Future Opportunities for Artificial Intelligence Applications and Advanced Technologies in the Sultanate of Oman June 2021

His Majesty Sultan Haitham Bin Tarik Speech

"

Our government will follow up progress in various sectors, including small and medium enterprises, and entrepreneurship, particularly those based on innovation, artificial intelligence, and advanced technology. This is in addition to training and enabling youth to benefit from the opportunities made available in this vital sector, so that it could form a cornerstone in the national economy. "

HM Sultan Haitham bin Tariq
23 February 2020

Source: Oman News Agency

Introduction

Countries leverage the potentials of AI&AT in various fields as one of the most important drivers for improving lifestyles, growing national economy, and pushing forward progress in various life aspects.

The Sultanate of Oman is working on laying the basic pillars for the applications of AI and advanced technologies with the aim of creating an effective and vibrant economy that uses these technologies to:

**Automating of complex processes and procedures**

Creating new services and products that improve lifestyles

**Supporting strategic decision-making based on big data and predicting future needs**

Improving the performance, productivity and competitiveness of the main, economic and developmental sectors

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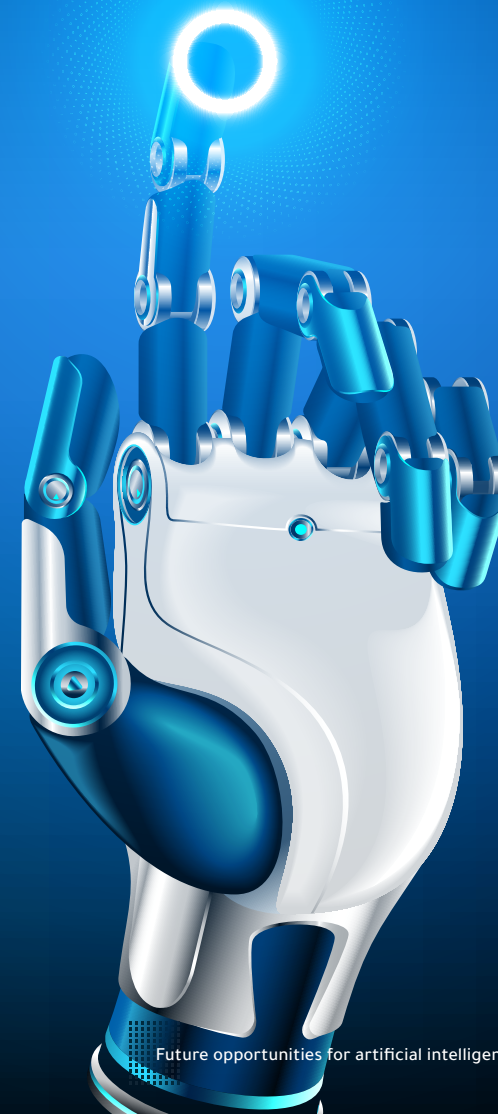
AI Definition

AI is a system that has the ability to simulate human cognitive abilities such as analyzing external data and devising new knowledge bases and using them to achieve new goals and tasks, in addition to its ability to solve problems and self-learn.
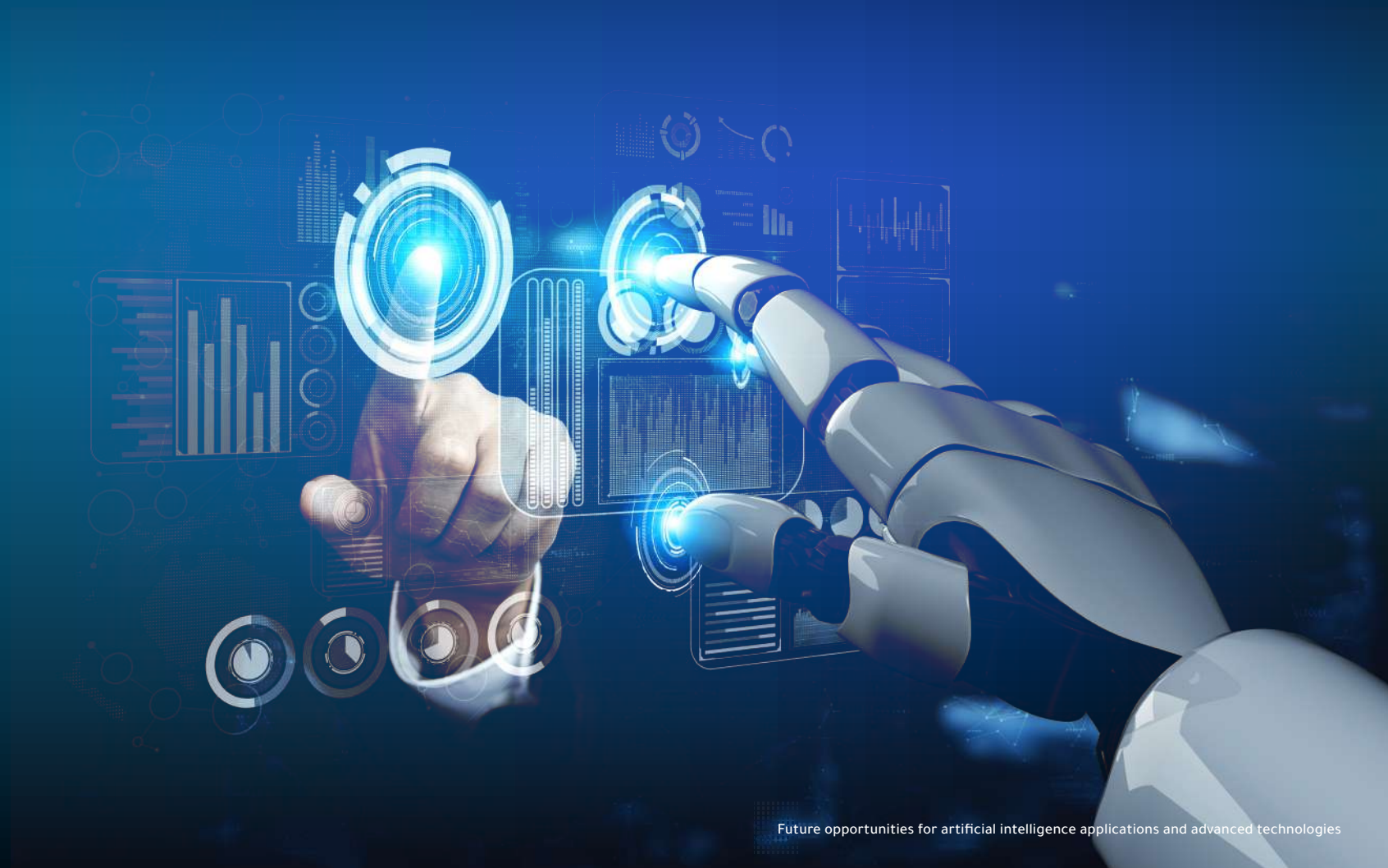
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Advanced Technologies Definition

Advanced technologies can be defined as a set of tools based on AI that aims to create new and advanced scientific and technological products that can be applied, transferred and deployed into several fields without direct human intervention to change their algorithmic or physical structure.

Examples:

• Marketing consumer products based on the analysis of human feelings

• Combination of microchips with the biological characteristics of humans.

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International trends

Countries compete in adopting AI technologies for various reasons either to achieve national security or to improve public services. This is why many countries have issued national strategies for AI adoption.

The Index measures

- 👁 **Vision**
- 🏛 **Governance and Ethics**
- 📡 **Digital Capacity**
- 🧩 **Adaptability**
- ⚖ **Size**
- 💡 **Innovation Capacity**
- 🧍 **Human Capacity**
- ⚙ **Infrastructure**
- 🗄 **Data Availability**
- 📊 **Data Representativeness**

The Government AI Readiness Index 2020 issued by Oxford Insights:

Global		
USA	Rank: 1	▶▶
UK	Rank: 2	
Finland	Rank: 3	
Germany	Rank: 4	
China	Rank: 19	

Regional	
UAE	Rank: 16
KSA	Rank: 38

How Economic Sectors Benefited from AI

According to PwC, AI has contributed to improving the operations of economic sectors, including:

Health
sector

AI contributes to providing medical services more efficiently and at lower cost through early diagnosis of diseases and alignment of health data with appropriate decisions and health plans, in addition to supporting predictive analysis, taking clinical actions and prioritizing administrative tasks.

Logistics
sector

AI simplifies many supply and logistics processes, thus presenting a competitive advantage by reducing shipping time and costs.

How Economic Sectors Benefited from AI

Tourism
sector

AI contributes to improving operational processes in this sector to reduce the resources used, eliminate unnecessary procedures, and consume less energy and human resources, for example, the use of robots in communication and mobility in hotels and restaurants.

Industrial
sector

AI contributes to improving manufacturing functions by using data to predict emergency maintenance dates and reduce interruptions due to production lines failures. AI also enhances products through the use of self-learning algorithms that test products and improve the design and functions of those products.

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The Size of International Market for AI

15.7
trillion dollars
2030

15.7 trillion Dollars contribution of AI to the global economy by 2030.*

320
billion dollars
2030

320 billion Dollars in the Middle East region by 2030.*

42.7
billion dollars
2030

The contribution of artificial intelligence in Egypt to 7.7% of the GDP valued at 42.7 billion US dollars in 2030

135.2
billion dollars
2030

It is expected that AI will contribute more than 135.2 billion US dollars in 2030 in KSA, equivalent to 12.4% of its GDP.
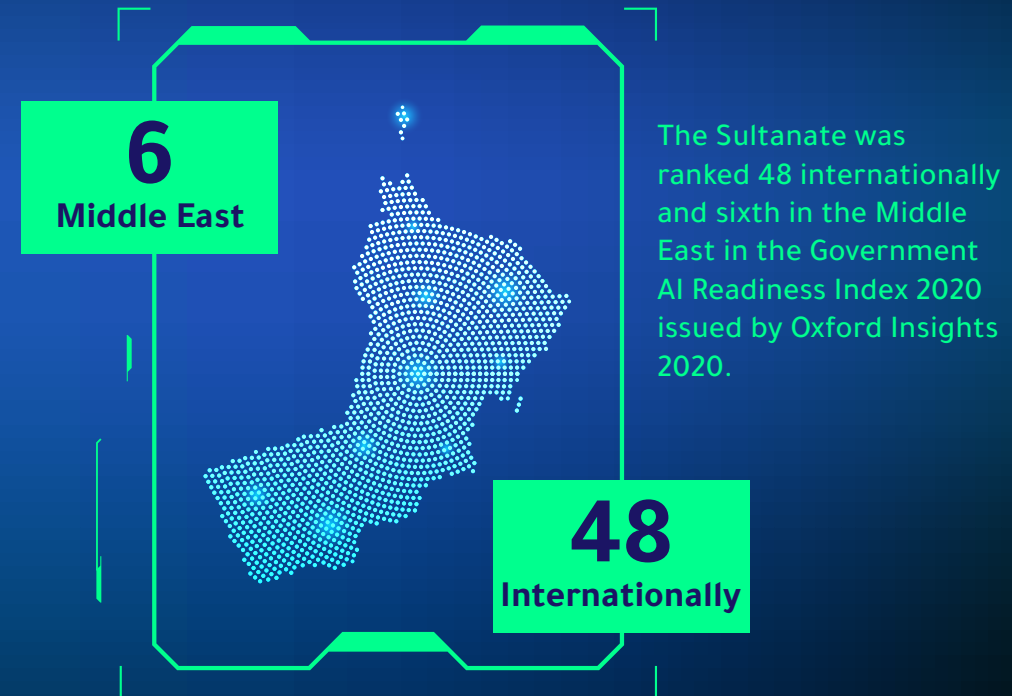
14%
2030

The contribution of AI in the United Arab Emirates will be approximately 14% of its GDP for the year 2030.

*According to PwC.

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The Sultanate's Direction for AI and Advanced Technologies Adoption

AI is seen in the Sultanate as one of the enablers to enhance the productivity of the economic sectors. His Majesty Sultan Haitham bin Tarik, may Allah protect him, referred to the importance of the role of small and medium enterprises that work in innovation, AI and advanced technologies in his speech on 23 February 2020

6
Middle East

48
Internationally

The Sultanate was ranked 48 internationally and sixth in the Middle East in the Government AI Readiness Index 2020 issued by Oxford Insights 2020.

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The competitive advantages of the Sultanate in artificial intelligence and advanced technologies

1

The Sultanate is characterized by a stable political climate that makes it an attractive destination for foreign investments.

2

The government approach to support the adoption of modern technologies and innovation

3

Benefiting from the good number of submarine cables available in the Sultanate, which qualifies the Sultanate to host data centers, high-speed computers and cloud services that are used to process artificial intelligence algorithms.

4

The large number of IT graduates who can be qualified and trained in the field of artificial intelligence and advanced technologies.

5

Diversity of economic sectors in the Sultanate, in which multiple technologies can be tried and tested.

6

The possibility of adapting the legislative and regulatory environment to ensure the prosperity of AI applications.

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Examples of Local Sectors Initiating the Adoption of AI and Advanced Technologies

The Medical Sector

Breast cancer early detection project (Ministry of Health):
The success rate of the trial period in applying this technology to detect breast cancer reached %96, which encouraged the Ministry of Health to move forward in applying artificial intelligence in a broader experiments in 5 hospitals in the Sultanate.
Source: The website of Ministry of Health

Energy Sector

Nibras Project (Petroleum Development Oman):
The Nibras digital platform is used to integrate all processes, proactively identify issues through exception-based monitoring and process automation.
Source: The website of Al Wisal FM

Agriculture Sector

One million Date palm trees Plantation project (formerly the Royal Court):
The technology of drones and artificial intelligence were used to serve the Million Palm Tree Project to detect diseases and agricultural pests in palms and to carry out the palm pollination process.
Source: The website of The Million Palms Project

Public Services Sector

1. Smart Water Meter Project (Diam):
The project implementing a new system for reading water meters remotely, as well as reducing water losses. The savings through this system are estimated about 42 million Omani riyals annually.
Source: The website of Oman Daily Newsletter

2. Smart electricity meter project (Nama Holding Company):
The smart electricity meters were launched for customers with high consumption. These meters use artificial intelligence systems to increase billing accuracy, reduce electricity losses, reduce costs related to inquiries about consumption pattern, and reduce the average debt collection period.
Source: Annual Report of Nama Holding Company for the year 2018

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The National Program for AI & Advanced Technologies

The National Program for AI & Advanced Technologies was established in 2020 in the Ministry of Transport, Communications and Information Technology. The program works on:

Supervising the preparation and implementation of an integrated national action plan for AI and advanced technologies that includes capacity-building, research, innovation, industrialization, investment and support the establishment of emerging companies in addition to formulation of policies and legislation.

Coordinate and cooperate with partners from the public, private and academic sectors, and facilitate the integration of AI and advanced technologies projects and initiatives.

Communicate and coordinate with international organizations and bodies on related issues.

The Action Plan for National Program for AI & Advanced Technologies is based on the following pillars:

1. Enhancing the productivity of the sectors targeted for economic diversification

2. Development of human capabilities in AI

3. Accelerating AI Adoption

4. Governance of AI applications and advanced technologies for a human-centered vision

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1 Enhancing the productivity of the sectors targeted for economic diversification

- Adopting AI in sectors contributing to economic growth and social impact through cohesive application of smart technologies in fisheries, agriculture, transport, logistics, energy, mining, industry, health and tourism.

- Localizing and technology transfer of AI technologies by supporting R&D in building algorithms, libraries and software tools, in addition to building and adopting open source software that enable AI and its applications.

- Accelerating the transfer of modern communication technologies that will accommodate the requirements of artificial intelligence applications and advanced technologies

- Enhancing the application of AI technologies in cybersecurity.

- Supporting the upgrading of the local cloud computing infrastructure to process AI applications

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2 Development of human capabilities in AI

○ Cooperating with educational institutions to encourage research and development and prepare academic specialized programs

○ Launching joint practical training programs with leading technology companies in the field of AI and advanced technologies.

○ Spreading awareness of on the importance of AI technologies by organizing specialized workshops, events and conferences.

○ Attracting international talent and companies specializing in AI and advanced technologies.

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3 Accelerating AI Adoption

○ **Applying artificial intelligence in public services such as health, education and smart government applications that deal directly with citizens, residents and investors, in addition to enhancing the role of the government as a primary supporter of adopting these technologies and aligning with existing plans for digital transformation.**

○ **Encouraging innovation in the field of AI and entrepreneurship through partnerships between the government and private sectors to fund startups.**

○ **Facilitating access to national data by creating a platform for national data management, making open data available, and enhancing the integration of government data systems.**

Future opportunities for artificial intelligence applications and advanced technologies

4 Governance of AI applications and Advanced Technologies for a Human-Centered Vision

Encouraging the ethical, fair and safe use of AI applications by reviewing and updating laws and policies to stimulate the adoption of AI and advanced technologies and managing ethical issues by laying the foundations that take into account human aspects, community privacy, governance of data collection processes, and the development of safe AI algorithms.

For more information about National Program for AI & Advance Technologies :

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سلطنة عُمان
وزارة النقل والاتصالات وتقنية المعلومات
Sultanate of Oman
Ministry of Transport, Communications and
Information Technology

**Future opportunities for artificial intelligence applications
and advanced technologies in the Sultanate of Oman**