

Saudi Data & Al Authority

AI Adoption Framework

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Introduction

The rapid advancement in artificial intelligence (AI) technologies has transformed the business landscape across various sectors globally. These technologies have played a vital role in enhancing economic performance, improving the quality of services, and offering innovative solutions to current challenges, all while increasing business efficiency and productivity. This has driven many countries to compete in achieving the necessary technical maturity for these technologies and adopt them in a structured and responsible manner, with the aim of leading the AI field both nationally and globally.

Recognizing the importance of AI and its role in realizing Vision 2030, the Kingdom of Saudi Arabia is making diligent efforts to implement its strategy that seeks to integrate AI across all sectors and direct efforts in a comprehensive and well-considered manner. It also aims to promote the ethical and responsible use of this technology.

In this context, the Saudi Data & AI Authority (SDAIA) acknowledges the importance of taking proactive steps to promote the adoption of AI across the Kingdom. SDAIA offers this document as a guiding framework that provides a comprehensive roadmap for the adoption of AI in all sectors. This framework represents a strategic step toward building a knowledge-based society founded on innovation and continuous development. Its goal is to provide necessary guidance and instructions, outline critical steps and procedures, and align with best practices to ensure optimal and responsible AI adoption, thus achieving successful milestones in the transformation toward AI within the ecosystem.

In reference to the regulatory arrangements for the Authority (SDAIA) issued by the Council of Ministers Resolution No. (292) dated 1441/4/27 AH, which stipulates in Paragraph (2) of Article (3) that the Authority (SDAIA) is the competent entity in the Kingdom for data (including big data) and AI, and the national reference in all matters related to their regulation, development, and management.



Targeted Audience



AI Adoption Framework



Communication and Change Management

Monitoring and Continuous Improvement



Establishment

1[†] Defining Direction and Priorities

A series of meetings with officials is to be held to assess the current situation and explain the role and importance of the AI Unit. During these meetings, the comprehensive vision and strategic goals will be clarified, and the key enablers of AI technologies will be identified. The meetings will also focus on pinpointing the current challenges and needs within the work environment that AI technologies can effectively address. Identifying potential AI use cases based on actual business needs will help clarify the overall objectives for adopting AI technologies, such as enhancing operational efficiency and improving the quality of services.

These meetings will include open discussions on how the entity can benefit from AI capabilities while considering current challenges and future needs. The exchange of ideas and sharing of perspectives will contribute to shaping the directions and priorities of the AI Unit in alignment with the organization's short- and long-term goals.

2† Establishment of Al Unit

Defining the overall objective of the unit and the services it will provide, as well as identifying the key objectives and tasks that the AI Unit will undertake, along with the roles, responsibilities, job titles, the expected number of employees, and the unit's interaction model with related sectors. The following proposal can be utilized to assist entities in establishing and activating the AI Unit.



2.1 Key Tasks

Identifying opportunities for applying AI in various departments within the organization and working closely with these departments to understand their specific needs and objectives. This includes designing customized and innovative AI solutions, proposing updates to internal policies and procedures as needed, and then monitoring the performance of AI project development and implementation, including machine learning applications, data analysis, and automation. Additionally, it involves evaluating their impact and ensuring they achieve strategic goals and responsible use.

2.2 Roles and Responsibilities

You can refer to the National Framework for Professional Standards, which outlines the professional standards, activities, skills, and competencies for the proposed jobs in data and AI.

3[†] Assessing Maturity and Readiness

Measuring the organization's maturity and assessing its ability to transition to AI, integrate, and use this technology within the ecosystem, thereby helping the organization understand its exact position before starting its transformation journey. This contributes to identifying the next steps to achieve the desired goals. Readiness is measured based on five key aspects:



🚝 Key Priorities/Institutional Readiness

Measuring the leadership's overall understanding of the importance of AI, its potential impact on business, and the existence of a plan to leverage it.

Data

Evaluating the availability and readiness of data, with a commitment to relevant regulations and policies.

୍ର୍ Human Capabilities

Measuring the availability of the necessary expertise to adopt AI, along with a plan to develop skills in AI fields.

. 读 Technology and Infrastructure

Assessing the readiness of the infrastructure for AI technologies and the availability of tools necessary to process AI models (e.g., GPU, TPU), including feasibility and scalability for cloud-based AI products.

🔗 Al Governance

Evaluating the current adherence to regulations and policies and the maturity of internal processes that govern the use of AI technologies and applications.



AI Maturity Levels

♠ Emerging

An emerging entity facing challenges in multiple key areas and needing to work on various aspects to develop and improve its readiness to adopt AI.

Proficient

A proficient entity with skills in most aspects of AI and working to adopt best practices.

Developing

A developing entity that recognizes areas for growth and is planning to implement initiatives focused on effectively adopting Al.

وَنَابُ Advanced

An advanced entity in the field of AI, often following best practices and contributing to AI development.

Activation and Adoption of Al

Entities can adopt a flexible approach that begins with defining a clear vision for data and AI technologies while identifying a set of specific use cases that support their core operations. This is done by evaluating the current environment and infrastructure to help develop a roadmap for gradually implementing these use cases based on their feasibility, rather than waiting for the environment and infrastructure to be fully prepared.

Adopting a use case-driven methodology in services enables the achievement of incremental value, maintains the support of key stakeholders, and enhances confidence in AI adoption programs.



AI Enablers

1† Data

Data is the main input for AI models, and the data used to create AI models differs in format from that used in operational programs or data analysis. Therefore, data is one of the most important assets that contribute to improving performance and productivity, facilitating service delivery, and enhancing its value in strategic decision-making and future forecasting. Data plays a pivotal role in AI technologies and is the fundamental element upon which all AI applications and technologies are built, such as model training, pattern recognition, and future prediction. Organizations collect and process vast amounts of data, which can be leveraged to enhance AI innovations.

2† Technology

Saudi Arabia possesses a robust digital infrastructure that helps accelerate digital transformation. The Kingdom has achieved a ranking that places it among the top countries in digital transactions. The infrastructure is considered one of the key enablers necessary for building a successful and effective ecosystem that supports innovation and research in the field of AI. Organizations have adopted AI technologies and enhanced their infrastructure to include computing platforms that accelerate the training process and the implementation of AI applications.

It is worth noting that developing AI applications that involve large and complex models has become easier thanks to the use of smaller algorithms capable of performing complex tasks. Previously, this was limited to large algorithms with high computational demands, which were more complex and required significant computing power. It is now easier to train and deploy AI models on affordable compute power

Additionally, organizations can adopt open-source AI algorithms with commercial licenses, such as the MIT License and Apache License, while adhering to the restrictions and conditions associated with these licenses when making improvements and modifications. These algorithms are characterized by their ability to be continuously modified and improved by the global community of programmers and AI scientists. The open nature of these algorithms ensures that they remain up-to-date and effective, providing organizations with access to the latest innovations in this field.



3† Human Capabilities

Developing and enhancing internal capabilities within the organization is one of the key enablers of AI. Specialists oversee the development, implementation, and use of AI, in addition to studying the options of contracting or internally building systems. They also monitor the ethical and responsible use of AI, supervise service improvements, and highlight the importance of continuous development in data, technology, and ongoing training to support the organization's goals.

AI Responsible Use

In 2023, the Saudi Data & AI Authority (SDAIA) issued the AI Ethics Principles aimed at guiding organizations in the responsible use of these technologies.

Principles:

1 Integrity and Fairness

Al developers are obligated to take the necessary steps to prevent bias and discrimination in data, algorithms, and outcomes, ensuring equality and fairness.

2 Privacy and Security

Al systems must be securely protected in a way that respects data privacy and complies with cybersecurity standards to prevent unauthorized access and potential harm.

3 Reliability and Safety

Al systems should be reliable and safe and should operate according to the specifications designed to achieve the desired outcomes.

4 Transparency and Interpretability

Al systems should be transparent and interpretable to build trust, with clear tracking of decision-making stages and justifying practices and ethics.

5 Accountability and Responsibility

Designers, developers, and implementers of AI systems should be identified and reachable, with appropriate mechanisms in place to avoid harm and misuse of the technology. AI systems should not deceive individuals or unjustifiably infringe on their freedom.



6 Humanity

Al systems must be designed to serve humanity.

7 Social and Environmental Benefits

Al systems should enhance sustainable social and environmental benefits for individuals and society, contributing to technical, social, and environmental progress while addressing relevant challenges.

Communication and Change Management

Raising awareness about AI and its importance is a crucial step to ensure the effective acceptance and application of this technology. Below are the details of the communication and outreach plan activities designed to increase awareness:

Internal Campaigns

Internal awareness campaigns that include the vision, objectives, and strategies related to the implementation of AI, raising awareness about AI initiatives, while highlighting its benefits, importance, and related changes.

Awareness Articles

Publishing awareness articles on the internal portal that explain successful AI use cases, best practices, and achievements within the organization.

Awareness Sessions and Dedicated Workshops

Holding interactive sessions and workshops to explain AI concepts and their impact on work. These workshops can be tailored to suit different departments and job levels, ensuring a comprehensive understanding of the subject.

Educational Videos

Producing short and engaging videos that explain AI concepts in simple language, featuring testimonials from employees who have successfully used this technology.



Change Management

Developing a comprehensive change management plan for the AI Unit, focusing on cultural and organizational impact to ensure the success of AI initiatives. The change management plan aims to facilitate the transition towards AI adoption, address any concerns or resistance to change, and encourage collaboration from all employees.

Monitoring and Continuous Improvement

Continuous evaluation of the implementation and impact of AI use cases against objectives is one of the key factors for the success of AI transformation and ensuring ongoing alignment with and contribution to the organization's overall strategic goals. The most important monitoring methods include:

Preparing KPI reports for the AI Unit



Preparing periodic reports on the progress in achieving key performance indicators based on the organization's approved performance management framework. This includes, for example, the percentage of AI use case implementation and the level of .readiness

Continuous Improvement



Identifying lessons learned and areas for improvement during the implementation of various initiatives, projects, and programs, and applying these improvements.



Definitions

1 Artificial Intelligence (AI)

A field of computer science focused on building systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, and self-development. It is also referred to as "machine intelligence."

2 Machine Learning (ML)

A subfield of AI that focuses on learning patterns from available data to make predictions or decisions based on new data without explicit programming.

3 Machine Learning Operations (MLOps)

Practices that combine machine learning, DevOps, and data engineering to deploy and maintain machine learning models in production reliably and efficiently.

4 Small Algorithms

A type of AI algorithm designed to perform specific, complex tasks using fewer computational resources compared to large algorithms.

5 Al Ethics

A set of values, principles, and approaches guiding ethical behavior in the development and use of AI technologies.





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