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OBSTACLES TO INTEGRATING ARTIFICIAL INTELLIGENCE INTO PROGRAM ACCREDITATION AT SAUDI UNIVERSITIES: A FIELD STUDY

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Abstract:
The study aimed to identify the regulatory, legislative, material, and human obstacles to employing Artificial Intelligence (AI) applications in program accreditation procedures and processes at Saudi universities. The study adopted a mixed-methods approach utilizing an Explanatory Sequential Design. A questionnaire was used as a quantitative instrument administered to a sample of (436) members of development and quality committees and external reviewers, while interviews were conducted as a qualitative instrument with a purposive sample of (13) participants to interpret the findings. The study yielded several results, most notably that regulatory, legislative, material, and human obstacles exist to a high degree. Regulatory and legislative obstacles ranked first, followed by human obstacles, and finally material obstacles.

Keywords: Program Accreditation, Artificial Intelligence Applications, Saudi Universities, Obstacles to Integrating Artificial Intelligence.

1. Introduction

The contributions of Artificial Intelligence (AI), its applications, and its tools to the field of education are of paramount importance. This significance stems from the immense benefits achieved and currently being realized across the educational system as a whole, including its subsystems and various stakeholders. These components integrate to ensure that inputs, through operational processes, achieve the highest levels of quality and mastery in outputs.

With the continuous evolution of AI—particularly generative tools and applications—and its impact on higher education, ensuring the robustness of higher education quality assurance frameworks has become crucial. These frameworks must be adaptable to the external environment to ensure that graduates can secure a distinguished position in the international labor market. Indeed, the ability of university education systems to compete globally is unattainable without significant reliance on AI and its applications.

The emergence of quality systems was a response to global competitiveness, aiming for continuous performance development and improvement. Their application has become widespread globally due to their success, prompting their adoption in educational institutions (Al-Kinani, 2013). Furthermore, the Arab Human Development Report (2024), in its fourth goal, emphasized the necessity of ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. This necessitates the adoption of clear policies and the provision of adequate capabilities to improve the quality of education at all stages (ESCWA, 2024).

One of the most critical requirements for achieving the desired level of quality is the availability of digital technology capabilities, specifically AI technologies. Human societies are facing deep, far-reaching, and rapid transformations affecting all aspects of society. These changes are driven by numerous factors, most notably AI, which has altered various aspects of life through its complex and interconnected applications and tools. Often, these technologies—which are the most recent, advanced, cost-effective, high-performing, portable, yet complex—serve as the backbone of modern life. Moreover, the information and knowledge required for their production are increasingly intensive, demanding advanced levels of human capabilities,

including scientists, inventors, technicians, and developers (Al-Dahshan, 2019; Hutson et al., 2022).

Furthermore, Generative AI stands out as one of the most prominent AI technologies. It aims to create an interactive dialogue environment between humans and AI applications to answer various inquiries through text, audio, or visual interfaces. It utilizes Natural Language Processing (NLP) algorithms to understand the context of inquiries—regardless of the field or topic—and respond in a manner that simulates the human mind (Adamopoulou & Moussiades, 2020). Generative AI has become a leading field of technical innovation due to its qualitative ability to generate creative content in various formats (text, image, audio, and video) with applications in diverse sectors such as health, education, and the economy (SDAIA, 2025). Additionally, it provides NLP capabilities to create Large Language Models (LLMs) capable of generating sentences and phrases based on simulating statistical linguistic patterns found in massive databases of collected human texts (Hutson et al., 2022).

Consequently, accreditation systems have witnessed a digital transformation, specifically in the employment of AI. Martinelli & Khairiah (2024, p. 19) indicate that employing AI in accreditation represents a progressive step in this field. Its integration into accreditation policies and operational and educational processes enhances efficiency and modernity. It enables institutions, their programs, and accreditation officials to access information rapidly and deeply, and to collect and analyze data accurately. This reflects positively on the quality of educational outputs and stakeholder satisfaction.

Shehata et al. (2025) emphasized that as the importance of ensuring educational quality and academic and institutional accreditation grows, AI emerges as an effective tool for improving educational processes and meeting the fundamental requirements of quality and accreditation. This is achieved by analyzing data, adapting to learners' needs, and investing time in the educational process to improve performance. Additionally, a study by Cayirtepe & Senel (2022) confirmed that digital transformation is no longer an option in the fields of quality and accreditation, but a necessity to raise efficiency, reduce costs, and expand the scope of assessment. The study extrapolated the future of accreditation through the integration of AI technologies in big data analysis to enhance the accuracy and effectiveness of results, reviewing models from agencies in North America, Europe, and Australia.

2. Research Problem and Questions

Based on the foregoing, it is evident that employing Artificial Intelligence (AI) in university education accreditation—often referred to as Digital Accreditation—has become a global trend. The utilization of AI applications to enhance educational outputs is not limited to bolstering current educational processes; rather, it extends to empowering university institutions to adapt to global variables and future requirements. This is achieved by integrating AI technologies into quality assurance and accreditation strategies, thereby enabling a radical transformation in how education is delivered and managed, ensuring the preparation of a generation capable of efficiently facing modern challenges (Shehata et al., 2025).

Employing AI in program accreditation systems requires modifying legal and regulatory frameworks, changing existing policies and strategies, and implementing orientation and training programs via virtual means. This also necessitates the use of external applications and private networks for data collection, analysis, and gap remediation (Pandey & Subedi, 2023, ii). Furthermore, it requires providing effective methods to engage university members and other stakeholders in core quality processes within educational institutions to ensure the sustainability of their quality assurance operations (Andriesgo et al., 2024).

Moreover, the integration of AI applications and tools into quality and accreditation processes cannot occur in isolation from strict regulatory frameworks. It is essential to formulate institutional policies that ensure the ethical and transparent use of AI, focusing on protecting

data privacy and intellectual property. Existing standards must be reviewed to align with rapid technological developments, ensuring that academic integrity and international accreditation standards are not compromised (UNESCO, 2023).

Zanati (2023) indicated a near-consensus among experts that while integrating AI applications into self-assessment, internal review, and decision-making axes raises the efficiency of the accreditation process, unifies evidence collection procedures, and reduces human bias, indicators show limited integration of these applications in developing university accreditation policies and procedures. This deficiency may negatively impact the efficiency of accreditation operations and the quality of program outputs.

Al-Harbi and Madkur (2024) emphasized the necessity of increasing support to equip advanced infrastructure capable of accommodating all digital system needs. They also highlighted the need to provide material and moral incentives to university staff to increase their motivation towards developing their digital capabilities, intensify training programs on digital systems and modern technologies, and urge staff to consult digital system guidelines continuously to keep pace with updates and align with AI technologies. Additionally, Al-Juhani (2024) concluded that the reality of using AI applications in quality practices at Saudi universities remains at low levels. The primary obstacle is not solely technical but lies in the absence of policies regulating its use and a lack of skills in dealing with "Generative AI" among administrative and academic cadres responsible for accreditation files.

These preliminary indicators suggest potential obstacles facing the employment of AI applications in university accreditation processes, procedures, and systems. This premise is supported by the results of an exploratory study conducted by the researchers using a questionnaire administered to a sample of members of development and quality committees in several Saudi universities, including those who served as external reviewers. The sample consisted of 16 participants distributed as follows: King Saud University (3), King Khalid University (2), Qassim University (4), King Abdulaziz University (3), University of Hail (2), and Majmaah University (2).

The analysis of the results revealed a weakness in total reliance on AI applications. Their usage was found to be limited, sporadic, and based on individual ad-hoc efforts. The weighted percentages for employing AI applications in accreditation procedures ranged between 21.5% and 30%, indicating that the adoption of AI applications in program accreditation processes is still in its initial phase and limited in scope.

To understand the nature, type, and magnitude of these obstacles, the current research attempts to answer the following main question:

What are the obstacles to employing Artificial Intelligence applications in program accreditation procedures at Saudi universities?

Answering this question requires addressing the following sub-questions:

1. What are the regulatory and legislative obstacles to employing AI applications in program accreditation procedures at Saudi universities?
2. What are the material (infrastructure/financial) obstacles to employing AI applications in program accreditation procedures at Saudi universities?
3. What are the human obstacles to employing AI applications in program accreditation procedures at Saudi universities?

3. Research Objectives and Significance

The current study aims to identify the regulatory, legislative, material, and human obstacles to employing Artificial Intelligence applications in program accreditation procedures at Saudi universities. Furthermore, it seeks to provide recommendations that could mitigate or eliminate these obstacles.

4. Research Delimitations

The scope of the current research is delimited as follows:

- **Thematic Delimitations:** The study is limited to the regulatory, legislative, material, and human obstacles hindering the employment of AI applications in academic accreditation procedures. It focuses on standards defined for Bachelor's and Postgraduate stages in Saudi universities, specifically in the domains of: Policies and Governance, Self-Study Preparation, Key Performance Indicators (KPIs), Continuous Improvement, Stakeholder and Expert Engagement, and Post-Accreditation Follow-up.
- **Human and Spatial Delimitations:** The study is limited to faculty members serving in development and quality committees at Saudi universities.
- **Temporal Delimitations:** The study was conducted during the first semester of the academic year 1447 AH (2025–2026 AD).

5. Definition of Terms

The key terms used in this research are defined as follows:

5.1 Program Accreditation in the Kingdom of Saudi Arabia: A certificate issued by the National Center for Academic Accreditation and Evaluation (NCAAA) stating that a higher education institution meets the required quality assurance and academic accreditation standards (Education and Training Evaluation Commission [ETEC], 2022).

5.2 Artificial Intelligence (AI): Defined by John McCarthy as "the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable" (McCarthy, 2007).

5.3 AI Applications and Academic Accreditation: Defined as AI systems based on deep learning models trained on massive amounts of data, capable of producing new and diverse content—whether text, image, audio, or video—that simulates human styles and patterns or innovates new creative forms. This utilizes technologies such as Generative Adversarial Networks (GANs) and Large Language Models (LLMs) (Bommasani et al., 2021). Additionally, it encompasses advanced software based on semantic and cognitive models and pattern synthesis, such as smart chatbots, intelligent agents, expert systems, intelligent adaptive learning, smart assessment, and Natural Language Processing (NLP). These technologies are employed in identifying, analyzing, designing, implementing, and monitoring the processes of teaching, research, community service, and administration in Saudi universities through integrated collaboration between cognitive tools and computing devices, with the capability to make logical decisions and predict variables (Al-Musaiteer & El-Sisi, 2025).

6. Research Methodology and Procedures

The current research is grounded in the "Pragmatic" philosophical paradigm. Researchers generally view this paradigm as arising out of actions, situations, and consequences rather than antecedent conditions. This orientation leads the researchers to focus on providing applications and practical solutions to problems (Creswell, 2019, p. 54).

Consequently, the research adopted the Mixed Methods approach, which combines quantitative and qualitative methods. Creswell (2019, p. 45) defined it as "an approach involving collecting both quantitative and qualitative data, integrating the two forms of data using distinct designs that may involve philosophical assumptions and theoretical frameworks, all within a single mixed-methods study."

Specifically, the study employs the Explanatory Sequential Design. In this design, the researchers first collect quantitative data by administering a questionnaire to identify the regulatory, legislative, material, and human obstacles hindering the employment of AI applications, and then analyze the results. Subsequently, the qualitative phase builds upon these findings by using interviews to explain the extreme results revealed by the quantitative phase. Accordingly, the researchers conduct interviews with a purposive sample from the research

population to interpret the results of those items from the participants' perspectives (Creswell, 2019).

6.1 Data Collection Tools

To achieve the study's objectives, the current research utilized two instruments:

1. A Questionnaire: Designed to identify the obstacles to employing Artificial Intelligence applications in program accreditation procedures from the perspective of development and quality committee members and university external reviewers accredited by the Education and Training Evaluation Commission (ETEC) in Saudi Arabia. The questionnaire's validity was verified by presenting it to a panel of arbitrators (experts) combining expertise in Artificial Intelligence and academic accreditation within the Kingdom. Additionally, internal consistency validity was verified using the Pearson Correlation coefficient. The questionnaire's reliability was confirmed by calculating Cronbach's Alpha coefficient, indicating the questionnaire's suitability for application and for achieving the purpose for which it was designed.

2. An Interview Guide: Prepared in light of the results yielded by the administration of the questionnaire to interpret the **extreme results** derived from it.

6.2 Research Population and Sample

The research population comprises members of development and quality committees and university external reviewers accredited by the Education and Training Evaluation Commission (ETEC) in Saudi Arabia. The sample was selected as follows:

- **For the quantitative phase:** The sample was selected using the **cluster sampling method**, totaling **436 members** from development and quality committees and accredited external reviewers.
- **For the qualitative phase:** A **purposive sample** of **13 participants** was selected from the same research population to conduct explanatory interviews. This aligns with the adopted methodology and its **Explanatory Sequential Design**. The researchers concluded the explanatory interviews once **data saturation** was reached.

6.3 Statistical Methods

1. For the Quantitative Phase: The researchers utilized the Statistical Package for the Social Sciences (**SPSS**) for data entry and statistical analysis, employing several statistical techniques, including:

- **Frequencies and Percentages:** To determine the distribution of the sample members' responses regarding the dimensions of the study instrument.
- **Pearson Correlation Coefficient:** To verify the **construct validity** of the study instrument.
- **Cronbach's Alpha Coefficient:** To verify the **reliability** of the study instrument.
- **Arithmetic Mean:** To identify the general level of obstacles based on the collected data.
- **Standard Deviation:** To measure the dispersion of the respondents' answers for each item and main axis from their arithmetic mean.

2. For Qualitative Data Analysis: Regarding qualitative data analysis, after collecting data via interviews and reaching the point of **data saturation**, the researchers organized, tabulated, arranged, and classified the data, assigning codes to the information contained therein. This analysis was conducted both manually and using **MAXQDA** software for qualitative data analysis. Subsequently, the data was reviewed using the **Axial Coding** method.

6.4 Qualitative Data Analysis

Following the collection of qualitative data through interviews and upon reaching the point of saturation, the data was organized, categorized, and coded with thematic headings. The analysis was conducted either manually or via **MAXQDA** software for qualitative data analysis. Subsequently, the data was reviewed, and observations were recorded to either prompt further

investigation into the research problem or confirm that sufficient information had been obtained.

7. Theoretical Framework

In the theoretical framework of the current research, the researchers confine themselves to providing a brief overview of employing Artificial Intelligence (AI) applications in accreditation procedures and processes, to the extent necessary to understand the obstacles to their employment. Subsequently, the researchers present the obstacles to employing these applications in program accreditation procedures at Saudi universities by analyzing previous studies and research in a manner that fulfills the main variable of the current research—namely, the obstacles to employing AI applications in program accreditation procedures at Saudi universities—whether in international or local contexts.

Following this, the researchers proceed to identify these obstacles in the field via a questionnaire, interpreting its results through previous studies and in accordance with the nature of the research sample. Finally, extreme results (highest or lowest) are explained through explanatory interviews.

7.1. Employing AI Applications in Academic Accreditation: AI applications are accelerating and diversifying in a manner that is difficult to enumerate, and their employment in academic accreditation is increasing due to the analytical and operational benefits they offer. Large Language Models (LLMs) such as GPT, LLaMA, and PaLM have emerged prominently following the launch of ChatGPT (November 2022), demonstrating superior ability to understand and generate text accurately, relying on training billions of parameters on massive data (Minaee et al., 2025). Alongside LLMs, technologies supporting accreditation include robotics, smart content, intelligent tutoring and assessment systems, expert systems, virtual agents, Augmented Reality (AR) and Virtual Reality (VR), and language, voice, and facial recognition technologies. All these contribute to automating evidence collection and analysis and employing them in developing accreditation policies based on AI applications (Al-Musaiteer & El-Sisi, 2025).

7.2. Applications Employable in University Accreditation Procedures and Processes: El-Sisi and Al-Hamoud (2025) highlighted the most important applications that can be employed in university accreditation procedures and processes. These were extracted—according to El-Sisi and Al-Hamoud—through conducting several interviews with a group of experts in AI and accreditation at Arab universities. It is noted that these applications are dynamic by nature and are subject to deletion, modification, and addition. The most significant applications identified are as follows:

- **7.2.1 Policies and Governance**: Experts indicated that the most powerful application is Notion AI, which organizes documents and policies, manages versions, and documents processes. Additionally, ChatGPT, Claude, and Gemini can be utilized to draft policies and governance models, align them with NCAAA standards, perform gap analysis, and write operational manuals, as they are the strongest in policy analysis, benchmarking, and producing approved documents.
- **7.2.2 Self-Study Preparation:** Experts confirmed that the best tools are ChatGPT and Claude for analyzing requirements, writing the Self-Study Report (SSR), summarizing evidence, producing criteria descriptions, and conducting SWOT analysis. Applications like Otter, Fireflies, and Tldv can be used to transcribe meetings into text and draft report inputs. Furthermore, DeepSeek R1, along with the aforementioned tools, helps in collecting evidence, summarizing meetings, and extracting key points to translate them into content for the self-study.
- **7.2.3 Key Performance Indicators (KPIs):** Experts asserted that the best tools for calculating and analyzing KPIs are ChatGPT and DeepSeek R1 for statistical analysis,

generating KPI formulas, interpreting data, and creating KPI dashboards. Excel + ChatGPT Integration can be used for descriptive analysis, charts, trends, and time series. Gamma and Slides AI can be used to visualize indicator results, while Tldv and Otter are useful for extracting results from KPI-related meetings.

- **7.2.4 Continuous Improvement:** Experts indicated that the most suitable applications for setting continuous improvement plans and monitoring their implementation are **ChatGPT** and **Claude**. These are used for gap analysis, proposing improvement plans, drafting improvement initiatives, risk analysis, and producing operational plans. For organizing improvements and tracking progress, Notion AI and Trello (AI Assist) can be used. Additionally, DeepSeek R1 and Durable can assist in developing templates for improvement plan reports and follow-up pages.
- **7.2.5 Stakeholder and Expert Engagement:** Experts stated that the best tools are Fireflies, Otter, and Tldv, which are used to record and analyze meetings, extract key points, and prepare official minutes. Meanwhile, Chatbase and Droxy can be used to create chatbots for collecting feedback. Google Forms + ChatGPT can be utilized to draft measurement tools and questionnaires.
- **7.2.6 Post-Accreditation Follow-up:** Through the interviews conducted, experts confirmed that the best tools are ChatGPT and Claude for preparing follow-up reports, designing compliance schedules, and drafting periodic evidence. Notion AI or Trello AI can be used to manage the follow-up track for each standard, while Gamma AI and Slides AI are effective for preparing follow-up reports and presenting them to committees.

7.3 Obstacles to Employing Artificial Intelligence Applications in University Program Accreditation Procedures Based on Previous Studies and Research:

There are few foreign studies that have addressed the topic of "Digital Accreditation"—i.e., the employment of AI applications in university program accreditation procedures—and specifically its obstacles. To the researchers' knowledge, no Arabic studies have directly addressed this topic, although some have touched upon it within a general context rather than as a primary objective or variable. The most notable of these studies include:

- Muhamad et al. (2025): Presented a proposed intelligent system designed to enhance accreditation processes mandated by the National Center for Academic Accreditation and Evaluation (NCAAA) by leveraging Pre-trained Transformer models (GPT). The system efficiently generates comprehensive course reports and dynamic assessment questions aligned with specific cognitive levels, improving the automation of these vital tasks. However, the study emphasized that implementing this system in academic environments on a large scale still requires significant effort to address implementation challenges.
- Shehata et al. (2025): Concluded the inadequacy of current methods for analyzing opinion polls due to the unavailability of electronic systems, making it difficult to link poll results with areas for utilization.
- Martinelli & Khairiah (2024): Highlighted that challenges are exacerbated by the lack of sufficient AI skills among some accreditation participants. Additionally, limited infrastructure at educational institutions—including internet access and digital devices—poses an extra challenge that may hinder the proper application of accreditation via AI. Khan (2024) adds to these digital transformation challenges issues related to data protection and information security, emphasizing the need to establish clear regulatory legislation and policies to support these transformations.
- Al-Bisher et al. (2024): Indicated that challenges accompany the employment of AI in program accreditation processes at Saudi universities. Notably, achieving quality and

adherence to accreditation requirements has taken priority in Kingdom educational policies, while digital transformation appeared lower on the list. This impacts the employment of AI in accreditation procedures, despite the significant boom—from the researchers' perspective—in digital transformation at the national level, particularly regarding AI applications and the efforts of the Saudi Data and Artificial Intelligence Authority (SDAIA).

- Asiri (2024): Found that the most prominent obstacles hindering the employment of AI applications to improve secondary education outcomes in the Asir region include low budgets allocated for modern technologies, a scarcity of specialized AI technicians, and a lack of familiarity with AI applications and associated technologies among the school community. Although these obstacles pertain to the secondary stage, they intersect significantly with university education due to the similarity of the educational environment within the Kingdom.
- Iswahyudi et al. (2023): Concluded that employing applications in accreditation procedures faces challenges related to the digital skills of human resources regarding AI usage, associated technical infrastructure, and data protection. It requires reliable technical skills from stakeholders, which are not necessarily possessed by all. Furthermore, limited capabilities in educational institutions may restrict the development of procedural accreditation policies in light of AI applications, as success depends primarily on the ability of human resources to employ, provide, and make digital tools available.
- Ibrahim (2020): Focused on the necessity of preparing higher education institutions internally (policies, internal quality management teams, follow-up committees) and engaging external parties (professional bodies, accreditation agencies, external beneficiaries) in evaluation processes. The study highlighted that adopting modern technologies in measurement and evaluation represents one of the most significant challenges facing university accreditation policies.
- Al-Nasser (2020): Based on observed challenges facing the accreditation system in Saudi universities, recommended the necessity of building clear institutional policies and procedures to enhance and entrench a culture of quality. It also urged developing technical infrastructure and employing it in monitoring, evaluation, and continuous improvement processes, with a focus on developing human cadre capabilities through training and qualification in quality assurance and accreditation.
- Albaqami (2019): Concluded that physical and digital infrastructure constraints—particularly regarding AI applications—are considered among the most significant obstacles to the Internal Quality Assurance (IQA) system in Saudi higher education institutions.

8. Results.

8.1 Quantitative Results:

The Field Study (Empirical Findings)

The main research question states: "What are the obstacles to employing Artificial Intelligence applications in program accreditation procedures at Saudi universities?"

Several sub-questions stem from this regarding the obstacles to employing AI applications in program accreditation procedures and processes at Saudi universities, as follows:

- What are the regulatory and legislative obstacles to employing AI applications in program accreditation procedures at Saudi universities?
- What are the material obstacles to employing AI applications in program accreditation procedures at Saudi universities?

- What are the human obstacles to employing AI applications in program accreditation procedures at Saudi universities?

To answer the main question and its sub-questions, frequencies, percentages, and arithmetic means were calculated for the research sample members' responses to each item of the questionnaire related to the obstacles to employing AI applications in program accreditation procedures and processes at Saudi universities, from the perspective of development and quality committee members. Additionally, frequencies and percentages were calculated for the sample members' responses for each dimension (axis) of the questionnaire, and for the questionnaire as a whole.

The results are presented below across three levels: the overall questionnaire level, the level of each dimension, and the level of each individual item within the dimensions. The details are as follows:

1. Results regarding the obstacles to employing AI applications in program accreditation procedures at Saudi universities from the perspective of development and quality committee members, at the level of the overall questionnaire and each of its dimensions:

These results can be illustrated through the following table:

Table (1): Obstacles to employing AI applications in program accreditation procedures at Saudi universities at the level of the overall questionnaire and each of its dimensions.

- **Here is the translation of the Field Study Results (Table 1 and its Analysis), formatted according to academic standards.**
- **Table (1): Obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at universities, at the level of the overall instrument and each of its dimensions.**

Rank	Level	Standard Deviation	Weighted Mean	Arithmetic Mean	Dimension Name	Dimension No.
1	High	3.10	3.92	19.61	Regulatory and Legislative Obstacles	First
3	High	3.09	3.72	14.87	Material Obstacles	Second
2	High	4.39	3.73	22.35	Human Obstacles	Third
	High	9.44	3.79	56.83	Overall Score	Total

- From the previous Table (1), the following is evident:
- Overall Level: The weighted mean for the obstacles to employing AI applications in accreditation procedures and processes, from the perspective of development and quality committee members at the level of the overall instrument, reached (3.79),

with a standard deviation of (9.44). Compared to the statistical criteria adopted by the study, it is evident that these obstacles exist to a High degree. The total weighted mean of the instrument fell within the "High" response range, which extends from (3.40) to less than (4.20).

- Dimension Level: The weighted means for the obstacles at the level of each dimension (Regulatory and Legislative, Material, and Human) reached (3.92), (3.72), and (3.73) respectively. Their standard deviations were (3.10), (3.09), and (4.39) respectively. Compared to the statistical criteria, it is clear that the obstacles in all dimensions exist to a High degree, as the weighted means for all dimensions fell within the "High" response range (3.40 to less than 4.20). This aligns with the overall score of the questionnaire.
- Ranking: The highest ranking dimension regarding the obstacles was the Regulatory and Legislative Obstacles with a weighted mean of (3.92) and a standard deviation of (3.10). The lowest ranking was the Material Obstacles dimension with a weighted mean of (3.72) and a standard deviation of (3.09).
- Interpretation of Results:
- The result indicating a high level of obstacles to employing AI applications in accreditation procedures and processes can be interpreted by the fact that employing AI in accreditation does not depend on a single isolated factor. Rather, it is influenced by an interconnected system of regulatory, legislative, material, and human factors.
- The absence or ambiguity of regulatory frameworks and official directives constitutes a starting point that leads to institutional hesitation and disparity in practice, especially in sensitive files related to data. The Executive Regulations of the Personal Data Protection Law emphasize the necessity of adopting regulatory, administrative, and technical controls to protect data, maintaining records of processing activities, and making these records available upon request. This reflects that legal governance is not merely an option but an operational requirement for the stability of application within the accreditation ecosystem.
- It is also evident that this regulatory/legislative obstacle is reinforced by the perceived need for clear references that govern the legality of use, limits of liability, and compliance, particularly given the requirements for auditing, review, and managing data leakage risks within the accreditation environment (SDAIA, 1444 AH).
- These findings align with the study by Al-Habib (2023), which concluded that obstacles limiting the use of AI applications in the educational process were high. The study recommended the necessity of intensifying training programs for faculty members on the use of AI technology and its applications, providing modern hardware, software, and internet networks, and monitoring and disseminating successful experiences in this field across Saudi universities.

Conversely, Material Obstacles are not limited to funding in the general sense but extend to the costs of integration between AI tools and quality and accreditation systems. This entails a protected digital infrastructure, system and platform protection procedures, and Patch Management (ECC-2:2024). This aligns with Al-Malki & Al-Zahrani (2024), who confirmed that automating the academic quality system requires advanced digital infrastructure and precise integration between various university databases to ensure data flow and reliability, thereby raising the cost of transformation and increasing the operational and compliance burden.

Furthermore, the integration process requires operational resources, foremost among them the availability of a specialized support team and the definition of cybersecurity requirements. These are technical-regulatory prerequisites highlighted in the model proposed by Al-Malki & Al-Zahrani (2024), which focused on the necessity of building unified data warehouses to support automated academic decision-making. Accordingly, the cost consists of (Infrastructure + Operations + Compliance) combined.

As for Human Obstacles, they are manifested in the skills gap, digital culture, and specialized qualification. Compliance requirements cannot be fully met without building awareness and skills among employees. Cybersecurity controls emphasize the necessity of a periodic, multi-channel cybersecurity awareness and training program to build a positive culture of awareness and equip employees with the necessary skills. These human obstacles intersect with governance and cybersecurity concerns: the absence of official controls and standard institutional procedures increases caution and diminishes optimal utilization. Conversely, clear regulatory frameworks and defined responsibilities (such as the Data Protection Officer and processing records) contribute to raising trust and directing usage towards organized practice within accreditation (ECC-2:2024). Additionally, Al-Subhi (2020) concluded that faculty members' use of AI applications in education was very low, recommending the necessity of holding training courses for faculty in the field of AI.

Conclusion: Based on the foregoing, the high level of obstacles reflects that the transition to AI-supported program accreditation requires a comprehensive institutional transformation. This begins with enacting regulatory frameworks and defining directives (especially regarding data governance and privacy), proceeds to allocating necessary resources for technical integration, infrastructure provision, technical support, and security compliance, and culminates in building human capabilities and developing a digital professional culture. This ensures the safe and effective employment of AI within the accreditation ecosystem. This aligns with the findings of Al-Malki & Al-Zahrani (2024), who stated that the shift towards smart automation of NCAAA requirements necessitates building technical models capable of analyzing big data and moving beyond manual work—a goal that can only be achieved through the synergy of legislative frameworks with material capabilities and qualified human resources.

2. Results regarding the obstacles to employing AI applications in accreditation procedures and processes from the perspective of university development and quality committee members, specifically for the "Regulatory and Legislative Obstacles" dimension and its items:

These results are illustrated in the following table:

Table (2): Obstacles to employing AI applications in accreditation procedures and processes from the perspective of university development and quality committee members at the level of the "Regulatory and Legislative Obstacles" dimension and its individual items.

No.	Item	Mean	SD	Level	Rank
1	Lack of university policies regulating the use of AI applications in program accreditation processes.	3.97	0.88	High	2
2	Academic programs' need for	4.06	0.81	High	1

No.	Item	Mean	SD	Level	Rank
	clear legislation regarding the use of AI applications in accreditation.				
3	Lack of qualification programs for academic program staff to employ AI in accreditation processes.	3.81	0.84	High	5
4	The need for clear accountability mechanisms regarding errors in AI outputs related to accreditation.	3.87	0.86	High	4
5	Lack of integration between information systems in university programs and the Education and Training Evaluation Commission (ETEC).	3.89	0.89	High	3
Total	**Total Score for obstacles to employing AI in accreditation from the perspective of committee members (Regulatory and Legislative Dimension).**	**3.92**	**3.10**	**High**	

Analysis of Table (2):
From the previous Table (2), the following is evident:

- **Dimension Level:** The obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities regarding the **Regulatory and Legislative Obstacles**

dimension exist to a **High** degree. The weighted mean for the dimension reached (**3.92**), with a standard deviation of (**3.10**). The arithmetic means for the items ranged between (**3.81**) and (**4.06**). Compared to the statistical criteria adopted by the study, it is evident that the obstacles in this dimension are realized to a **High** degree, as the arithmetic mean for the dimension fell within the "High" response range, which extends from (3.40) to less than (4.20).

- **Highest Ranking Item:** The item with the highest degree of verification regarding the obstacles to employing AI applications in accreditation from the perspective of committee members at the level of the Regulatory and Legislative Obstacles dimension is **Item No. (2)**, which came in the first rank and states: **"Academic programs' need for clear legislation regarding the use of AI applications in accreditation."** It had an arithmetic mean of (**3.97**) and a standard deviation of (**1.06**). Compared to the statistical criteria adopted by the study, the reality of procedural policies for program accreditation in Saudi universities in light of AI applications from the perspective of committee members for this item is realized to a **High** degree. The arithmetic mean of the item fell within the "High" response range, which extends from (**1.80**) to less than (**2.60**).

Interpretation: This result can be interpreted based on what the interviews revealed regarding the need for legislation and clear regulatory frameworks for using AI in program accreditation. The participants' statements reveal a clear consensus on the centrality of the legislative dimension in regulating AI employment in accreditation.

- For example, **(C2)** confirms the *"necessity of having terms of reference upon which the program can rely."*
- **(W1)** continues in the same direction: *"We truly need clear legislation for using applications and implementing them on the ground."*
- **(C1)** expresses this need more specifically from the program's angle: *"Academic programs need clear legislation for using AI applications in accreditation."*
- **(A2)** emphasizes the degree of obligation and decisiveness: *"Yes, a need in a... definitive way, necessary."*
- **(A3)** describes this need more clearly: *"Our need for legislation and a clear policy for using AI is very, very, very high."*
- **(B1)** summarizes the institutional requirement: *"We are required to have clear legislation."*
- **(B3)** moves this argument from description to direct recommendation, asserting that *"The Education and Training Evaluation Commission must enact legislation or regulations specifically for using AI."*
- **(W2)** offers an explanatory reading of these voices, considering that this *"indicates that the absence or ambiguity of regulatory frameworks and official policies regarding AI use in accreditation is considered, in the participants' view, the most significant obstacle."*
- **(A1)** concludes by confirming the practical need: *"Yes, we are in need of this."*
- In the same context, **(A4)** points to a deeper regulatory dimension, explaining that *"the accelerating development of AI tools has created a gap between new technologies and currently available policies."*

Accordingly, the high level of the Regulatory and Legislative Obstacles dimension can be understood as reflecting a "Governance before Technology" challenge. The absence of legislation, terms of reference, and official policies—and the varying clarity on permissible and impermissible uses—weakens the programs' ability to adopt AI confidently within accreditation procedures and expands the scope for individual discretion instead of institutional practice.

- **Lowest Ranking Item:** The item with the lowest degree of verification regarding obstacles to developing procedural policies for program accreditation in Saudi universities in light of AI applications from the perspective of committee members at the level of the Regulatory and Legislative Obstacles dimension is **Item No. (3)**, which states: **"Lack of qualification programs for academic program staff to employ AI in accreditation processes."** It had an arithmetic mean of (**3.81**) and a standard deviation of (**0.84**). Compared to the statistical criteria adopted by the study, it is evident that the obstacles to developing procedural policies... for this item appeared to a **High** degree, as the arithmetic mean for the item fell within the "High" response range, which extends from (3.40) to less than (4.20).

Interpretation: This result can be interpreted in light of the nature of the regulatory/legislative obstacle that governs the construction of qualification programs themselves. Qualification—as an operational procedure within the accreditation ecosystem—is not achieved merely by the desire to employ AI; it requires an official framework that defines references, approves programs, and clarifies responsibilities and implementation mechanisms. The interviews confirm that the regulatory framework for using AI in accreditation is still unformed at the official level.

- **(W1)** explains: *"We have not received a document or directive from the Ministry or the universities themselves for us to use AI."*
- **(A2)** interprets this from a temporal angle: *"Because it has recently emerged."*
- **(N2)** describes it from a realistic institutional perspective: *"Yes, realistic, because actually, this matter does not exist; there is no interest."*
- **(B1)** connects this absence to weak institutional foundation, clarifying: *"Because in reality... there is no specialized program for AI in the accreditation process,"* implying that the qualification track is not managed within clear, accredited programs.
- In the same context, **(A1)** reflects the extension of this regulatory impact to the reality of practice: *"I do not see that there are courses qualifying these individuals to a high degree... I have never attended such programs or even received an invitation... I believe we lack this."*
- **(B1)** supports this: *"So, there are no qualifying training courses,"* indicating there is no institutional organization for qualification in accreditation.
- **(B3)** concludes the picture by confirming that current practice *"relies on personal knowledge,"* reflecting the transfer of the burden from official regulation to individual initiatives.

Accordingly, the high degree of this obstacle can be understood as a direct result of the absence of official documents, directives, and accredited programs that frame qualification within the accreditation system. When clear regulatory references are unavailable, and official qualification tracks are not adopted, qualification—and consequently AI employment—remains unsupported by a unified operational policy, leaving practice to vary between programs based on individual efforts, which limits the transition to sustainable institutional adoption.

3. Results regarding the obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities, specifically for the "Material Obstacles" dimension and its items:

These results can be illustrated through the following table:

Table (3): Obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities at the level of the "Material Obstacles" dimension and its individual items.

No.	Item	Mean	SD	Level	Rank
6	Lack of funding and financial support necessary to provide the requirements for implementing AI tools in accreditation.	3.61	1.12	High	4
7	The high cost of developing and maintaining AI systems used in accreditation within university programs.	3.73	1.05	High	2
8	Weak technical infrastructure within academic programs in university education.	3.67	0.97	High	3
9	The high cost of integrating AI systems with existing quality management and accreditation systems in academic programs.	3.86	0.73	High	1
Total	**Total Score for obstacles to employing AI in accreditation from the perspective of committee members (Material Obstacles Dimension).**	**3.72**	**3.09**	**High**	

Analysis of Table (3) Results:
From the previous Table (3), the following is evident:

- **Dimension Level:** The obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities regarding the **Material Obstacles** dimension exist to a **High** degree. The weighted mean for the dimension reached (**3.72**), with a standard

deviation of (**3.09**). The arithmetic means for the items ranged between (**3.61**) and (**3.86**). Compared to the statistical criteria adopted by the study, it is evident that the obstacles in this dimension are realized to a **High** degree, as the arithmetic mean for the dimension fell within the "High" response range, which extends from (3.40) to less than (4.20).

- **Highest Ranking Item:** The item with the highest degree of verification regarding the obstacles to employing AI applications in accreditation... from the perspective of committee members at the level of the Material Obstacles dimension is **Item No. (9)**, which came in the first rank and states: **"The high cost of integrating AI systems with existing quality management and accreditation systems in academic programs."** It had an arithmetic mean of (**3.86**) and a standard deviation of (**0.73**). Compared to the statistical criteria adopted by the study, it is evident that the obstacles... for this item are realized to a **High** degree. The arithmetic mean of the item fell within the "High" response range, which extends from (3.40) to less than (4.20).

Interpretation (Mixed-Methods): This can be interpreted based on the understanding that "integration cost" is not merely the cost of purchasing an AI tool, but rather the cost of a comprehensive institutional transformation requiring digital infrastructure, organizational governance, specialized technical support, and data integration between multiple systems. This makes Item (9) top the development obstacles within this dimension. Participants' statements converge on the fact that the main challenge does not lie in acquiring AI tools themselves, but in preparing the integrative environment within which they operate.

- **(W2)** points out that this *"reflects a practical realization that the problem is not in purchasing a separate AI tool, but in integrating it with existing systems (Student Information Systems, Quality Systems, Evidence Repositories, LMS) and the required data integration, infrastructure development, and continuous technical support,"* explaining that the core challenge relates to the integrative structure of systems more than the availability of the tool itself.
- In the same context, **(A4)** highlights the financial-technical dimension, asserting that *"digital transformation requires complex costs including licenses, training, and maintenance, not just purchasing tools."*

The participants' statements highlight that the financial dimension represents a fundamental pillar in any trend towards automating quality systems and employing AI.

- **(C2)** clarifies that *"the financial aspect is the basis of this stage,"* indicating that any trend towards employing or automating AI applications relies primarily on the availability of sufficient material resources.
- **(B1)** moves to a more detailed level describing the reality of quality systems: *"Because if we take even the automation of quality work itself, it is very costly, even without automation it is very costly,"* confirming that the cost burden is present even before introducing AI.
- **(A3)** agrees with this trend, noting that these applications *"need high financial cost; international companies and companies, of course, need funds that are not simple,"* directly linking the quality of technical solutions to their high cost.
- **(N2)** adds a strategic dimension to the cost, explaining that *"linking systems helps significantly in facilitating; if every ministry and every sector buys it separately, no, it is very costly. So the cost is high if it is individual and distributed to each sector separately,"* reflecting that joint investment and linking systems on a wider scale might be one solution to alleviate the financial burden compared to separate purchasing for each entity.

Conclusion for High Ranking: Accordingly, the ranking of Item (9) can be understood as a logical result of the intersection of "integration cost" with multiple and simultaneous requirements: (1) technical costs related to infrastructure preparation, data integration, and system linking; (2) operational costs related to providing specialized technical support teams and continuous maintenance; (3) regulatory costs related to the need for regulations and directives governing integration and defining responsibilities; and (4) human/skill costs resulting from limited expertise necessary for this type of integration. Thus, the high score of this item does not only express "expensive technology," but reveals that the transition towards AI integrated into the quality and accreditation system is a complex institutional project requiring investments, coordination, and governance that transcend the limits of partial solutions or separate initiatives.

- **Lowest Ranking Item:** The item with the lowest degree of verification regarding obstacles... within the Material Obstacles dimension is **Item No. (6)**, which states: **"Lack of funding and financial support necessary to provide the requirements for implementing AI tools in accreditation."** It had an arithmetic mean of (**3.61**) and a standard deviation of (**1.12**). Compared to the statistical criteria adopted by the study, it is evident that the obstacles... for this item appeared to a **High** degree, as the arithmetic mean for the item fell within the "High" response range, which extends from (3.40) to less than (4.20).

Interpretation (Mixed-Methods): The fact that this item is the lowest within the Material Obstacles dimension—while remaining at a "High" degree—can be interpreted by viewing funding as an influential and required factor, but its impact may vary depending on the extent of its allocation to accreditation and the disparity of resources between universities. Additionally, the cost of implementation is not limited to direct funding but also includes subscriptions/licenses and specialized technical support, which are considered part of the material requirements for activation. This is supported by participants' statements focusing on the lack of allocated funding and the disparity in university capabilities.

- **(A2)** points to an important funding dimension: *"Because universities did not allocate for intelligence in accreditation despite their high allocations."*
- **(W1)** explains that *"emerging universities have a problem with funding."*
- **(N2)** describes the reality of direct support: *"No, there is no support, especially from different specializations."*
- **(A3)** reinforces this perception by pointing to the nature of available funding: *"Because there is no, meaning, funding for any program that wants to advance in these applications; all are personal efforts, meaning."*

The statements also highlight that the material obstacle extends to the cost of human/technical resources as operational support needing funding.

- **(B2)** confirms: *"We need these systems also need human, technical, and programmer support, and... and... Meaning not just a normal need, highly qualified people. Because I remember not anyone uses AI for quality, no, I want a quality employee who knows what is needed."*
- **(B3)** summarizes this perception: *"Basically, there is no funding."*
- In the same context, **(A4)** clarifies the operational cost aspect of effective tools: *"Most effective AI tools require high subscriptions or institutional licenses that are not available."*

Conclusion for Low Ranking: Accordingly, Item (6) indicates that the material challenge is fundamentally related to the lack of funding directed towards accreditation, the disparity in funding capabilities between universities, in addition to the cost of subscriptions/licenses and

the cost of specialized technical support necessary to operate AI tools within accreditation procedures sustainably.

4. Results regarding the obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities, specifically for the "Human Obstacles" dimension and its items:

These results can be illustrated through the following table:

Table (4): Obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities at the level of the "Human Obstacles" dimension and its individual items.

Table (4): Obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities at the level of the "Human Obstacles" dimension and its individual items.

No.	Item	Mean	SD	Level	Rank
10	Limited human competencies specialized in AI within academic programs.	3.72	1.01	High	4
11	Low confidence among academic program members regarding verifying the accuracy and credibility of AI application outputs.	3.67	1.05	High	5
12	Apprehension among development and quality committee members regarding AI applications violating program data privacy and security.	3.59	0.29	High	6
13	Resistance to change among some academic program staff regarding the implementation of AI in accreditation procedures.	3.72	0.95	High	3

No.	Item	Mean	SD	Level	Rank
14	Lack of culture among academic program members regarding the use of AI applications in accreditation processes.	3.88	0.97	High	1
15	Lack of awareness among academic program members regarding the ethical controls for using AI applications.	3.78	0.83	High	2
Total	Total Score for obstacles to employing AI in accreditation from the perspective of committee members (Human Obstacles Dimension).	**3.73**	**4.39**	**High**	

Analysis of Table (4) Results:

From the previous Table (4), the following is evident:

- Dimension Level: The obstacles to employing AI applications in accreditation procedures and processes from the perspective of development and quality committee members at Saudi universities regarding the Human Obstacles dimension exist to a High degree. The weighted mean for the dimension reached (3.73), with a standard deviation of (4.39). The arithmetic means for the items ranged between (3.59) and (3.88). Compared to the statistical criteria adopted by the study, it is evident that the obstacles in this dimension are realized to a High degree, as the arithmetic mean for the dimension fell within the "High" response range, which extends from (3.40) to less than (4.20).
- Highest Ranking Item: The item with the highest degree of verification regarding the obstacles... from the perspective of committee members at the level of the Human Obstacles dimension is Item No. (14), which came in the first rank and states: "Lack of culture among academic program members regarding the use of AI applications in accreditation processes." It had an arithmetic mean of (3.88) and a standard deviation of (0.97). Compared to the statistical criteria adopted by the study, it is evident that the obstacles... for this item are realized to a High degree. The arithmetic mean of the item fell within the "High" response range, which extends from (3.40) to less than (4.20).

Interpretation (Mixed-Methods): This can be interpreted by the fact that the human obstacle is not represented merely by weak technical knowledge, but rather by the "culture of use," which includes a proper understanding of AI functions and limitations, and how to employ it within

the context of quality and accreditation systematically and securely. Participants' statements confirm that the cognitive and cultural gap represents the core of this obstacle.

- (W2) confirms that *"respondents view the cognitive and skill gap in understanding and employing AI in accreditation as the largest human obstacle; for even with the availability of systems or policies, the weak culture of faculty members and quality teams remains a direct barrier to actual usage."*
- (B3) explains this from the angle of general awareness: *"Lack of sufficient awareness; you see some people consider (ChatGPT) to be AI,"* indicating the comprehensiveness, development, and multitude of uses of AI.
- (B2) adds a temporal and experiential dimension to this deficiency: *"Novelty of the matter, lack of experience."*
- (B1) expresses this decisively: *"100% there is a lack in members' culture."*
- (N2) reinforces this diagnosis from a realistic perspective: *"Actually, in reality, a lack of knowledge, lack of culture... I don't say complete lack at times, but I say significantly weak."*
- (C1) clarifies the direct impact of the digital culture level on accreditation outcomes: *"The more the culture increases, the more it leads to the success of accreditation programs, and the less their culture, awareness, and knowledge of AI application skills, the more it leads to the collapse or weakness in program accreditation in the program itself."*

From this standpoint and based on this reality:

- (N1) points to the urgent need *"to focus on raising the cognitive and digital cultural level for its use."*
- (W1) offers a social-age interpretation of this reality: *"Because, you see, they have reached a certain stage of age where you find their children are the ones teaching them some technical programs,"* reflecting that the cognitive gap is not only technical but also related to generational characteristics and prior experience with technology.
- (A1) summarizes the overall picture: *"Yes, we lack this strongly. We lack programs, we lack clear goals, clear vision regarding the impact of AI applications and future plans for them in the academic process. We lack from even the basics of goals to reaching implementation."*

Conclusion for High Ranking: Accordingly, the ranking of Item (14) can be interpreted as a reflection of "Professional Digital Culture" being a foundational condition for activating AI in accreditation. Weak awareness and understanding of the nature, limitations, and uses of these applications, alongside limited experience and varying readiness for technology, limit their conscious employment within quality and accreditation procedures and make practice inconsistent, which may reflect on the quality of outputs and the credibility of accreditation work.

- Lowest Ranking Item: The item with the lowest degree of verification regarding obstacles... within the Human Obstacles dimension is Item No. (12), which states: "Apprehension among development and quality committee members regarding AI applications violating program data privacy and security." It had an arithmetic mean of (3.59) and a standard deviation of (0.29). Compared to the statistical criteria adopted by the study, it is evident that the obstacles... for this item appeared to a High degree, as the arithmetic mean for the item fell within the "High" response range, which extends from (3.40) to less than (4.20).

Interpretation (Mixed-Methods): This result can be read as reflecting the presence of "Security Obsession" among practitioners as an influential factor in the speed of adopting AI

within the accreditation ecosystem. This is illustrated by participants' statements when explaining the relationship between governance and cybersecurity on one hand, and the level of acceptance or caution in usage on the other. Participants' statements show that governance and cybersecurity issues form a decisive framework in accepting or restricting the use of AI applications in academic programs.

- (C2) emphasizes the *"necessity of governance, monitoring programs, and protecting them from electronic breaches,"* highlighting the importance of the regulatory and security framework accompanying the employment of modern technologies.
- (W1) explains that the presence of a clear regulatory framework contributes to reassuring practitioners: *"Once I have clear legislation, regulations, and organization for its use, I use it with all comfort, confidence, and a sense of security. I don't feel like I am doing something based on my own effort without knowing if it is allowed for me or not,"* linking governance to professional security.

From the angle of the psychological dimension in adopting new technologies:

- (C1) indicates that *"fear of everything new leads to failure or a decrease in the quality of performance itself."*
- This aligns with (A3)'s proposition that *"The origin is apprehension. Because it is insecure and has breaches, viruses, and these problems. And supposedly, of course, with protection programs, it should be protected. If breached, it's a problem,"* reflecting the presence of cybersecurity concerns in practitioners' consciousness.
- (B1) adds the angle of technical authorities' responsibility: *"The apprehension comes from IT... they say fear because they have the data and are responsible for protecting it, and they fear if there is a violation of privacy."*
- (N1) comments interpreting the practical impact of these fears: *"Perhaps caution in adopting technologies reflects a lack of optimal utilization in the program."*
- Conversely, (A1) draws attention to a prevailing precautionary behavior pattern among academics: *"That academics, all or most, and if not, God willing, let's say all, I don't think they share any sensitive information or information that violates privacy with any AI applications,"* indicating that part of security management is done through the users' own reservation.

AI Application Security in Accreditation and Receding Privacy Concerns

Participants' statements also indicate that the technical security factor is present but may not always be the most prominent human obstacle.

- (B2) explains that *"The systems employed by universities are always at a high level of security."*
- (B3) supports this perception through a practical example, confirming that *"First, AI applications are under good control here in Saudi Arabia by 'SDAIA'. We have a significant aspect regarding the integrity of the presentation and the idea. So, data is always secure. For example, when we came to submit accreditation data to the Education and Training Evaluation Commission (ETEC), we created our own 'Live Box'. Part of the Live Box was operating with AI applications, and no breaches occurred on it. It might be one of the obstacles, but it is not among the priorities."*
- This aligns with the interpretation of (W2), who points out that *"Respondents do not view fear for privacy and data security as the most prominent human obstacle currently, perhaps because systems are often used within a protected institutional environment, or because awareness of privacy risks in the context of accreditation is still limited."*

Conclusion for Item (12): Accordingly, the high score of Item (12) can be interpreted as reflecting that apprehension regarding privacy and data security remains present and affects the inclination to adopt AI within accreditation processes, especially when possibilities of breaching arise or when assurances regarding the safety of data sharing are absent.

Conversely, the statements show indicators of relative confidence in protected institutional systems and their controls, which may explain why this apprehension—despite its importance—is not always the most prominent human obstacle compared to other human factors. Therefore, addressing this obstacle requires enhancing governance and cybersecurity through clear policies for data sharing controls, defining responsibilities, and supporting quality teams with data protection guidelines. This would transform apprehension into organized precautionary practice that supports the safe and effective use of AI in accreditation.

9. Conclusion and Recommendations

The research concluded with several findings, most notably:

- The obstacles to employing Artificial Intelligence applications in accreditation procedures and processes, from the perspective of development and quality committee members at Saudi universities, exist to a high degree at the level of the overall questionnaire and each of its dimensions. Similarly, all individual questionnaire items were rated at a "High" degree.
- These results were interpreted in light of previous studies and the nature of the study sample, while the extreme results yielded by the quantitative phase were interpreted through interviews conducted with participants during the qualitative phase.

In light of these results, the researchers recommend the following:

1. Providing appropriate AI applications and tools for use in accreditation procedures and processes at Saudi universities. Additionally, raising awareness among faculty members regarding the advantages and disadvantages of their use in academic accreditation procedures, along with the controls, ethics, and regulations governing the employment of these tools and applications.
2. Equipping, managing, and maintaining the necessary infrastructure, including data storage capabilities. Furthermore, providing specialists in data and Generative AI fields to train faculty members on how to utilize AI tools in accreditation procedures, while offering them the necessary material and moral academic support.
3. Forming a committee of stakeholders from various disciplines to formulate a policy for the use of Generative AI in the field of accreditation, including its ethical guidelines.
4. Establishing a specialized unit for AI research and application innovation, fostering distinguished individuals and innovators in this field, and providing them with sufficient material and moral support. This unit should focus on researching problems arising from the employment of AI applications in accreditation at Saudi universities.

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