




# AI Readiness in MENA Organizations: Developing and Testing a Measurement Model (A Case Study of Guedila Company)

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## Abstract:

This study addresses Artificial Intelligence (AI) readiness as a key requirement for organizations aiming to adopt AI technologies effectively and responsibly, with a specific focus on the MENA region. Using quantitative exploratory approach, the research develops and empirically validates a context-aware AI readiness measurement model based on a five-point Likert-scale questionnaire.

The model consists of five main dimensions: Strategic Readiness, Technological Readiness, Governance and Ethical Readiness, Organizational and Cultural Readiness, and Human Capital Readiness. It is applied through a case study of Guedila Mineral Water Company, an Algerian industrial organization. Descriptive statistical analysis reveals a moderate-to-high overall level of AI readiness, driven primarily by strong strategic orientation and supportive organizational culture.

However, gaps are identified in technological infrastructure, governance frameworks, and human capital capabilities, which may hinder sustainable AI implementation.

**Keywords:** Artificial Intelligence, AI Readiness, Measurement Model, MENA Organizations, Guedila Mineral Water Company.

## 1. Study problem:

The Middle East and North Africa (MENA) region is among the most ambitious globally in adopting Artificial Intelligence as a core part of its strategic vision to drive economic growth and digital innovation. However, ensuring the effectiveness of this adoption and achieving sustainable outcomes depends not merely on acquiring technology, but primarily on the necessity of conducting a precise and comprehensive assessment of organizational readiness prior to implementation. Consequently, there is an urgent need for scientific evaluation tools that ensure the alignment of internal organizational capabilities with the complex requirements of these advanced technologies.

### 1.1 General Research Question:

What are the key dimensions and indicators used to measure organizational readiness for adopting Artificial Intelligence in the MENA region?

### 1.2 Case Study-Specific Question:

What is the current level of Artificial Intelligence readiness of Guedila Company?

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D. Agti et al. (eds.), *Proceedings of the International Conference on Artificial Intelligence Applications in Business Administration in MENA Region (ICAIBA 2026)*, Advances in Economics, Business and Management Research 393,

[https://doi.org/10.2991/978-94-6239-711-8\\_27](https://doi.org/10.2991/978-94-6239-711-8_27)

### 1.3 Study Objectives:

This paper proposes a context-aware AI readiness measurement model and empirically tests it in MENA organizations.

### 1.4 Research Significance:

This study contributes to the growing body of literature on Artificial Intelligence readiness by proposing and empirically testing a multidimensional measurement model adapted to the MENA context. Practically, it provides organizational decision-makers with a diagnostic tool to assess AI readiness and identify priority areas for strategic and operational improvement.

### 1.5 Methodology:

This study adopts a quantitative exploratory case study design, aiming to develop and empirically assess a multidimensional AI readiness measurement model in a real organizational setting. The study uses structured, closed-ended interviews and a Likert-scale questionnaire to test the model's indicators. A purposive sample of eight (08) senior executives serves as the primary 'unit of analysis'; this approach aligns with exploratory organizational research that prioritizes expert knowledge over large sample sizes when assessing strategic capabilities. Consequently, descriptive statistics (arithmetic means) were employed to evaluate the model's applicability and identify organizational readiness gaps.

## 2. Literature review:

**2.1 Artificial Intelligence:** the Oxford English Dictionary defines AI as “the capacity of computers, or other machines, to exhibit intelligent behavior”.

According to the OECD definition, “an AI system is a machine-based system that for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.” [1] AI is a loose term used to describe a range of advanced technologies that exhibit human-like intelligence including machine learning, autonomous robotics and vehicles, computer vision, language processing, virtual agents, and neural networks.” [1]

### 2.2 Types of AI: [2]

- **Automation:** Systems that operate automatically without continuous human intervention.
- **Machine Learning and Vision:** Technologies that enable computers to learn from data, analyze patterns, and interpret visual information through cameras.
- **Natural Language Processing (NLP):** Computer processing of human language to enable tasks such as translation and spam detection.
- **Robotics:** Engineering field focused on designing machines capable of performing tasks that are difficult, repetitive, or dangerous for humans.

- **Self-Driving Cars:** Vehicles that use computer vision, image recognition, and deep learning **to navigate and operate autonomously**

### 2.3 Artificial Intelligence Readiness: Key Dimensions and Requirements:

According to Babšek (2025), AI readiness is a multidimensional construct comprising eight core dimensions: Human Capital Readiness; Information and Data Readiness; Technological Readiness; Process and Operational Readiness; IT and Organizational Infrastructure Readiness; Strategic Readiness; Regulatory and Contextual Readiness; and AI Value and Outcome Readiness.[3] Complementing this integrative perspective, Schkarin & Dobahn (2022) identified five key readiness dimensions, namely digital and smart factory capabilities, data strategy, organizational structure, organizational culture, and human resources, emphasizing that successful AI adoption requires not only advanced technologies but also strategic alignment, organizational adaptability, and skilled human capital. [4] Similarly, Palade (2021) proposed six readiness dimensions, including cultural readiness, resource readiness, cognitive readiness, partnership readiness, strategic readiness, and IT readiness, highlighting the critical role of organizational culture, capabilities, and inter-organizational collaboration in AI adoption. [5] Although previous studies employ different labels and conceptualizations, the underlying AI readiness dimensions largely overlap. These shared dimensions can be systematically grouped into five core readiness categories. Based on this convergence, the present study adopts five key dimensions as the basis of the proposed AI readiness measurement model.

### 3. AI Readiness Model:



**Figure 1: Proposed AI Readiness Measurement Model for MENA Organizations,**

This proposed model serves as a comprehensive framework designed to assess the AI readiness of organizations within the Middle East and North Africa (MENA) region. The framework is built upon five interconnected dimensions: **Strategic Readiness**, which establishes the vision and long-term roadmap; **Technological Readiness**, focusing on digital infrastructure and data integrity; and **Governance & Ethical Readiness**, ensuring responsible, transparent, and compliant AI implementation. Furthermore, the model emphasizes the human and structural elements through **Organizational & Cultural Readiness**, which prepares the internal environment for change, and **Human Capital Readiness**, ensuring the availability of specialized skills

and talent. The primary value of this model lies in its holistic approach moving beyond technical requirements to integrate socio-organizational factors and ethical standards, specifically tailored to the unique economic and cultural landscape of the MENA region.

The proposed model assesses AI readiness based on key indicators identified for each dimension, which are measured using a 5-point Likert scale. To provide a precise diagnostic framework, the arithmetic means are categorized into three interpretive domains:

- High Readiness Domain (3.67 – 5.00): Indicates high maturity across indicators. In this range, AI adoption is considered feasible and secure, as the organization possesses the necessary supportive environment.
- Moderate Readiness Domain (2.34 – 3.66): Reflects a transitional state of readiness. Adoption requires strengthening and providing specific indicators that show deficiency to ensure implementation effectiveness.
- Low Readiness Domain (1.00 – 2.33): Represents a critical gap in readiness. At this level, adoption is classified as high-risk, potentially leading to strategic or financial losses, necessitating the reconstruction of core capabilities

The following table provides a detailed presentation of the proposed model, illustrating its core dimensions and their respective indicators:

**Table 1: AI Adoption Readiness Model**

Dimension	Indicator	Low level 1.00 – 2.33	Moderate level 2.34 – 3.66	High level 3.67 – 5.00
Strategic Readiness for AI	<ul style="list-style-type: none"> <li>- SR1. Clarity of AI Adoption Strategy</li> <li>- SR2. Integration of AI in Strategic Plans</li> <li>- SR3. Strategic Vision for AI-Driven Development</li> <li>- SR4. Alignment of AI Initiatives with Long-Term Vision</li> <li>- SR5. Top Management Awareness of AI Strategic Importance</li> <li>- SR6. Top Management Support for AI Strategic Decisions</li> <li>- SR7. Existence of a Strategic AI Roadmap</li> <li>- SR8. Comprehensive Strategic Orientation toward AI Adoption</li> </ul>			
Technological Readiness for AI	<ul style="list-style-type: none"> <li>- TR1. Adequacy of IT Infrastructure</li> <li>- TR2. Availability of Relevant and High-Quality Data</li> <li>- TR3. Integration and Compatibility of Digital Systems</li> <li>- TR4. Level of Digitalization of Organizational Processes</li> <li>- TR5. Data Management and Storage Capabilities</li> <li>- TR6. Cybersecurity and Data Protection Readiness</li> <li>- TR7. Reliability and Stability of Technological Systems</li> </ul>			

<i>Governance &amp; Ethical Readiness for AI</i>	- TR8. Accessibility of Technological Tools for AI Applications			
	- GR1. Existence of Digital and Data Governance Policies - GR2. Clarity of Roles and Responsibilities in AI Governance - GR3. Compliance with Data Protection and Privacy Regulations - GR4. Integration of Ethical Considerations in AI Adoption - GR5. Transparency in the Use of Data and Automated Systems - GR6. Internal Monitoring and Control Mechanisms for AI Use - GR7. Accountability for AI-Supported Decisions - GR8. Organizational Awareness of Ethical and Legal AI Issues.			
	- OR1. Organizational Flexibility for Digital Transformation - OR2. Innovation-Oriented Organizational Culture - OR3. Openness to Organizational and Technological Change - OR4. Interdepartmental Collaboration in Digital Initiatives - OR5. Learning-Oriented Organizational Culture - OR6. Management of Resistance to Technological Change - OR7. Adaptability of Organizational Processes - OR8. Internal Communication on Digital Transformation			
<i>Human Capital Readiness for AI</i>	- HR1. Level of Digital Skills among Employees - HR2. Availability of AI-Related Training Programs - HR3. Employee Willingness to Learn AI-Related Skills - HR4. Support for Continuous Learning and Skill Development - HR5. Availability of Internal AI-Related Expertise - HR6. Ability to Attract and Retain Digital Talent - HR7. Employee Understanding of AI Applications - HR8. Knowledge Sharing in Digital and AI Domains			

Source: Authors' own work

#### 4. Case Study:

This chapter evaluates the AI readiness of Guedila Mineral Water Company using a measurement model adapted to the MENA and Algerian contexts. Data collection

employed structured, closed-ended interviews based on a pre-designed questionnaire to ensure standardized responses. A purposive sample of eight (08) senior executives was selected as the primary "unit of analysis"; this choice is justified by the need for strategic and governance insights that only high-level management possesses. Such a focus aligns with prospective research that prioritizes qualitative expertise over sample volume. Consequently, data were analyzed through descriptive statistics (arithmetic means) to determine the final readiness levels.

**4.1 About Guedila:**

Guedila Group is a leading Algerian industrial company in the natural mineral water sector. Its origins date back to 1987 with the concession to exploit the “Sidi El Kebir” spring in Biskra. In 2003, the company was officially established as an independent private entity (SARL), marking the start of its commercial production and marketing activities. Today, Guedila represents a model of industrial growth, using advanced manufacturing technologies and offering significant potential for data-driven initiatives such as the AI Readiness Model. ([6])

**4.2 Reliability of the Research Instrument**

**Table 02. Reliability of the Research Instrument (Cronbach's Alpha Coefficient):**

- Cronbach's Alpha	- N of Items
- .961	- 40

*Source: Authors’ analysis based on SPSS V 23*

To assess the internal consistency of the measurement model, which comprises 40 indicators, Cronbach’s Alpha was calculated. The results indicate a high reliability coefficient of 0.961. This value significantly exceeds the widely accepted threshold of 0.70, demonstrating excellent internal consistency across the five dimensions of the AI readiness model: Strategic, Technological, Governance & Ethical, Organizational & Cultural, and Human Capital Readiness. Consequently, the instrument is considered highly reliable for diagnosing organizational gaps and assessing the current level of AI readiness within the studied organization.

**4.3 Results:**

**Strategic Readiness for AI** The results indicate a high level of strategic readiness for AI adoption, with an overall dimension mean of 3.94. This is reflected in strong agreement on the importance of AI for future performance and sustainability (SR3, Mean = 4.63), the existence of a general strategic vision for AI-driven development (SR1, Mean = 4.13; SR4, Mean = 4.25), and a high level of top management awareness and support (SR5 and SR6, Mean = 4.00). However, relatively lower mean values were observed for the explicit integration of AI into formal strategic documents (SR2, Mean = 3.38) and the existence of a clear AI roadmap (SR7, Mean = 3.38), indicating the need for more formalized strategic planning.

**Technological Readiness for AI** The organization demonstrates a moderate level of technological readiness, recording a mean of 3.63. Positive indicators include the digitalization of organizational processes (TR4, Mean = 4.13), adequate IT infrastructure (TR1, Mean = 3.62), and system integration and reliability (TR3 and TR7, Mean  $\approx$  3.63). Nevertheless, lower scores were recorded for cybersecurity and data protection readiness (TR6, Mean = 3.25) and the availability of high-quality data for AI applications (TR2, Mean = 3.50), suggesting that further investments are required to strengthen the technological foundation for AI adoption.

**Governance & Ethical Readiness for AI** The findings reveal a moderate level of governance and ethical readiness, with a mean score of 3.55. The organization shows strong compliance with data protection and privacy regulations (GR3, Mean = 4.13) and consideration of ethical aspects in AI adoption (GR4, Mean = 4.00). However, weaker performance is observed in defining clear roles and responsibilities for AI and data governance (GR2, Mean = 3.00), as well as in the presence of internal monitoring and control mechanisms for AI use (GR6, Mean = 3.25). This indicates that AI governance structures remain partially developed.

**Organizational & Cultural Readiness for AI** The results suggest a high level of organizational and cultural readiness, achieving a mean of 3.69. This is evidenced by a strong innovation-oriented culture (OR2, Mean = 4.00), flexibility of the organizational structure to support digital transformation (OR1, Mean = 3.50), and support for learning and experimentation in new technologies (OR5, Mean = 3.75). Additionally, effective interdepartmental collaboration (OR4, Mean = 3.63) and internal communication regarding digital initiatives (OR8, Mean = 3.75) further enhance readiness for AI adoption.

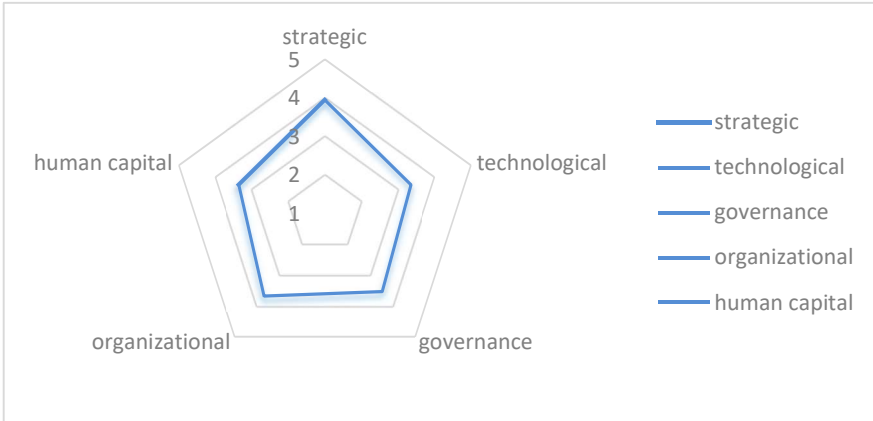
**Human Capital Readiness for AI** Human capital readiness represents one of the weakest dimensions, with a mean of 3.36. Low to moderate mean values were observed for employees' digital skills (HR1, Mean = 2.75), availability of AI-related training programs (HR2, Mean = 3.13), and the ability to attract and retain digital talent (HR6, Mean = 2.88). In contrast, employees show a strong willingness to learn AI-related skills (HR3, Mean = 3.63) and the organization actively supports continuous learning and skill development (HR4, Mean = 4.13), indicating significant potential for improvement.

**Table 03. Overall Level of Artificial Intelligence Readiness**

<i>Indicator</i>	<i>Value</i>
<i>Overall Mean AI Readiness</i>	3.63
<i>Overall Readiness Level</i>	Moderate, tending toward high

*Source: Authors' analysis based on SPSS V 23*

The results indicate that the overall mean of Artificial Intelligence readiness at the organizational level is 3.63. According to the adopted interpretation scale, this value reflects a moderate level of AI readiness with a tendency toward high readiness. This finding suggests that the organization possesses a foundational level of preparedness for AI adoption, while further improvements are required to achieve a fully mature and integrated AI readiness profile.



*Source: Authors' analysis based on survey results.*

**Figure 02: AI Readiness Radar chart**, the radar chart clearly shows that the organization demonstrates strong strategic and organizational readiness for AI adoption. However, technological, governance, and especially human capital dimensions require further development to achieve a fully mature AI readiness level.

**Conclusion:**

This study set out to assess the level of Artificial Intelligence readiness in MENA organizations through the development and empirical testing of a multidimensional measurement model. Drawing on established AI readiness frameworks, the proposed model integrates strategic, technological, governance, organizational, and human capital dimensions to provide a holistic assessment of organizational preparedness for AI adoption.

The findings from the Guedila case study show a moderate-to-high level of AI readiness. Strengths appear mainly in strategic orientation and organizational culture, indicating leadership support for digital transformation. However, gaps remain in technological infrastructure, AI governance, and advanced human skills. Overall, achieving mature AI readiness requires coordinated investments in technology, institutions, and human capabilities, while the proposed model provides a practical framework for organizations in the MENA region to assess and improve their AI readiness.

**Recommendations:**

Based on the study findings, the following recommendations are proposed:

- **Strengthening Strategic Formalization** Organizations should translate strategic awareness of AI into formal documents, including clear AI roadmaps and integration within long-term strategic plans.
- **Enhancing Technological and Data Infrastructure** Investments should prioritize data quality, cybersecurity, and system interoperability to support reliable and secure AI applications.
- **Establishing Clear AI Governance Frameworks** Formal governance structures should be developed to define roles, responsibilities, accountability, and ethical oversight related to AI use.
- **Developing Human Capital Capabilities** Targeted training programs, internal skill development, and talent retention strategies are essential to address skill gaps in AI and advanced digital technologies.
- **Promoting Continuous Organizational Learning** Organizations should sustain innovation-oriented cultures that encourage experimentation, cross-departmental collaboration, and knowledge sharing in AI-related domains.

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**Disclosure:** The authors have no competing interests to declare that are relevant to the content of this article.

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