OMAN

Fostering innovation through an Executive Program

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Key Takeaways:
- The Ministry of Transport Communications and Information Technology is leading the national AI strategy and its implementation in Oman. Economic objectives through Oman Vision 2040 are the predominant drivers for AI technology developments.
- Partnerships between the ministry and universities and other sectors have been created for AI training programs and initiatives.

Oman is proactively engaging with the impact of AI on its science system, seeking inspiration and collaboration beyond its borders. The country's multifaceted approach to AI involves substantial investment, policy development and international cooperation. In line with Oman Vision 2040, the Sultanate has endorsed the National Program for the Digital Economy (MTCIT, 2021), a cornerstone in Oman's strategy to foster a robust digital economy and significantly increase the digital economy's contribution to the gross domestic product from 2 percent in 2021 to an anticipated 10 percent by 2040. This program, a progression of Oman's digitization efforts, aims to elevate Oman's global standing across various digital economy indices.

The Executive Program

In alignment with these strategic directives, the Ministry of Transport, Communications and Information Technology (MTCIT) has launched the Executive Program for Artificial Intelligence and Advanced Technologies (MTCIT, 2022). This program is a strategic endeavour aimed at spearheading the adoption and localization of AI and advanced technologies within the Sultanate and it draws insights from international reports and benchmarks. It also involves extensive collaboration with stakeholders from the public and private sectors, academia, and entrepreneurs specializing in these cutting-edge domains. Through the program, MTCIT is supervising the preparation and implementation of an integrated national action plan for AI and advanced technologies.

The Executive Program specifically targets sectors earmarked for economic diversification as per the Tenth Five-Year Development Plan and Oman Vision 2040. MTCIT is committed to identifying and investing in priority technologies and vital information and communications technology infrastructures that align with national capabilities and sectoral needs. This

approach not only aims to establish a competitive edge for Oman in these technological arenas, it also ensures the transfer and localization of knowledge and technology in concert with public and private sector partners, educational institutions and local startups.

Other initiatives and ventures

In addition to the Executive Program, the Ministry of Economy launched the National Initiative to Empower the National Economy Enhanced with AI (ONA, 2023) to integrate AI into economic diversification projects and programs. In recognizing data as the cornerstone of AI, the Sultanate initiated an open data policy, encouraging government units to make their data accessible and establishing a legal framework for open data sharing. A National Data Strategy (NCSI, 2022) through the National Center for Statistics and Information, an independent entity, was also adopted, establishing a comprehensive framework to coordinate national data management, promote data exchange and develop mechanisms to enhance the productivity of government entities. This procedure is currently taking place for each ministry. Upon its completion across all ministries, a similar process will be extended across the public sector (including universities and other academic institutions), followed by the private sector.

A multitude of AI-related projects have been successfully executed across diverse sectors in Oman, reflecting a strategic commitment to integrating AI into various facets of the national economy. In the logistics domain, the Muscat Delivery Project (ONA, 2022) exemplifies this integration by employing drones for parcel delivery between Al Bustan and Muscat Bay. The health sector witnessed a notable application of AI in breast cancer detection (MOH, 2019), achieving a remarkable 96 percent success rate. Additionally, the agricultural sector has adopted drones for pesticide application and palm tree pollination (WIPO, 2021), alongside AI techniques for early detection of pests like the dubas bug and the red palm weevil (Muscat Daily, 2023a). In the oil and gas industry, AI-enhanced drones are being deployed for monitoring pipelines and detecting leaks (CCED, 2021), crucial for preventing security incidents. These drones are also instrumental in inspecting burners at oil refining sites. The transportation sector has seen the digitization of road-related documents (maps, contracts, etc.) using AI, facilitating enhanced decision-making in road maintenance and development.

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The agenda of Oman's Executive Program

The Executive Program recognizes the transformative potential of AI in the science and research sector and aims explicitly at enhancing its uptake in that sector. The approach focuses on the following areas:

1. Collaborations with higher education and research institutions to bolster research and develop academic programs in AI and data science.
2. Awareness and knowledge dissemination, elevating the understanding and appreciation of AI technologies through organizing specialized workshops, events and conferences.
3. Innovation and entrepreneurship support, nurturing innovation in AI through government–private sector collaborations, offering essential support to fund and develop startups in this burgeoning field.

To realize these objectives, the program encompasses several initiatives and projects:

- Development of core AI personnel, focusing on cultivating experts in AI and data science who are capable of spearheading industry advancements.
- Support for skill acquisition, seeking to bolster skills in data science and AI through accelerators, higher education grants and reskilling incentives for employees, and aligning these efforts with industry needs.
- Research and development in core technologies, representing a significant thrust towards accelerating research in key AI technologies such as machine learning, vision, natural language processing, smart sensors and intelligent decision support systems.
- Education centred on problem-solving and critical thinking.
- Localization of AI innovation and entrepreneurship.

Training programs

To achieve the objectives of the Executive Program, the government is working closely with academic institutions and other sectors. In 2023, MTCIT signed a memorandum of understanding with the University of Technology and Applied Science (Muscat Daily, 2023b) with intended impact in the realm of AI and advanced technology. This includes provisions for scientific chairs, research centres and laboratories in these fields. Joint AI programs will further qualify academic staff of the university. The memorandum of understanding also extends to enhancing academic programs via specialized AI courses, collaborating with local and international tech firms for joint research, and enabling faculty to augment their skills through training programs, workshops and conferences. To further AI and tech awareness, the agreement includes holding public lectures, competitions and seminars.

Other AI and advanced technology training programs have been launched under the Makeen Initiative, overseen by the MTCIT. These include partnerships with Sultan Qaboos University and collaborations with local and international companies for virtual training programs in AI. A total of 48 qualification and training programs have trained 1,880 people, working towards a target of 10,000 by 2025.

Infrastructural enhancement

The ambitious integration of AI into various sectors necessitates a robust and adaptable infrastructure. Recognizing this, MTCIT has been actively collaborating with key infrastructure providers, including telecom companies and cloud service providers, to ensure the necessary technological support and enhancements are in place. This collaboration focuses on upgrading the existing cloud computing infrastructure to efficiently process AI applications, a critical step in accommodating the growing demands of AI research and application.

A significant milestone in this endeavour was the introduction of cloud AI services by Oman Data Park (Arabian Daily, 2021). This development came about through a strategic partnership with Nvidia, a global leader in AI and graphics processing. This collaboration is not just a technological advancement but is poised to significantly improve the productivity of various economic sectors and propel the national economy towards a digital transformation.

The telecom sector as well has played a pivotal role in this infrastructural enhancement. A testament to their efforts is the widespread access to mobile broadband networks, which now extend to 97.3 percent of the population. This expanded network access is crucial for facilitating seamless AI research and applications across the nation.

Ethics and commitment

In conjunction with these infrastructural developments, there has been a focused initiative to support research in the field of AI ethics. A notable step in this direction is the establishment of a research chair dedicated to AI ethics, in collaboration with the Islamic World Educational, Scientific and Cultural Organization (Oman Daily Observer, 2024). This initiative underscores the importance of ensuring that AI development and application align with ethical standards and contribute positively to society.

Oman has released a policy on AI systems. Through this policy, the MTCIT seeks to establish ethical principles and controls that in turn promote the optimal use of these regulations and reduce potential risks. MTCIT aims to emphasize the need for all units of the state administrative apparatus to abide by the terms of this policy. Additionally, the Open Government Data Policy is a policy used to define the overall governance for the ICT services continuity within the government administrative units ensuring the continuity of the services during disruptive events.

Oman's commitment to AI is evident in its successful implementation across various sectors, the Ministry of Economy's initiative to integrate AI in the national economy, the comprehensive National Data Strategy, and the focus on AI competency development. Collaborations between governmental institutions and educational entities, infrastructure development through strategic partnerships, and a sustainable and ethically grounded approach to AI research and application further bolster this commitment. Oman's strategic embrace of AI reflects a broader vision of sustainable development, economic diversification and global competitiveness, setting a benchmark for innovation in the region and beyond.

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