



NATIONAL PROGRAM FOR **ARTIFICIAL INTELLIGENCE** AND **ADVANCED DIGITAL TECHNOLOGIES**

In light of rapid global advancements in frontier technologies and their applications, including artificial intelligence (AI) and its potential to amplify productivity and efficiency across myriad sectors, and with our profound recognition of the necessity to diversify sources of income through knowledge, technology, and innovation, we are resolutely intent on positioning the **digital economy** as a pivotal and central pillar of our national economy. **We have promulgated directives to inaugurate a national programme for the adoption and localisation of AI** and to expedite the establishment of legislations that will enable AI technologies to become an instrumental force in our developmental sectors.

Speech of His Majesty Sultan
Haitham bin Tariq

inaugurating the first annual convening of the 8th term of Council of Oman 2023

14th November 2023



Foreword by H.E. Minister of Transport, Communications, and Information Technology

Artificial intelligence (AI) and advanced digital technologies are currently considered as one of the most important vessels that promote global leadership in all future industries. Countries around the world are racing to adopt artificial intelligence technologies for various purposes fueled by their ambition to ensure national security and improve basic services provided to society. According to PricewaterhouseCoopers (PwC), the contribution of AI to the global economy will reach \$15.7 trillion in 2030, of which \$320 billion will be in the Middle East. Therefore, the Sultanate of Oman is working on establishing the fundamental pillars for artificial intelligence applications and advanced digital technologies that are used in daily life or professional settings, with the aim of creating an empowered and effective digital economy based on the utilization of these technologies in its daily operations, through:

- o Promoting and adopting artificial intelligence in the economic and development sectors.
- o Localization of AI technologies.
- o Governance of AI applications and advanced digital technologies with a human-centered vision.

According to the honorable speech of His Majesty the Sultan, may Allah protect and preserve him, in the first annual convening of the 8th term of Council of Oman held on 30 Rabi 'al-Akhir 1445 AH corresponding to 14 November 2023, His Majesty referred to the importance of artificial intelligence technologies and harnessing the same as one of the enablers and stimuli to enhance the national economy and increase the productivity of sectors. While the Ministry of Transport, Communications and Information Technology has taken the initiative to update the executive program for artificial intelligence and advanced digital technologies, which was issued by the Ministry in October 2022. The updated program became a more comprehensive national program for economic and social aspects in line with the global upgrade in artificial intelligence, especially with the emergence of generative artificial intelligence technologies. The program also aims at enhancing the use of artificial intelligence technologies in economic and development sectors.

The objectives and deliverables expected from this national program include: The Sultanate of Oman should be among the top 50 countries in the Government AI Readiness Index assessed by Oxford Insights, increase the number of startups specialized in developing and providing services using AI technologies, growing the volume of investments, increasing the number of startups and drive the intensity of research and innovation outputs related to artificial intelligence in the Sultanate of Oman.



Eng. Saeed bin Hamoud Al-Mawali
Minister of Transport, Communications
and Information Technology

Table of Content

5

Introduction

8

The Vision for Digital Economy in the Sultanate of Oman

20

Details of the National Program for AI and Advanced Digital Technologies

11

Digital Economy Indicators

14

The overall scene of AI technologies in the Sultanate of Oman

25

Pillars of the National Program for AI and Advanced Digital Technologies

36

The framework and governance system of the National Program for Artificial Intelligence and Advanced Digital Technologies

39

Annexes

Introduction

Nations around the world are competing to adopt and develop AI and advanced digital technologies, stimulating investment and scientific research in these fields, establishing the necessary systems and legislation, and building regulatory strategies organizing the same. According to the 2021 Stanford University AI Index report, the number of nations and regional organizations that have published strategies and action plans specialized in AI reached 30 countries by December 2020, noting that the Government of Canada was the first to publish an AI strategy in 2017.¹

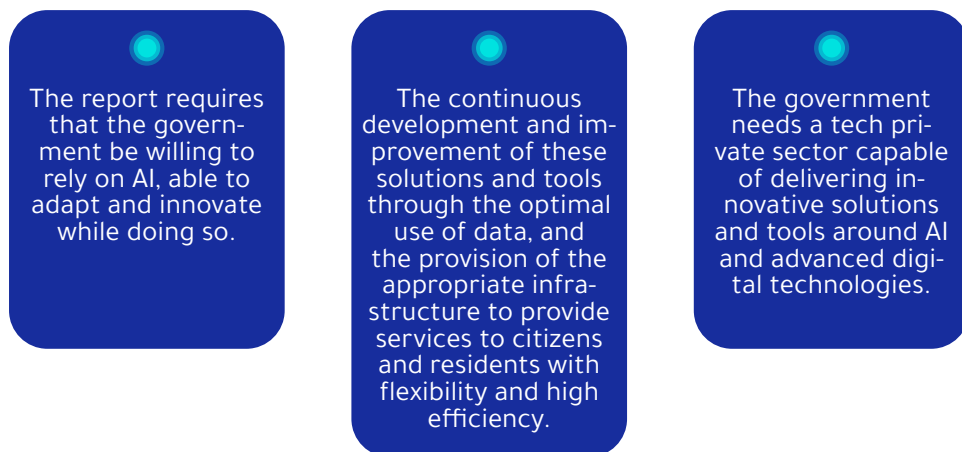
According to the 2023 AI Index report from the Stanford Institute for Artificial Intelligence, global private investment in AI reached \$91.9 billion in 2022, reflecting a 26.7% decline compared to 2021. Despite this decline, investment in AI over the past decade has increased significantly, with investment in 2022 being 18 times larger than in 2013.

With the growing adoption of AI technologies and advances in scientific research and development globally, nations should take the initiative in formulating and implementing national AI plans and promoting related investments in order to maintain the level of competitiveness and improve the productivity of the economic and service sectors with effective governance that ensures national economic, cultural and security interests, all of which will be affected by AI and advanced digital technologies.

¹ D. Zhang, et al, (2023) "The AI Index 2021 Annual Report," AI Index Steering Committee, Human-Centered AI Institute, Stanford University, Stanford, CA. Available at: https://aiindex.stanford.edu/wp-content/uploads/2021/03/2021-AI-Index-Report_Master.pdf.



In order to benefit from artificial intelligence technologies in government services, the Oxford Insights² provided insights in its report on the readiness of governments to adopt AI, and determined three basic enablers:



"In line with Oman Vision 2040, which has designated information and communication technology as one of the enabling and stimulating sectors for the productive and service economic sectors, the Government of the Sultanate of Oman has adopted the National Program for Digital Economy,³ which reflects the strategic direction for building a thriving digital economy that contributes effectively to the GDP and supporting the digitalization strategies in the Sultanate of Oman, starting with the Oman E-Strategy in 2003 and then the National Broadband Strategy in 2014 (the following figure shows the objectives of the National Program for Digital Economy). The program aims at multiplying the contribution of the digital economy to GDP from 2% in 2021 to 10% in 2040. In addition, the National Program for Digital Economy aims to position the Sultanate of Oman globally in the various digital economy indicators contemplated under Oman Vision 2040 such as: E-Government Development Index and Network Readiness Index. The National Program for Digital Economy also contains a set of medium-term

executive programs such as the Government Digital Transformation Program, the Digital Infrastructures Program, the Digital Industry Program, the E-Commerce Program, the Artificial Intelligence Program, the Advanced Digital Technologies Program, the Space Program, the Cybersecurity Industry Program, and the Financial Technologies Program.

In October 2022, the Ministry launched the Executive Program for AI and Advanced Digital Technologies as one of the executive programs of the National Program for Digital Economy, and in implementation of the strategic direction of AI and advanced digital technologies in the Sultanate of Oman promoting the adoption and localization of AI and advanced digital technologies after drawing inspiration from the strategies of several countries in this field, such as the strategy of China, Japan, the United Kingdom and Russia. This comes in addition to following up international reports and indicators from various institutions, and coordinating several meetings and workshops with partners from the public and private sectors, academics and entrepreneurs specialized in AI and advanced digital technologies. In June 2021, the Ministry published a report on future opportunities for applications of AI and advanced digital technologies in the Sultanate of Oman,⁴ followed by the publication of the first policy regulating the use of AI systems⁵ in the Government entities of the Sultanate to promote the use of AI technologies in all vital economic sectors.

With the rapid developments in the fields of AI and advanced technology globally, it is necessary to update the executive program of AI and advanced digital technologies to become a comprehensive national program that takes into account economic and social aspects, in line with the global developments in the field of AI, especially in light of the emergence of generative artificial intelligence technologies. This upgrade aims to enhance the utilization of AI applications and cater for the economic and development sectors. The national program also includes a set of specialized programs and initiatives in the field of AI, in line with national directions as well as Oman's Vision 2040.

² E. Shearer, R. Stirling, and W. Pasquarelli, (2023) 'Government AI Readiness Index 2023', Oxford Insights, pp. 7. Available at: <https://oxfordinsights.com/wp-content/uploads/2023/12/2023-Government-AI-Readiness-Index-1.pdf>.

³ MTCIT., (2021) 'National Program for Digital Economy', Ministry of Transport, Communications & Information Technology, pp. 1-17. Available at: <https://www.mtcit.gov.om/ITAPortal/Pages/Page.aspx?NID=292792&PID=581101>.

⁴ MTCIT., (2021) 'Future Opportunities for Artificial Intelligence Applications and Advanced Technologies in the Sultanate of Oman', Ministry of Transport, Communications & Information Technology, pp. 1-20. Available at: https://mtcit.gov.om/ai_techEN.

⁵ MTCIT., (2021) 'AI applications Policy', Ministry of Transport, Communications & Information Technology, pp. 1-11. Available at: [https://www.mtcit.gov.om/ITAPortal/Data/SiteImageGallery/20223981295/Artificial%20Intelligence%20Systems%20Policy%20v1.0%20\(1\).pdf](https://www.mtcit.gov.om/ITAPortal/Data/SiteImageGallery/20223981295/Artificial%20Intelligence%20Systems%20Policy%20v1.0%20(1).pdf).

Objectives of the digital economy national program

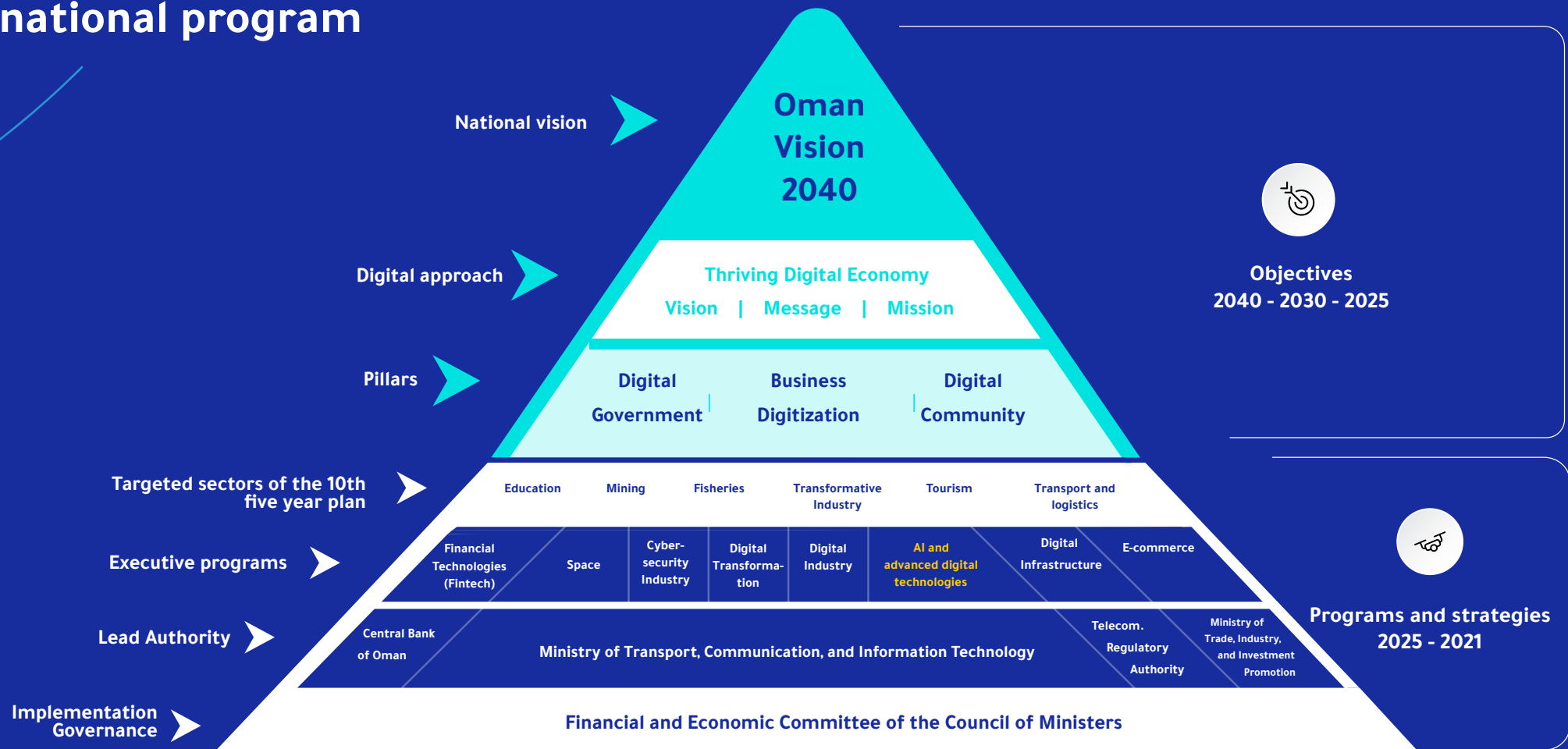


Fig. 1: Digital Economy National Program Objectives

.2

The Vision for Digital Economy in the Sultanate of Oman

The National Program for Digital Economy aims to increase the total contribution of the ICT sector to GDP to multiply 5 times over the next 20 years to reach 10% of GDP by 2040. The Ministry of Transport, Communications and Information Technology is working with partners in the government and private sectors to increase the contribution of the information technology sector over the telecommunications sector by between 30% to 35% by stimulating investment in technologies related to the Fourth Industrial Revolution such as AI and others, localizing and transferring technology, entrepreneurship and innovation, and accelerating digital transformation in government services and economic sectors (the following figure provides an overview of the strategic direction for the development of the digital economy).

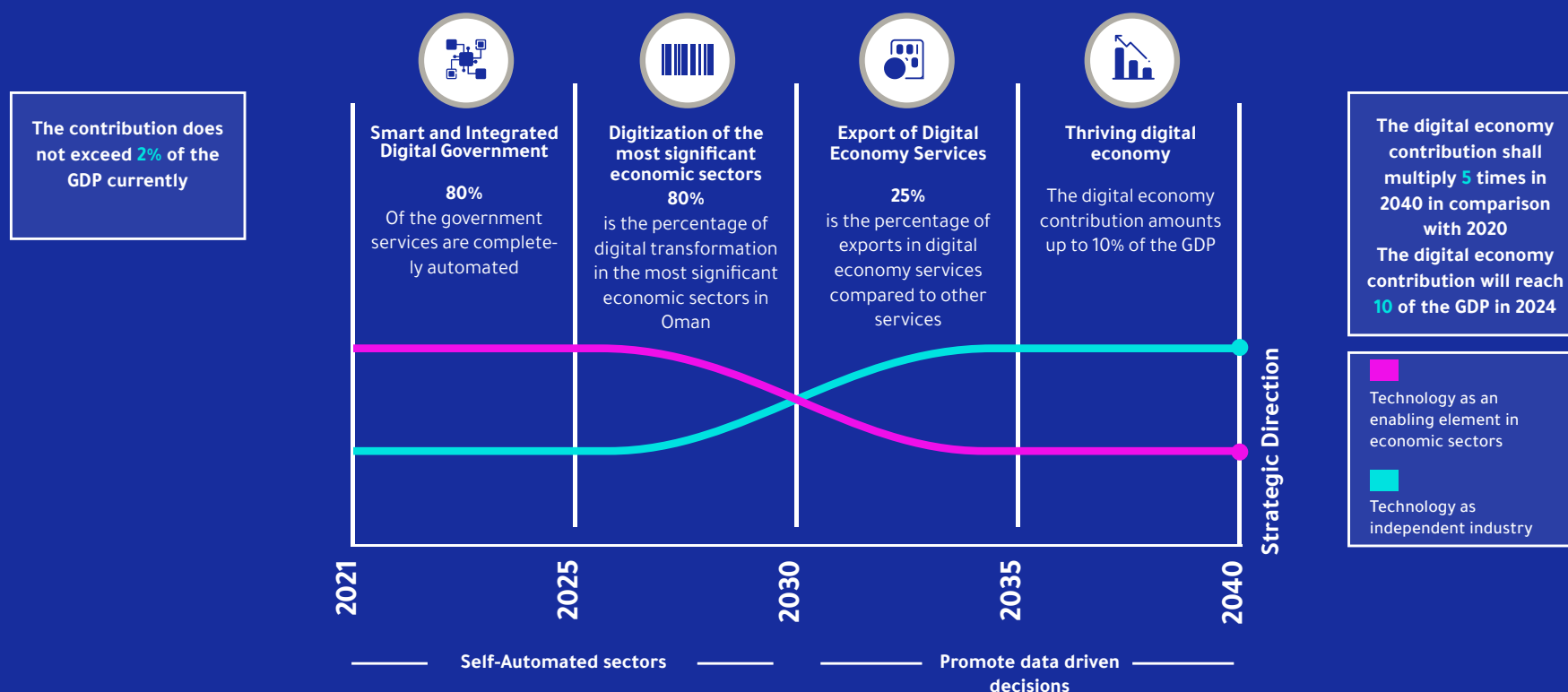


Fig. 2: Overview of the strategic approach to build a digital economy

The National Strategic Direction
for Digital Economy includes

8 strategic

executive programs

**Space
Program**



**Digital Industry
Program**



**E-Commerce
Program**



**Digital
Transformation
Program**



**Cyber
security
Industry
Program**



**Fintech
Program**



**Digital
Infrastructure
Program**



**Artificial Intelligence and
Advanced Technologies
Program**



.3

Digital Economy Indicators

The following figure shows the most important indicators for the ICT sector, which are considered one of the most important possibilities for adopting and localizing AI and advanced digital technologies. The Ministry of Transport, Communications and Information Technology, through the National Program for Digital Economy and in cooperation with partners from government and private institutions, aims to:



Preparing the ICT infrastructure to keep pace with rapid technological changes.



Empower the qualified individuals to keep pace with the requirements of the labor market and the skills of the future.



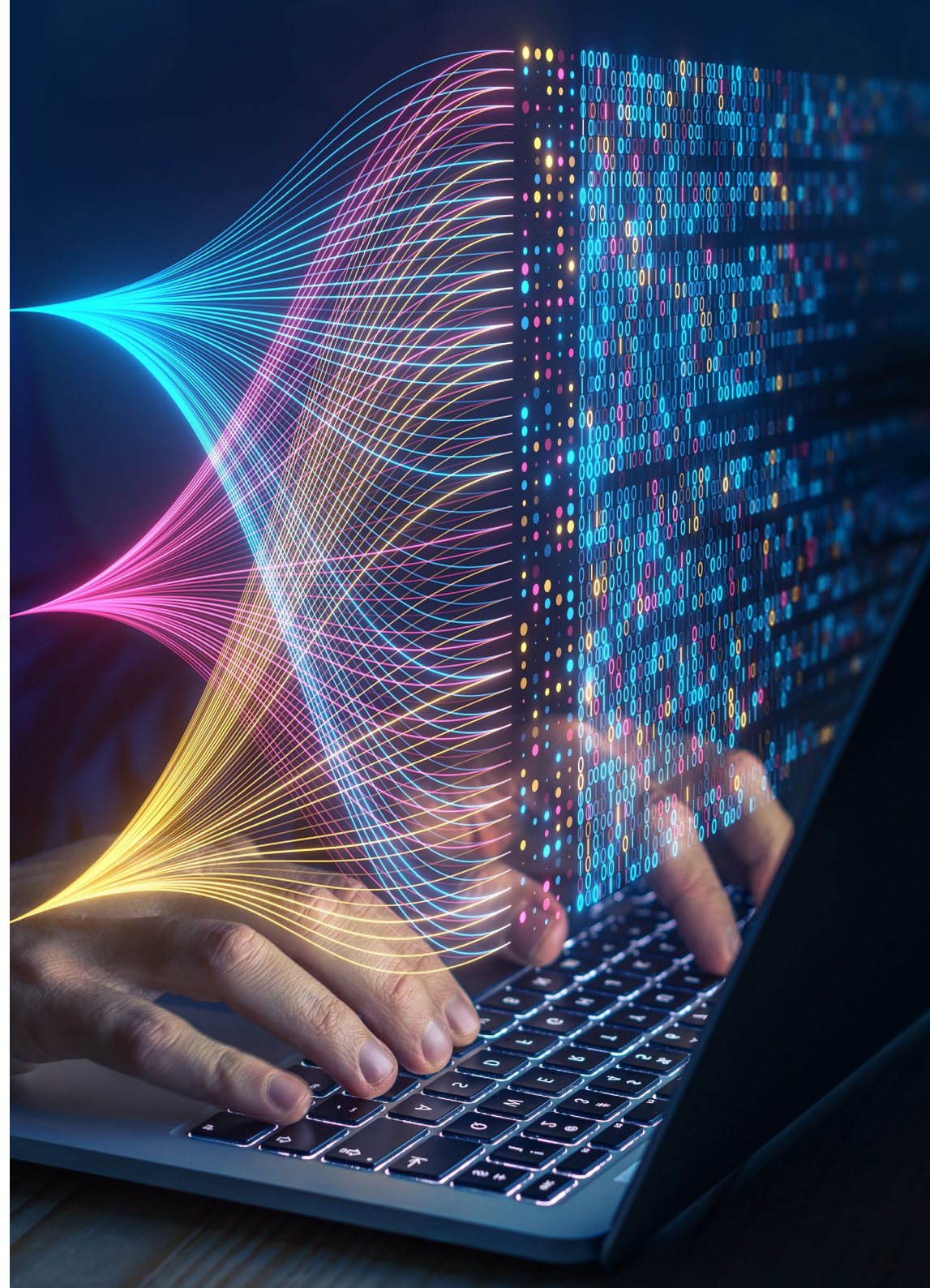
Providing an enabling business environment for companies in order to employ modern technologies to enhance the digital economy.

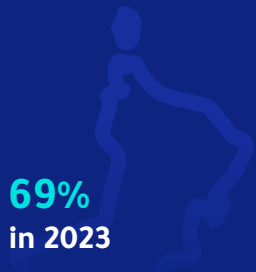


Launching digital government transformation programs and providing effective governance mechanisms.



Manufacturing and localization of emerging technologies, AI technologies and advanced digital technologies.





E-Government Services maturity percentage

+44K

Number of public sector employees



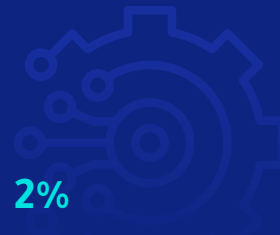
Ranking of the Sultanate of Oman in the e-Government Services Development Index

54 globally
in 2023

Ranking of the Sultanate of Oman in the Network Readiness Index

Tier 1 globally
in 2024

Level of Sultanate of Oman in the Global Cyber security Index



Percentage of digital economy contribution to GDP

5

Number of data centers and cloud services providers

18

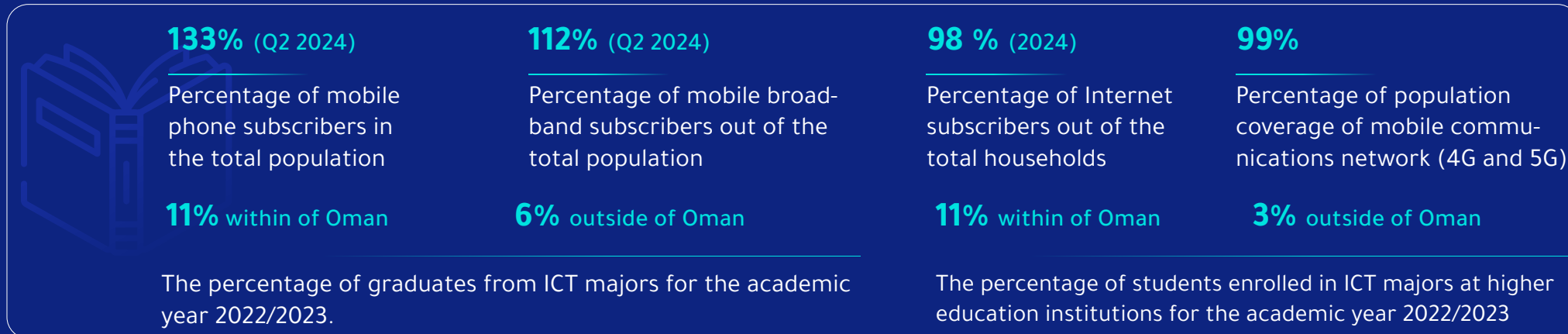
Number of Internet submarine cables connected to the Sultanate of Oman



Number of companies operating in the digital economytelecommunications operators

First category: 10
Second Category: 4
Third category: 7

Number of public telecommunications operators



.4

The overall scene of AI technologies in the Sultanate of Oman

The foundations and enablers of artificial intelligence technologies, whether in the Sultanate of Oman or in other countries, depend on the following technical pillars:

- 1**
Enabling infrastructure for AI applications and advanced digital technologies
- 2**
Specialized Technologies in AI
- 3**
Applications and projects in the service and production sectors

Each technical layer takes into account a number of components that contribute to complementing the other technical pillars. Each of these components includes a number of projects and initiatives that directly or indirectly support the applications of AI. The infrastructure, which is the first technical pillar, contains the basic components for the deployment of the use of AI such as sensors, digital chips dedicated to AI applications, data management, communications, and computing. The technologies, which are the second technical pillar, follow the first pillar and depend on the services and capabilities available, including an infrastructure serving the needs of the AI fields in whole or in part, for example: Natural language processing and voice/speech analysis platforms, machine vision analysis technologies, machine learning and deep learning, intelligent decision-making systems and other technologies. Applications and projects in the service/ production sectors are considered to be the third pillar, as they're considered to be the first stimuli for the adoption and exploitation of AI technologies to increase productivity and improve the quality of services. These uses and applications of AI, whether partial or otherwise, cannot be completed without overlapping with other related technologies and disciplines in the fields of engineering, science and mathematics. This is evident in the use of robots, drones, autonomous vehicles, process automation solutions, self-service systems, industrial solutions, business intelligence, and data analytics-based services.

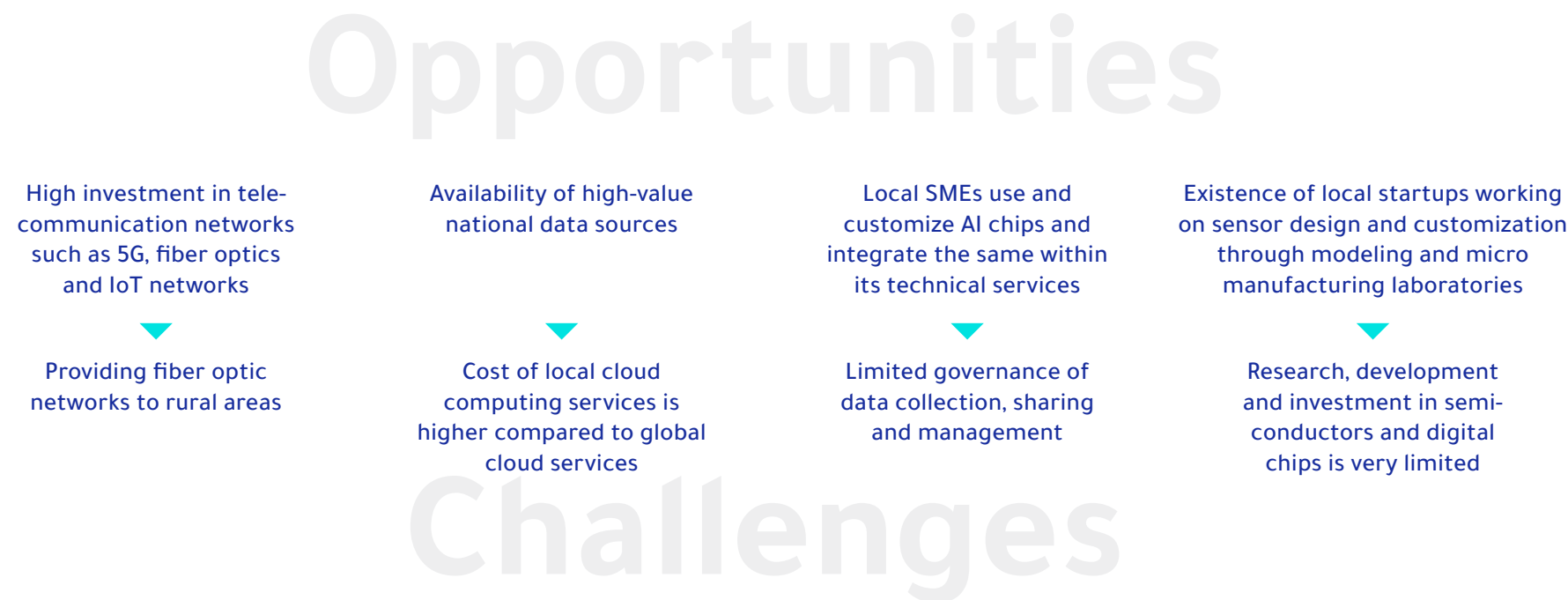
The current status of AI implementation in the Sultanate of Oman, which is based on the three pillars mentioned above, includes a number of existing projects and initiatives that contribute to the total or partial uses of AI technologies, and pave the way for the use of AI applications in the Sultanate of Oman, with challenges to reach the required level, which will take time to overcome. The volume of investment in AI projects in the Sultanate of Oman during the past three years (2021-2023) amounted to 55 million Omani riyals, equivalent to 142 million US dollars.



4.1 AI Infrastructure

The AI infrastructure includes projects in the form of miniature manufacturing laboratories, limited investment in research and development, and prototyping laboratories established by SMEs with the aim of producing and customizing some tools and devices such as sensors, AI chips, and open computing tools, in addition to a factory for the production of digital meters targeting the electricity, water, and various IoT devices. In addition, the Sultanate of Oman has a data ecosystem that can be used effectively in AI applications and stimulate the development of machine learning and deep learning algorithms while encouraging the dissemination of a range of open data to allow researchers, entrepreneurs and private institutions to provide data-driven services. Communications and computing are also among the most important components of the AI infrastructure, which are projects to adopt modern communications technologies such as 5G networks, cloud computing services, fiber optic network projects, wireless sensor networks, and other broadband service projects.

The following table shows the opportunities and challenges in the possible infrastructure for applications of AI and advanced digital technologies in the Sultanate of Oman:

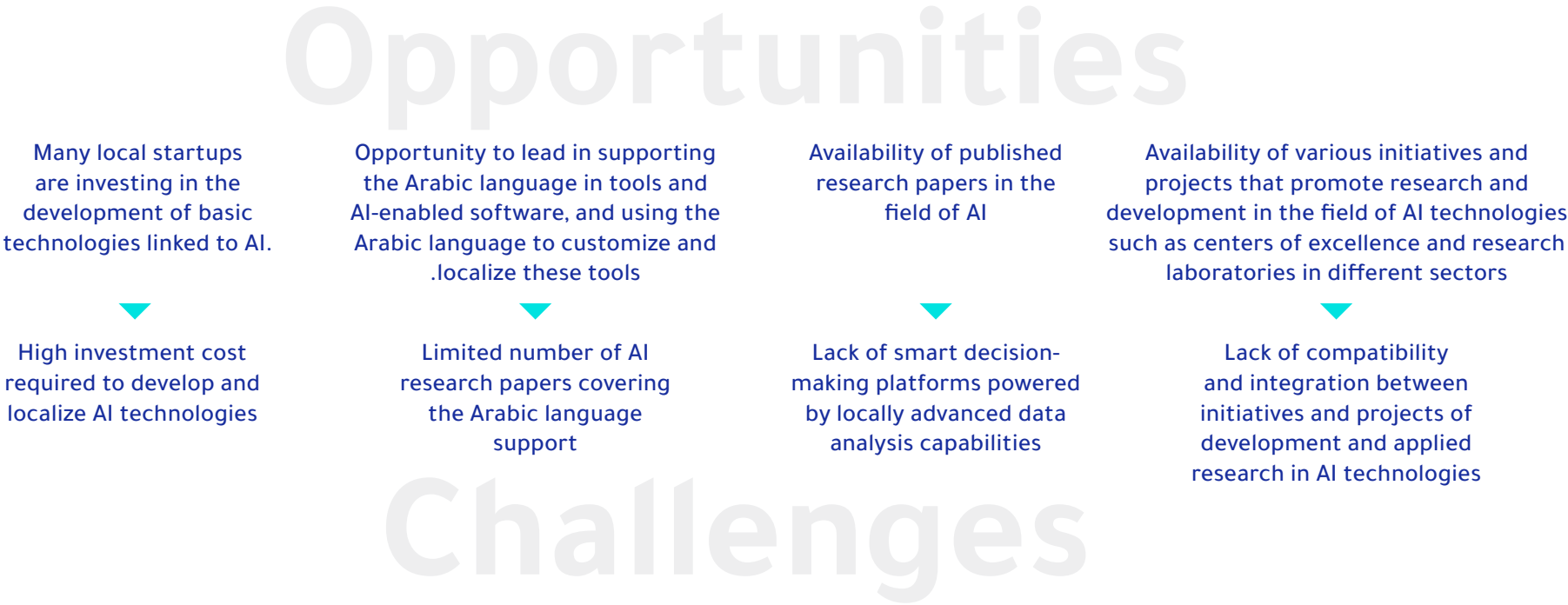


4.2 AI technologies

Most of the research, development and investment initiatives in AI technologies in the Sultanate of Oman are focused on customizing free and open-source software to provide innovative solutions. These initiatives are led by small and medium-sized businesses, in addition to the use of the services of major global technology companies. This could contribute to the formation of a solid base for the localization and transfer of technology to several areas related to AI such as speech and voice recognition and human language processing. As for machine learning and deep learning, multiple open-source algorithms and software libraries are available to enable and promote research/ development, while the technologies used in data analysis and decision-making are at the forefront of the priorities of the Sultanate of Oman, this is reflected in the investments in local cloud computing companies to provide AI services and technologies as an efficient and flexible cloud service.

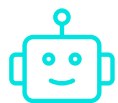
Several startups are seeking to provide technical services related to video/ image analysis to detect any cases of health, safety and environmental violations for several large companies operating in the oil, gas, electricity and water sectors.

The following table reviews the opportunities and challenges associated with the development of AI technologies in the Sultanate of Oman:



4.3 AI Applications and Projects:

There are several initiatives and projects to adopt AI technologies in the Sultanate of Oman, including, but not limited to:



Robotics:

Robots are used in warehousing operations to assist workers in a project led by an oil/ gas company. In addition, there are smart/automated storage solutions in operation used by local manufacturers in Rusail Industrial City.



Self-driving vehicles:

A startup is seeking to implement an experiment to deliver packages using self-driving vehicles within the boundaries of a residential complex. It is expected to serve other residential complexes and industrial cities in the future.



Drones:

An international drone company in collaboration with three local startups will provide a package delivery service using these drones to areas and villages far from the city center. Drones are also used in other fields such as agricultural pest control and detection, digital content production and digital geo-data.



Personal Assistant Platforms:

Many large companies offer personal assistant systems, such as Amazon's Alexa and Google Assistance. These companies provide interfaces linked to these platforms to developers, which are used by local startups to develop innovative products. There is also a trend to use and customize these solutions in airports and libraries to improve the customer experience.



Innovative customer service solutions:

An example of these solutions is the use of chatbots to serve customers through telecommunications companies, basic service companies, and airports.



Business Intelligence:

There are a range of initiatives in this field, such as process automation (RPA) solutions, customized marketing for telecommunications services, and a breast cancer diagnosis project in the health sector.



Industrial Applications:

The oil and gas sector is the pioneer in adopting AI technologies in operational processes through initiatives aimed at improving production and reducing cost in oil production fields such as the Proactive Predictive Maintenance Project, the Oil Spill Monitoring Project, improving water flow during production processes, the Drill Pipe Monitoring Project to prevent damage, as well as the use of automated vision to monitor violations of health, safety and environmental protection policies. Smart meter projects for electricity/ water services and the electronic meters project for wells also stand out as one of the most promising projects in which AI technologies can be employed to improve the quality of services.

The following table reviews the opportunities/ challenges associated with projects for the application of AI technologies in the Sultanate of Oman:

Opportunities

A major trend for the adoption of AI applications in the oil/ gas, electricity and water management sectors

Significant growth in the number of local SMEs offering AI-based services such as drones and chatbots

The government's approach to establish the fair and safe use of AI technologies and encouraging institutions to adopt the relevant technologies

The government is keen to provide incentives to attract talent, companies and investments specialized in AI applications

Limited computing space to process algorithms within Oman

Lack of trust by large institutions in AI services provided by local SMEs

Limited initiatives to transfer technology, knowledge and local value added in the field of AI applications in various economic sectors

Limited investment incentives, high costs of maintaining and upgrading the technical infrastructure due to the remoteness of the governorates and the geographical nature of the Sultanate of Oman, as well as limited investment in scientific research, academic interaction and innovation, and limited venture capital investment

Challenges

.5

Details of the National Program for AI and Advanced Digital Technologies

5.1 Vision

Adopting and localizing AI technologies to support economic and development sectors

5.2 Program Tasks and Objectives:

- Building partnerships and a collaborative ecosystem with public and private institutions, academia, entrepreneurs, and civil society organizations to unify efforts in the field of artificial intelligence and advanced digital technologies, aimed at developing local capacities and competencies by aligning them with the requirements of the labor market.
- Encouraging the use of AI and advanced digital technologies in development sectors such as education, health, defense, security and social welfare and improving the quality of government services.
- Contribute to stimulating the productive and targeted sectors of economic diversification and improve their performance, rendering these sectors more attractive by integrating AI and advanced digital technologies in these sectors.
- Localization of industries based on the production of basic components used in AI and advanced digital technologies by involving the private sector, SMEs and technology startups operating in this field in the implementation of the relevant initiatives and projects.
- Supporting the modernization of the education system to keep pace with the basic technical requirements in the field of AI and advanced digital technologies to enhance the competitive capabilities and skills of individuals, as well as encouraging scientific research and innovation.
- Creating a flexible regulatory environment and legislation in line with the requirements of AI and advanced digital technologies by updating relevant regulations, laws and strategies.
- Identifying and reviewing benchmark standards and indicators for the progress of the Sultanate of Oman in adopting AI and advanced digital technologies compared to other countries at the regional and global levels.

5.3 Target Sectors:

The National Program for AI and Advanced Digital Technologies targets the economic diversification sectors identified within the 10th Five-Year Development Plan and Oman Vision 2040 while accelerating the adoption of these technologies in the basic services and development sectors.

Economic Diversification Sectors



The logistics and transport sector



The financial and banking sector



Culture and tourism sector



Fisheries, Agriculture and Water Sector



Industrial Sector



Energy/ renewable energy sector



Mining Sector

Development Sectors



Digital Government Services (Digital Transformation)



Health Sector



Emergency and Natural Disaster Management Sector



Education Sector



Security and Defense Sector



5.4 Models of Artificial Intelligence and Targeted Advanced Digital Technologies:

The Ministry of Transport, Communications and Information Technology is working to identify priority technologies in investment, research and development, taking into consideration the capabilities and the needs of productive sectors, and while building a competitive advantage for the Sultanate of Oman in these technologies and ensuring the transfer of knowledge and localization of technology in cooperation with partners in the public and private sectors, educational institutions and local startups.

AI Enabling technologies

- Internet of Things (IOT)
- Drones and self-driving vehicles
- 3D Printing
- Robots
- Virtual and augmented reality

Models Targeted AI Technologies

- Machine Learning and Deep Learning
- Generative AI
- Machine Vision
- Voice and Speech Recognition and Language Processing
- Intelligence and data-driven decision making
- Design and customization of basic semiconductors and digital chips such as:
- Computer chips specialized in AI technologies, smart sensors

Examples of future advanced digital technologies *

- Taking advantage of data analysis to guide the broad and efficient production of personalized consumer goods.
- Preventive maintenance of machinery and devices.
- Determine the consumption patterns of individuals.
- Manufacturing digital chips that simulate the human neural network.
- Variable pricing of products according to consumption patterns.
- Marketing products based on human emotion analysis.
- Manufacturing and delivering products and services based on advanced forecasting.
- Order prediction.
- Understand the unconscious desires of the consumer.
- Accurate Delivery: Provide necessary products at reasonable prices when needed.
- Nanotechnology and Self-Automated Biotechnology.
- Integration of electronic chips with the biological characteristics of humans.

*The examples are only illustrative, and shall not be necessarily deemed to be the objectives of the National Program for Artificial Intelligence and Advanced Digital Technologies.

5.5 Generative AI:

Generative AI is a type of artificial intelligence that focuses on creating new and unique content. This type of AI involves the use of systems and algorithms that can learn how to create content in the form of text, images, music, or even videos. The size of the global generative AI market has been estimated at \$10 billion in 2022, noting that North America is currently dominant in the generative AI industry with a share of 40% last year. This figure is expected to grow at a compound annual growth rate (CAGR) equal to 35% during the period from 2023 to 2030. Asia and the Western Pacific are expected to grow at the fastest compound annual growth rate equal to 36% during the same expected period. As for the most prominent global companies in the generative AI market, they include Adobe, Amazon, Google, Microsoft, and others.

5.6 Quantum Computing:

Quantum computing is a cutting-edge technology that leverages the principles of quantum mechanics to perform calculations at unprecedented speeds. Unlike traditional computing, which uses bits (0 or 1), quantum computing uses qubits that can represent both 0 and 1 simultaneously, unlocking vast potential for more efficient data processing. This makes quantum computing ideal for applications such as encryption, large-scale data analysis, and drug development. It also paves the way for breakthroughs in AI and physical simulations. However, quantum computing faces significant challenges, including maintaining qubit stability and scaling quantum systems, making research and development in this field both active and compelling.

Quantum computing represents a revolution in information technology, introducing a paradigm shift from traditional computing concepts. By harnessing quantum phenomena like superposition, interference, and entanglement, quantum computers can perform many operations simultaneously, allowing them to solve certain problems exponentially faster than classical computers. For instance, a quantum computer can solve complex cryptographic problems in seconds, tasks that would take conventional computers thousands of years.

The potential applications of quantum computing are vast, ranging from accelerating large-scale database searches to enhancing AI algorithms and providing precise simulations of chemical and physical systems. This could significantly advance drug discovery and deepen our understanding of natural phenomena.

.6

Pillars of the National Program for AI and Advanced Digital Technologies

The National Program for AI and Advanced Digital Technologies is based on the following pillars:

- 1 Promoting and adopting AI in the economic and development sectors
- 2 Localization of AI technologies
- 3 Governance of AI applications and advanced digital technologies with a human-centered vision

There are a number of initiatives that have been launched by several sectors that encourage the adoption of artificial intelligence applications and advanced digital technologies at the present time in the Sultanate of Oman. These initiatives contribute to supporting the progress of the three pillars targeted in the National Program for AI and Advanced Digital Technologies, which were harmonized and integrated with the proposed initiatives and projects. The details of these initiatives (details of which are provided in the following sections) have been compiled based on a series of meetings, discussions and workshops with institutions, professionals, academics, entrepreneurs, partners and representatives of relevant sectors.

These initiatives shall be implemented through government institutions, each according to its competence.



6.1 First Pillar: Promoting and adopting artificial intelligence in the economic and development sectors

The following table lists the relevant current and ongoing initiatives associated with the first Pillar, in cooperation with partners in the public and private sectors:

1.1	Supporting large Omani factories and enhancing their production lines with AI in line with the industrial strategy
1.2	Supporting Omani SMEs to adopt AI technologies in line with the industrial strategy
1.3	Encouraging the use of AI in government buildings to achieve smart consumption of energy, water and other services

1.4

Offer incentives to local cloud computing companies, in order for them to offer Artificial Intelligence Systems as a Cloud Service (AlaaS) services

1.5

Supporting and promoting the AI projects in the economic and development sectors (AI Economics Initiative)

1.6

The application of AI in basic services that deal directly with citizens, residents and investors to increase number of government institutes in the advanced level in the government digital transformation indicator

1.7

Establish a national data portal to support the availability of open data to support entrepreneurs, investors and decision-making bodies

The following table lists the details of the projects listed through this program under the 1.5 initiative to support and promote the projects of the economic and development sectors with AI (Artificial Intelligence Economics Initiative), in addition to the projects that will be proposed by the governorates offices and government institutions during the years 2025 and 2026:

1.	Number of projects included in the (AI Economics Initiative)
	Mobilizing national talents specialized in data science and AI technologies to lead projects in the targeted sectors through a professional executive program in artificial intelligence
2.	
	Equipping graduates from local higher education institutions with the necessary skills supporting the adoption of AI technologies through the "Makeen" initiative to qualify national competencies
3.	
	Dedicating scholarships for AI master's and PhD students in reputable international universities
4.	
	Training a number of 10th and 11th grade students in AI
5.	
	Attracting AI data centers to the Sultanate of Oman
6.	
	The establishment of a national research and development center for artificial intelligence that serves all researchers and academics in the Sultanate of Oman, aimed at creating an infrastructure with high processing capabilities for developing local AI algorithms related to machine learning, deep learning, natural language processing, and generative applications

6.2 Second Pillar: Localization of AI technologies

The following table shows the relevant current and ongoing initiatives associated with the second Pillar, in cooperation with partners in the public and private sectors:

2.1	Re-skilling workers in jobs that will be reduced or eliminated due to the implementation of AI in government entities
2.2	Qualifying teachers to use new AI educational tools
2.3	AI Makers Initiative in collaboration with higher education Institutions to promote AI Academic Excellence in universities

2.4

Creating an AI studio to promote the environment between AI professionals and institutions/ companies seeking solutions, as well as taking advantage of AI technologies to overcome their operational challenges

2.5

A program to support ideas and initiatives that contribute to the establishment and development of tech startups in the field of artificial intelligence (AI Idea Factory)

2.6

Issuing a regulatory framework that encourages the localization of experienced researchers and developers specialized in artificial intelligence technologies from outside the Sultanate of Oman (e.g. an initiative to grant special residency to incentivize and attract creatives from other countries)

2.7

Supporting the educational system to keep pace with modern technologies while applying the basic skills of AI and introducing AI curricula/ materials in the classroom

2.8

Organize AI technologies dedicated workshops, events and conferences

2.9

Organize competitions and events to encourage research and development in AI and data science technologies and their applications

2.10

Supporting the establishment of an association or club specialized in data science and AI technologies

2.11

Supporting the implementation of pilot projects in the fields of artificial intelligence in various economic sectors

2.12

Create a language model that is inspired by the Omani cultural, historical, artistic, scientific, civilizational and political content powered by AI using generative AI (Oman GPT)

2.13

Establishment of a center dedicated to the Fourth Industrial Revolution (C4IR) focusing on AI in partnership with the World Economic Forum

2.14

Implementing quantum computing initiatives to raise awareness, promote research and development, and adopt quantum computing applications

6.3 Third Pillar: Governance of AI with a Human-Centered Vision

Promote the ethical, fair and safe use of AI applications by reviewing and updating laws and policies to encourage the adoption of AI and advanced digital technologies and manage ethical issues by establishing human-centered foundations, community privacy, governance of data collection processes and the development of AI algorithms.

The following table lists the relevant current or ongoing initiatives associated with the third Pillar, in cooperation with partners in the public and private sectors:

3.1	Project to promote the management staff of the National Program for AI and Advanced Digital Technologies
3.2	Development of an International center based in the Sultanate of Oman for ethics and safe uses of AI

3.3

Conduct routine update to the legislative and legal environment to accelerate and facilitate the utilization of AI applications and advanced digital technologies in different sectors

Updating the necessary legislation, policies, principles and frameworks to keep pace with the applications of AI and avoid legal obstacles. Example: Updating the Copyright and Neighboring Rights Protection Act to activate generative AI applications.

3.4

Humanizing artificial intelligence and advanced digital technologies, ensuring a continuous balance between the humanization of jobs and their automation as modern technologies emerge and the changes they bring about

Preparing and issuing legislation(s) that requires institutions (especially institutions providing services) to ensure a minimum number of human employees in various fields, as well as maintaining the human interaction when necessary to conclude some types of transactions instead of relying totally on the machine, in order to avoid possible harm resulting from the limited capabilities of the machine in understanding and solving unusual problems. The human communication must be maintained in all cases, so that the machine adapts to human, not the other way.

3.5

Forming a committee of artificial intelligence experts

Provide opinions and recommendations to decision-makers on the different opportunities and challenges of AI.

6.4 Targeted performance indicators upon completion of the program



The Sultanate of Oman ranks among **50** countries in the annual report of the Government Readiness Index for AI issued by Oxford Insights



Increasing the investment value in AI projects in the public and private sectors by **20%** annually



Increase the number of tech startups specialized in developing AI technologies and companies that build their services around AI technologies by **20%** annually



Increase the number of research papers in artificial intelligence issued by the Sultanate of Oman by **20%** annually

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The framework and
governance system of the
National Program for AI and
Advanced Digital Technologies

The governance of the implementation of the initiatives and projects of the National Program for AI and Advanced Digital Technologies is an integral part of the governance of the National Program for Digital Economy monitored by the Finance and Economic Committee of the Council of Ministers, which is based on three main levels as shown below:

General Supervision:

The Financial and Economic Committee of the Council of Ministers

The role of this committee is to supervise the overall direction and adoption of programs, strategies and initiatives and to link the same to the objectives of the Oman 2040 vision.

Monitoring and Guidance:

Digital Economy Technical Committee

The role of this committee is to follow up the progress of programs, strategies and initiatives, and to overcome obstacles and challenges to ensure the progress of projects according to plans.

Legislation, control and supervision of implementation

Ministry of Transport, Communications and Information Technology

The role of this team is to supervise the implementation and follow-up of initiatives, projects and policies related to AI through the targeted sectors, and to review performance periodically, in addition to submitting periodic reports regarding performance and proposed solutions in the event of any challenges to obtain the required support.

Implementation:

Government and Private Institutions

The role of the institutions is to implement the initiatives as stated in the initiatives matrix.

Investment

Oman Investment Authority and Investment Companies

Their role is to invest in AI-related projects.



.8

Annexes

Annex (A)

Definitions

Artificial Intelligence (AI):

Artificial intelligence is a field of computer science that focuses on developing technologies, algorithms, and systems that work to analyze data, learn from it, and simulate certain human cognitive abilities such as vision, language comprehension, problem-solving, and decision-making. These systems can also perform specific tasks based on pattern analysis and deriving solutions from the available data. AI applications range from narrow fields, which focus on specific tasks, to general fields, which aim to comprehensively simulate human intelligence.

Generative AI:

Generative AI is a modern branch of artificial intelligence that relies on artificial neural networks to produce new and unique content. This type of AI works by learning patterns and characteristics from the original available data, then creatively applying them to generate new content based on the data it was trained on. Generative AI relies on large and diverse datasets, enabling it to generate texts, images, music, and other forms of content in original and innovative ways.

Advanced Digital Technologies:

A set of modern technological systems, many of which rely on artificial intelligence and aim to develop advanced scientific and technological products that are capable of self-operation and adaptation across multiple fields, while reducing the need for direct human intervention in modifying their algorithmic or physical structure after their initial setup or training. Examples of these technologies include autonomous driving systems in cars, robots, drones, predictive analytics systems, and deep learning technologies.

Annex (B)

Glossary of terms

Analytics and business intelligence (ABI)

An umbrella term that includes applications, infrastructure, tools, and best practices that enable data access/analysis to improve and optimize decisions and performance.

Natural-language processing (NLP)

Technologies providing computers with the ability to understand text and spoken words in the same way that humans can understand languages.

The Internet of Things (IoT)

is a network of devices that have built-in technology to communicate, sense, or interact with their internal status or external environment.

Neural Networks

A computer program that operates in a way that is inspired by the brain's natural neural network. The goal of these artificial neural networks is to perform cognitive functions such as problem-solving and machine learning.

Human-Robot

An autonomous machine capable of sensing its environment and performing calculations to make decisions and carry out actions in the real world.

Annex No. (B) Glossary of terms

Unmanned Aerial Vehicle (Drone)

A drone operated by a remote pilot or operating in a fully automated manner.

Big Data

High-volume, high-speed update, and variable data that are highly diverse and require innovative and cost-effective forms of processing that enable improved productivity, decision-making, and process automation.

Nanotechnology

A scientific discipline that deals with the development and production of extremely small tools and machines by controlling the arrangement of independent atoms.

Biotechnology

The use of organisms, especially cells and bacteria, in industrial processes.

Robotic Process Automation (RPA) Systems

Software that does the work that people do iteratively, for example moving data from multiple input sources such as email and spreadsheets to registry systems such as enterprise resource planning (ERP) and customer relationship management (CRM) systems.

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