits.

This report for the year (2025) presents the results recorded by government agencies in the (third) cycle of the Emerging Technology Adoption Readiness Assessment. Additionally, it briefly highlights select success stories, categorized by their respective sectors.

The objective of the report

This report aims to provide an overview of the "Emerging Technology Adoption Readiness Index" for the year (2025), its objectives, the agencies included, and the criteria used for their selection. It also addresses the capabilities, elements, and standards on which the Index focuses, as well as the mechanisms for measuring them. Furthermore, it aims to showcase the most prominent success stories of the included sectors, the overall result of the Index, and the results achieved by the agencies; in accordance with the following four capabilities: Research, Communicate, Prove and Integrate.



The Kingdom of Saudi Arabia places a high priority on adopting emerging technologies to drive economic growth and development, with a particular focus on artificial intelligence, renewable energy, and digital transformation within the framework of Saudi Vision (2030) initiatives.

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**Statement by H.E.
the Governor of the Digital
Government Authority**



His Excellency Ahmed Bin Mohammed Alsuwaiyan Governor, Digital Government Authority

The Kingdom of Saudi Arabia has made significant strides in adopting advanced technologies to improve government performance and provide citizen-centered services. As a result of this commitment, the Kingdom has attained the (4th) rank globally in the 'Online Service Index (OSI)' and ranked (6th) in the 'United Nations E-Government Development Index (EGDI)', reflecting the success of its digital transformation initiatives. As Saudi Arabia is not only enhancing its digital capabilities but also preparing to meet the growing demands of its citizens with smarter, more responsive government services.

As we embark on our journey towards achieving an ambitious future, we support development and innovation by taking advantage of the latest technologies and solutions with the aim of effectively forming the government of the future. The Digital Government Authority undertakes to implement these tasks, as it measures the readiness of government agencies to adopt emerging technologies. This includes not only providing the necessary support but also identifying impactful and sustainable technologies, investing in them strategically, and deploying them effectively. Together, these efforts aim to improve the beneficiaries' experience to ensure that their needs are met or even exceeded thanks to seamless integration with advanced solutions.

This report reviews some success stories of emerging technologies, where the ambitious shift has taken place from traditional work methods to innovative solutions in digital government services. By highlighting the government agencies that are best in this field, the report emphasizes their readiness and capabilities, and also reflects the strengths in various sectors. These success stories highlight the most significant achievements in the adoption of new technologies and showcase the broader shift towards more forward-looking and effective practices across government services.

These efforts align with the broader Saudi Vision (2030) to promote innovation and sustainable growth; the Kingdom of Saudi Arabia is making tangible progress toward achieving the Vision's objectives through continuous investment in emerging technologies such as artificial intelligence, ensuring that its government services remain modern, advanced, and future-ready.

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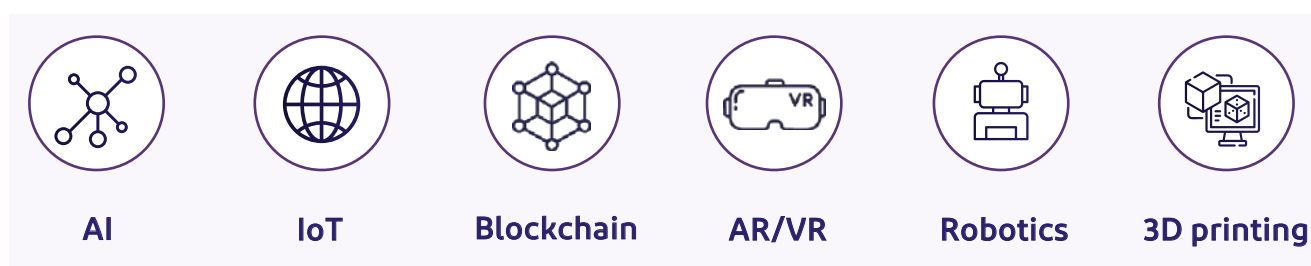
Introduction

3. Introduction

3.1. Overview of emerging technologies globally

3.1.1 Emerging technologies

Modern technologies that support the implementation of digital government activities, which its applications still under development. These technologies are typically more efficient, higher in quality, or faster in performance compared to traditional methods and technologies. Examples of emerging technologies include:



3.1.2 Global impact of emerging technologies

The global adoption of emerging technologies is reshaping economies, societies, and industries at an unprecedented pace, marking a transformative era in which innovation is not just a competitive advantage but a necessity. Technologies such as Artificial Intelligence (AI), robotics, the Internet of Things (IoT) and blockchain, are at the forefront, redefining how organizations operate, integrate, and deliver value. This shift is global in scope, influencing developed and developing countries alike, as both public and private sectors invest heavily in digital solutions to enhance efficiency, drive economic growth, and solve complex societal challenges.

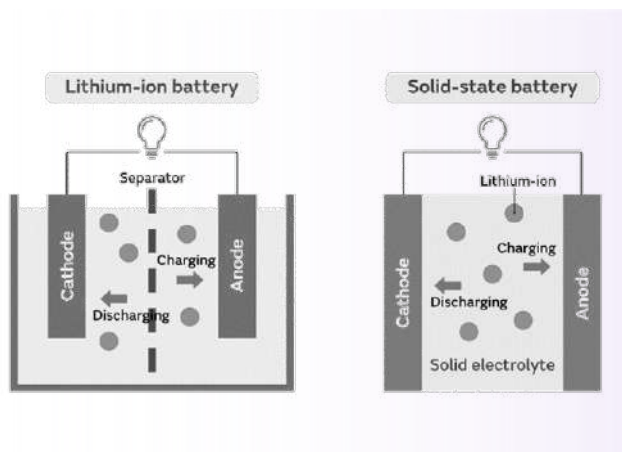
In recent years, we have seen how emerging technologies can improve flexibility, smoothness, and scalability across various sectors, from healthcare and education to finance and manufacturing. These technologies have unlocked new ways to gather and analyze data, automate tasks, and create personalized experiences, ultimately leading to higher productivity and more informed decision-making. Nations worldwide recognize the strategic importance of adopting these technologies, which not only promise economic benefits but also offer solutions to critical issues like climate change, healthcare accessibility, and infrastructure sustainability.

However, the journey toward comprehensive technology adoption is not without challenges. Concerns over data privacy, cybersecurity, workforce displacement, and the digital divide, as well as implementation difficulties, underscore the complexities of this transition. For countries looking to harness the full potential of emerging technologies, balanced approaches that prioritize responsible innovation, regulatory clarity, and equitable access are essential.

The following section provides an overview of the global impact of emerging technology adoption, highlighting key trends and opportunities. It explores how different nations are navigating this technological landscape. By understanding the transformative power of these technologies and the varied approaches to their adoption, stakeholders can gain valuable insights into the future of a connected, technology-driven world and the pathways to sustainable growth and innovation.

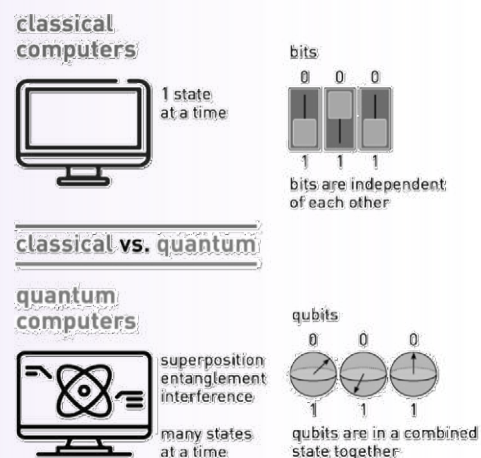
3.1.3 Emerging technology trends for the coming years

Emerging technologies refer to modern, rapidly growing innovations that provide creative solutions and innovative methods. These technologies are expected to reshape industries, enhance economies, and drive widespread societal progress. Whether they stem from entirely new inventions or incremental advancements of existing technologies, emerging technologies evolve through pioneering developments in various fields of science and engineering. They continuously push the boundaries of what is possible, exploring new horizons. These technologies manifest across a broad spectrum, from the microscopic scale of nanotechnology to large-scale scientific projects such as Geneva's Large Hadron Collider (LHC). These innovations span various fields, such as quantum computing, sustainable energy, and smart cities, highlighting the broad impact of these technologies. This section reviews the most prominent strategic trends in emerging technologies for 2025, focusing on their significance and impact.

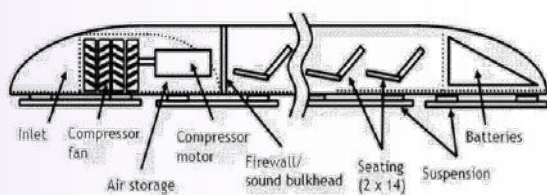
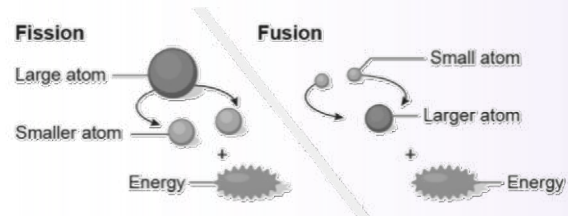


3.1.3.1 Solid-state batteries: Solid-state batteries are among the most transformative innovations in energy storage, offering significantly higher energy density compared to traditional lithium-ion batteries. These advancements blur the lines between science fiction and reality. They also have the ability to achieve a full charge in under 10 minutes, making them a game changer in energy storage. Their enhanced performance makes them particularly suitable for applications requiring large-scale energy storage, such as electric vehicles and solar energy systems, contributing to the advancement of sustainable energy use.

3.1.3.2 Disruptive Quantum Computing: In the realm of computational technology, quantum computers leverage the principles of quantum physics to transcend the limitations of classical computing. These systems are redefining what is possible in terms of speed and efficiency. For instance, in an experiment conducted by Google, a quantum computer executed a complex algorithm in just 200 seconds—a task that would take the world's most advanced supercomputer approximately 10,000 years to complete. Quantum computing opens new frontiers in multiple fields, including quantum encryption to enhance cybersecurity and molecular simulations for drug and material development. These unprecedented capabilities pave the way for breakthroughs in optimizing complex processes, such as supply chain management through innovative quantum algorithms.



3.1.3.3 Green & sustainable energy: The production of green & sustainable energy, often referred to as renewable energy, is an emerging technological trend that is gaining momentum worldwide. From solar power to wind turbines, these energy sources are undergoing continuous advancements that enhance their efficiency. A prominent technology in this area is fusion energy, which harnesses power from nuclear fusion—a reaction similar to the one fueling the sun while minimizing radioactive waste. Additionally, another sustainable energy source is Ocean Thermal Energy Conversion (OTEC). OTEC utilizes temperature variations at different ocean depths to drive turbines and generate electricity. A similar approach can be applied to geothermal energy, which relies on harnessing dormant heat from beneath the Earth's crust for power generation.



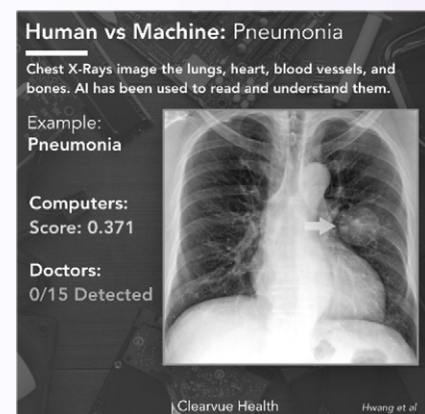
3.1.3.4 Air Travel: The transportation sector has witnessed significant advancements driven by technological progress. One of the most notable innovations is air travel technology. For example, Quiet Supersonic technology offers more efficient and quieter solutions for high-speed air travel. This innovation emerged in response to the shortcomings of previous projects, such as the Concorde aircraft. In ground transportation, the Hyperloop system presents a groundbreaking vision for travel. Capsules can travel at speeds of up to 1,200 km/h within low-pressure tubes, redefining the concept of high-speed transportation.

3.1.3.5 Artificial Intelligence:

Smart Cities: AI-Driven Solutions for Sustainable Urban Mobility : AI-driven systems are fundamental to Smart City initiatives, enhancing urban mobility and logistics by integrating technologies like autonomous vehicles and drone delivery. These technologies contribute to improving traffic flow and reducing congestion. Additionally, they support sustainable urban environments, enhance accessibility and convenience for residents, and reduce environmental impact.

Generative AI and Creative Applications: One rapidly growing area within AI is Generative AI, a technology capable of producing human-like text, video, audio, and images that resemble natural surroundings. This technology has driven transformation across multiple sectors, including journalism, marketing, and customer service, revolutionizing content creation and interaction strategies with audiences. Additionally, in software programming, Generative AI can generate high-quality, error-free code within seconds, as well as review and correct existing code, enhancing development processes across the tech industry.

AI in Healthcare: Personalized and Predictive Solutions: AI has achieved major successes in healthcare, playing a prominent role in improving the experience of physicians, healthcare practitioners, and patients alike. Through AI, treatment plans can be designed based on an individual's medical history and current condition. Predictive models powered by AI and based on machine learning principles can estimate future health risks under various scenarios, such as assessing the probability of developing type 1 diabetes depending on specific lifestyle choices. AI also assists physicians in interpreting medical data; for example, image analysis algorithms enable AI to accurately read and diagnose X-ray images, enhancing highly precise diagnoses.



AI-Driven Cybersecurity: Cybersecurity is a necessary requirement for technological growth, as emerging technologies need secure environments to thrive. AI plays an important role in cybersecurity by detecting threats through data analysis, monitoring network traffic, and identifying unusual user behavior. AI also protects users from phishing and malware by scanning emails, links, and files to detect potential risks.

AI in Agriculture: AI has contributed to transforming agriculture through precision crop monitoring, where machine learning algorithms analyze satellite and drone imagery to assess crop health, soil quality, and moisture levels. It also integrates real-time weather data with predictive analytics. AI systems can recommend optimal planting times, irrigation schedules, and harvest strategies, helping farmers increase crop yields and reduce resource waste.

3.1.4 Global Adoption & Future Trends of Emerging Tech

Emerging technologies are advancing at a rapid pace, paving the way for transformative changes in economic and social structures on a global scale. Preparing for the adoption of these technologies is crucial to harness their benefits while minimizing potential risks. The job market, for instance, must proactively anticipate and equip the workforce with skills that align with future demands, ensuring a supply of talent that corresponds with the needs of emerging fields. Meanwhile, governments play a pivotal role in planning for uncertainties and establishing regulatory frameworks that enable the safe and effective integration of these innovations into existing systems. The rate at which these technologies are adopted globally depends on several factors, including their stage in the lifecycle, industry requirements, and the level of public trust and regulatory support. The interrelation of these factors is reflected in the following points:

Influence of Phase in Adoption Lifecycle

Emerging technologies tend to gain adoption momentum as they progress from experimentation to proof-of-concept stages, facilitating their transition toward implementation and practical use.

Sector-Specific Adoption Rates

Sectors with high operational costs and specialized applications, such as bioengineering and space exploration, often face slower adoption rates due to their unique industry requirements.

Future Impact of Key Technologies

Emerging fields like AI, biotechnology, quantum computing, and immersive technologies are expected to drive a significant leap in healthcare, finance, data processing, and education.

Dependency on Skilled Workforce and Trust

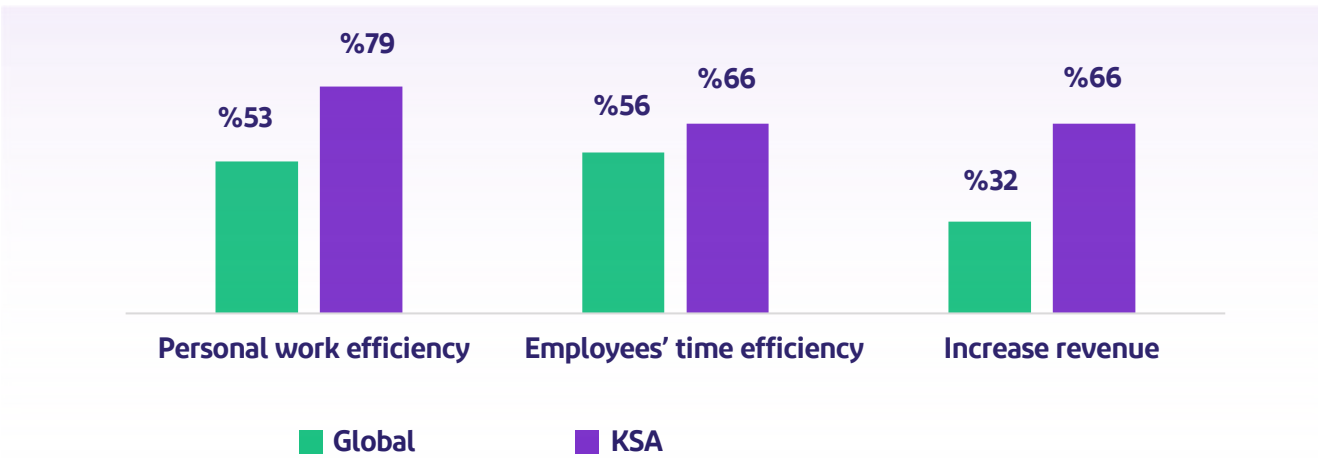
The availability of a workforce with specific skillsets, public confidence, and the presence of supportive regulatory readiness are crucial factors that influence how rapidly and effectively new technologies are adopted.

3.2 Most Important Goals And Milestones In The Emerging Tech Adoption Journey In Saudi Arabia

3.2.1 AI in Business Operations

Saudi Arabia is dedicated to adopting emerging technologies in alignment with Vision 2030, driving the digital transformation of its societal and economic sectors through strategic initiatives. The country's commitment to diversifying its economy, modernizing governance, and enhancing public services is reinforced by active involvement from the government, private sector, and regional partnerships.

Findings from PricewaterhouseCoopers (PwC)'s 28th annual CEO Survey in Saudi Arabia reveal strong optimism about future economic growth, as business leaders seek to leverage emerging technologies, particularly Generative AI, to enhance efficiency and gain competitive advantages. Among the surveyed CEOs, 79% believe that Generative AI will contribute to improving the quality of their companies' products and services in the coming years. Additionally, 92% indicated plans to integrate Generative AI into their platforms within the next three years.



The chart highlights the significant advantages Saudi Arabia is experiencing from GenAI adoption compared to global averages. In terms of personal work efficiency, 79% of Saudi CEOs reported improvements, far exceeding the global average of 53%. Similarly, employee productivity has seen a greater boost in the Kingdom, with 66% of CEOs noting increased efficiency, compared to just 56% globally. The most striking difference is in revenue impact, where 66% of Saudi CEOs reported growth, more than double the global figure of 32%. These numbers suggest that GenAI is driving stronger productivity and financial performance in Saudi Arabia, positioning it ahead of its global counterparts in leveraging AI for business success.

Saudi Arabia's adoption of emerging technologies is moving forward rapidly through flagship projects like Aramco Manufacturing Lighthouses and NEOM, setting new standards in innovation and smart infrastructure. These initiatives aim to strengthen the Kingdom's economy, attract investment, and position it as a regional hub for digital services. The transformation encompasses ambitious plans for smart cities, advanced automation, AI, and digital governance, while creating a favorable environment for investors through streamlined technology platforms that unlock new economic opportunities. Although challenges remain, Saudi Arabia's efforts in emerging technology adoption have achieved significant progress with considerable growth potential.

For instance, Aramco Manufacturing Lighthouses integrate advanced technologies to deliver efficient, safe, and sustainable energy solutions, through partnerships with tech companies, research institutions, and investments in workforce digital skills. This milestone, recognized by the World Economic Forum, underscores AI-driven productivity gains. NEOM, meanwhile, has launched the Smart City Initiative to develop a hyper-connected, tech-forward mega-city centered on sustainability and urban efficiency, leveraging technologies like AI and digital twins for a cognitive community. Additionally, NEOM integrates metaverse technologies to redefine societal interactions and privacy standards, fostering a more inclusive and participatory environment.

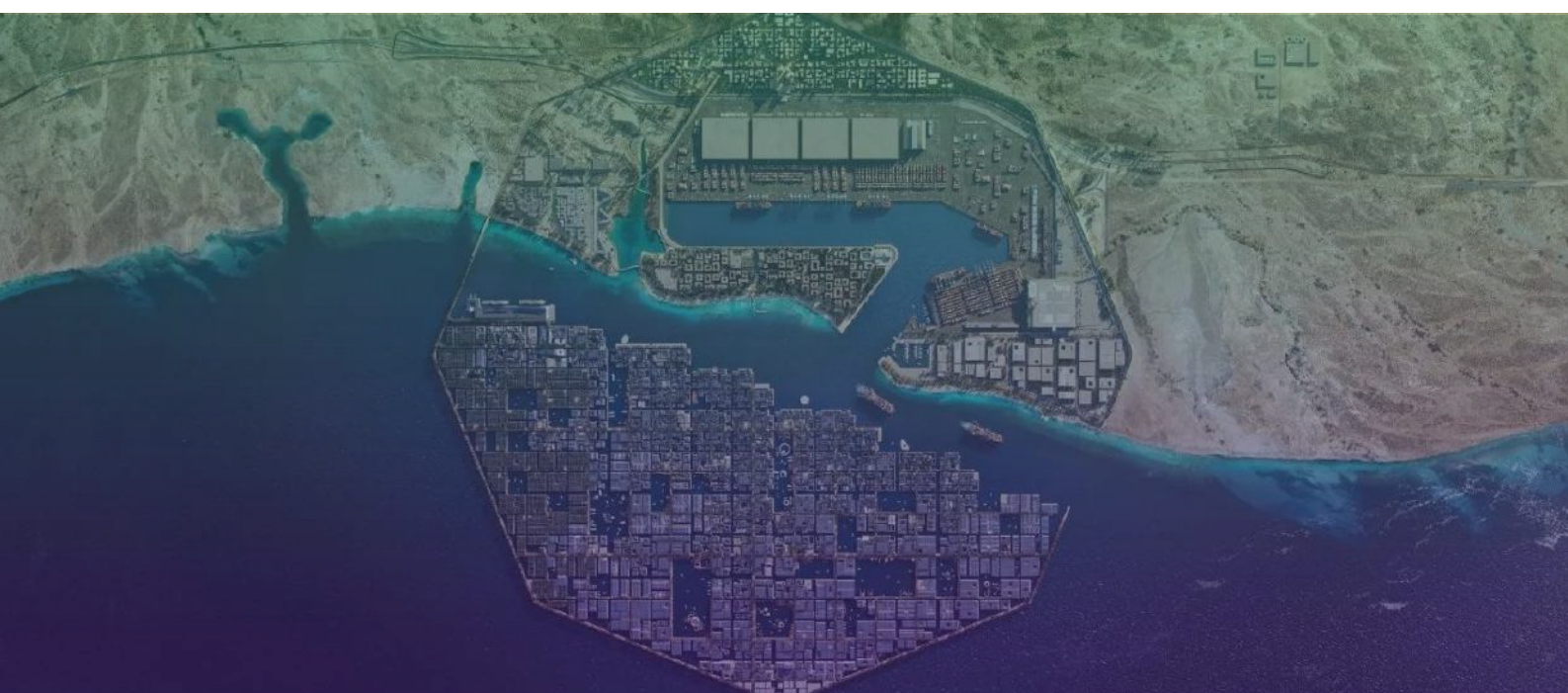
3.2/2 Quantum Landscape in Saudi Arabia

Saudi Arabia is making significant strides in quantum technology to support its Vision 2030 objectives of economic diversification, innovation, and global leadership. By integrating quantum technologies into its national economy and fostering an ecosystem of education, research, and development (R&D), the Kingdom aims to establish itself as a leader in this rapidly evolving field. The country is addressing the quantum talent gap by introducing undergraduate and graduate programs, as well as professional training courses at universities and research centers like KFUPM and KSU. While these efforts are crucial, the Kingdom recognizes the need for a long-term strategy to integrate quantum concepts into early education and build a sustained talent pipeline.

Academic institutions such as KFUPM and KSU are actively contributing to R&D in areas like quantum computing, post-quantum cryptography, and sensing. The establishment of specialized labs, including a future Quantum Foundry, will advance high-performance quantum technologies. Partnerships like the 2024 RDIA-stc Group initiative on quantum computing further underscore Saudi Arabia's commitment to R&D. Plans to establish a Quantum Foundry focus on developing on-chip quantum technologies and leveraging existing semiconductor infrastructure to scale quantum systems. A landmark agreement between Aramco and Pasqal to deploy the Kingdom's first 200-qubit quantum computer by 2025 highlights Saudi Arabia's leadership in hardware innovation.

Saudi Arabia collaborates with global leaders to accelerate quantum commercialization. Notable partnerships include NEOM and Arqit's development of a quantum security system, Aramco's joint initiatives with IBM and D-Wave, and C4IR's "Quantum for Society Challenge" with the World Economic Forum. Through events like World Quantum Day and global forums, Saudi Arabia is raising awareness about quantum technologies, addressing ethical and societal challenges, and fostering national and international collaboration.

The Kingdom aims to overcome challenges such as limited talent, a nascent quantum industry, and the need for specialized infrastructure. By investing in education, fostering R&D, and building partnerships, Saudi Arabia seeks to create a thriving quantum ecosystem, drive economic growth, and cement its position as a global leader in quantum technology.



3.3 Saudi Arabia digital economy journey

Saudi Arabia's digital economy continues to expand, now representing 14% of its GDP, driven by strategic investments in domains like cloud computing and e-commerce. With nearly half of all Saudi businesses adopting cloud services and widespread use of smart technologies, the Kingdom demonstrates a commitment to sustaining this growth trajectory. These advancements align with Vision 2030's goals, aiming to position Saudi Arabia as a regional digital leader.

Sector Valuation:

Saudi Arabia's ICT market size reached SAR 166 billion (\$44.3 billion) by the close of 2023, establishing it as the largest and fastest-growing market in the Middle East and North Africa region.

Internet and mobile connectivity

With an internet penetration rate of 99% and mobile service subscriptions at 198%, Saudi Arabia has achieved near-universal connectivity. The Kingdom also stands out globally for mobile internet speeds, averaging 215 Mbps in 2023, underscoring the strength of its digital infrastructure.

5G leadership

Saudi Arabia remains a global 5G leader, with over 16,000 towers covering more than 52% of the population. Additionally, 14 submarine fiber optic cables link the Kingdom to over 50 countries, ensuring strong international connectivity.

Saudization and Employment

Employment in Saudi Arabia's ICT sector continues to grow, with a strong focus on Saudization to develop local talent. The proportion of Saudi nationals in the ICT workforce has steadily increased, driven by supportive government policies promoting local hiring and workforce development.

Global Rankings

Saudi Arabia recently climbed to the 4th position globally in the Online Service Index (OSI) and ranked 6th in the UN's E-Government Development Index (EGDI), demonstrating its strong commitment to digital governance and service accessibility. This improvement reflects the Kingdom's strategic focus on enhancing digital infrastructure and fostering innovation across its public services.

In Saudi Arabia, this transformation aligns seamlessly with Vision 2030, the nation's strategic plan to diversify its economy, reduce reliance on oil, and foster a knowledge-based society. The Kingdom recognizes the potential of emerging technologies to fuel sustainable development and is actively integrating AI, IoT, and cloud computing into its infrastructure. Initiatives like NEOM, a hyper-connected, sustainable urban project, and policies promoting digital governance highlight Saudi Arabia's ambition to lead in the digital economy and set new standards for technological innovation in the Middle East.

Globally, governments and organizations are leveraging these technologies to enhance decision-making, boost productivity, and address critical challenges. AI is unlocking predictive and personalized solutions, while Blockchain brings heightened security and transparency, fostering trust and efficiency. IoT enables seamless data sharing and automation, paving the way for smarter and more sustainable systems. Together, these technologies are forming the foundation of a modern, interconnected world where adaptability and innovation are key to success.

However, the journey to widespread adoption is not without obstacles. Challenges such as infrastructure readiness, regulatory frameworks, workforce development, and ethical concerns over data privacy must be addressed. Balancing rapid innovation with responsible governance is essential to ensure these advancements are sustainable and inclusive.

This report explores the landscapes of emerging technology adoption in KSA, examining how these advancements shape the future and the strategies driving progress.

4

Overview of Emerging Technology Adoption Readiness Index

4. Overview of Emerging Technology Adoption Readiness Index

4.1 Emerging technologies adoption readiness in the public sector

Emerging technologies are one of the most important drivers of transformation and development in the public sector, as these technologies could radically modernize and improve government operations, which contributes to enhancing the efficiency of services provided to citizens and achieving the strategic goals of governments. The impact of emerging technologies in the public sector ranges from improving communication and interaction with citizens to developing public policies and improving service performance. Enhancing transparency and effectiveness in resource management and service delivery is one of the key aspects that reflects the importance of emerging technologies in the public sector. By using big analytics, artificial intelligence, and cloud computing, governments can improve decision-making processes and data analysis to achieve better and faster results.

4.2 Emerging Technology Adoption Readiness Index

The Authority emerging technologies adoption readiness index comes as a periodic assessment conducted through a measurement methodology based on four basic capabilities (Research, Communicate, Prove, and Integrate). In general, this assessment can be relied upon by the departments responsible for research, development, technical affairs and innovation in the agency, as its results help them determine the current level of readiness to adopt emerging technologies, monitor the gaps, and plan the steps that should be taken to build capabilities that guarantee success when adopting these technologies to achieve the desired benefits.

4.3 Objectives of the Emerging Technology Adoption Readiness Index

Emerging Technologies Adoption Readiness Index seeks to achieve several important objectives at the level of government agencies in the public sector:



4.4 Improvement and development of the evaluation framework

Continuous development is one of the most important features of emerging technologies, as it provides beneficiaries with the tools and capabilities that enable them to invest their full potential. These advancements often lead to many benefits, such as cost reduction, increased efficiency, enhanced user satisfaction, and delivering unique experiences that meet individual needs. As part of the Authority's ongoing commitment to accurately reflect the state of emerging technology adoption, the authority has added new elements and criteria to the 'Emerging Technologies Adoption Readiness Index' framework. These additions include assessing the readiness to adopt mainstream technologies and their applications, such as artificial intelligence. It assesses an agency's readiness to adopt AI applications, the speed and extent of adoption, and its impact on efficiency, to provide a more comprehensive and accurate view of how AI technologies are being adopted across different sectors.

4.5 Focus Technology (2025): Artificial Intelligence

This year, the Focus Technology of the index measures the extent to which government agencies have adopted AI technologies, one example of which is Generative AI. This type of AI relies on huge amounts of training data to produce text, images, sounds, and code in response to user requests and has seen a major surge in popularity and positive impact in recent years. It also contributes to reducing time, cost, and effort to reach the desired results, significantly improving end-user productivity. Advances in Generative AI have revolutionized many industries by automating repetitive tasks and facilitating time-consuming creative processes. For example, AI tools can now write articles, create digital artwork, and compose music effectively, giving creators greater freedom to focus on more critical activities. In the field of software, AI can write and correct code, reducing errors and accelerating the development process. In addition, the integration of Generative AI into everyday applications has reshaped user experiences, as personalized recommendations, chatbots, and virtual assistants have become more sophisticated and interactive. This development not only ensures a seamless user experience but also enhances the efficiency of daily operations.

The Emerging Technologies Readiness Index also seeks to measure the maturity of government agencies in adopting a variety of modern technologies. The index annually focuses on the most innovative and impactful technologies and provides a comprehensive insight into the readiness of agencies to adopt these technologies within their strategies effectively, enhancing innovation and operational efficiency. This broad focus not only sheds light on AI but also contributes to building a deeper understanding of how government agencies integrate with emerging technologies and their ability to adapt to future transformations for a sustainable competitive advantage



4.3 Emerging Technologies Adoption Readiness Index Framework

4.3.1 Emerging Technologies Adoption Readiness Index Framework for the year (2025)

The adjacent figure shows the framework that was developed and designed to assess the readiness of government agencies to adopt emerging technologies. This framework consists of:

- (4) main capabilities (Research, Communication, Prove, and Integrate).
- (12) elements branching out from the four capabilities.
- (26) criteria stemming from these elements.
- (4) cross-dimensions for all the elements.



The four key capabilities that are assessed Within the framework of the Emerging Technologies Adoption Readiness Index

Research:

Given the rapid changes in technology, it has become essential to allocate resources for research and exploration to monitor the latest technological developments. This includes monitoring developments at the level of beneficiaries, competitors, market, and technologies, as well as the technical capabilities for a specific technological direction. It is important for researchers in these technologies to work together within the agency or collaborate with external partners to analyze this technological trend, identify new patterns, and determine the potential possibilities and potential risks for each technology under development. This involves developing a timeline for each potential opportunity, whether in the short or long term.

Communicate:

Research in emerging technologies cannot be sustained without clear and consistent communication methods, such as presentations or reports that present the targets and results of the technological trend analysis in a simplified manner to facilitate the delivery of information to the recipient. It is necessary to share appropriate information with the appropriate audience, and to distinguish between general education for the purpose of engaging stakeholders or those concerned on one hand and providing specific information to stimulate funding and investment on the other.

Prove:

To present the available technological opportunities convincingly to the beneficiaries, it is necessary to rely on knowledge and experience that can only be obtained through proven practical experiments (POC). Therefore, through the ability of evidence, the agency will be able to first determine the readiness of the technology to meet the agency's requirements, and secondly, the agency's readiness to adopt the technology.

Integrate:

Strategic innovations can be defined as innovations that follow possible opportunities to use emerging technologies in the medium to long term, serving the agency's overall goals. In this context, the integration capability assesses the agency's readiness to operate emerging technologies on a broad scale, supporting the achievement of its strategic objectives, and considering its practical and cost-effective application.

4.3.2 Evaluation mechanism

Emerging technologies adoption readiness was assessed according to the following three stages:

First Stage: Current State Assessment

This stage involves assessing the current state of participating agencies and defining the agencies' Readiness to Adopt Emerging Technologies. This assessment is based on the data and evidence provided by the covered agencies during the evaluation sessions that were held.

Second Stage: Readiness Level Determination

At this stage, readiness levels were determined by analyzing the data collected during the first stage, processing the inputs, and calculating points within each of the four capabilities, where the level of readiness progress in each agency was determined based on the result of assessing its current situation, and applying the readiness determination equation. Which shows the agency's capabilities within the five levels of readiness.

Third Stage: Recommendation and Action Plans

It's crucial to provide intuitive suggestions and pinpoint specific actions within each of the capability dimensions analyzed. By taking this approach, the organization can leverage the results as a roadmap to progress from its current state to the next maturity level of the assessment. By establishing these key elements, we can offer targeted and tailored support relevant to the unique needs and objectives of the agency.

4.3.3 Classification of emerging technologies adoption readiness level

The level of government agencies readiness is determined according to the result of emerging technologies adoption readiness index, according to the capabilities and their sub-criteria in each measurement cycle within one of the following five levels:



5

**Sectors represented
in the third cycle 2025**

5. Sectors represented in the third cycle 2025

The authority has been working on enhancing the index mechanism since the announcement of its first cycle on February 9, 2023, refining several elements to make them clearer and more comprehensive. In the second cycle, the performance of 35 government agencies across various sectors was assessed, and these agencies were selected based on specific criteria. For the third cycle in 2025, the authority aims to expand the number of agencies measured by the index, with the goal of achieving a broader and more comprehensive vision of the performance of different government agencies, which were selected based on specific criteria.

5.1 Criteria for selecting agencies included in the index cycle

-  Diversity and inclusion of sectors and government agencies
-  Diversity of services provided to beneficiaries
-  Adoption and scalability of emerging technologies

5.2 Sectors represented in the third cycle of the year 2025



6

**Enabling emerging technologies:
Success stories at the sector level**



6.1 Sector Interior and Foreign Affairs and Judicial

5. Sectors represented in the third cycle 2025

The authority has been working on enhancing the index mechanism since the announcement of its first cycle on February 9, 2023, refining several elements to make them clearer and more comprehensive. In the second cycle, the performance of 35 government agencies across various sectors was assessed, and these agencies were selected based on specific criteria. For the third cycle in 2025, the authority aims to expand the number of agencies measured by the index, with the goal of achieving a broader and more comprehensive vision of the performance of different government agencies, which were selected based on specific criteria.

5.1 Criteria for selecting agencies included in the index cycle

-  Diversity and inclusion of sectors and government agencies
-  Diversity of services provided to beneficiaries
-  Adoption and scalability of emerging technologies

5.2 Sectors represented in the third cycle of the year 2025





6.1 Interior and foreign affairs and judicial Sector

The Kingdom of Saudi Arabia has witnessed a remarkable development in the use of emerging technologies across various vital sectors, primarily the Interior, foreign affairs, and judicial Sectors. Through Vision 2030, the Kingdom has adopted innovative strategies to use emerging technologies such as artificial intelligence, robotics, natural language processing, blockchain, data analytics, the Internet of Things, etc. These innovations led to remarkable digital transformations in all fields to help improve operational efficiency enhance security and stability to ensure the provision of judicial services quickly and accurately. This digital shift contributes to improving the responsiveness of security and judicial authorities, reducing operational costs, and enhancing beneficiary satisfaction. In the context of this development, we review the most prominent success stories achieved by the internal and foreign affairs sector and the judiciary, which played a major role in achieving the development of Saudi society.

Since its founding, the Kingdom of Saudi Arabia has sought to enhance internal security and stability through the establishment of many projects and initiatives that modernize and develop internal affairs, including the establishment of the Ministry of Interior computer vision platform using artificial intelligence. The platform uses technology that aims to enable systems to understand and analyze images and videos, and the engine relies on artificial intelligence and deep learning algorithms to process visual data, allowing the recognition of patterns, objects and events in images or videos.

On the other hand, the Ministry of Foreign Affairs has implemented the Security Robot Project (eK-9). Robots and artificial intelligence have been used in security inspections of sensitive diplomatic buildings and staff and have proven to be an innovative alternative to the traditional technologies that rely on fixed or portable devices. The robots are equipped with advanced technologies such as (LIDAR) sensors and artificial intelligence algorithms, enabling the robot to perform its tasks accurately and efficiently in real-time as well as reducing the need for large human inspection teams. Reliance on the human element has decreased by 60%, resulting in reducing recruitment and training costs. The robots were able to inspect a 50-square-meter room in 4 minutes, saving 50% of the time compared to manual methods and reducing the number of paid working hours.

Regarding the field of judicial authority, the Ministry of Justice has undertaken many initiatives using emerging technologies, that have improved the Ministry's ability to provide high-quality judicial services to beneficiaries through the development and improvement of judicial procedures, the most important of which are: The project of audio transcription of judicial sessions. It uses artificial intelligence and natural language processing techniques, converts the media recorded during judicial sessions into searchable texts immediately after, by using artificial intelligence techniques to process various Saudi and Arabic dialects. All this is in order to improve the efficiency of judicial work, provide an accurate record of hearings, and ensure the rights of parties by providing the possibility of reviewing the content of the sessions. In addition, it enables compliance checks, provides relevant information, enables the issuance of regulatory reports, risk management, control and compliance, and monitoring the processes of inspection and judicial attribution.

Future expectations for the internal, foreign, and judicial affairs sector:

With the adoption of artificial intelligence and digital transformation, the internal, foreign and judicial affairs sector is expected to witness significant transformations that contribute to enhancing efficiency and transparency. The transformations include:

- **Enhancing operational efficiency:** By using artificial intelligence to automate routine processes, reducing costs and speeding up administrative procedures, significantly improving decision-making.
- **Improving judicial services:** By leveraging natural language processing and machine learning techniques to expedite judicial proceedings. Therefore, enabling document analysis and case summaries to be provided quickly and accurately. By analyzing data and monitoring suspicious activity, AI technologies contribute to predicting potential threats and improving security response.
- **Developing Digital Diplomacy:** By enhancing communication with citizens abroad and deliver effective consular services through innovative digital platforms.

With these developments, the sector is set to become a global model for innovation services that enhance security and justice, in alignment with the objectives of the Kingdom's Vision 2030.



Success story

Computer Vision Platform

The computer vision platform established by the Ministry of Interior aims to enhance the security capacity to monitor violations and crimes immediately, then send alerts to the relevant authorities to address the situation, which contributes in combating crime and preserving public money without the need to deploy security patrols. These procedures reduce operational costs related to moving the security patrol fleet, maintaining security vehicles and fuel costs.

Beneficiary segment

- Ministry of Interior Sectors

Outcomes

Sector

(13) sectors of the Ministry of Interior

Stakeholders

(42) from different levels of the Ministry of Interior

Technology used

Artificial Intelligence

Impact

- Raising operational and security efficiency
- Achieving the objectives of the Quality-of-Life Program, which is to raise the level of safety and trust in security services



6.2 Sector Commercial



6.2 Commercial Sector

The Kingdom is one of the largest economies in the Middle East. Therefore, the commercial sector is one of the most important pillars supporting this economy, as it is witnessing a major digital transformation, especially in terms of supporting small and medium enterprises and entrepreneurs. Emerging technologies such as artificial intelligence and the Internet of Things (IoT) are delivering innovative solutions that enhance operational efficiency, expedite procedures, and enable businesses to scale and achieve commercial success.

The Small and Medium Enterprises General Authority (Monshaat) has achieved many outstanding successes in the Commercial sector and one of the prominent examples in this context is the Authority's success in developing and improving the internal employee application. The application facilitates the daily operations for employees and expedite internal procedures, such as approvals, requests and follow-up, using emerging technologies such as the Internet of Things and smart sign-on technology that facilitates access to employee services remotely. This application has had a significant positive impact on facilitating and accelerating employees' daily tasks, including entering and exiting the building, as well as handling procedures and approvals.

In addition, the Small and Medium Enterprises General Authority (Monshaat) has designed a tool to recommend business models using artificial intelligence. It is a free tool that helps entrepreneurs and creative idea owners turn their ideas into successful businesses. The tool relies on artificial intelligence to analyze data and propose evidence-based solutions, the tool is still in the proof-of-concept (PoC) stage. The tool targets entrepreneurs and creative idea owners, aiming to simplify costly and complex research procedures, improve project success rates, mitigate investment risks, empower informed decision-making, enhance corporate profitability, and boost business planning efficiency.

Another success story carried out by Monshaat is the development of the application (Tomoh) to connect the business. The application aims to connect companies and businesses with partners, customers, and investors, relying on artificial intelligence to provide high-quality suggestions based on analytics and data. It also aims to reduce the costs of searching for partners and suppliers, increase revenues by facilitating entry into new markets, improve the decision-making process based on accurate analysis, and enhance reputation and credibility through successful partnerships, while expanding the network of business relationships.

Future Expectations for Commercial Sector:

With the adoption of artificial intelligence and digital transformation, the commercial sector is expected to witness significant transformations that contribute to enhancing efficiency and transparency. The transformations include:

- **Enhancing the efficiency of operations:** through applications such as the "Internal Staff Application" which will improve the speed and accuracy of daily operations, increasing the efficiency of institutional work.
- **Empowering Entrepreneurs:** Using tools such as the "Business Model Recommendation Tool" which will enable entrepreneurs to turn their ideas into successful projects through careful analysis and data-driven guidance.
- **Strengthening business networks:** through platforms such as the "Tomouh App" which will enable companies to expand their network and reach new markets, enhancing competitiveness and growth.

With these developments, the sector is set to become a global model for innovation and digital empowerment, in alignment with the objectives of the Kingdom's Vision 2030.



Success story Internal Employee Application

The internal employee application, developed by the Small and Medium Enterprises General Authority (Monshaat), facilitates the daily operations for employees and expedite internal procedures, such as approvals, requests and follow-up, using emerging technologies such as the Internet of Things and smart sign-on technology that facilitates access to employee services remotely. This application has had a significant positive impact on facilitating and accelerating employees' daily tasks, including entering and exiting the building, as well as handling procedures and approvals.

Beneficiary segment

- Authority employees

Technology used

- Internet of Things
- Smart Entry

Outcomes

+350
Users



Impact

- Facilitate and expedite the daily work of employees
- Facilitate entry and exit from the building
- Accelerate the process and approvals cycle



6.3 Sector Communications and Information Technology



6.3 Communications and Information Technology Sector

The Communications and Information Technology Sector in the Kingdom has undergone significant development and a radical transformation, thanks to the ambitious Saudi Vision 2030, making it one of the main pillars of digital transformation. The sector contributes to the development of technological innovations which reinforce operational efficiency and improve the quality of life. The Kingdom has proven to be a leader in the field of communications and information technology in the region, by investing in digital infrastructure, achieving digital transformation in all government and private sectors, and cooperating with local and international companies.

One of the most prominent success stories in this sector is the “Rehab AI Link” project carried out by King Abdulaziz City for Science and Technology (KACST), which pioneers a new approach, acting as a dynamic bridge between rehabilitation services, artificial intelligence technologies, advanced data analysis, genetic analysis, and personalized medicine. Leveraging the power of AI and genetic data helps provide personalized support to individuals undergoing rehabilitation or recovering from addiction or rare genetic diseases. This is achieved through advanced insights and tailored interventions powered by AI techniques. KACST strives to enhance the effectiveness and efficiency of recovery and treatment journeys, and enable individuals to achieve lasting wellness. The prototype of the project is undergoing trials. It works on improving treatment outcomes using personalized plans, enhancing accuracy in diagnosis and analysis of health data, and providing preventive interventions and accurate patient forecasts. This project targets the health sector and has an impact on reducing healthcare costs by improving accuracy in diagnosing cases and providing customized treatment plans, and improving efficiency through automating administrative processes.

Moreover, KACST has also developed another project called “Eshraq”. The project develops nanomaterials that have the ability to trap toxic, flammable and explosive gases that are merged into an integrated system powered by AI. The system detects these gases and then sends a signal to the control unit that operates the early warning system, which includes sound and light alarm and sends a text message specifying the location of the accident through the unit integrated into the system. After that, the system draws polluted air and continues to measure the level of gases, and when the level of gases reaches the normal limit, the system automatically stops. The prototype of the project is also undergoing trials. The objective is to Improve safety, reduce hazardous gas accidents, save time and costs associated with manual detection of contaminants, and protect lives and property through rapid incident response, and provide a business model to attract investors.

Another achievement is the cooperation project carried out by KACST and the Massachusetts Institute of Technology to collect and analyze sports data. It is a research project aims to analyze sports data and the impact of sport on public health using artificial intelligence, generative AI, data analysis, and social media to test new sports technologies and measure the impact of sport on improving health. The prototype of the project is also undergoing trials. The Sports and Public Health sectors aim to improve efficiency by using data to analyze the impact of sports policies, improve decision-making in sports and public health, support sports innovation through data analysis, and promote sports participation to reduce chronic diseases such as obesity and diabetes. This project can be utilized to analyze sports data during the Kingdom's hosting of the 2034 World Cup.

Future Expectations for Communications and Information Technology Sector:

With the adoption of artificial intelligence and digital transformation, the Communications and Information Technology sector is expected to witness significant transformations. The transformations include:

- **Promoting digital health:** through projects such as “Rehab AI Link”, which will improve diagnosis and treatment using accurate data and personalized treatment plans.
- **Improving environmental safety:** using smart systems such as “Eshraq”, which will ensure safety in industrial and urban environments.
- **Promoting sports innovation:** through the analysis of sports data, and the projects’ contribution to develop new technologies and improve public health.

With these developments, the sector is set to become a global model for innovation and sustainability.



Success story

Rehab AI Link

“Rehab AI Link” is project carried out by King Abdulaziz City for Science and Technology (KACST) that combines artificial intelligence and genetic analysis to support individuals in their rehabilitation, addiction recovery, and treatment of rare genetic diseases. The system uses advanced technologies to provide personalized support based on genetic data and health data analysis.

Beneficiary segment

- Health Sector

Technology used

- Artificial Intelligence
- Data Analysis

Outcomes

The project is undergoing trials

**Impact**

- Improving accuracy: targeting the most effective drug on the market.
- Increase efficiency: AI can simplify administrative processes and reduce time spent by healthcare professionals.
- Personalized medicine: AI can analyze individual patient’s data to customize treatment plans.
- Predictive analytics: AI can identify patterns in health data to predict disease outbreaks or worsening patient condition.
- Reduce costs: by improving efficiency and accuracy.
- Continuous learning: AI systems can continuously learn from new data and improve diagnostic capabilities over time.



6.4 Sector Education



6.4 Education Sector

In recent years, the education sector has witnessed a major digital transformation using emerging technologies with the aim of improving the quality of education, enhancing operational efficiency, and adopting technical innovations to develop the educational process and provide an innovative educational environment that keeps up with global developments. The Kingdom has invested heavily in the use of emerging technologies such as blockchain and virtual reality to create a new educational experience, enhance the quality of education and facilitate the access to it and provide reliable digital solutions that contribute to achieving the objectives of the Kingdom's Vision 2030.

Among the most prominent of these initiatives is the Ministry of Education's development of an artificial intelligence system and its integration into the educational process. This technology helps to respond to inquiries of students and teachers and interact with them efficiently 24 hours a day. This interaction takes several forms such as asking, explaining and summarizing a specific lesson, providing specific helpful sources from textbooks and other approved external sources. The technology targets a group of individual such as, leaders, principals, teachers, supervisors, parents, and students, including people with special needs.

One of the notable initiatives undertaken by King Khalid University is the development of an accredited certificate system using blockchain. It is an innovative system used to issue and authenticate university certificates with high accuracy and speed. The system uses blockchain technology to securely store certificate's data, ensuring protection from forgery and providing an easy verification process by scanning the QR Code on the certificate, which contributes to enhancing trust in digital certificates and provides a reliable and efficient way to manage certificates. The university also launched the "Metaverse Hall" educational project, which aims to transform traditional electronic courses into interactive learning experiences enabling students and faculty members to benefit from virtual reality technologies. It also includes applications for studying human anatomy, simulating engineering processes, and exploring computational devices. The project supports improved understanding and interaction, enhances practical skills, and facilitates ongoing development to incorporate new educational resources and other disciplines.

Furthermore, the establishment of the Arabic Intelligence Center by the King Salman International Academy for the Arabic Language. It is a center specialized in automatic processing of the Arabic language using AI technology. The technology enhances the development of scientific, research, and computer applications tools, which facilitates the computer's process with the Arabic language, and its presence on computer platforms and applications.

emerging technologies play a pivotal role in transforming and developing the educational process. The technologies enhance the quality of education and make it more effective and comprehensive, by providing distance education, interactive learning and the use of augmented reality (AR) and virtual reality (VR). In addition to improving the quality of education, teachers' skills, and enhancing access to educational resources.

Future Expectations for Education Sector:

With the adoption of emerging technologies, the Education sector is expected to witness significant transformations. The transformations include:

Improving the learning experience: By enhancing interaction using virtual reality and blockchain to provide an innovative and safe learning environment.

- **Increasing operational efficiency:** Thanks to digitization, administrative and operational costs are reduced, allowing resources to be invested in the development of educational infrastructure.
- **Enhancing digital trust:** By using technologies such as blockchain to ensure document security and increase beneficiaries' trust in digital certificates and courses.
- **Achieving academic excellence:** Thanks to innovative projects such as the Metaverse Hall, Saudi universities will be positioned as an advanced educational destination.

With these developments, the sector is set to become a global model for sustainable digital learning, in alignment with the objectives of the Saudi Vision 2030.



Success story

Educational Metaverse Hall

The educational metaverse hall project, carried out by King Khalid University, aims to transform traditional electronic courses into interactive learning experiences that enable students and faculty members to benefit from virtual reality technologies. It also includes applications for studying human anatomy, simulating engineering processes, and exploring computational devices. The project supports improved understanding and interaction, enhances practical skills, and facilitates ongoing development to incorporate new educational resources and other disciplines.

Beneficiary segment

- Students
- Faculty Members
- Technical Partners
- Visitors

Technology used

- Virtual Reality
- Augmented Reality

Outcomes

70%

Increase in the percentage of interaction with three-dimensional educational content.

80%

Increase in the percentage of practical application.

Impact

- Improve the learning experience and simplify students' assimilation of scientific information.
- Enhance the University's reputation as a pioneer in the adoption of modern educational technologies.
- Reduce operational costs associated with traditional physical laboratories.



6.5 Sector Energy, Industry and Mining



6.5 Energy, Industry and Mining Sector

Energy, industry and mining sector in Saudi Arabia play a pivotal role in achieving the objectives of the Kingdom's Vision 2030. It contributes to diversifying the economy and enhancing resource sustainability. The sector relies heavily on technological innovation, including artificial intelligence, augmented reality, and IoT technologies to improve operational efficiency, raise the quality of services, and enhance user experience.

One of the most prominent success stories in this sector is the 3D inventory asset project, carried out by the Saudi Authority for Industrial Cities and Technology Zones (MODON). The project aims to use the latest developments in data collection, advanced survey techniques, three-dimensional data modeling to improve the management of assets, and infrastructure above and below ground with unparalleled accuracy and clarity in industrial cities. The project also targets investors, industrial city employees, and operating contractors. Data is collected using drones, allowing industrial cities to be viewed in detail through three-dimensional models. The project has a significant impact on reducing survey costs, maintenance costs and infrastructure expansion costs.

As for the Ministry of Industry and Mineral Resources, it has developed a tool to detect counterfeit products. The project targets industrial investors, consumers, the Zakat, Tax and Customs Authority, and the Saudi Authority for Intellectual Property. A smartphone app has been developed that uses AI, big data, and fifth-generation networks to analyze images and identify counterfeit products. The application also facilitates inspections and provides an effective means of protecting intellectual property rights. The impact of this project is to reduce inspection costs by 25%, improve the efficiency of product inspection, increase consumer and investor confidence in the local market, and expedite the processing of product safety complaints.

Another success story is the Ministry of Energy's data space project. This project aims to improve data management within the Department of Energy using augmented reality (AR) and artificial intelligence (AI) technologies. The project provides an integrated platform for data presentation and analysis in innovative and interactive ways, allowing users to explore data easily and efficiently, support decision-making and analyze patterns based on accurate information.

The following use case illustrates the innovative solution undertaken by the Ministry, by placing a barcode for each floor of the Ministry's building showing the most important information about the floor, such as emergency exits, information about internal departments, most prominent works, the strategy of the agency concerned, and the Ministry's intersections with strategic energy directions, in addition to general information for new employees.

The project aims to reduce operational costs, such as reducing analysis time, improving decision-making, reducing human errors through automation, improving data management to ensure accuracy, providing real-time insights to support strategic decisions and saving time and effort for data-driven employees and departments. Moreover, the Ministry of Energy established the Digital Twin project, which aims to improve the construction of electricity projects by creating a digital model that simulates actual operations. The digital twin uses emerging technologies such as artificial intelligence, the Internet of Things, virtual/augmented reality, and data analysis to create a digital model that simulates the actual processes and stages of construction. This is to provide accurate monitoring, which helps in early detection of problems, improving efficiency, and ensuring adherence to quality and safety standards.

Future expectations for Energy, industry and mining sector:

With the adoption of emerging technologies, Energy, industry and mining sector is expected to witness significant transformations. The transformations include:

- **Promoting industrial innovation:** Through digital twin and three-dimensional scanning technologies, asset management will be improved, and industrial projects will be more efficient.
- **Intellectual Property Rights Protection:** Through tools such as counterfeit product detection app, investor and consumer confidence and trademark protection will be enhanced.
- **Improving data management:** Using platforms such as the data space, strategic decision-making will be supported quickly and accurately.
- **Promoting sustainability:** By reducing waste and improving operational efficiency, the sector contributes to the achievement of sustainable development goals.

With these developments, the sector is set to become a global model for innovation and sustainability, which enhances the Kingdom's competitiveness in global markets.



Success story

3D inventory asset

The 3D inventory asset project, carried out by the Saudi Authority for Industrial Cities and Technology Zones (MODON), aims to leverage the latest advancements in data collection, advanced survey techniques, and three-dimensional data modeling to enhance the management of assets and infrastructure—both above and below ground—with accuracy and clarity in industrial cities. The project also targets investors, industrial city employees, and operating contractors. Data is collected using drones, allowing industrial cities to be viewed in detail through three-dimensional models. The project has a significant impact on reducing survey costs, maintenance costs and infrastructure expansion costs.

Beneficiary segment

- Investors Industrial
- Estates Employees
- Operating Contractors

Technology used

- Virtual/Augmented Reality
- Drones, Big Data, Digital Twin

Outcomes

9000
Number of beneficiaries

85%
Beneficiary satisfaction rate

Impact

- Reduce survey costs by 75%
- Reduce maintenance project costs by 50-70%
- Reduce infrastructure expansion costs by 3-5%
- Improving the efficiency of industrial cities management and reducing breakdowns
- Attract investors by providing comprehensive and up-to-date data
- Raising the quality of life in industrial cities



6.6 Sector Environment, Water and Agriculture



6.6 Environment, Water and Agriculture Sector

The environment, water and agriculture sector plays a pivotal role in achieving sustainability objectives and the Kingdom's Vision 2030. The sector relies on emerging technologies such as artificial intelligence, robotics, the Internet of Things, big data, data analytics, and drones to improve operations efficiency, increase productivity, and reduce environmental impact. The sector seeks to achieve the sustainability of natural resources and enhance the security of food and water.

One of the success stories in this sector is the project of high-resolution aerial photographs of national parks, which was carried out by the National Center for Vegetation Cover Development and Combating Desertification. The first stage of the project was implemented, which aims to photograph 24 national parks using drones equipped with advanced technologies such as LIDAR, Imaging Spectroscopy, and three-dimensional imaging. This method of Imaging helps monitor the state of the parks accurately and provides comprehensive reports on the topography of the land and the environmental condition. The data is then analyzed using AI to provide insights about the topography and environmental state of the parks. The project is in the proof-of-concept (PoC) stage, targeting all departments of the National Center for Vegetation Development, especially the General Administration of National Parks.

The Saudi Water Authority has also successful story in the maintenance of water reservoirs using robots. The project aims to automate the maintenance of water reservoirs using advanced robots powered by AI and supporting technologies such as digital twin, advanced analytics, and machine learning. It uses predictive maintenance systems and the Internet of Things to monitor water quality in real time and reduce operational costs. The project targets O&M and asset departments, and aims to save employment by 75%, save energy by 25%, reduce total predictive maintenance costs by 15%, enhance environmental sustainability and operational efficiency, improve water quality and continuous monitoring to reduce risks. it is notable to say that the intellectual property of the project has been registered with the solution suppliers.

Another success story of the Ministry of Environment, Water and Agriculture is the project to develop the school fields using AI and other supporting technologies such as the Internet of Things, big data, and data analysis. The targeted group of the project are individuals and farmers. The project aims to significantly reduce the costs of in-person training and consultations, improve the use of agricultural resources, increase agricultural productivity, enhance technical innovation in the agricultural sector, improve the efficiency of monitoring and analysis through collecting real-time data, and provide an interactive learning platform that supports continuous learning for farmers.

Future expectations for Environment, water and agriculture sector:

With the adoption of emerging technologies, the Environment, water and agriculture sector is expected to witness significant transformations. The transformations include:

- **Improving environmental resource management:** Using AI and drones to enhance the sustainability and efficiency of natural resources monitoring.
- **Boosting agricultural productivity:** By virtue of IoT and data analytics, farmers will be able to improve crop management and increase agricultural production.
- **Achieving water sustainability:** Through projects such as the maintenance of reservoirs using robots, which enable more efficient reduction of water loss.
- **Supporting environmental and agricultural research:** Through database projects and aerial photographs, environmental and agricultural studies can be improved and support decision-making.

With these developments, the sector is set to become a global model for innovation and sustainability, which enhances the Kingdom's landing position in achieving the objectives of Vision 2030.



Success story

Maintenance of water reservoirs using robots

The Saudi Water Authority has achieved a success story by implementing a project to automate the maintenance of water reservoirs using advanced robots powered by AI and other technologies. Examples include digital twin, advanced analytics, and machine learning. It also uses predictive maintenance systems and the IoT to monitor water quality in real time and reduce operational costs.

Beneficiary segment

- Operation and maintenance management
- Asset management.

Technology used

- Artificial intelligence
- Robotics, digital twin, advanced analytics, and machine learning.

Outcomes

100%
Beneficiary satisfaction rate

75%
Workforce reduction

Impact

- 75% labor savings
- 25% energy savings
- Reduce overall predictive maintenance costs by 15%
- Enhance environmental sustainability and operational efficiency
- Improve water quality and continuous monitoring that reduces risks



6.7 Sector Public Finance



6.7 Public finance Sector

The public finance sector in Saudi Arabia is one of the main pillars supporting the Kingdom's Vision 2030. The sector is developing innovative solutions based on the latest technologies, such as artificial intelligence and blockchain, to enhance operational efficiency and improve financial governance. Therefore, the sector seeks to build integrated digital systems to enhance the reliability of operations and ensure the sustainability of financial performance, in line with the economic and development objectives of the Kingdom.

Through embracing emerging technologies, the sector can address challenges related to managing financial resources, improving operational efficiency, and enhancing transparency in transactions. Below are some of the success stories of projects implemented in the sector using emerging technology.

One of the most prominent success stories is the project of analyzing security surveillance systems at ports carried out by the Zakat, Tax and Customs Authority (ZATCA). The project secured a video analysis system using AI and deep learning techniques to identify scenarios and issue alarms to improve security surveillance and operational processes at land ports. The project targets the security affairs sector and the operations sector. The project aims to reduce operational costs by improving operations, reducing the need for the large number of monitors, and addressing challenges such as congestion, abandoned baggage and parking duration. The project has an impact on improving security control and enhancing operational efficiency at ports.

Moreover, ZATCA carried out a project using blockchain to raise data reliability. However, the product is in its prototype stage, but the project uses blockchain technology to ensure accuracy and transparency of data and store it in a secure and transparent manner. The project targets the Authority's employees and taxpayers from companies and commercial establishments. It aims to improve efficiency by tracking the movement of goods between the supplier and the end customer, marking the goods in way that complies with regulatory requirements, allowing the tracking of information and data related to supply and payment instantly and directly, and reducing the chances of fraud in supply and payment processes through the decentralized data system.

Another sector-wide success story is the Ministry of Finance's Digital Factory project. It is a participatory work environment that connects all teams technically and manages their work in a creative way through following up the achievement automatically that simulates the Industrial Revolution 5.0, which relies on real-time information and renewable technologies from AI and other emerging technologies to achieve the desired goal. The objective is to maximize productivity while controlling operational costs by leveraging the volume of available data and continue developing and predicting constraints before they occur.

Future Expectations for the Public Finance Sector:

With the adoption of emerging technologies, such as AI and Blockchain, Public finance Sector is expected to witness significant transformations. The transformations include:

- **Enhancing transparency and reliability:** Using blockchain technology, data accuracy can be improved and security in financial transactions can also be increased, enhancing trust between investors and financial institutions.
- **Improving operational efficiency:** due to the innovative solutions, such as the Digital Factory, financial resources are better managed, operational costs are reduced, and productivity is sustainably increased. Therefore, enhancing the sector's performance.
- **Improving decision-making:** By using AI to proactively analyze financial data, the government can make more accurate and efficient decisions, support long-term financial planning and enhance fiscal sustainability.
- **Supporting economic growth:** By facilitating business transactions and adopting advanced financial systems, the sector contributes to enhance investor's confidence and stimulating economic activity, which helps achieve the objectives of Vision 2030.

With these developments, the sector is set to become a global model for innovation, enhancing operational efficiency and financial transparency, which support economic sustainability and achieve the Kingdom's Vision 2030.



Success story Digital Factory

The Ministry of Finance's Digital Factory project is a collaborative workspace designed to integrate teams through advanced technology, fostering creativity and enabling automated progress tracking. Inspired by the principles of Industry 5.0, it utilizes real-time data and cutting-edge technologies, including AI, to enhance productivity while managing operational costs. The project aims to optimize the use of available data, continuously improve processes, and anticipate challenges before they arise.

Beneficiary segment

- Government Agencies
- Private Sector
- Individuals

Technology used

- Artificial intelligence

Outcomes

90%
Beneficiary satisfaction rate

6x
Increase in the agency's productivity

Impact

1

- Gradually improve operational efficiency
- Reduce the financial burden associated with operation
- Increase the productivity of the agency by 6 times
- Raising beneficiary satisfaction by more than 90%
- Improve competitiveness by providing higher quality and efficient services



6.8 Sector Health and Safety



6.8 Health and safety Sector

The Kingdom seeks to promote the use of emerging technologies to improve the level of health care and develop the health system. The health and safety sector are one of the key elements to achieving a higher quality of life and promote health protection, in alignment with the objectives of the Kingdom's Vision 2030. The sector relies on emerging technologies such as artificial intelligence, big data, and the Internet of Things to improve the efficiency of services, reduce operational costs, and enhance the health experience of individuals.

Here are some of the success stories that have been achieved in this sector using emerging technologies:

First, the Ministry of Health developed the Digital Health Twin app. The application utilizes AI, Internet of Things, big data, and blockchain techniques to simulate the health status of individuals using data collected from sensors and digital technologies. The project also offers personal and proactive health monitoring to promote a healthier quality of life for citizens and residents. It reduces treatment costs through early prevention and better allocation of medical resources.

Second, Saudi Food and Drug Authority (SFDA) has built a unified database that contains 23,000 food products, in addition to accurate data and images of the product to enhance transparency and better serve consumers. AI and robots are used to automate data entry using OCR technologies, reducing the need for human labor, and manual errors. Thus, enhancing consumer confidence through accurate and clear information, improves data management and reducing maintenance costs.

Third, the Saudi Standards, Metrology and Quality Organization (SASO) has embarked on a project that utilizes AI and IoT to expedite vehicle checks and reduce reliance on manual inspections. The project assesses challenges, implements a smart vision-based system for data analysis, and improving compliance and standards. The project is undergoing trials. The project targets technical inspection staff and all individuals. The project help reduces human labor by 20%, automate reports, reduce the time of procedures by 50%, improve the accuracy of inspections by 98%, reduce inspection times, increase efficiency, and enhances compliance with environmental and safety standards.

Future expectations for the Health and Safety Sector:

With the adoption of emerging technologies, the Health and Safety Sector is expected to witness significant transformations. The transformations include:

- **Improving prevention and early diagnosis:** Using AI to analyze health data helps in the early detection of diseases and reduces treatment cost.
- **Enhance operational efficiency:** Due to the digital twin and the IoT, resource allocation is improved, and waste is reduced, resulting in increasing the efficiency of operations.
- **Raising health awareness:** Apps like Sehhaty offer interactive tools that help individuals make informed health decisions and improve their quality of life.
- **Enhancing trust and transparency:** Through projects such as the Nutrition Database, trust between consumers and health service providers is enhanced.

With these developments, the sector is set to become a global model for innovative and sustainable healthcare, which contributes to achieving the objectives of the Kingdom's Vision 2030.



Success story Digital Health Twin

The Digital Health Twin app uses emerging technologies to simulate the health status of individuals through collecting data from sensors and digital technologies. The project also offers personal and proactive health monitoring to promote a healthier quality of life. It targets citizens and residents, significantly reducing treatment costs through early prevention and better allocation of medical resources. This contributes to minimizing waste, enhancing health prevention through early diagnosis, offering personalized health advice to improve lifestyles, and reducing hospital stays.

Beneficiary segment

- Citizens and residents

Technology used

- Artificial intelligence
- Internet of things
- Big data
- Blockchain

Outcomes

31 Million

Registered user in the Sehhaty app

85%

Beneficiary satisfaction rate

Impact



- Improve health system efficiency
- Promote prevention and reduce treatment burdens
- Improve health care policies
- Reduce operational and personal costs
- improve personalized healthcare
- Early diagnosis and prevention
- Facilitate access to health care



6.9 Sector Social Development



6.9 Social Development Sector

In Saudi Arabia, the social development sector plays a pivotal role in improving the quality of life, which is in alignment with the objectives of the Kingdom's Vision 2030. The sector seeks to develop innovative solutions to improve the efficiency of services and meet the needs of citizens as well as residents sustainably and transparently. The sector extensively utilizes emerging technologies such as artificial intelligence and machine learning to develop an integrated service that enhances the ability of organizations to provide services effectively and timely. By embracing digital innovation, the sector can respond to challenges such as improving resource allocation efficiency, reducing operational costs, and enhancing beneficiary satisfaction. These efforts are vital in improving the user experience, raising the efficiency of operations, and ensuring the provision of advanced services around the clock without interruption.

Here are some of the success stories that have been achieved in this sector using emerging technologies to enhance efficiency and achieve social development goals :

First, the General Organization for Social Insurance has worked on developing AI applications to improve customer service (Callbot). The organization developed a smart system using AI techniques to improve customer experience and increase the efficiency of operations. The system uses an automated response to inquiries and sentiment analysis to determine customer satisfaction and accelerate the response without the need to communicate with a customer service employee. This system reduced the need for customer service staff and operational costs by 17% and was able to process 92.4% of calls without human intervention. It also improved the user experience by providing interactive and accurate services, increasing digital trust between customers and the organization, and providing immediate services without the need to visit branches.

Second, utilizing AI in proactive support and protection, the Ministry of Human Resources and Social Development developed this idea to help government systems in decision-making based on data and AI. The Ministry of Civil Service uses an electronic platform to identify suitable candidates for jobs based on accurate analyses that consider the behavioral aspects of candidates. The ministry has also updated beneficiary pension entitlements based on the conditions and rules of the social security system.

In addition to the "Predictive Modeling for Labor Market Localization Decisions" project undertaken by the Ministry of Human Resources and Social Development, where artificial intelligence, machine learning, and big data technologies were utilized to develop a model for enhancing localization decisions. This initiative supports government agencies in monitoring compliance with localization regulations and provides real-time interactive indicators. The project targets job seekers and employees of the Localization Agency and aims to reduce field visits, shorten the decision issuance process, increase localization decisions, improve the decision-making process, and contribute to lowering the unemployment rate

Future expectations for the Social Development Sector:

With technical advances and the adoption of emerging technologies, the Social Development Sector is expected to witness significant transformations. The transformations include:

- **Improving the beneficiary experience:** utilizing AI tools such as the virtual assistant (Callbot), the beneficiary experience is improved through providing immediate responses to queries without human intervention. This raises customer satisfaction and provides reliable services around the clock.
- **Enhancing operational efficiency:** By proactively employing predictive modeling and AI techniques to analyze data proactively, improve resource allocation and reduce operational costs. For example, the Ministry of Human Resources and Social Development saved 6 million riyals per month by detecting cases that are not eligible for government support using AI techniques.
- **Supporting decision-making:** Using predictive modeling, government agencies can improve the accuracy of their social decisions and provide more sustainable and comprehensive solutions. These technologies not only contribute to improving resource allocation but also help reduce unemployment and enhance the role of the national workforce.
- **Enhancing inclusion and sustainability:** via expanding social services to all segments of society through digital innovations to ensure that services can be accessed easily and efficiently. This contributes to social justice and economic sustainability.

With the integration of the objectives of the Kingdom's Vision 2030 and the global trends in the use of AI, the social development sector in the Kingdom is expected to become a global model to be emulated in providing innovative and sustainable services, thus contributing to raising the quality of life and achieving social justice.



Success story

Predictive Modeling for Localizing Labor Market

The Ministry of Human Resources and Social Development developed the predictive modeling for the Saudizing labor market. It is an initiative that utilizes AI and machine learning to develop a model that supports Saudization decisions, assists government agencies in monitoring compliance, and provides real-time, interactive indicators. The project targets job seekers and employees of the Io Agency. It aims to reduce field visits, decrease time for decision making, increase Saudization decisions, improve decision-making, and reduce the unemployment rate.

Beneficiary segment

- Job Seekers
- Saudization agency employees

Technology used

- Artificial intelligence
- Big data

Outcomes

370 Thousands
job opportunities

800
Targeted careers

Impact

1

- Reduced 1.5 million field visits via electronic monitoring.
- Cut the time for issuing decisions from 6 months to two working days.
- Increased Saudization decisions from 5 to 50 decisions.
- Improved decision making with 11 variables instead of 4.
- Reduced unemployment rate from 12.3% to 7.1%



6.10 Sector Tourism, Sports and Entertainment



6.10 Tourism, Sports and Entertainment Sector

The tourism, sports and entertainment sector is one of the main pillars of the Saudi Vision 2030, as the Kingdom seeks to strengthen its landing position as a global tourist destination through creating innovative and distinguished experiences for tourists and residents. The sector relies on emerging technologies such as artificial intelligence, virtual/augmented reality, and digital twins to deliver innovative solutions to improve the user experience and enhance operational processes.

The sector effectively contributes to diversifying sources of national income by focusing on attracting tourists from around the world and enhancing the Kingdom's landing position on the global tourism map. It also seeks to create an integrated cultural and entertainment environment that supports the economic and social development of Saudi society.

Here are some of the success stories that have been achieved in this sector using emerging technologies:

First, the Saudi Tourism Authority developed the metaverse project to enhance the tourist experience. It provides comprehensive information to tourists via an integrated virtual experience about tourist destinations using emerging technologies such as VR and digital twins. The project targets tourists, tourism offices and partners to decrease marketing costs of foreign tourism offices, reduce the costs of flights used for promotion, improve user interaction and experience and reduce the costs for marketing tourism.

Second, the General Entertainment Authority conducted the Digital Assistant project for Investors. It is an interactive platform based on generative AI and natural language processing to provide a comprehensive support to investors in the entertainment sector. The platform gives instant answers, licensing guidance, and a complete investment guide. The project targets local and international investors in the entertainment sector. As a result, the project decreased operational costs by 30% due to minimizing the need for direct human support, providing information automatically and quickly, improving internal processes efficiency, enhancing the Authority's innovative image in the use of emerging technologies and increase the licenses granted by 20%.

Third, the Ministry of Tourism conducted a project that scans accommodations using AI and big data. The project helps the Ministry's inspection team, by using AI to direct inspection visits to accommodation facilities based on the analysis of visitors' opinions from booking platforms to reduce unnecessary inspections and operational costs. It also focuses on facilities that need taking care of. Consequently, the project helped facilities with low guest satisfaction, increase the percentage of rooms licensed, increase compliance and increase the satisfaction of beneficiaries of hospitality facilities.

Licensed, increase compliance and increase the satisfaction of beneficiaries of hospitality facilities.

Future Expectations for the Tourism, Sports and Entertainment Sector:

The tourism, sports, and entertainment sector is one of the main pillars of the Kingdom's Vision, as it aims to increase the sector's contribution to the GDP to 10% and create one million jobs by 2030. With technical advances and the adoption of emerging technologies, the sector is expected to witness significant transformations. The transformations include:

- **Improving tourists' experience:** using applications and websites that help ticketing and accommodation, and provide updated information about tourist destinations, making the travel experience smoother and more comfortable.
- **Promoting sports tourism:** using virtual reality and AI technologies to provide visionary experiences for fans increasing interaction and enhancing the attractiveness of sporting events.
- **Increasing operational efficiency:** by adopting technological innovations that improve process management, provide customized services that meet the needs of visitors and enhance customer satisfaction.
- **Diversifying the national economy:** through developing the entertainment and tourism projects, it helps to create new job opportunities and promote the creative economy, which supports in achieving Vision 2030 objectives.

With the integration of the aspirations of the Kingdom and the global trends, the sector in the Kingdom is expected to become a global tourist attraction through providing innovative and sustainable services, as well as promoting cultural exchange and achieving sustainable development.



Success story project of scanning accommodations via AI

The Ministry of Tourism conducted a project that scans accommodations using AI. It uses AI to direct inspection visits to accommodation facilities based on the analysis of visitors' opinions from booking platforms to reduce unnecessary inspections and operational costs. It also focuses on facilities that need taking care of. Consequently, the project helped facilities with low guest satisfaction, increase the percentage of rooms licensed, increase compliance and increase the satisfaction of beneficiaries of hospitality facilities.

Beneficiary segment

- Ministry's Inspection Team

Technology used

- Artificial intelligence
- Big data

Outcomes

75%

Increase in guest satisfaction

70%

Increase in compliance

Impact

1

- Reduced costs by reducing unnecessary inspections.
- Improved identification of facilities with low guest satisfaction
- 46% increase in licensed rooms compared to 2023



6.11 Sector Transport and Logistics



6.11 Transport and Logistics Sector

The transport and logistics sector seeks to achieve a qualitative leap in transport infrastructure and enhance the efficiency of logistics operations, while leveraging the latest emerging technologies, such as artificial intelligence, the Internet of Things, and virtual and augmented reality to develop innovative solutions that improve the quality of transport, ensure the safety of passengers, and reduce operational costs. The sector directly contributes to enhancing regional and international connectivity through developing global logistics corridors, making the Kingdom a strategic hub for intercontinental trade. The Kingdom also pursues to build a sustainable transport system that supports the national economy and reduces negative environmental impacts. One of the main goals are: improving the user experience, enhancing road safety, and supporting sustainable development.

Here are some success stories from the sector highlighting the use of emerging technologies.

First, the Saudi Post implemented the biometric authentication project using AI for facial recognition. The project pursued to enhance security and improve operational processes through the adoption of facial recognition technology. The system enables control of access to vulnerable areas, reduce fraud, and improve the user experience through fast and contactless operations. The technology provides high accuracy and scalability and integrates seamlessly with existing security systems. In addition, it ensures compliance with privacy regulations and offers valuable insights through data analytics. Using facial recognition, Saudi Post can create a safer, more efficient and user-friendly environment, while maintaining data privacy and minimizing security risks.

Second, the virtual glasses project for transport monitoring, using AI, AR, and IoT. The Transport General Authority launched the virtual glasses in its advanced version during the Hajj season for the year 1445 AH, after the success in the Hajj season last year. These glasses use AR to enable the Authority's field observers to: inquire about the regularity of the vehicle and the driver, verify the vehicle's compliance, document the inspection process, monitor any violations, and send the data to the center within just 6 seconds. This reduces vehicle inspection time by 600%, as well as increasing the compliance rate for transport vehicles.

Third, the Ministry of Transport and Logistics conducted the "Serb" project for road asset management using big data, AI, advanced analytics, and the IoT. The project proposes maintenance plans based on accurate predictions and enables simulation models for efficient budget allocation. It also enables reliable proactive decisions based on this big data. In addition to predicting the status of road network assets to achieve the roads' goals by 2030. The project achieved an increase in the level of maturity of the Ministry in asset management from 2.8% to 3.5%. This achievement led to the Ministry being honored by the Expenditure Efficiency and Government Projects Authority as one of the top three government agencies.

Future expectations for the Transport and Logistics Sector:

The transport and logistics sector is a key pillar in Saudi Arabia's Vision 2030, as the Kingdom aims to strengthen its position as a global logistics hub linking the three continents. With technical advances and the adoption of emerging technologies, the sector is expected to witness significant transformations. The transformations include:

- **Increasing operational efficiency:** through improved route planning and predictive maintenance, resulting in lower operational costs.
- **Enhancing environmental sustainability:** using electric vehicles and improving fuel consumption, in line with the Kingdom's goals of reducing Enhancing environmental sustainability: using electric vehicles and improving fuel consumption, in line with the Kingdom's goals of reducing emissions.
- **Improving customer experience:** by automating processes and tracking shipments, which increases customer satisfaction locally and globally.
- **Enhancing safety:** by adopting self-driving vehicles and smart traffic management technologies, to reduce accidents.

With the integration of the aspirations of the Kingdom and the global trends, the sector in the Kingdom is expected to become a global logistics hub that supports sustainable economy and contributes to achieving the objectives of Vision 2030 by promoting innovation and infrastructure development.



Success story

"Serb" Project for Road Asset Management

The Ministry of Transport and Logistics conducted the "Serb" project for road asset management using big data, AI, advanced analytics, and the IoT. The project proposes maintenance plans based on accurate predictions and enables simulation models for efficient budget allocation. It also enables reliable proactive decisions based on this big data. In addition to predicting the status of road network assets to achieve the roads' goals by 2030. The project achieved an increase in the level of maturity of the Ministry in asset management from 2.8% to 3.5%. This achievement led to the Ministry being honored by the Expenditure Efficiency and Government Projects Authority as one of the top three government agencies.

Beneficiary segment

- Road users
- Ministry of Transport Staff

Technology used

- Big data and advanced analysis
- Artificial intelligence
- Internet of things

Outcomes

- **80%**
Increase roads efficiency and safety
- **5.7%**
Reduction in road fatalities

Impact

- Saving 2.7 billion riyals from budgets
- Reduce future maintenance costs
- Reduced the number of road complaints by 60%



6.12 Sector Municipalities and Urban Development



6.12 Municipalities and Urban Development Sector

The municipalities and urban development sector is one of the vital sectors in the Kingdom of Saudi Arabia, as it contributes to improving the quality of life for citizens, residents and visitors, in addition to supporting digital transformation within the objectives of the Kingdom's Vision 2030. The sector relies on emerging technologies such as artificial intelligence, the Internet of Things and big data to develop innovative solutions that enhance operational efficiency and optimize municipal services. By adopting digital innovations, the sector pursues to enhance citizen satisfaction, improve the urban landscape, and provide smart services that meet the growing needs of society.

There are numerous success stories in this sector, including the following:

First, the smart neighborhood control project conducted by the Riyadh Municipality aims to improve the urban landscape by analyzing visual data using AI, the Internet of Things, and big data. The system relies on reading data from cameras distributed in moving cars to analyze video contents then detect and remove visual distortions efficiently. The project targets decision makers and residents of the city. It has a significant impact on transferring demolish and construction waste from project sites quickly, improving waste management, reducing incoming reports, improving operations, raising the quality of life for residents, and increasing revenues.

Second, the Ministry of Municipalities and Housing has done the smart assistant project "Balady" GPT. The Ministry developed an AI-powered chatbot to provide support to customers in a variety of services in the municipal sector. The robot gives quick answers to frequent questions, guides users through different processes, and support them in multiple languages. The project also pursues to enhance the efficiency of public services to the Ministry of Municipalities and Housing, as well as improve the level of customer satisfaction. It has a positive impact in reducing the burden on the Ministry's employees by automating responses to inquiries, reducing operational costs, accelerating response to inquiries, improving the quality of services, collecting and analyzing customer data to improve future services.

Third, the "Hajj Platform" project - the electronic track, conducted by the Ministry of Hajj and Umrah. The ministry designed an advanced software and technical solution to read and examine passports and identities of pilgrims using OCR technology and AI automatically and intelligently. As a result, the ministry can speed up identity verification and validation during the Hajj season, while minimizing the risks associated with forgery. The project targets pilgrims from Europe and America and has a significant impact on reducing reliance on human resources to review data, reducing re-orders and wasting pilgrims' time, raising the quality of services provided to pilgrims, achieving governance, and increasing revenues.

Future Expectations for the Municipalities and Urban Development Sector:

- **Developing smart cities:** through projects such as The Line in NEOM. The Kingdom aims to create smart cities based on advanced technologies to provide a sustainable and carbon-free living environment.
- **Improving the quality of life:** initiatives such as the Green Riyadh project seek to increase green spaces in cities to improve air quality and enhance well-being for residents.
- **Promoting environmental sustainability:** through the development of projects such as "Al Soudah Development", the Kingdom aims to preserve the environment and cultural heritage, while achieving sustainability in urban development.
- **Diversifying the local economy:** "Downtown Saudi Arabia" is developing mixed-use urban centers in 12 cities, which diversify the national economy and the develop non-oil GDP.
- **Promoting digital transformation:** digital transformation in the Kingdom is accelerated through the "National Transformation Program", which contributes to improving government services and facilitating the lives of citizens.

With the continuation of these ambitious efforts and projects, the Kingdom's municipalities and urban development sector is expected to become a global model in adopting emerging technologies and achieving sustainable development, thereby strengthening the Kingdom's position on the international stage.



Success story

The Smart Neighborhood Control Project

The smart neighborhood control project conducted by the Riyadh Municipality aims to improve the urban landscape by analyzing visual data using artificial intelligence, the Internet of Things, and big data. The system relies on reading data from cameras distributed in moving cars to analyze video contents then detect and remove visual distortions efficiently. The project targets decision makers and residents of the city. It has a significant impact on transferring demolish and construction waste from project sites quickly, improving waste management, reducing incoming reports, improving operations, raising the quality of life for residents, and increasing revenues.

Beneficiary segment

- Decision Makers
- City Population

Technology used

- Artificial Intelligence
- Internet of Things
- Big Data

Outcomes

- 100%**
Faster in transferring demolish and construction waste from project sites
- 10.5%**
Decrease in incoming reports

Impact

- Improving waste management by correcting the locations of 2,593 containers and 8,643 barrels
- Improving operational processes and raising the quality of life for the population
- Increased revenues by SAR 47 million from truck violations

7

Summary of government agencies general evaluation and results

7. Summary of government agencies general evaluation and results

Comprehensive evaluation outcomes:

Emerging technologies are one of the most important drivers of transformation and development in the public sector, as these technologies could radically modernize and improve government operations, which contributes to enhancing the efficiency of services provided to citizens and achieving the strategic goals of governments. The impact of emerging technologies in the public sector ranges from improving communication and interaction with citizens to developing public policies and improving service performance. Enhancing transparency and effectiveness in resource management and service delivery is one of the key aspects that reflects the importance of emerging technologies in the public sector. By using big analytics, artificial intelligence, and cloud computing, governments can improve decision-making processes and data analysis to achieve better and faster results.

4.2 Emerging Technology Adoption Readiness Index

The Authority emerging technologies adoption readiness index comes as a periodic assessment conducted through a measurement methodology based on four basic capabilities (Research, Communicate, Prove, and Integrate). In general, this assessment can be relied upon by the departments responsible for research, development, technical affairs and innovation in the agency, as its results help them determine the current level of readiness to adopt emerging technologies, monitor the gaps, and plan the steps that should be taken to build capabilities that guarantee success when adopting these technologies to achieve the desired benefits.

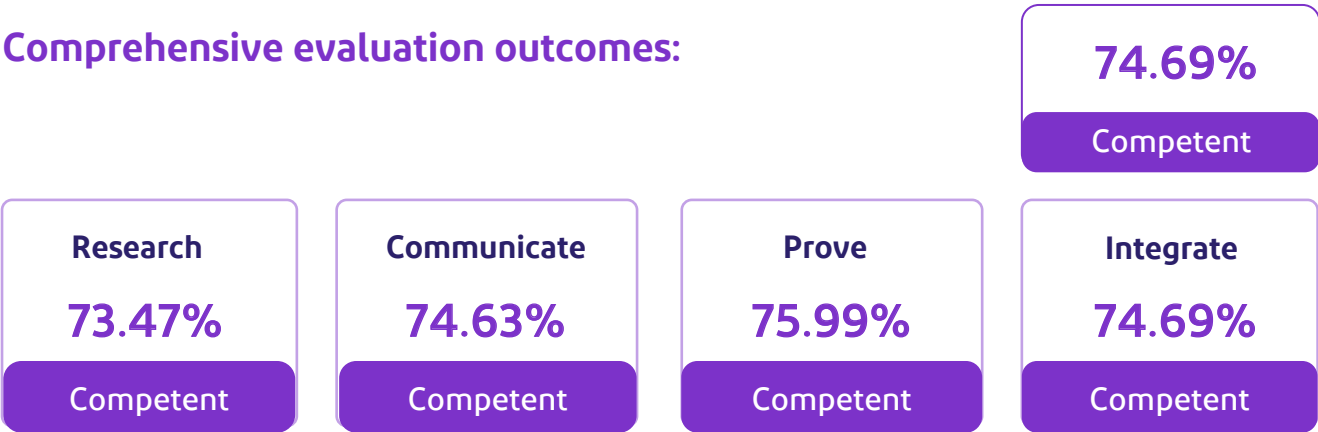
4.3 Objectives of the Emerging Technology Adoption Readiness Index

Emerging Technologies Adoption Readiness Index seeks to achieve several important objectives at the level of government agencies in the public sector:



7. Summary of government agencies general evaluation and results

Comprehensive evaluation outcomes:



The (third) cycle of the Emerging Technologies Adoption Readiness Index for **(2025)** saw the participation of government agencies from various sectors, totaling 49 agencies. All participants demonstrated notable progress in adopting these technologies in accordance with the capabilities, elements, and criteria outlined in the report. The overall index score reached **(74.69%)**, reflecting a **"Competent"** level. The results showed a significant improvement in most capabilities related to the adoption of emerging technologies, enhancing their readiness to excel and deliver comprehensive and innovative experiences.

In the **"Research"** capability, the participating government agencies achieved a score of **73.47%**, classified as **"Competent."** This result reflects the readiness of research teams within government agencies to identify research priorities, analyze the value of emerging technologies, determine future needs and trends, manage associated risks, and work persistently toward achieving their strategic objectives.

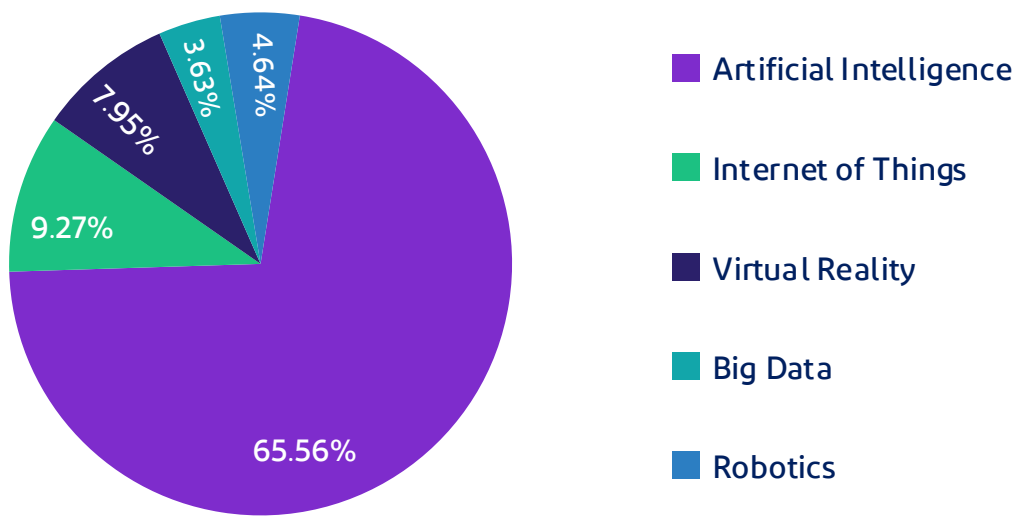
In the **"Communicate"** capability, the score reached **74.63%**, also classified as **"Competent."** This percentage highlights the agencies' ability to communicate and collaborate with stakeholders, emerging technology researchers, and business experts, facilitating the dissemination of information and sharing of opportunities. It also underscores their efforts to leverage feedback through various media channels, as well as to organize, sponsor, and participate in local and international conferences, exhibitions, and forums. Additionally, these agencies play a crucial role in hosting prominent speakers in various technology fields, particularly emerging technologies.

In the **"Prove"** capability, these agencies achieved a score of **75.99%**, classified as **"Competent."** This indicates that government agencies are committed to prototyping, validating concepts, and further developing emerging technologies while effectively managing associated risks. They are creating prototypes that can be refined, expanded upon, and diversified for broader applications, making them accessible to beneficiaries and leveraging feedback for improved efficiency and user experience.

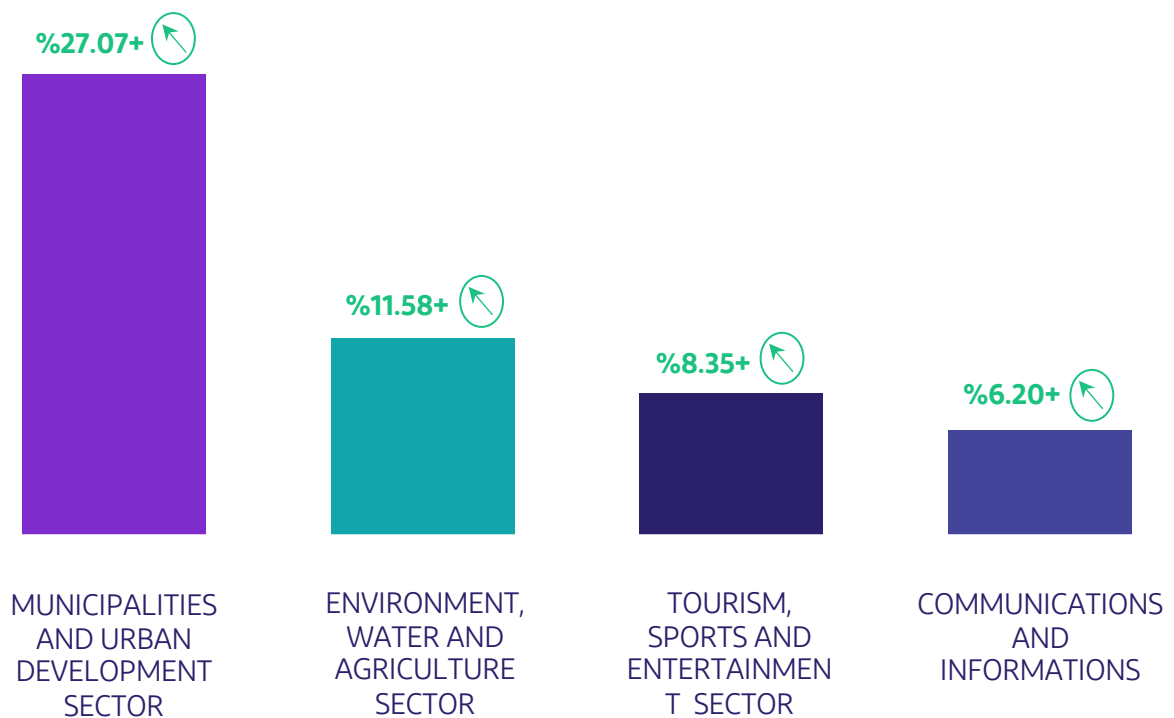
Lastly, in the **"Integrate"** capability, the score reached **74.69%**, achieving the **"Competent"** level. This signifies that government agencies clearly recognize the importance of integration in adopting emerging technologies and aligning them with strategic initiatives and objectives to support Vision 2030.

In conclusion, **the Digital Government Authority** commends the efforts of all participating government agencies in this assessment cycle for their active role in shaping a digital government capable of keeping pace with the latest emerging technological advancements and leveraging them effectively. The authority also encourages other government agencies that have not yet participated in this cycle to join future cycles.

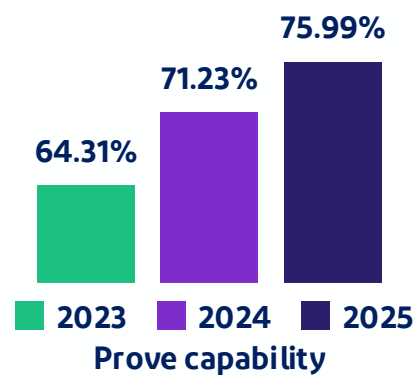
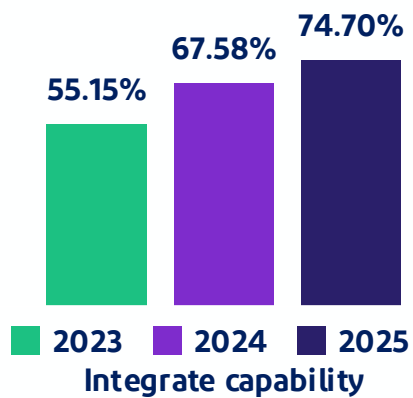
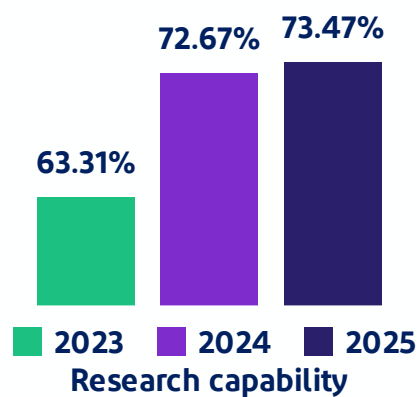
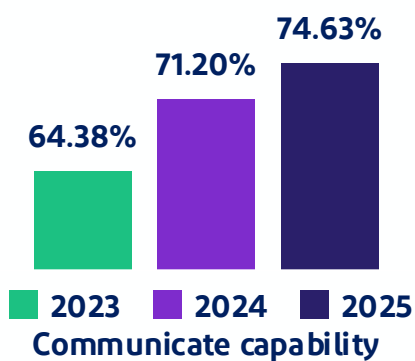
7.1 The Most Adopted Technologies by Agencies Included in the Third Cycle (2025)



7.2 The Most Advanced Sectors in the Third Cycle (2025) Compared to Their Results in the Second Cycle (2024)



7.3 Capability Results Across the Three Index Cycles (2023–2025):



7.4 The Top Government Agencies in the Third Cycle of the Emerging Technologies Adoption Readiness Index (2025)

Classification	Government Agency	Percentage	Readiness level
1	Communications, Space & Technology Commission	%94.09	Exceptional
2	Ministry of Energy	%91.85	Exceptional
3	Saudi Authority for Industrial Cities and Technology Zones	%90.26	Exceptional
4	Ministry of Industry and Mineral Resources	%87.34	Advanced
5	Ministry of Municipal and Rural Affairs	%86.90	Advanced
6	King Abdulaziz City for Science and Technology	%84.97	Advanced
7	Ministry of Environment, Water and Agriculture	%83.67	Advanced
8	Saudi Standards, Metrology and Quality Organization	%82.81	Advanced
9	Saudi Food and Drug Authority	%80.55	Advanced
10	Ministry of Culture	%80.36	Advanced
11	Ministry of Health	%78.91	Competent
12	Saudi Post	%78.80	Competent
13	Zakat, Tax and Customs Authority	%78.26	Competent
14	General Organization for Social Insurance	%78.07	Competent
15	Ministry of Finance	%77.50	Competent
16	Ministry of Interior	%77.47	Competent
17	King Faisal Specialist Hospital & Research Centre	%77.45	Competent
18	Ministry of Defense	%77.44	Competent
19	Ministry of Human Resources and Social Development	%77.27	Competent
20	Real Estate General Authority	%77.24	Competent

7.5 The government Agencies that demonstrated high readiness in the third cycle of the "Emerging Technology Adoption Readiness Index" (2025)*

The following government agencies have demonstrated remarkable progress in adopting emerging technologies across their various sectors, developing innovative strategies for utilizing numerous emerging technologies. This digital transformation has significantly contributed to a clear digital shift in various fields, leading to reduced operational costs, increased revenues, improved processes and services, and enhanced beneficiary satisfaction.

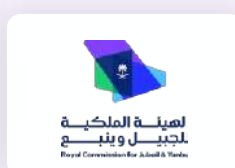
• Municipalities and Urban Development Sector



Ministry of Haj and Umrah



Riyadh Region Municipality



Royal Commission for Jubail and Yanbu



General Authority for the Care of the Affairs of the Grand Mosque and the Prophet's Mosque



General Authority for Survey and Geospatial Information

• Environment, Water and Agriculture Sector



Saudi Water Authority



National Center for Wildlife



National Center for Vegetation Cover Development and Combating Desertification

• Commercial Sector



The Small and Medium Enterprises General Authority

• Social Development Sector



Human Resources Development Fund

• Commercial Sector



Ministry of Education



King Khalid University



King Salman Global Academy for Arabic Language

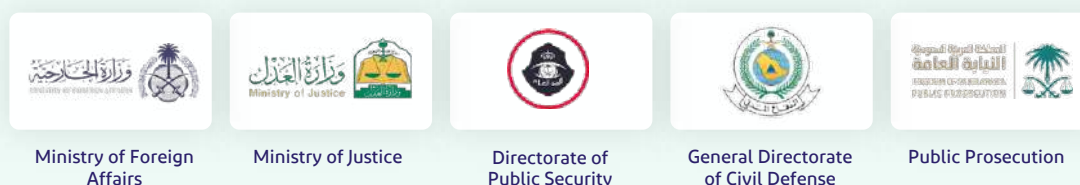
*The order of agencies does not represent their classification in the Emerging Technologies Adoption Readiness Index (2025).

7.5 The government Agencies that demonstrated high readiness in the third cycle of the "Emerging Technology Adoption Readiness Index" (2025)*

• Tourism, sports and entertainment sector



• Intern and foreign affairs and judicial sector



• Health and safety Sector



Saudi Red Crescent Authority

• Transport and logistics sector



Ministry of Transport and Logistic Services



Transport General Authority



General Authority of Civil Aviation

• Energy, industry, and mining sector



Saudi Industrial Development Fund

*The order of agencies does not represent their classification in the Emerging Technologies Adoption Readiness Index (2025).

7.6 Summary of Top Agencies Performance in the Four Key Capabilities of the “Emerging Technologies Adoption Readiness” Index Framework

Research

The adoption of emerging technologies opens doors to new methods and approaches for leveraging technological advancements in developing applications and services, thereby saving time, effort, and costs in task execution. However, since these technologies are still emerging, their direct implementation in business operations may lead to unintended consequences. Therefore, the first step that agencies take toward adopting emerging technologies is the research phase, which involves analyzing, studying, and aligning these technologies from various perspectives, including social, economic, cultural, and security aspects. The Communications, Space & Technology Commission, the Ministry of Industry and Mineral Resources, and the Saudi Authority for Industrial Cities and Technology Zones (MODON) have demonstrated notable maturity in the research capability for emerging technologies. By leveraging research experts and collaborating with business specialists, these agencies have proven their ability to analyze emerging technology trends and assess their present and future benefits. They have also established standardized and official documentation processes for research workflows and outcomes, ensuring they are structured, measurable, and open to continuous evaluation and enhancement using the latest research tools and methodologies.

Communicate

In emerging technology research, knowledge transfer and effective communication with stakeholders are among the key pillars of successful research efforts. New concepts and innovative ideas are often the result of continuous interaction and ongoing collaboration with all stakeholders. The Communications, Space & Technology Commission, King Abdulaziz City for Science and Technology, and the Ministry of Municipalities and Housing, have demonstrated their ability to establish and maintain effective communication channels with stakeholders, share ideas, and leverage feedback to transform insights into opportunities for developing and implementing distinguished emerging technologies. On one hand, these agencies prioritize the continuous development of their workforce's capabilities in handling emerging technologies and provide incentives for participation in training programs. On the other hand, they actively promote the culture of emerging technologies beyond their organizations by establishing strategic partnerships, organizing exhibitions and workshops, and participating in conferences and hackathon programs across various emerging technology fields.

Prove

The ability of agencies to create opportunities for emerging technologies is demonstrated through their reliance on knowledge and expertise gained from proof-of-concept trials and lessons learned from past experiences. Additionally, their capacity to engage a broad network of local and international experts helps streamline adoption, reduce time, and maximize the benefits of future emerging technologies. The Communications, Space & Technology Commission, the Ministry of Energy, and the Saudi Standards, Metrology and Quality Organization have excelled in achieving the highest levels of maturity in validating the feasibility of adopting emerging technologies and assessing their alignment with infrastructure, institutional frameworks, and regulatory environments. This strong foundation enables these agencies to adopt emerging technologies effectively with well-assessed and pre-identified risks, along with ready-to-implement mitigation plans when necessary. As a result, the benefits of adopting these technologies are maximized, further enhancing the operational efficiency of these agencies.

Integrate

As an extension of efforts in validating emerging technologies, the importance of agencies' readiness to operationalize, integrate, and fully leverage these technologies becomes evident. This step serves as the final building block in the emerging technology adoption cycle, measuring the success of implementation within agencies. In this context, the Communications, Space & Technology Commission, the Saudi Authority for Industrial Cities and Technology Zones (MODON), and the Ministry of Energy have demonstrated advanced levels of capability, reflecting their strong ability to seamlessly integrate emerging technologies within their operational and regulatory frameworks. This integration has clearly contributed to supporting these agencies in achieving their strategic objectives by fostering innovation as an institutional culture, aligning emerging technology applications with strategic plans, monitoring their implementation, and ensuring that they deliver the desired outcomes in the near term.

7.7 The Three Most Improved Agencies in the Third Cycle (2025) Compared to the Second Cycle Results (2024)



The Saudi Post has demonstrated remarkable progress across all capabilities, achieving an overall evaluation score of 78.80%, compared to 50.19% in the previous cycle of the Emerging Technologies Adoption Readiness Index. This year, the corporation particularly excelled in its communication capability, actively engaging in numerous partnerships and launching several initiatives with communities dedicated to promoting innovation and research in emerging technologies. Additionally, Saudi Post prioritized participation in various technology conferences and joint seminars while hosting hackathon programs to support experimentation, development, and innovation. One of its standout initiatives was a pilot project conducted in collaboration with the Ministry of Health, which involved using drones to transport blood units within the holy sites. This successful trial significantly reduced the transport time for blood units from two and a half hours to just two minutes, compared to traditional transportation methods.



الهيئة العامة
لتنظيم الإعلام

The General Authority for Media Regulation has made significant progress in enhancing its capabilities to adopt emerging technologies, with all areas showing notable improvement compared to the previous cycle, particularly in the Prove and Integration capabilities. This advancement reflects the authority's commitment to refining its processes, strengthening research mechanisms, and improving communication with stakeholders to ensure better integration between research teams and experts. Additionally, the authority has focused on automating and documenting validation results and trials in alignment with national regulations. This improvement also highlights the authority's dedication to exploring opportunities in emerging technologies through more systematic and effective approaches, enhancing its readiness to keep pace with advancements in the media sector and leverage technological innovations to improve its operations and services.



وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture

The Ministry of Environment, Water, and Agriculture has made significant improvements in enhancing its capabilities to adopt emerging technologies, particularly in Communication, Prove, and Integrate. Its overall score has notably increased from 62.17% to 83.67%. These efforts reflect the ministry's commitment to developing its capabilities, keeping pace with technological advancements, and implementing relevant innovations to achieve national objectives, including preserving and improving natural resources, enhancing agricultural productivity, ensuring environmental and water sustainability, and supporting environmental and agricultural research in the Kingdom.



هيئة الحكومة الرقمية
Digital Government Authority