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| RESEARCH ARTICLE

Opportunities and Challenges of Integrating Artificial Intelligence into Management Information Systems: Perspectives of King Khalid University Students

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| ABSTRACT
The rapid integration of artificial intelligence (AI) into management information systems (MIS) is reshaping decision-making, learning processes, and organizational efficiency across higher education and business environments. Recent studies highlight that AI-enabled MIS enhances decision quality, analytical capability, and strategic responsiveness while supporting personalized and adaptive learning experiences for students. The literature also shows that AI-driven tools strengthen student engagement, improve information management processes, and enable more agile managerial practices. Despite these benefits, challenges persist, including digital literacy gaps, ethical concerns, varying levels of AI readiness, and barriers to student adoption. Research further indicates rising expectations among students regarding AI's role in their professional and educational development. As institutions increasingly incorporate AI into curricula, teaching strategies must adapt to balance human judgment with automated intelligence. Overall, the reviewed studies demonstrate that AI's expanding presence in MIS offers significant potential for improved efficiency and learning outcomes, though careful implementation and skill development remain essential for success

| KEYWORDS

Artificial Intelligence; Management Information Systems; Student Perceptions;AI Challenges; AI Opportunities; King Khalid University

| ARTICLE INFORMATION

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1.Introduction

In recent years, artificial intelligence (AI) has advanced rapidly and become deeply integrated into Management Information Systems (MIS), transforming it from an optional enhancement into a strategic necessity. By embedding AI into MIS, organizations are able to improve decisional quality, increase the precision of data analysis, and streamline administrative processes (Kumar & Kumar, 2020). These intelligent MIS systems provide modern enterprises with the agility to make fast, data-driven decisions, thereby supporting adaptation to volatile business environments and sustaining competitive advantage (Susilo & Susanto, 2024).

From a student perspective, understanding this integration is critically important for building both academic competence and practical skills. Through engagement with AI-enabled MIS, students can experiment with large datasets, build predictive models, and design data-driven management reports. These experiences equip them for a digital labor market in which proficiency in advanced technological tools and the ability to collaborate with intelligent systems are increasingly demanded.

However, students also face significant challenges. The technical complexity of AI systems requires foundational knowledge in computing and data science. Meanwhile, hands-on educational resources can be limited, making it difficult for students to explore AI in a safe, guided way. There is also a concern that heavy reliance on AI could erode opportunities for human

judgment and managerial intuition in decision-making processes—a tension some researchers have noted as the human–AI balance evolves (Jahangirnagar University, 2024).

Therefore, it is vital to study student perspectives: to assess how aware they are of the opportunities offered by AI–MIS integration, to identify perceived barriers, and to gauge their readiness to engage meaningfully with intelligent systems in both academic and professional settings.

The aims of this research are twofold. First, to explore how students perceive the educational and career benefits of integrating AI into MIS. Second, to examine which features of this integration foster critical thinking, analytical reasoning, and data-driven problem-solving. Ultimately, these insights may inform the design of curricula and educational strategies that better align with the demands of the digital era.

At a methodological level, this research underscores that integrating AI into MIS is not merely a technological upgrade; it represents a pedagogical and administrative paradigm shift. A modern educational environment must be adaptive—structurally, culturally, and technically—to successfully navigate and sustain this shift (Kumar & Kumar, 2020; Susilo & Susanto, 2024).

In summary, while the integration of AI into MIS offers vast potential to develop students' academic and practical capabilities, the accompanying technical, educational, and ethical challenges demand thoughtful attention. By capturing students' perspectives, this research aims to formulate actionable recommendations for curriculum development and institutional practices—supporting a future-ready education that leverages AI responsibly, without undermining human expertise.

1.1. Problem of the Study

The rapid advancement of artificial intelligence (AI) and its integration into Management Information Systems (MIS) have transformed the way organizations collect, analyze, and utilize data for decision-making. While these technological advancements offer significant opportunities for improving organizational efficiency and fostering data-driven decision-making, they also present unique challenges for students who are expected to develop the skills necessary to interact with intelligent systems effectively.

Despite the growing importance of AI in MIS, many students face technical and educational barriers that hinder their ability to fully leverage these tools. Technical challenges often include a lack of prior knowledge in computing, data analysis, and machine learning. Additionally, practical educational resources and hands-on experiences with AI-enabled MIS are often limited, preventing students from acquiring the skills needed to translate theoretical knowledge into real-world applications. Beyond technical difficulties, there are concerns about overreliance on AI potentially diminishing the value of human judgment in administrative decision-making, creating uncertainty about the role of human expertise in AI-supported environments.

These challenges highlight a critical gap in understanding students' awareness, preparedness, and attitudes toward integrating AI into MIS. While organizations are increasingly adopting AI-driven systems, the readiness of future professionals to work effectively with these technologies remains uncertain. Without a clear understanding of these gaps, educators may struggle to design curricula and learning experiences that equip students with the competencies required in the modern digital labor market.

Therefore, this study seeks to explore students' perspectives on the integration of AI into MIS, focusing on their awareness of opportunities, perceived challenges, and preparedness to engage with intelligent systems. Addressing this problem is essential for developing educational strategies that enhance students' technical and analytical competencies, foster critical thinking and problem-solving skills, and ultimately bridge the gap between academic learning and practical application in a rapidly evolving technological landscape.

1.2 Objectives of the Study

1. To examine students' awareness and understanding of the educational and practical opportunities provided by the integration of AI into Management Information Systems (MIS).

2. To identify the challenges and barriers students face when interacting with AI-enabled MIS, including technical, educational, and perceptual factors, in order to assess their readiness for practical application.

1.3 Questions of the Study

1. What is the level of students' awareness and understanding of the educational and practical opportunities offered by the integration of AI into Management Information Systems (MIS)?

2. What challenges and barriers do students face when engaging with AI-enabled MIS, and how do these factors affect their readiness to apply these systems in academic and practical contexts?

1.4 Significance of the Study

This study is significant as it provides valuable insights into students' awareness, preparedness, and perceptions regarding the integration of AI into Management Information Systems (MIS). It helps educators identify gaps in technical knowledge, practical skills, and critical thinking, enabling the design of more effective, hands-on learning experiences. By exploring challenges students face with AI-enabled MIS, the research informs strategies to enhance their readiness and employability in a technology-driven labor market. The findings can guide curriculum development, ensuring programs remain relevant to industry demands and promote responsible use of AI. Additionally, the study addresses concerns about overreliance on AI by emphasizing the balance between human judgment and intelligent systems. It contributes to the academic literature by highlighting student-centered perspectives, which are often under-researched. Ultimately, the research supports the development of future-ready education, equipping students with the knowledge, skills, and confidence to interact effectively with AI-enabled management systems.

2. Related Literature

2.1 AI Integration in Management Information Systems (MIS)

Artificial intelligence (AI) has increasingly become a fundamental component of modern Management Information Systems (MIS), transforming them from conventional data processing tools into sophisticated, intelligent decision-support platforms. Research indicates that AI integration enhances MIS performance by improving data accuracy, streamlining administrative tasks, and supporting more timely and precise decision-making (Kumar & Kumar, 2020). This technological shift allows organizations to harness real-time insights and automate complex analytical processes that previously required significant human effort. Complementing this view, Susilo and Susanto (2024) emphasize that AI-driven MIS strengthens organizational agility by enabling rapid adaptation to changing business conditions. Through predictive analytics and automated reporting, AI-equipped MIS systems help organizations anticipate trends, mitigate risks, and optimize strategic responses. Overall, the literature underscores AI's pivotal role in elevating MIS from passive information repositories to dynamic systems that actively enhance managerial effectiveness and organizational competitiveness.

2.2 Educational Importance of AI-Enabled MIS

Recent literature underscores the growing importance of equipping students with competencies in AI-enabled Management Information Systems (MIS), as these skills are increasingly essential in the digital workforce. Rahman and Abdullah (2023) emphasize that exposure to AI-integrated MIS enhances students' analytical reasoning, enabling them to interpret complex datasets and develop stronger problem-solving abilities. Such systems allow learners to engage with real-time data and predictive models, supporting deeper understanding of technology-supported decision processes. Likewise, Patel and Mendoza (2023) highlight that the incorporation of AI into academic programs significantly improves students' preparedness for technology-driven managerial roles. By fostering data-driven decision-making, increasing familiarity with intelligent tools, and promoting adaptability to emerging digital trends, AI-enabled MIS education strengthens students' readiness for professional environments. Overall, the literature confirms that developing AI-related competencies is critical for producing graduates capable of thriving in modern, technology-intensive organizational settings.

2.3 Challenges Faced by Students in AI–MIS Adoption

Despite the significant advantages of AI-enabled Management Information Systems (MIS), several studies identify challenges that hinder students' effective adoption of these technologies. Jahangirnagar University (2024) cautions that excessive reliance on AI decision tools may diminish students' ability to exercise independent judgment and critical thinking. In addition to these cognitive concerns, students often struggle with limited foundational knowledge in computing, programming, and machine learning, making AI-driven systems appear complex and overwhelming (Lopez & Chen, 2022). These technical gaps reduce students' confidence and impede their ability to navigate intelligent MIS platforms effectively. Furthermore, inadequate access to hands-on training, practical AI tools, and interactive learning environments prevents learners from applying theoretical knowledge to real-world management scenarios. Collectively, these barriers highlight the need for enhanced instructional support and resource development to better prepare students for working with AI-integrated MIS in academic and professional settings.

2.4 Institutional Role in Supporting AI–MIS Education

Higher education institutions play a pivotal role in bridging the gap between rapid technological advancements and students' preparedness to effectively use AI-enabled Management Information Systems (MIS). Patel and Mendoza (2023) emphasize that the development of well-structured curricula, robust digital infrastructure, and ongoing faculty training is essential for creating learning environments that are both effective and responsive to emerging technologies. Such institutional support ensures that students acquire not only theoretical knowledge but also practical skills necessary to interact with AI-driven systems. In addition, Kwon and Ibrahim (2023) argue that adaptive teaching strategies are critical, incorporating AI literacy, ethical considerations, and hands-on skill development to prepare students for the dynamic demands of modern workplaces. By fostering an environment that balances technological innovation with responsible use, institutions enable students to build confidence in their decision-making and problem-solving abilities. Moreover, these strategies help students develop critical thinking and analytical competencies while ensuring they remain aware of ethical and social implications associated with AI deployment. Overall, strong institutional commitment is vital to equipping students with the knowledge, skills, and ethical awareness required to navigate AI-integrated MIS confidently and effectively, ultimately supporting their readiness for professional and academic success.

2.5 Previous Studies

Research on integrating Artificial Intelligence (AI) into higher education, particularly within Management Information Systems (MIS), has grown significantly, highlighting both opportunities and challenges for students. Studies such as Dwivedi et al. (2021) and Chen et al. (2022) emphasize AI's potential to enhance learning through personalized pathways, intelligent tutoring systems, and real-time feedback. In MIS education, AI has been shown to improve students' analytical abilities, decision-making skills, and understanding of data-driven processes. Kumar and Rani (2020) further note that AI-based simulations support comprehension of information management and system optimization. Likewise, Al-Fraihat (2022) found that AI increases engagement by enabling interactive and intuitive learning experiences. Despite these advantages, challenges persist. Nguyen et al. (2021) highlight limited digital literacy and insufficient training as major barriers to effective AI use. Ethical concerns—including data privacy, academic integrity, and algorithmic bias—are also widely reported, with Heaven and Li (2023) stressing the need for clear guidelines to prevent misuse. Students themselves express both enthusiasm and apprehension, recognizing AI's learning benefits while fearing skill displacement and overdependence. Collectively, previous studies underscore AI's transformative role in MIS education but also reveal the need for institutional support and responsible integration to maximize its value.

The reviewed literature provides a balanced understanding of how Artificial Intelligence (AI) is influencing learning within Management Information Systems (MIS) education. A major strength of previous studies is their consistent evidence that AI enhances learning effectiveness, engagement, and skill development. Researchers highlight specific benefits such as personalized learning, improved analytics skills, and enhanced problem-solving, which collectively demonstrate AI's potential to transform MIS pedagogy. These studies also draw from diverse educational contexts, increasing the generalizability of their findings.

However, the literature also reveals several gaps. Much of the existing research focuses heavily on technological advantages, while fewer studies deeply explore students' emotional, psychological, or long-term professional concerns regarding AI integration. Additionally, although ethical issues such as data privacy and academic integrity are mentioned, few studies offer clear frameworks or solutions for addressing these risks. Another limitation is that many studies examine AI tools in isolation

rather than assessing how AI interacts with broader institutional factors such as curriculum design, instructor readiness, and resource availability.

Overall, the previous studies demonstrate that AI holds substantial promise for MIS education but also highlight critical challenges related to ethics, digital literacy, and institutional preparedness. These gaps justify the need for further research—particularly studies that center on students' perspectives—to better understand how opportunities and challenges coexist in real learning environments.

3. Research Methodology

3.1 Research Design

This study employs a descriptive research design to explore the opportunities and challenges of integrating Artificial Intelligence (AI) into Management Information Systems (MIS) from the perspectives of King Khalid University students. Its objectives are to assess the potential benefits of AI in instructional contexts, identify challenges and ethical concerns, and propose guidelines for its responsible and equitable use. Data are collected through surveys and in-depth interviews, with analysis combining descriptive statistics and thematic examination. The study specifically examines students' awareness of the educational and practical opportunities offered by AI-enabled MIS and identifies the technical, educational, and perceptual challenges they face, in order to evaluate their readiness for practical application.

3.2 Research Population and Sample

The research population includes all individuals to whom the study findings can be generalized. For this study, the population consists of King Khalid University students enrolled at the university in Abha during the academic year 1445 AH. A cluster random sampling technique was employed to select 200 students from this population to participate in the research.

3.3 Research Instrumentation

Based on previous studies, conceptual frameworks, and related literature, the researcher developed a 24-item questionnaire to assess King Khalid University students' perceptions of the opportunities and challenges of integrating Artificial Intelligence (AI) into Management Information Systems (MIS)**.** The instrument addressed two dimensions**:** students' awareness and understanding of the educational and practical opportunities provided by AI-enabled MIS **(**10 items), and the challenges and barriers students face when interacting with such systems—including technical, educational, and perceptual factors—to evaluate their readiness for practical application **(**10 items). Participants responded using a five-point Likert scale (from Strongly Disagree to Strongly Agree), enabling both quantitative assessment and in-depth insight into students' perceptions of AI integration in instructional and pedagogical contexts.

3.3.1 Instrument Validity and Face Validity

The instrument's validity was evaluated using a systematic, multi-method approach. Content validity was established through review by subject matter experts, ensuring alignment with the theoretical framework and comprehensive coverage of the constructs. Construct validity was supported by factorial analysis, which demonstrated strong item correlations within each domain. Criterion-related validity was assessed through correlations with established measures. Face validity was evaluated by experts and target respondents, focusing on clarity, applicability, and linguistic accuracy. Feedback from these reviews, along with a pilot study conducted on a stratified sample, informed revisions that enhanced the instrument's clarity and usability. Final modifications were made based on consensus, ensuring precise measurement of the intended constructs.

3.3.4 Internal Consistency Validity

To evaluate the internal consistency of the instrument, a pilot study was conducted with 35 students from King Khalid University, who were not included in the main study sample. Pearson's correlation coefficients were calculated to examine the relationship between each questionnaire item and the total score, thereby assessing the degree to which individual items aligned with the overall construct measured by the instrument.

Table 1**:** Correlation Coefficients of Items on Students' Perceptions of AI-Enabled MIS

Domain	Item No	Correlation Coefficient (r)	Significance
Domain 1: Opportunities: Awareness and understanding of educational and practical benefits of AI-enabled MIS	1	.358	p < .05
	2	.453	p < .01
	3	.406	p < .05
	4	.508	**p < .01**
	5	.603	p < .01
	6	.458	p < .01
	7	.565	p < .01
	8	.573	p < .01
	9	.628	**p < .01**
	10	.374	*p < .05*
	11	.406	p < .05
	12	.610	p < .01
Domain 2: Challenges: Technical, educational, and perceptual barriers to AI-enabled MIS	1	.565	p < .01
	2	.595	p < .05
	3	.355	p < .05
	4	.647	p < .01
	5	.411	p < .05
	6	.383	p < .05
	7	.517	p < .01
	8	.595	p < .01
	9	.578	p < .01
	10	.530	p < .01
	11	.553	p < .01
	12	.326	p < .05

The correlation table highlights the relationships between items under two domains—Opportunities and Challenges—related to AI-enabled MIS. In Domain 1, all items show significant positive correlations, ranging from moderate (.358) to strong (.628), indicating that greater awareness and understanding of AI benefits positively influence adoption or perception. Domain 2 also demonstrates significant correlations, with coefficients from moderate (.326) to strong (.647), suggesting that technical, educational, and perceptual barriers meaningfully affect outcomes. Stronger correlations in certain items of both domains emphasize that some opportunities and challenges have a greater impact than others. Overall, the findings indicate that both enhancing awareness and addressing barriers are crucial for successful AI-enabled MIS implementation. The data underscore the need for a balanced strategy that promotes knowledge while mitigating obstacles to maximize effectiveness and acceptance.

3.3.5 Reliability of the Instrument

The reliability of the study instrument was evaluated using two methods, namely, split-half reliability and Cronbach's Alpha coefficient (α). Table 2 summarizes the Cronbach's Alpha values for each domain of the questionnaire. Additionally, the reliability of the study instrument was evaluated using two methods, namely, split-half reliability and Cronbach's Alpha coefficient (α). Table 2 summarizes the Cronbach's Alpha values for each domain of the questionnaire as well as for the aggregate total score.

Table 2: Cronbach's Alpha Reliability Coefficients for the Study Instrument

Domain	Split-Half Reliability	Cronbach's Alpha (α)
Domain 1: Opportunities: Awareness and understanding of educational and practical benefits of AI-enabled MIS	0.862	0.876
Domain 2: Challenges: Technical, educational, and perceptual barriers to AI-enabled MIS	0.825	0.881
Overall Reliability	0.915	0.879,

The reliability table indicates that the instrument used to assess AI-enabled MIS exhibits high internal consistency across both domains and the overall scale. Domain 1 (Opportunities: Awareness and understanding of educational and practical benefits) shows a split-half reliability of 0.862 and a Cronbach's alpha of 0.876, reflecting strong consistency among items measuring awareness and perceived benefits. Domain 2 (Challenges: Technical, educational, and perceptual barriers) demonstrates a split-half reliability of 0.825 and Cronbach's alpha of 0.881, confirming that items effectively capture various barriers. The overall reliability of the combined 24-item scale is excellent, with a split-half reliability of 0.915 and Cronbach's alpha of 0.879. These findings indicate that the instrument is highly dependable, with all items consistently measuring the intended constructs, thereby supporting the validity of subsequent analyses of correlations and other statistical relationships in the study.

3.3.6 Final Version of the Study Instrument

The final questionnaire comprised 24 items across two main domains: Opportunities (12 items), assessing awareness and understanding of the educational and practical benefits of AI-enabled MIS, and Challenges (12 items), evaluating technical, educational, and perceptual barriers. Responses were recorded using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). For interpretation, the scale was divided into equal intervals of 0.80, resulting in the following categories: 1.00–1.79 (Very Low), 1.80–2.59 (Low), 2.60–3.39 (Moderate), 3.40–4.19 (High), and 4.20–5.00 (Very High). These categories were employed to analyze and interpret students' perceptions of Opportunities and Challenges in integrating AI into Management Information Systems at King Khalid University, providing a clear framework for understanding their responses.

Table 3: Interpretation Criteria for Students' Perceptions of Opportunities and Challenges in AI-enabled MIS

No	Category	Range	
		from	to
1	Strongly Agree (Very High Perception)	4.20	5.00
2	Agree (High Perception)	3.40	4.19
3	Neutral (Moderate Perception)	2.60	3.39
4	Disagree (Low Perception)	1.80	2.59
5	Strongly Disagree (Very Low Perception)+	1.00	1.79

The table categorizes King Khalid University students' responses on a five-point Likert scale, providing a framework for analyzing their perceptions of the opportunities and challenges associated with integrating AI into Management Information Systems (MIS). Table 3 interprets these responses from "Strongly Agree" (very high perception) to "Strongly Disagree" (very low perception), allowing quantitative survey data to be translated into meaningful qualitative insights. This highlights areas of strong agreement, neutrality, or disagreement regarding the adoption and impact of AI in MIS.

4. Research Results

To address the first research question, *"What is the level of students' awareness and understanding of the educational and practical opportunities offered by the integration of AI into Management Information Systems (MIS)?"*, a quantitative analysis was conducted on the domain **"**Opportunities: Awareness and Understanding of Educational and Practical Benefits of AI-enabled MIS**."** The study calculated weighted means, standard deviations, and rankings for each survey item to assess the relative importance and consistency of perceived opportunities. The weighted mean indicates the overall level of agreement, the standard deviation reflects variability in responses, and the ranking highlights the most significant perceived benefits. Table 4 summarizes these findings, providing the basis for interpreting students' perspectives on AI integration in MIS.

Table 4. Students' Perceptions of Opportunities: Awareness and Understanding of Educational and Practical Benefits of AI-enabled MIS

No	Statements	Mean	Level of Perception	Standard Deviation	Rank
1	AI helps simplify and make the learning process more flexible.	4.43	Very High	0.832	1
2	AI facilitates quick access to information from diverse sources.	4.39	Very High	0.803	2
3	AI simplifies the analysis of large and complex .datasets	4.36	Very High	0.938	3
4	AI helps organize and gather information	4.32	Very High	0.963	4
5	AI enables learners to access innovative and .new technologies	4.32	Very High	0.973	5
6	AI saves time and effort during the learning .process	4.30	Very High	0.990	6
7	AI contributes to creativity and innovation in .education	4.25	Very High	0.968	7
8	AI increases the accuracy of research outcomes	4.19	High	0.992	8
9	AI supports continuous interaction during the learning process	4.18	High	1.009	9
10	AI provides educational solutions tailored to diverse learner needs.	4.16	High	1.117	10
11	AI supports collaboration among researchers through AI tools.	4.15	High	1.009	11
12	AI promotes the development of research skills .among learners	4.06	High	1.153	12
Overall, Domain Score		4.26	Very High	0.598	

The table presents respondents' perceptions of AI in education across 12 statements, showing both the mean scores and levels of perception. The overall domain score of 4.26, classified as "Very High," indicates a generally positive view of AI's role in learning. The highest-ranked statement, "AI helps simplify and make the learning process more flexible" (mean = 4.43), highlights respondents' strong agreement that AI enhances learning flexibility. Close behind, "AI facilitates quick access to information from diverse sources" (4.39) and "AI simplifies the analysis of large and complex datasets" (4.36) reflect the perceived efficiency and convenience AI provides. Statements on organizing information, accessing innovative technologies, and saving time also scored very high (4.32–4.30), emphasizing AI's practical benefits. Slightly lower-ranked items, including improving research accuracy, supporting continuous interaction, and tailoring solutions to diverse learners (4.06–4.19), were rated as "High," suggesting these are recognized but less pronounced advantages. Standard deviations ranged from 0.803 to 1.153, indicating moderate variability, particularly in perceptions of research skills development and personalized learning. Overall, the findings suggest that respondents value AI primarily for its ability to simplify tasks, enhance flexibility, and provide rapid access to information, while its role in skill development and personalized learning may require further emphasis. This demonstrates that AI is a highly regarded tool in educational contexts, with potential for broader application in supporting research and individualized learning.

4.2 Results Addressing the Second Research Question

To address the second research question, *"What challenges and barriers do students face when engaging with AI-enabled MIS, and how do these factors affect their readiness to apply these systems in academic and practical contexts?"*, the researcher conducted a quantitative analysis of graduate students' responses, focusing on technical, educational, and perceptual barriers**. Using** weighted means, standard deviations, and rankings**,** th**e** study identified the most prominent challenges students face when engaging with AI-enabled MIS, including concerns about the ethical implications of AI, reliability of AI tools, potential effects on academic honesty, and adequacy of institutional support. Table 5 summarizes the complete results with calculated statistics and rankings for each challenge. Overall, the analysis provides a systematic understanding of the obstacles KKU students encounter in integrating AI into academic and practical workflows, offering insight into factors that may influence their readiness and confidence in using these systems.

Table 5: Challenges and Barriers Faced by Students in Engaging with AI-Enabled MIS and Their Impact on Readiness

No	Statements	Mean	Level of Perception	Standard Deviation	Rank
1	Lack of necessary technical skills to use AI-enabled MIS	4.15	High	0.947	1
2	limited expertise or knowledge to effectively operate AI-enabled MIS	4.11	High	1.100	2
3	Absence of appropriate MIS infrastructure to support AI applications.	4.08	High	1.061	3
4	Limited knowledge of programming or analytical tools needed for AI-enabled MIS	4.03	High	1.049	4
5	Reduced critical and creative thinking when .relying on AI-enabled MIS	3.92	High	1.169	5
6	Concerns about the accuracy or reliability of AI-generated outputs in MIS.	3.89	High	1.145	6
7	Over-reliance on AI leading to decreased cognitive skills in problem-solving.	3.81	High	1.220	7
8	High costs of accessing AI-enabled MIS software, tools, or learning resources	3.73	High	1.262	8
9	Difficulty in handling and interpreting complex data from AI-enabled MIS	3.71	High	1.200	9
10	Fear that AI automation may replace student decision-making in MIS tasks	3.71	High	1.358	10
11	Concerns about hacking, data manipulation, or security in AI-enabled MIS	3.56	High	1.366	11
12	Potential biases in AI outputs affecting .students' analysis and decisions	3.42	High	1.249	12
Overall, Domain Score		3.84	High	0.832	

Table 5 highlights the challenges and barriers faced by students in engaging with AI-enabled Management Information Systems (MIS) and their impact on readiness. The data show that students perceive all listed challenges as significant, with overall domain score of 3.84, indicating a high level of concern. The most prominent barrier is the lack of necessary technical skills to use AI-enabled MIS (Mean = 4.15), closely followed by limited expertise to operate these systems effectively (Mean = 4.11). This underscores the need for adequate training and skill development. The absence of appropriate MIS infrastructure (Mean = 4.08) further exacerbates difficulties in engagement. Limited knowledge of programming and analytical tools (Mean = 4.03) also contributes to perceived unpreparedness. Students express concerns about reduced critical and creative thinking (Mean = 3.92) and over-reliance on AI affecting cognitive skills (Mean = 3.81). Accuracy and reliability issues (Mean = 3.89) highlight doubts about AI outputs in decision-making tasks. Fear that AI automation could replace student decision-making (Mean = 3.71) shows ethical and cognitive apprehensions. Challenges related to costs of software and resources (Mean = 3.73) indicate economic barriers. Concerns about data security and hacking (Mean = 3.56) reflect awareness of potential risks. Students also note the **risk** of biases in AI outputs (Mean = 3.42), affecting analysis and decisions. Overall, the table emphasizes that students face technical, cognitive, ethical, and financial barriers. Addressing these through training, infrastructure improvement, and reliable resources

can enhance readiness. Emphasizing AI literacy, critical thinking, and security awareness is essential. This analysis suggests that effective engagement with AI-enabled MIS requires a holistic approach addressing both skills and system-level challenges. Consequently, targeted interventions can foster confidence and competence among students in AI-driven environments.

5. Discussion

The findings of this study indicate that students hold a very high level of awareness and understanding of the educational and practical benefits of AI-enabled Management Information Systems (MIS), particularly in simplifying learning, enhancing flexibility, and facilitating rapid access to information and complex data analysis. These perceptions align with Dwivedi et al. (2021) and Chen et al. (2022), who highlight AI's capacity to improve learning through personalized pathways, intelligent tutoring systems, and real-time feedback. In the context of MIS education, students recognized AI's role in enhancing analytical abilities, decision-making skills, and comprehension of data-driven processes, echoing Kumar and Rani's (2020) findings that AI-based simulations support understanding of information management and system optimization. Al-Fraihat (2022) also observed that AI promotes engagement through interactive and intuitive learning experiences, consistent with students' reported benefits. However, slightly lower-rated opportunities, such as research skill development and collaborative support, suggest these applications are less emphasized in practice, and moderate variability in responses may reflect differing levels of exposure or experience with AI tools. Despite the perceived advantages, students reported significant challenges to effective engagement, with technical barriers—limited skills, insufficient expertise, and inadequate infrastructure—being most prominent, consistent with Nguyen et al. (2021). Cognitive and ethical concerns, including over-reliance on AI, reduced critical thinking, potential inaccuracies, and skill displacement, were also notable, reflecting Heaven and Li's (2023) emphasis on ethical guidelines to prevent misuse. Economic constraints, such as the cost of AI tools, further limit accessibility, highlighting the critical role of institutional support. Collectively, these findings reveal a dual reality: students value AI's transformative potential but face multiple obstacles that hinder full utilization. Addressing these challenges requires a holistic approach, including technical training, curricular integration to develop analytical and research skills, infrastructure and resource support, and ethical guidelines for responsible AI use. By combining skill development, system-level support, and awareness of ethical considerations, institutions can enhance students' readiness, confidence, and competence in leveraging AI effectively for academic and professional purposes. Overall, while AI-enabled MIS is widely recognized as a beneficial tool that improves efficiency, flexibility, and engagement, the study underscores the importance of structured interventions and institutional strategies to maximize its educational impact, aligning closely with prior research and highlighting pathways for future implementation in MIS curricula.

6. Conclusion

The study demonstrates that students possess a very high level of awareness and understanding regarding the educational and practical benefits of AI-enabled Management Information Systems (MIS). They particularly value AI for its ability to simplify learning, enhance flexibility, facilitate rapid information access, and support complex data analysis. Despite this positive perception, students encounter multiple challenges that hinder full engagement, including technical barriers (limited skills and expertise), infrastructure constraints, cognitive and ethical concerns (over-reliance on AI, reduced critical thinking, potential inaccuracies), and economic limitations. These findings highlight a dual reality: while AI is recognized as a transformative tool in MIS education, its optimal utilization requires a holistic approach that addresses both skill development and systemic support.

6.1Implications

6.1.1Educational Implications

Integrating AI into MIS curricula can significantly enhance learning efficiency and flexibility, allowing students to access, analyze, and manage complex datasets more effectively. However, the study reveals that areas such as research skill development, collaborative learning, and critical thinking are currently underemphasized. Educators should therefore design learning activities that intentionally foster these competencies alongside AI use.

6.1.2Institutional Implications

Universities must provide adequate infrastructure and reliable AI tools to support meaningful engagement with AI-enabled MIS. Additionally, offering technical training, workshops, and AI literacy programs is crucial to ensure that students develop the necessary skills and confidence to utilize these systems effectively.

6.1.3Policy and Ethical Implications

Responsible AI adoption requires clear policies on ethical use, data security, and bias mitigation. Institutions should establish guidelines and oversight mechanisms to prevent over-reliance on AI, which may negatively affect students' cognitive and problem-solving abilities. Addressing these ethical and policy concerns ensures a safe, effective, and equitable AI-enabled learning environment.

6.2 Recommendations

For Students

- Engage in continuous learning of AI tools and analytical skills to strengthen technical competence.
- Balance AI use with critical thinking and problem-solving practice to avoid over-reliance and maintain cognitive development.

For Educators

- Integrate AI-enabled MIS applications into coursework to provide hands-on, practical experience.
- Design activities that promote collaboration, creativity, and research skills in conjunction with AI tools.

For Institutions

- Invest in IT infrastructure and reliable AI tools to support AI integration in education.
- Provide training programs, workshops, and AI literacy initiatives to build competence and confidence.
- Develop ethical guidelines and security protocols to ensure responsible AI use.
- Reduce economic barriers by offering access to free or low-cost AI tools for students.

For Future Research

- Conduct longitudinal studies on the impact of AI-enabled MIS on learning outcomes and skill development.
- Explore strategies to mitigate cognitive, technical, and ethical barriers, particularly in diverse educational contexts.

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