Digital Government Authority
هيئة الحكومة الرقمية

Emerging Technologies Adoption Readiness in Government Agencies

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Introduction

Introduction

Based on Cabinet Resolution No. (418) dated 25/07/1442 AH, approving organization of Digital Government Authority (DGA), which stipulates in Articles (4/10/5) that "DGA shall be responsible for issuing measurements, indicators, tools, and reports to measure Government Agencies performances and capabilities in digital government, and the beneficiaries' satisfaction thereof", and providing support to Government Agencies with regard to digital government services, to adopt and enable modern technologies.

Proceeding from the role of DGA to effectively support Government Agencies and enable them to achieve their goals, and in order to meet "Digital Government Policy" content in terms of encouraging Government Agencies to adopt emerging technologies, which in turn accelerates the digital transformation process in various sectors, DGA has been working to assess ET adoption readiness, to help Government Agencies identify their current readiness levels, identify gaps and improvement opportunities, and present the necessary capacity building plans to successfully adopt emerging technologies in line with their respective needs, and ensure the strategic and sustainable realization of the desired benefits.

This report was issued to review Government Agencies' readiness outcomes in the 2023 ET Adoption Readiness Assessment's first round. The report includes a summary of several success stories, according to the following four capabilities:

Saudi Arabia pays special attention to innovation and emerging technologies, two of its main digital economy policy pillars, which contributed to 15% of the country's 2022 GDP.

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Speech of H.E. the Governor of Digital Government Authority

Speech of H.E. the Governor of Digital Government Authority

"Today, we are working toward an ambitious future through encouraging development and innovation. We are leveraging cutting-edge technologies and solutions to build the government of the future"

H.E. Ahmed Mohammed Alsuwaiyan
Governor of Digital Government Authority

At Saudi Arabia, we prioritize digital transformation as a key driver of government performance excellence. Our ultimate objective is to achieve Vision 2030 by delivering enhanced government services that are centered around the principle of "beneficiary centricity". This approach is based on three main components: "efficiency, productivity, and experience". By placing the beneficiary at the heart of the process, we utilize digital transformation as a means to create value and impact.

Saudi Arabia has made significant strides in the realm of digital technology, as evidenced by its impressive rankings in various international indicators. The World Bank Group's "GovTech Maturity Index" (GTMI) placed Saudi Arabia in the third place out of (198) countries worldwide, while the Economic and Social Commission for Western Asia's (ESCWA) "Government Electronic and Mobile Services Maturity Index" (GEMS) ranked Saudi Arabia first in the region. Additionally, the United Nations' "E-Government Development Index" (EGDI) indicated that Saudi Arabia achieved its best historical result in over two decades.

Today, we are moving towards an ambitious future through encouraging development and innovation by leveraging the cutting-edge technologies and solutions to contribute in building the government of the future. DGA's efforts to achieve this include measuring government agencies' readiness to adopt emerging technologies in order to enable and provide the necessary support, identify appropriate emerging technologies with sustainable impact, invest them effectively, and deploy them appropriately to enrich the beneficiary experience and meet their needs.

This report presents success stories that showcase the effective utilization of emerging technologies. These stories reinforce the ambitious efforts to transition from traditional business models to emerging technologies and innovative solutions in digital government services. The report highlights the best government agencies that demonstrate readiness and capabilities, reflecting the capabilities of every sector.

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ET Adoption Readiness Assessment Summary

ET Adoption Readiness Assessment Overview

Emerging technologies are defined as technologies whose development and practical applications are still evolving (have not yet reached the full development stage) but are already spreading among users. They are characterized by their ability to significantly impact social and economic areas. Adopting such technologies leads to positive changes in the sectors and improves project performance in many respects. In this perspective, DGA has been keen on supporting and encouraging Government Agencies to adopt emerging technologies.

Digital Government's ET Adoption Readiness Assessment is a periodic assessment carried out through a measurement methodology based on four core capabilities (Research, Communicate, Prove, and Integrate) for several Government Agencies that expressed interest in enrolling in the first session, with future sessions expected to include more Government Agencies. In general, this assessment can be used by the Agencies' departments responsible for research and development, technical affairs, and innovation, as the assessment's outcomes help them determine the current readiness levels to adopt emerging technologies, identify gaps, and plan the necessary steps to build capacity to successfully adopt emerging technologies and achieve the desired benefits.

The Assessment was announced on February 9, 2023, at the LEAP conference, and its first round is intended to assess Government Agencies' readiness levels and enable them to adopt modern technologies.

ET Adoption Readiness Assessment Objectives

The ET Adoption Readiness Assessment is intended to achieve a number of important objectives, including:

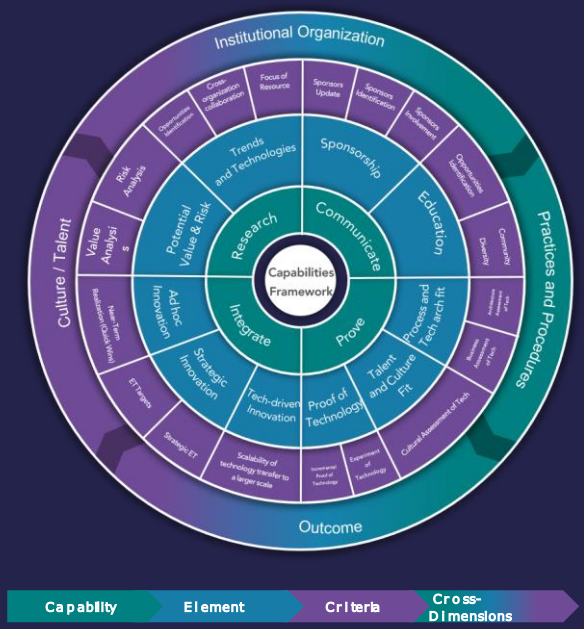
Contributing to achievement of the digital government strategic targets

Accelerating realization of the desired benefits of emerging technologies

Supporting Government Agencies in their journey towards ET adoption

ET Adoption Readiness Assessment Methodology

This figure shows the capability framework that was developed and designed to assess Government Agencies' readiness to adopt emerging technologies. The framework consists of four core capabilities (research, communicate, prove, and integrate) from which 10 elements are derived and assessed based on 19 criteria, with 4 cross-dimensions for each criterion.



The four main evaluated capabilities:

Research

Due to the rapid rate of change in the technology field, it is essential to allocate resources to monitor technology's new developments, whether in terms of beneficiaries, competitors, markets, or the technical capabilities of a particular technology trend. Researchers should work together across Government Agencies or build cooperation partnerships with external partners to capture these patterns, identify particular possibilities for each emerging technology, and then allocate each opportunity to either the short, the medium, or the long term.

Communicate

Emerging Technology research cannot survive for long without clear lines of communication through which targets and outcomes of technology trend analysis are presented. It is necessary to direct the appropriate information towards the appropriate audience and to differentiate between general education in order to engage actors or stakeholders on one hand, and provision of specific information in order to stimulate funding and investment on the other hand.

Prove

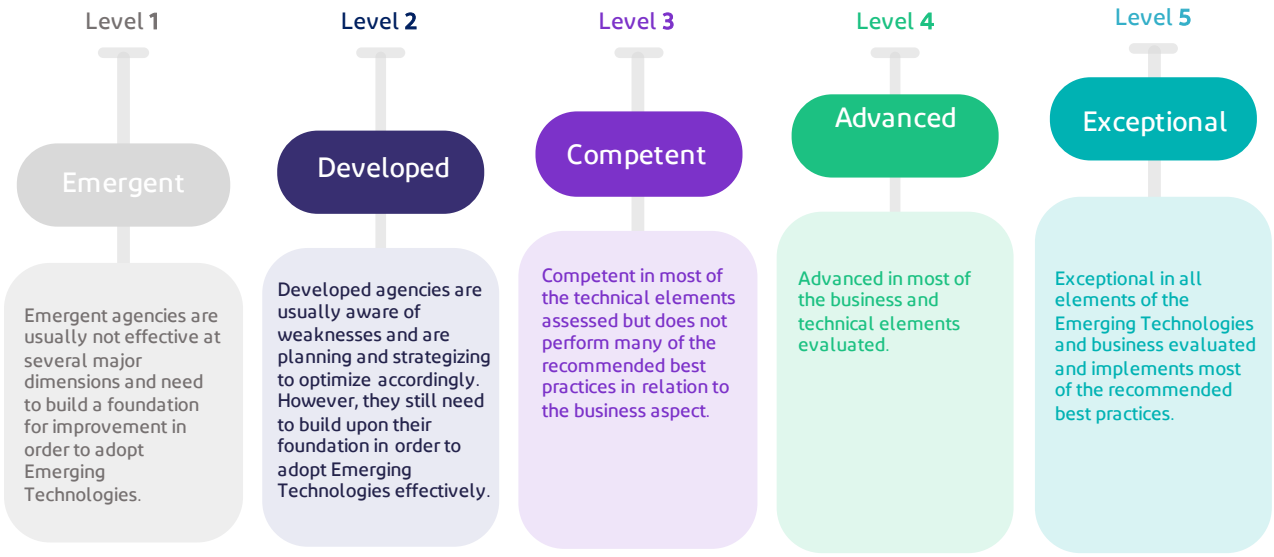
In order to express technological opportunities in a way that is persuasive to beneficiaries, it is necessary to prove the extent of ET adoption through proven practical experiences. With the aid of the "prove" capability, the Government Agency will determine each technology's readiness to meet its requirements, but also whether or not the Agency is ready for the technology.

Integrate

Innovations that are strategic in nature are those that pursue medium/long term emerging technology opportunities that align with the Agency's broad objectives. This capability assesses how well the Agency is equipped to operationalize emerging technologies on large scales in a way that supports the strategic objectives while also being economical and practical in its implementation.

ET Adoption Readiness Level Classification

Government Agency readiness level is determined according to the outcome of the ET Adoption Readiness Assessment, based on capabilities and their sub-criteria in each measurement cycle in one of the following five levels:



Measurement Mechanism

Readiness assessment was conducted in the following three phases:

Phase One: Current State Assessment

The current state at the Government Agency level is assessed against the four core capabilities using a detailed questionnaire with a series of capability-related questions. Government Agency representatives respond to the questionnaire and share relevant data.

Phase Two: Readiness Level Identification

Readiness levels are determined by analyzing the data collected in phase one, processing inputs, and calculating points for each of the four capabilities. Accordingly, each Agency's readiness progress level is identified across the five levels.

Phase Three: Recommendations and Action Plans for Improvement

Recommendations and improvement action plans are presented, which include suggestions and recommendations for specific actions under each of the analyzed dimensions, to help the Agency progress through the five levels. In addition, the Agency may consider the ET Adoption Guideline to cover the various factors necessary to organize efforts and achieve desired outcomes while reducing the risks associated with the ET adoption journey.

04

The Most Prominent Success Stories in Emerging Technologies Adoption

Justice Sector

Justice Sector

Justice sector initiatives aimed at developing and upgrading modern technologies include the adoption of several technologies such as Data Analytics (DA), Machine Learning (ML), and Artificial Intelligence (AI). These technologies improve the sector's ability to develop smart services that predict decisions and behaviours, as well as to raise the quality and efficiency of judicial service delivery to beneficiaries by improving and expediting court proceedings along with the quality and timeliness of court rulings issued. The initiative's smart services include referral services and other services related to enforcement, documentation, and legal research that benefit the Ministry of Justice's key agencies. Such services are developed using modern technologies to optimize the Ministry's service performance and efficiency while also ensuring beneficiary satisfaction.

A good illustration is the court judgement predication system project that uses AI technologies and current case file as well as historic data and outcomes of same processes and procedures. This project aims to expedite issuance of court rulings and improve data quality, resulting in enhanced court productivity and beneficiary satisfaction. Through "**Najiz"** portal, this project has reached over 2,700 judges and 31,000 beneficiaries.

According to the current assessment cycle, the Ministry of Justice's readiness for adopting ET has achieved the "Advanced" level on the Research, Communicate, Prove, and Integrate capabilities.

Success Story

Predict court rulings using AI techniques.

Outcomes

+2,700

beneficiary judge

31,000

beneficiaries through the "**Najiz**" portal

Beneficiary Segment

Judicial District

Used Technology

Artificial Intelligence

Impact

Improve court quality productivity and thus raise beneficiary satisfaction levels.

Health Sector

Health Sector

Saudi Arabia seeks to be a global leader in enhancing health service quality and providing health care to all citizens and residents. Health sector has recently made many achievements related to improving the quality, efficiency, and accessibility of health services, focusing on developing the digital health system and launching several applications, such as "**Sehhaty**" portal, that contribute to increasing health service coverage across Saudi Arabia.

All in all, health sector has adopted several emerging technologies and health care development teams have been eager to invest in ET applications. "**Seha Virtual Hospital**", developed by the Ministry of Health, is one of the sector's most prominent ET application and the world's largest virtual hospital. This virtual hospital uses emerging technologies to provide specialized services and support to health facilities in Saudi Arabia. It supports 152 hospitals and provides 15 main specialized health services, as well as more than 34 sub-speciality health services. It employs more than 75 physicians, with a capacity of over 400,000 patients annually. The hospital helps provide and facilitate access to services for all society segments (such as home healthcare for the elderly, people with disabilities, and others), in addition to reducing health risks, promoting health awareness and confidence in the health sector, and transferring knowledge and exchanging experiences among specialists.

On the other hand, the **Saudi Food and Drug Authority**, as a member of the health sector, has been working to adopt emerging technologies in several applications, such as using augmented reality and virtual reality technologies to train inspectors in control procedures by simulating facilities whose activities are subject to SFDA's control (such as factories and warehouses), and thus classifying them according to their compliance with regulations, thereby increasing business efficiency and quality. One of SFDA's most notable successes is the halal product traceability application, using blockchain technology and tested by 174 participants.

According to the current assessment cycle, the Ministry of Health's readiness for adopting ET has achieved the "Advanced" level on the Communicate, Prove, and Integrate capabilities, and the "Competent" level on the Research capability.

Success Story

"Seha Virtual Hospital"

Outcomes

400,000
Referrals served annually

152
Hospitals providing virtual services

+49
core and secondary services provided

Beneficiary Segment

Citizens and residents

Used Technology

- Artificial Intelligence
- Augmented Reality
- Internet of Things

Impact

- Facilitate rapid access to specialized health services in all Saudi regions.
- Enable digital transformation by supporting innovation and using cutting-edge technologies.
- Contribute to knowledge transfer and experience exchange to increase health service quality and efficiency.

Culture Sector

Culture Sector

The Kingdom's culture sector has made great strides in recent years as the country pays great attention to developing and improving cultural life and making it an attractive destination for citizens, residents, and visitors equally. The sector encompasses several fields, including literature, arts, heritage, history, folklore, creative media, humanities, and social sciences, in addition to various cultural initiatives organized by cultural authorities. The sector has also gave a special attention to emerging and modern technologies, such as VR and AI, to enhance the role of technology and leverage the digital era to support field workers and those interested in cultural affairs.

One of the ET projects developed by the **Ministry of Culture** is implementing the proof-of-concept for the book publishing permit process. The Ministry adopts the latest technologies for automation, artificial intelligence, and linking the necessary systems, such as "**Nafath**" portal, Active Directory, Integrated library systems, and so on. Upon receiving a new book, it is automatically sent to the AI engine, which examines it by analyzing the text and understanding the context (whether in Arabic or English), and then presents the analysis results to the responsible while identifying violations or irregularities according to the rules and laws integrated into the engine. The user can then make the appropriate decision accordingly. Since the engine uses ML technology, this feedback is intended to develop and improve the engine's ability to handle similar cases. As a result, the time required to review the books is reduced by providing a summary of the violations and presenting them to the system responsible for review and approval or rejection.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Competent" level on the Research and Prove capabilities, and the "Developed" level on the Communicate and Integrate capabilities

Success Story

Proof-of-concept for book publishing permit process

Outcomes

+10,000

Monthly documents will be processed by the system during the first phase

Beneficiary Segment

- Publishers
- Ministry staff/employees

Used Technology

Artificial Intelligence

Impact

- Improve publisher experience
- Develop specialized AI for understanding and analyzing the Arabic language within specific contexts.

Transport and Logistic Services Sector

Transport and Logistic Services Sector

The transport and logistic service sector is one of the world's vital economic sectors. This ecosystem has achieved many remarkable accomplishments in recent years, becoming a significant driver of international trade and economic growth while helping to attract investors, tourists, and pilgrims from around the world. The improvement in air, sea, and land transportation services is evident, as is the development of infrastructure and facilities to facilitate logistics operations and the development of modern programs and technologies to improve efficiency and reduce costs. As a result, the sector's capacity to handle vast quantities of goods has increased without impacting delivery speed or efficiency.

The **Ministry of Transport and Logistic Services** has embraced and successfully completed several initiatives by adopting emerging technologies, including the project to monitor road conditions and improve traffic safety. As part of this initiative, the Ministry adopted a smart transportation system to monitor roads and tunnels and provided users with a range of services, such as sending alerts about the latest road updates, including traffic jams, accidents, obstacles, and weather conditions, as well as directional messages indicating available routes and travel time to a specific destination, with community outreach messaging in collaboration with various entities. Activating this system has had a clear impact in reducing disasters through proactive alerts, reducing damage from traffic accidents, decreasing operating costs, and increasing reliance on technology.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Advanced" level on the Research and Prove capabilities, and the "Competent" level on the Communicate and Integrate capabilities

Success Story

Smart transportation system and smart boards

Outcomes

7 categories of automatically updated alert, warning, and guidance messages

Beneficiary Segment

- Saudi Salco, Ministry of Transport and Logistic Services
- Competent Authorities

Used Technology

- Internet of Things
- Artificial Intelligence
- Robots

Impact

- Reduce disasters through proactive alerts
- Save lives and reduce damage from traffic accidents

Information Technology and Communications Sector

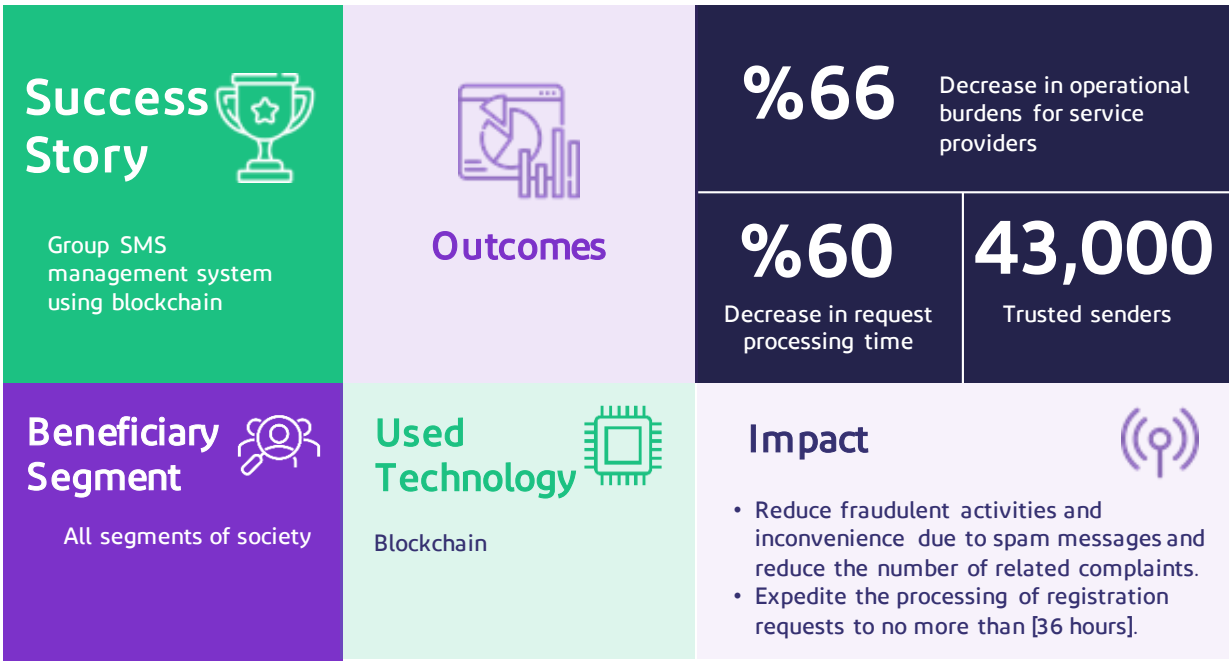
Information Technology and Communications Sector

Today, Saudi Arabia is considered a leading country in digital transformation, innovation, and investment in communications and IT. This achievement is due to the support provided by Government Agencies' wise leadership, which has enabled them to realize achievements and enhance technology partnerships internally and externally to strengthen the digital infrastructure and launch ambitious projects to expand communication networks and improve digital services in Saudi Arabai, including providing high-speed internet services and modern technologies such as AI, cloud computing, IoT, and 5G networks. Saudi Arabia's communications and IT sector is considered one of the mature sectors that significantly contribute to the achievement of Vision 2030, particularly as it supports the digital economy, innovation, and digital transformation. This sector has grown significantly in recent years, and multiple investment opportunities have been made available to encourage entrepreneurs and investors to join it.

The **Communications, Space, and Technology Commission** is one of the most important contributors to this sector and has launched a pioneering initiative to regulate and govern the SMS market. Within its framework, the latest emerging technologies are being used to provide text messaging services reliably and securely and to block fraudulent and disruptive messages through blockchain technology. This solution is based on linking all telecommunication service providers with the CST with an IT-based network so that all parties can share data and store it together.

The initiative has a considerable impact in terms of reducing fraud and inconvenience due to spam messages, in addition to reducing the percentage of reports and processing of registration requests.

According to the current assessment cycle, the Communications, Space & Technology Commission's readiness for adopting ET has achieved the "Advanced" level on the Research, Communicate, and Prove capabilities, and the "Competent" level on the Integrate capability.



Tourism Sector

Tourism Sector

Saudi Arabia's tourism ecosystem includes the **Ministry of Tourism**, the **Tourism Development Fund**, and the **Saudi Tourism Authority**, all of which have been established in accordance with the best international standards. Saudi Arabia's tourism system has paid particular attention to the visitor and traveller experience, considered one of the most important elements of successful tourism in the country. In this context, the tourism sector's digital transformation has contributed to this goal by planning and developing seamless and digital travel operations that focus on the visitor's experience during their stay in Saudi Arabia.

The sector has planned and executed several successful initiatives that have embraced emerging technologies. For example, the **Ministry of Tourism** implemented a World Travel and Tourism Council event using the metaverse, known as a 3D world that transports users into a virtual world. The Metaverse was used in this event to enhance remote event quality, providing an interactive experience for beneficiaries, thereby facilitating participation in the event and all activities, communication and interaction between visitors, and helping investors discover investment opportunities in Saudi Arabia's tourism projects, such as NEOM, the Red Sea, Diriyah, and so on.

On the other hand, the **Saudi Tourism Authority** applied experiments for AI technology-based digital solutions that provide tourists with personalized location-specific recommendations for any nearby activities, restaurants, hotels, or other businesses via their mobile devices. This application was distinguished by its ability to anticipate tourist's interests and experiences based on the choices of users with similar tastes and preferences.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Developed" level on the Research, Communicate, Prove, and Integrate capabilities.

Success Story

WTTC's Global Summit through Metaverse

Outcomes

3,000+ visitors

20 countries

10+ sessions

Beneficiary Segment

Parties interested in the tourism sector (tourists and investors)

Used Technology

- Metaverse
- Artificial Intelligence

Impact

- Help investors discover investment opportunities in Saudi Arabia's tourism projects, such as NEOM, the Red Sea, Diriyah, and other Saudi tourist attractions.

Education Sector

Education Sector

Recently, Saudi Arabia has been working to raise awareness of the importance of investing in technology in the education sector to improve the country's teaching and learning processes. The Ministry of Education has played an effective role in ensuring the improvement and development of services provided to teachers. Education sector representatives seek to improve educational services by leveraging advanced technologies to offer a unique and exceptional educational experience. Saudi Arabia ranks among the top 10 countries in digital skills, according to the WEF Global Competitiveness Report 2020. Since 2007, Saudi Arabia has been integrating IT into the curriculum in accordance with the "Development 2007-2023" project. According to an ITU 2020 report, 78% of individuals in Saudi Arabia have basic IT skills, while 64% have standard IT skills. Educational institutions are working to implement plans to raise the percentage of people with basic IT skills to 90% by 2024.

The **Ministry of Education** is one of the sector's leading advocates in adopting digital transformation and emerging technologies to develop and improve educational quality and provide a modern and distinguished educational environment. Among the most prominent examples on the services of the Ministry of Education are e-learning and distance education technologies (such as the "**Madrasati**" platform), which enable students and teachers to acquire knowledge and skills more easily, flexibly, and efficiently. The Ministry also provides technical support and assistance to learners to solve the problems they face while using modern technologies. The Ministry of Education is also working on a project to "build an academic qualification system" for the Ministry and Saudi universities using Blockchain technology to create a single source for certificates through a reliable certificate system that preserves all actions that are taken on the certificate.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Advanced" level on the Research and Communicate capabilities, and the "Developed" level on the Prove and Integrate capabilities.

Success Story

Holographic imaging project using HoloTech at King Faisal University

Outcomes

53,587 students

1,774 faculty members

have benefited from HoloTech in training and education at the university

Beneficiary Segment

- University Students
- Faculty Members
- Employees

Used Technology

Virtual Reality

Impact

- Build trust between learners and trainees
- Stimulate creativity and innovation
- Increase interaction between learners, trainees, faculty and instructors
- Develop scientific thinking skills
- Increase motivation for learning and training

Public Finance Sector

Public Finance Sector

The Saudi economy is one of the strongest economies in the Middle East and includes a number of the region's leading companies and financial institutions. The financial services and banking sector is considered one of the most important sectors of the Saudi economy, as it plays an important role in financing investments and stimulating economic growth. Financial sector services in Saudi Arabia include banks, finance companies, investment funds, insurance and stock exchange, including deposits, loans, financing, investments, and electronic banking.

To further diversify economic growth sources, Saudi Arabia has made more significant efforts to develop the financial sector infrastructure and enable it with the necessary tools, support technology, and digital transformation, which in turn ensures Saudi Arabia's ability to compete with global markets in financial services, promote innovation, and increase financial awareness and knowledge. **The Ministry of Finance** has implemented several projects and solutions that significantly contribute to developing the country's digital and financial service infrastructures.

The **National Center for Government Resource Systems** is among the most important agents and contributors to the technical development of Saudi Arabia's public finance sector. It plays an effective role in applying emerging technology-based solutions, such as using AI technology in financial contract analysis, generating statistical analysis, and conducting an analysis of the historical flow of invoices and influencing factors therein in order to forecast invoice cash flow, thereby reducing operational costs for system beneficiaries.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Advanced" level on the Research, Prove, and Integrate capabilities, and the "Competent" level on the Communicate capability.

Success Story

Automate the estimation of public expenditure in the Hajj and Umrah sector

Outcomes

3,000+

Classified direct or indirect items and projects related to the Hajj and Umrah sector

Beneficiary Segment

Government Agencies

Used Technology

Artificial Intelligence

Impact

- AI technology's impact lies in achieving the highest standards of quality in auditing, estimating, and identifying the items and projects related to Hajj and Umrah in a record time.

Industry and Mining Sector

Industry and Mining Sector

Given the importance of the industrial and mining sector, the "National Industrial Development and Logistics Program" has been launched to transform Saudi Arabia into a leading industrial powerhouse and a global logistics hub, focusing on two main areas: local content and Fourth Industrial Revolution. The program also aims to diversify revenue sources to make Saudi Arabia an ideal and competitive investment destination and to increase the rate of non-oil exports to global markets, thereby contributing to maximizing and diversifying the economic impact in the targeted sectors, sustaining growth in these sectors, achieving leadership, and creating an attractive investment environment.

Among the most important methods to help advanced economies cope with crises is reliance on digital economies' power and services. Therefore, **the Ministry of Industry and Mineral Resources** intends to use the best-emerging technologies in various projects, including the project to develop a technical satellite monitoring service and the use of AI technology to reduce the time and effort required from inspectors and responsible committees to make decisions, as well as to track factory engagement remotely, in addition to the ability to predict future industrial lands and zones and determine their locations through multiple maps.

The program's results showed a clear ability to facilitate service and increase the number of services provided to investors and manufacturers, in addition to significantly improving beneficiary satisfaction and access to services. The program also helped MIM achieve its strategic digital transformation objectives.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Advanced" level on the Prove capability, and the "Competent" level on the Research, Communicate, and Integrate capabilities.

Success Story

Satellite monitoring and the use of AI technology

Outcomes

60% Time and effort saved for supervisors and inspectors

36% Increase in the utilization and exploitation rate of industrial lands

26% Improvement in factory production rates and the ability for decision makers to identify the nature of alerts detected

Beneficiary Segment

- Investors
- Interested parties in the industrial and mineral wealth sector

Used Technology

Artificial Intelligence

Impact

Facilitated the service and increased the number of services provided to investors, in addition to significantly improving beneficiary satisfaction and access to services

Environment, Water and Agriculture Sector

Environment, Water and Agriculture Sector

Saudi Arabia is witnessing ongoing developments on the environment, water, and agriculture fronts thanks to the Environment, Water and Agriculture (EWA) sector's ongoing efforts to improve the environmental conditions and achieve sustainability in cooperation with the private sector.

The sector has been able to increase environmental awareness in the community through the application of the latest environmental technologies and practices, which has had an impact on reducing pollution rates and preserving biodiversity. In the water sector, for example, the sector has taken several steps to secure water, desalinate it and distribute it efficiently to everyone. The Saline Water Conversion Corporation (SWCC) has been instrumental in mitigating the risks associated with desalination equipment handling by allocating emerging technologies utilizing cutting-edge virtual reality technology to train its managers on virtual equipment before they work with the actual equipment. In addition to this, SWCC has also established an electronic library that enables it to select the desired spare parts for its equipment and print them using 3D printing technology. This has significantly contributed to the ongoing development of sustainable water management and utilization technologies, which are crucial for achieving environmental, practical, and technical sustainability goals.

On the other hand, Saudi Arabia is developing local agriculture and increase productivity by encouraging investment, supporting farmers, and developing modern agricultural technologies. Similarly, Saudi Arabia is making efforts to expand agricultural land and promote agricultural awareness at the community level.

The **Ministry of Environment, Water, and Agriculture** is committed to the adoption of emerging technologies in the agricultural sector. This was reflected in its participation in initiatives related to emerging technologies, such as Artificial Intelligence for Agriculture Innovation (AI4AI), an ambitious initiative to achieve sustainability goals by developing the agricultural sector with modern digital technologies.

According to the current assessment cycle, the Ministry's readiness for adopting ET has achieved the "Advanced" level on the Communicate capability, the "Competent" level on the Research and Integrate capabilities, and the "Developed" level on the Prove capability.

Success Story

Electronic Library to select and print equipment spare parts using 3D printing technology

Outcomes

Electronic Library

with printable available equipment spare parts

15 Printing of more than 15 spare parts models so far

Beneficiary Segment

SWCC's Production Systems

Used Technology

3D Printing Technology

Impact

- Enhance local content to achieve the 2030 Vision
- Ensure business continuity by providing parts in case of emergency

05

Summary of the Overall Assessment and the Results of the Government Entities

The executive summary of the overall assessment for the emerging technologies readiness adoption in the government entities

Overall Assessment Outcome

60.35%

Competent

Research	Communicate	Prove	Integrate
63.31%	64.38%	64.31%	49.40%
Competent	Competent	Competent	Developed

The ET Adoption Readiness Assessment overall outcome reached the "**Competent**" level (60.35%) in the first session of 2023, which included 13 Government Agencies. Based on the previously described capabilities and elements, this assessment indicated that these Agencies had demonstrated progress in most of the ET adoption capabilities and readiness to excel and achieve an integrated innovative experience.

In terms of "**Research**" capability, Government Agencies scored (63.31%), reaching the "competent" level. This reflects Agencies' emphasis on analyzing and updating use cases, studying their desired value and expected risks based on their directions, as well as aligning them with their strategic objectives, and enabling internal teams to create and innovate by leveraging emerging technologies.

On the other hand, the percentage recorded by Government Agencies in terms of "**Communicate**" capability reached the "**Competent**" level (64.38%). This refers to their ability to disseminate information to the media by organizing and sponsoring local and global conferences, exhibitions, forums, and summits to highlight national efforts and achievements, as well as hosting the most prominent speakers in various tech fields, especially emerging technologies.

As for the "**Prove**" capability, it reached the "**Competent**" level, with a score of (64.31%). This indicates that Government Agencies are pursuing their innovation, modelling, and development journey to validate initial concepts and products that can be developed and scaled, including seeking to diversify use cases and make them available to beneficiaries, improving the experience, and trying to increase efficiency.

As for the "**Integrate**" capability, Government Agencies scored (49.40%) and reached the "**Developed**" level. This indicates that Agencies are aware of the importance of strategic innovation in emerging technologies and are integrating them into their digital transformation and IT strategies. They are also continuously working to improve and develop prototypes to scale, launch, and disseminate them mainly at the national level.

DGA applauds the efforts made by all Government Agencies included in the assessment's first round and their influential role in achieving a proactive digital government capable of keeping pace with the latest cutting-edge and innovative technologies.

Summary of the Top Performing Government Agencies in their Readiness for Emerging Technologies Adoption

Ranking	Government Agency	Percentage	Readiness Level
1	Communications, Space & Technology Commission	77.25%	Advanced
2	Ministry of Justice	76.25%	Advanced
3	Saline Water Conversion Corporation	73.00%	Advanced
4	Ministry of Transport and Logistic Services	72.75%	Advanced
5	Ministry of Health	72.25%	Advanced
6	Ministry of Finance	71.50%	Advanced
7	Ministry of Industry and Mineral Resources	64.25%	Competent
8	Ministry of Environment ,Water and Agriculture	57.50%	Competent
9	Ministry of Education	54.75%	Competent
10	Ministry of Tourism	51.00%	Competent
11	Ministry of Culture	47.00%	Developed
12	Saudi Industrial Development Fund	43.00%	Developed
13	Saudi Food and Drug Authority	42.75%	Developed

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