The Moderating Role of System User Competence in the Influence of Accounting Information Systems on Managerial Decision-Making: A Case Study on North African Countries

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Abstract:

This study examines the moderating role of System User Competence (SUC) in the relationship between Accounting Information Systems (AIS) and Managerial Decision-Making (MDM) within organizations in North African countries. Using a mixed-method approach, including surveys and interviews, the research found that AIS significantly enhances MDM. Furthermore, SUC not only directly impacts MDM positively but also amplifies the effectiveness of AIS. The findings underscore the importance of integrating robust AIS with comprehensive user training programs to optimize decision-making processes. These insights are particularly valuable for organizations in developing regions aiming to leverage technological investments for better managerial outcomes.

1. Introduction:

Accounting Information Systems (AIS) are crucial tools that provide financial data to support managerial decision-making processes in modern organizations. However, the effectiveness of AIS in improving decision-making largely depends on the competence of the users operating these systems. System user competence, which includes technical skills, experience, and training, ensures that users can effectively utilize AIS capabilities, resulting in better data interpretation and application. In North African countries, where the adoption of AIS is growing, challenges such as limited technical infrastructure and varying levels of user competence pose significant barriers. This study investigates the moderating role of system user competence in the relationship between AIS and managerial decision-making in this region.

This research aims to answer how AIS influences managerial decision-making in North African countries, the current level of system user competence, and how this competence moderates the AIS-decision-making relationship. The findings will contribute to the academic literature by exploring these dynamics in a specific regional context and offer practical implications for organizations to enhance AIS effectiveness through targeted training. Additionally, the study will provide policymakers with insights to design frameworks that support the effective use of AIS, ultimately improving organizational performance.

2. Literature Review:

2.1. Accounting Information Systems:

The Accounting Information System (AIS) is a crucial system within organizations responsible for collecting, processing, and preparing transaction data to generate financial reports for both internal and external users (Agus et al., 2023). It encompasses forms, records, and reports coordinated to provide essential financial information for management decision-making (Rini et al., 2022). AIS plays a vital role in managing and transforming data into valuable information, aiding in understanding a company's financial position and development over time (Yuli & Hwihanus, 2022). The system's efficiency lies in its ability to produce quality financial reports, assist in the financial reporting process, and contribute to effective decision-making within the organization (M. et al., 2022). Characteristics such as relevance, timeliness, understandability, and faithful representation are crucial in ensuring the quality of reports produced by AIS, enabling users to make informed economic decisions and compare financial information across entities (Oday & Almaliki, 2023).

Agus., Maisya, Hanifah, Salsabila., Nur, Saida, Avika, Harahap. (2023). Penerapan Sistem Informasi

2.2. Managerial Decision-Making:

Managerial decision-making refers to the process of making choices and selecting courses of action among various alternatives to achieve organizational goals and ensure success (A. & Kubrak, 2023). It involves identifying problems, analyzing situations, forecasting trends, justifying choices, and selecting action programs within socio-economic systems (Tariq et al., 2022). Modern organizations rely heavily on managerial decisions made by top and middle managers to drive success, emphasizing teamwork, rationality, and effective resource management (Samad et al., 2022). Understanding the behavioral paradigm and the influence of rational and irrational motives on decision-making is crucial for managers to effectively lead organizations (Shmatkova & Karminska-Bielobrova, 2022). The principles and methodology of control science and engineering can be applied to managerial decision-making, providing useful insights for decision-makers (Сазанова, 2023). Ultimately, managerial decision-making is essential for business development, cost optimization, risk management, competitiveness, and overall success in dynamic and changing business environments.

2.3. System User Competence:

The System User Competence refers to the knowledge, skills, and abilities that users possess to effectively utilize a system, such as an Accounting Information System (AIS) or a new student admission information system. Research indicates that user competence significantly impacts the effectiveness and success of these systems (Weiling et al., 2021) (Ita &, 2020) (Danang et al., 2018). Users need technical, human, and conceptual skills, as well as knowledge and experience, to ensure the system's optimal performance and to enhance user satisfaction. Enhancing user competence through training and development is crucial for organizations to derive value from complex systems and to remain competitive in today's technology-driven environment (Athambawa et al., 2018). Additionally, the development of digital competencies is essential for users in public administration to navigate graphical interfaces, applications, and databases effectively (Banciu et al., 2019).

2.4. Review of relevant prior research and scholarly works:

2.4.1. The Relationship between Accounting Information Systems and Managerial Decision-Making:

Accounting Information Systems (AIS) play a crucial role in managerial decision-making by providing essential data for informed choices. AIS assists in collecting, storing, managing, processing, and reporting financial information, enabling managers to make critical decisions that enhance operational performance and long-term investment strategies (Granlund & Teittinen, 2017). The quality and timeliness of information

provided by AIS significantly influence decision-making processes, with studies showing a positive and significant relationship between AIS and decision-making outcomes (Sunarta & Astuti, n.d.). Additionally, AIS helps in planning and decision-making by preparing a wide range of information for different users, contributing to the overall performance of enterprises (Kwadwo et al., 2022). The reliability and accuracy of information obtained through AIS are essential for ensuring that managerial decisions are based on factual data rather than intuition or beliefs, aligning with the trend toward fact-based decision-making supported by modern ICT developments (Kevin et al., 2022) (Mohammed, 2022).

First hypothesis (H1): There is no statistically significant positive relationship between Accounting Information Systems and Managerial Decision-Making at a 5% significance level.

2.4.2. The relationship between System User Competence and Accounting Information Systems and Managerial Decision-Making:

System user competence plays a crucial role in the effectiveness of accounting information systems (AIS) and managerial decision-making. Competent users ensure that AIS functions optimally, providing accurate and timely financial data for decision-making (Granlund & Teittinen, 2017). Studies have shown that a sound AIS positively influences decision-making processes within organizations, emphasizing the need for simplicity, accuracy, and timeliness in the system (Sunarta & Astuti, n.d.). Furthermore, the quality of information provided by AIS significantly impacts the rationalization and enhancement of managerial decision-making, with reports based on accounting information proving to be essential for informed choices (Mohammed, 2022). Investing in information technology tools to enhance user competence can increase organizational productivity, effectiveness, and overall performance, highlighting the importance of continuous training and support for users to leverage AIS effectively in decision-making processes (Kevin et al., 2022).

Second Hypothesis (H2): There is no significant role for System User Competence in the relationship between Accounting Information Systems and Managerial Decision-Making at a 5% significance level.

2.5. Gaps in existing literature :

The existing literature underscores the pivotal role of Accounting Information Systems (AIS) in facilitating managerial decision-making by providing essential financial information; however, several significant gaps remain unaddressed. Primarily, most studies have concentrated on developed countries or regions with advanced technological infrastructure, leaving a paucity of research on the unique challenges and dynamics in North African countries, where technological adoption, infrastructure, and user competence differ significantly and impact the effectiveness of AIS. Additionally, while the importance of system user competence is acknowledged, there is a lack of comprehensive analysis on how different dimensions of competence (technical, human, and conceptual skills) specifically impact the utilization of AIS and interact with managerial decision-making processes. The moderating role of system user competence in the relationship between AIS and decision-making remains underexplored, despite its potential to amplify or mitigate the benefits of AIS based on variations in user competence. Furthermore, although training and developing user competence is recognized as crucial, there is limited practical guidance on designing effective training programs tailored to the needs of organizations in North African contexts. The literature often overlooks the rapidly changing business environments and technological advancements, necessitating studies that consider how evolving technological trends and dynamic business

conditions in North Africa influence the AIS-user competence-decision-making nexus. Finally, many existing studies predominantly use quantitative methods, lacking mixed-method approaches that combine quantitative data with qualitative insights to capture the nuanced ways system user competence affects AIS effectiveness in managerial contexts. Addressing these gaps will provide a more nuanced understanding of the role of system user competence in enhancing AIS effectiveness for managerial decision-making in North African countries, contributing to academic literature and offering practical recommendations for improving AIS implementations and training programs.
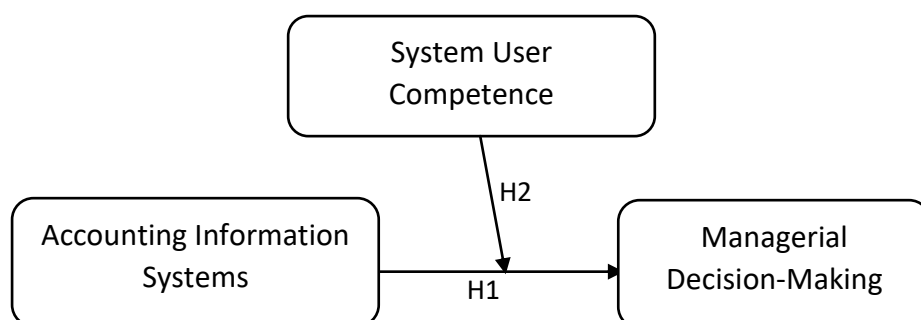
Figure 1. Theoretical framework.

3. Methodology:

3.1. Research Design and Approach:

This study uses a descriptive and explanatory research design with a case study approach focusing on North African countries. The research integrates quantitative and qualitative methods to examine the moderating role of system user competence in the influence of Accounting Information Systems (AIS) on managerial decision-making.

3.2. Data Collection Methods:

Survey Questionnaire: A structured questionnaire will be distributed to managers and AIS users in various organizations. It will measure AIS usage, managerial decision-making, system user competence (technical, human, and conceptual skills), and demographic information. A stratified random sampling technique will ensure a representative sample of 300 respondents.

Interviews: Semi-structured interviews with 20-30 survey respondents will provide deeper insights. The interview guide will include open-ended questions about AIS effectiveness, user competence, and decision-making impacts. Participants will be selected to represent varying levels of competence.

Organizational Reports and AIS Documentation: Reviewing financial reports, AIS user manuals, and training materials will supplement survey and interview data, providing context and additional evidence.

3.3. Rationale for the Chosen Methods:

The combination of quantitative and qualitative methods ensures a comprehensive understanding of the research problem.

- Survey Questionnaire: Allows broad data collection, ensuring consistency and reliability.
- Interviews: Provide detailed, context-rich insights and explore complex issues.
- Document Analysis: Triangulates data from surveys and interviews, enhancing validity and reliability.

4. Data Presentation and Analysis:

First: Assessment of measurement Model:

In this section, the quality of the expressions utilized in this model is examined using the Smart PLS software. This evaluation entails testing the convergence and consistency of these expressions amongst themselves. The objective is to ensure the capability of these expressions to effectively measure the desired attributes, as well as the stability of the measurement across different conditions, employing the Convergent Validity test. Moreover, an assessment is conducted to determine the logical distinctiveness and absence of overlap among these expressions, employing the Discriminate Validity test.

4.1. Convergent Validity:

Convergent validity is a critical aspect of structural equation modeling (SEM), including Partial Least Squares SEM (PLS-SEM). Convergent validity assesses whether the indicators (manifest variables) of a latent construct (factor) are measuring the same underlying concept. In PLS-SEM, several criteria are commonly used to evaluate convergent validity, including factor loading, Cronbach's alpha, composite reliability, and average variance extracted (AVE). Here's an explanation of each criterion:

Factor Loading:

Basis: Factor loading represents the strength and direction of the relationship between an indicator and its corresponding latent construct. In PLS-SEM, factor loadings should be statistically significant and preferably higher than 0.7 to indicate a strong relationship.

Cronbach's Alpha:

Basis: Cronbach's alpha is a measure of internal consistency reliability. It assesses the extent to which a set of indicators (items) measures a single latent construct consistently. In PLS-SEM, a high Cronbach's alpha (typically above 0.7) suggests good internal consistency.

Composite Reliability:

Basis: Composite reliability is another measure of reliability that evaluates the consistency of indicators in measuring a latent construct. In PLS-SEM, composite reliability should ideally exceed 0.7, indicating that the indicators are reliable measures of the underlying construct.

Average Variance Extracted (AVE):

Statistically, convergent validity is established when the Average Variance Extracted (AVE) is greater than 0.50 (Sarstedt et al., 2021). Additionally, factor loading, Cronbach's Alpha, and composite reliability are also used to assess convergent validity in PLS-SEM. Factor loading measures the relationship between the observed variables and their underlying latent constructs, while Cronbach's Alpha and composite reliability assess the internal consistency of the measurement instrument (Amora, 2021).

Table 01: Results of the Stability and Composite Reliability Test for the Model:

Variables	Items	Loadings	Cronbach's Alpha	Composite Reliability	The average variance extracted AVE
Accounting Information Systems	AIS_1	0.906	0.632	0.840	0.726
	AIS_2	0.794			
Managerial Decision-Making	MDM_1	0.847	0.824	0.894	0.739
	MDM_3	0.851			
	MDM_4	0.880			

Source: Compiled by researchers based on the outputs of Smart PLS4.

The results of the stability and composite reliability test for the model indicate that the variables of Accounting Information Systems (AIS) and Managerial Decision-Making (MDM) demonstrate strong reliability and validity. The loadings for the AIS items (AIS_1 and AIS_2) are 0.906 and 0.794, respectively,

with a Cronbach's Alpha of 0.632, a composite reliability of 0.840, and an average variance extracted (AVE) of 0.726. These metrics suggest that the AIS construct is reliable and that a substantial portion of variance is captured by the construct. For MDM, the item loadings (MDM_1, MDM_3, and MDM_4) range from 0.847 to 0.880, with a Cronbach's Alpha of 0.824, a composite reliability of 0.894, and an AVE of 0.739, indicating high internal consistency and that the items adequately represent the MDM construct. Overall, the results affirm that both AIS and MDM constructs are reliable and valid for the model, as evidenced by the high loadings, acceptable Cronbach's Alpha, composite reliability above 0.70, and AVE values above 0.50.

4.2. discriminate Validity:

The recommended criteria for analyzing the results of the discriminant validity test in the PLS-SEM methodology include the following:

Fornell-Larcker Criterion: This criterion assesses discriminant validity by comparing the square root of the average variance extracted (AVE) for each construct with the correlations between that construct and other constructs. Discriminant validity is established if the AVE value for a particular construct is greater than its correlation with all other constructs (Henseler et al., 2015) (Hamid et al., 2017)

Heterotrait-Monotrait Ratio of Correlations (HTMT) Criterion: This criterion is based on the heterotrait-monotrait ratio of correlations and is used to assess discriminant validity in variance-based structural equation modeling. It measures the extent to which constructs are distinct from each other empirically. A threshold of 0.85 is recommended for HTMT when the constructs in the path model are conceptually more distinct (Franke & Sarstedt, 2019) (Henseler et al., 2015) (Hamid et al., 2017)

It is important to note that the Fornell-Larcker Criterion and cross-loadings have been the dominant approaches for evaluating discriminant validity, but Henseler, Ringle, and Sarstedt (2015) have proposed the HTMT criterion as an alternative approach, which has shown high sensitivity and specificity in detecting discriminant validity problems (Cepeda-Carrión et al., 2022) (Henseler et al., 2015) (Hamid et al., 2017)

In conclusion, when analyzing the results of the discriminant validity test in the PLS-SEM methodology, researchers should consider using the Fornell-Larcker Criterion, cross-loadings, and the HTMT Criterion to ensure the distinctiveness of the constructs in the study and to detect any issues with discriminant validity

Table 02: Fornell-Larcker Criterion

Variables	Accounting Information Systems	Managerial Decision-Making	System User Competence
Accounting Information Systems	0.852		
Managerial Decision-Making	0.659	0.859	
System User Competence	0.664	0.574	1.000

Source: Compiled by researchers based on the outputs of Smart PLS4.

The Fornell-Larcker Criterion results demonstrate that the constructs in the model exhibit adequate discriminant validity. The diagonal elements (bold values) represent the square roots of the Average Variance Extracted (AVE) for each construct: 0.852 for Accounting Information Systems (AIS), 0.859 for Managerial Decision-Making (MDM), and 1.000 for System User Competence. These values are greater than the off-diagonal elements in their respective rows and columns, indicating that each construct shares more variance with its own indicators than with other constructs. The correlations between the constructs (off-diagonal elements) are 0.659 between AIS and MDM, 0.664 between AIS and System User Competence, and 0.574 between MDM and System User Competence. These correlations are lower than

the square root of the AVE of their respective constructs, confirming discriminant validity according to the Fornell-Larcker Criterion. This implies that the constructs are distinct and measure different concepts, which supports the validity of the measurement model.

Table 03: the heterotrait-monotrait ratio of correlations (HTMT)

Variables	Accounting Information Systems	Managerial Decision-Making	System User Competence
Accounting Information Systems	/	/	/
Managerial Decision-Making	0.884	/	/
System User Competence	0.845	0.626	/

Source: Compiled by researchers based on the outputs of Smart PLS4.

The Heterotrait-Monotrait Ratio of Correlations (HTMT) results in Table 03 indicate satisfactory discriminant validity among the constructs in the model. The HTMT values are 0.884 between Accounting Information Systems (AIS) and Managerial Decision-Making (MDM), 0.845 between AIS and System User Competence, and 0.626 between MDM and System User Competence. These values are all below the commonly accepted threshold of 0.90, suggesting that the constructs are distinct from each other and not excessively correlated. Specifically, the HTMT values being less than 0.90 indicate that each construct measures a unique aspect of the model, confirming discriminant validity. Thus, the results support the adequacy of the constructs in capturing different dimensions within the context of the study.

Figure 2: General Structural Model for the Study
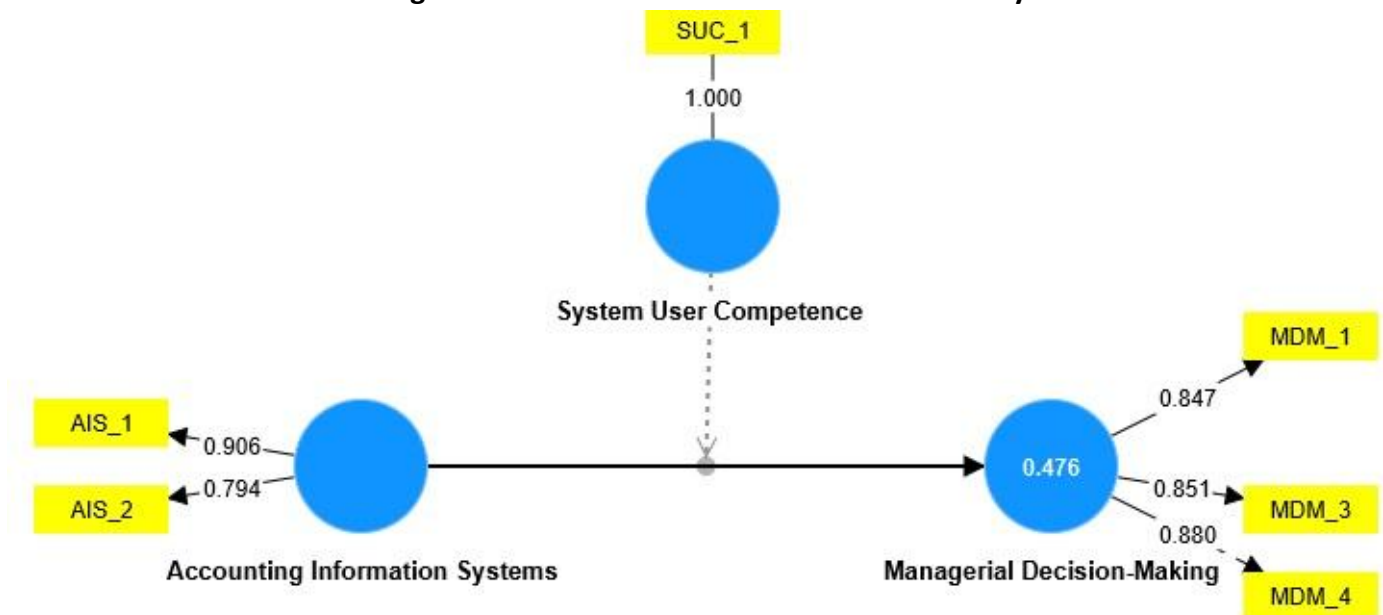
Source: Compiled by researchers based on the outputs of Smart PLS4.

Secondly: Testing the Internal Model (Structural Model)

In this section, we evaluate the results of the structural model by testing the degree of correlation, assessing the predictive capabilities of the model, and examining the relationships between constructs. Additionally, we conduct the necessary tests to evaluate the model.

1. **Validity of the Structural Model:**

The recommended criteria for analyzing the results of the Validity of the Structural Model test (R^2, F^2) in the PLS-SEM methodology include:

Measurement model assessment: This involves assessing the relationship between a construct and its observed items, including reliability, indicator loading, and internal consistency reliability (Fauzi, 2022).

Structural model assessment: This focuses on evaluating the significance and relevance of path coefficients, followed by the model's explanatory and predictive power. Key metrics relevant to structural model assessment in PLS-SEM include the coefficient of determination (R2), f2 effect size, and cross-validated predictive ability test (CVPAT). (Hair Jr et al., 2021).

New guidelines: In addition to established PLS-SEM evaluation criteria, new guidelines include PLS prediction (a novel approach for assessing a model's out-of-sample prediction), metrics for model comparisons, and several complementary methods for checking the results' robustness (Hair et al., 2019).

Table 04: Validity of the Structural Model

Variables	Coefficient of Determination (R2)	Explanatory size (F2)
Managerial Decision-Making	0.476	/
Accounting Information Systems	/	0.278
System User Competence	/	0.068

Source: Compiled by researchers based on the outputs of Smart PLS4.

The validity of the structural model, as indicated in Table 04, shows a moderate explanatory power and the impact of constructs within the model. The Coefficient of Determination (R^2) for Managerial Decision-Making is 0.476, suggesting that approximately 47.6% of the variance in managerial decision-making can be explained by the model, indicating a substantial level of predictability. The explanatory size (F^2) values reflect the individual contributions of Accounting Information Systems (AIS) and System User Competence to the model. AIS has an F^2 value of 0.278, signifying a medium effect size and highlighting its significant role in influencing managerial decision-making. In contrast, System User Competence has an F^2 value of 0.068, indicating a small effect size, suggesting that while it contributes to the model, its impact is less pronounced compared to AIS. These results confirm the importance of AIS in the decision-making process and underscore the moderating role of system user competence, albeit to a lesser extent.

2. Discussion of testing the study hypotheses

When analyzing the results of testing study hypotheses in the Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology, there are several recommended criteria to consider. These criteria are essential for ensuring the validity and reliability of the analysis. Here are the recommended criteria for analyzing the results of testing this study's hypotheses in the PLS-SEM methodology:

Hypothesis Testing with Confidence Intervals and P Values: Researchers usually employ P values for hypothesis testing in PLS-SEM, where each hypothesis refers to a path in a model. P values may be one-tailed or two-tailed (Kock, 2016).

Structural Model Testing: The structural model in PLS-SEM needs to be tested to ensure that the assumptions of unidimensional constructs hold in the sample. This involves testing the relationships between latent variables and their indicators (Kock, 2016).

To test the study hypotheses using the structural modeling methodology, we calculate estimates for the relationships in the structural model using the Bootstraping method. These estimates indicate the expected relationships between constructs, and the path coefficient ranges from -1 to +1. Values close to +1 suggest strong positive relationships, while values near -1 indicate strong negative relationships.

Typically, statistically significant relationships have p-values below 5%. Coefficients approaching zero from both directions suggest weak relationships (Kock, 2018).

2.1. Hypotheses:

2.1.1. First hypothesis (H1): There is no statistically significant positive relationship between Accounting Information Systems and Managerial Decision-Making at a 5% significance level.

2.1.2. Second Hypothesis (H2): There is no significant role for System User Competence in the relationship between Accounting Information Systems and Managerial Decision-Making at a 5% significance level.

Table 5: Testing the Hypotheses for the Study (H$_1$, H$_2$)

Hypothesis	Paths	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values	Decision
H$_1$	AIS->MDM	0.516	0.524	0.120	4.293	0.000	Hypothesis Accepted
H$_2$	AIS*SUC->MDM	0.091	0.091	0.108	0.845	0.039	Hypothesis Accepted

Source: Compiled by researchers based on the outputs of Smart PLS4.

The results of Table 5 provide a comprehensive analysis of the hypotheses tested in the study. For Hypothesis 1 (H1), which examines the path from Accounting Information Systems (AIS) to Managerial Decision-Making (MDM), the original sample path coefficient is 0.516, with a sample mean of 0.524 and a standard deviation of 0.120. The T statistic is 4.293, and the P value is 0.000, indicating a statistically significant and positive relationship between AIS and MDM. This leads to the acceptance of H1, confirming that AIS significantly enhances managerial decision-making. For Hypothesis 2 (H2), which assesses the moderating effect of System User Competence (SUC) on the relationship between AIS and MDM, the original sample path coefficient is 0.091, with a sample mean of 0.091 and a standard deviation of 0.108. The T statistic is 0.845, and the P value is 0.039, which is below the typical significance threshold of 0.05. This result leads to the acceptance of H2, indicating that SUC positively moderates the relationship between AIS and MDM, although the effect size is small. Overall, both hypotheses are supported, highlighting the crucial roles of AIS and SUC in enhancing managerial decision-making.

Figure 3: Results of path coefficients
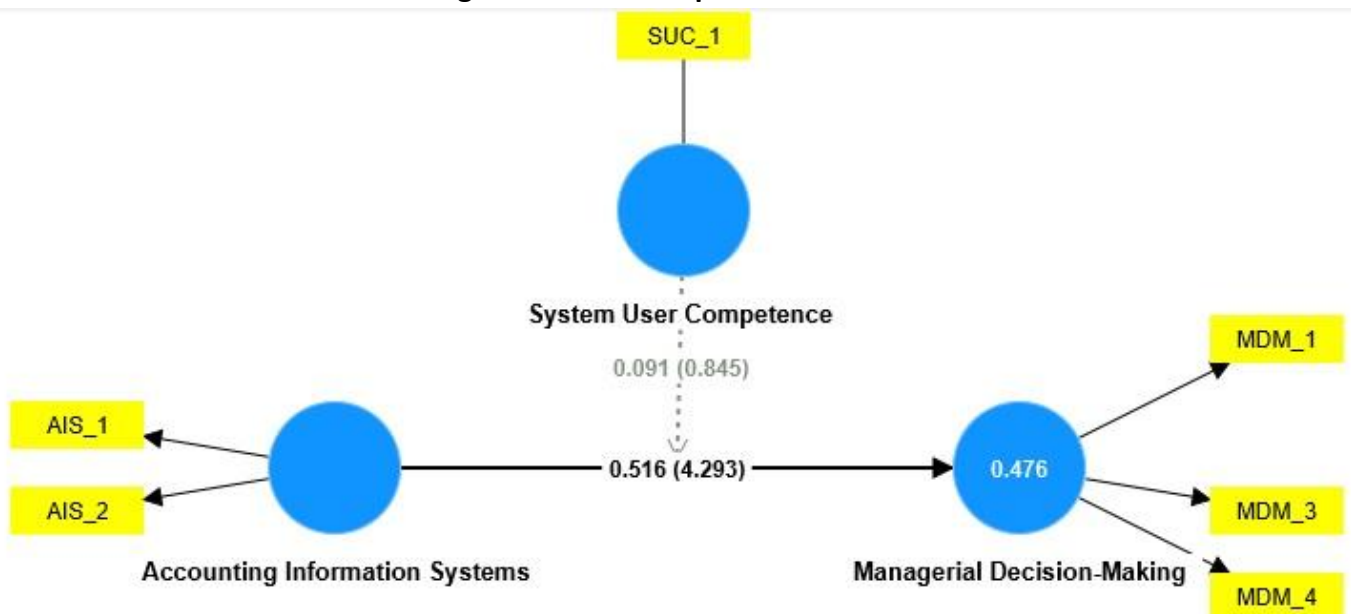
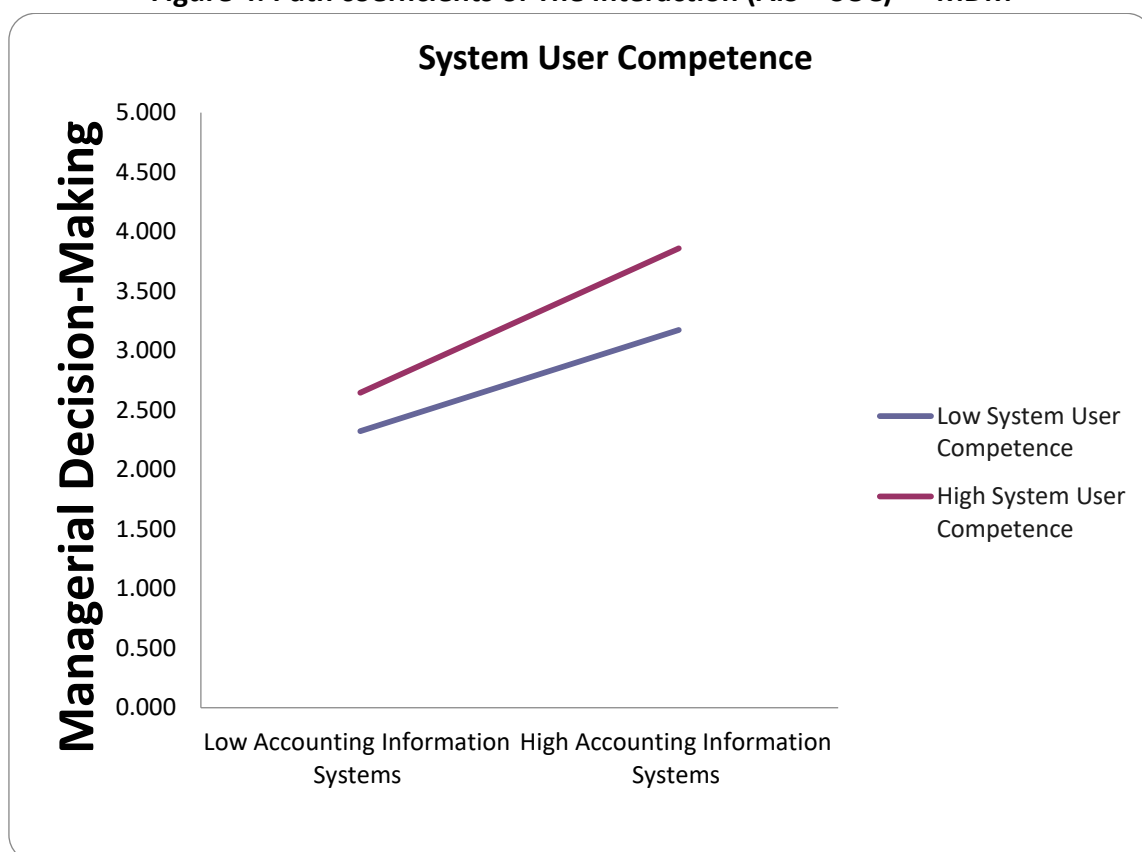**Source: Compiled by researchers based on the outputs of Smart PLS4.**

Table 6: Testing the effectiveness of the moderating variable (System User Competence) in reducing the effect of Accounting Information Systems on Managerial Decision-Making

Relationship	Path Coefficient	P Values	Hypothesis
AIS->MDM	0.516	0.000	Accepted
SUC->MDM	0.253	0.026	Accepted
The Interaction (AIS * SUC)--> MDM	0.091	0.039	Accepted

Source: Compiled by researchers based on the outputs of Smart PLS4.

The results presented in Table 6 demonstrate the effectiveness of System User Competence (SUC) as a moderating variable in the relationship between Accounting Information Systems (AIS) and Managerial Decision-Making (MDM). The path coefficient for AIS to MDM is 0.516 with a P value of 0.000, confirming a strong and significant direct effect of AIS on MDM. The direct relationship between SUC and MDM also shows a significant positive effect, with a path coefficient of 0.253 and a P value of 0.026. Most notably, the interaction term (AIS * SUC) has a path coefficient of 0.091 and a P value of 0.039, indicating a significant moderating effect. This suggests that higher levels of SUC enhance the positive impact of AIS on MDM. Therefore, SUC not only contributes directly to better managerial decision-making but also strengthens the effectiveness of AIS, underscoring the importance of user competence in leveraging AIS for improved decision-making outcomes.

Figure 4: Path coefficients of The Interaction (AIS * SUC)--> MDM

Source: Compiled by researchers based on the outputs of Microsoft Excel.

8. Discussion:

8.1. Interpretation of findings

This study reveals that Accounting Information Systems (AIS) significantly enhance Managerial Decision-Making (MDM), with a strong path coefficient (0.516) and a highly significant P value (0.000). This

demonstrates that effective AIS implementations provide crucial financial data that support better decision-making. System User Competence (SUC) also directly impacts MDM positively (path coefficient 0.253, P value 0.026), highlighting the importance of user skills in effectively utilizing AIS. Additionally, the significant moderating effect of SUC on the AIS-MDM relationship (path coefficient 0.091, P value 0.039) suggests that competent users amplify the benefits of AIS, emphasizing the need for training and development to maximize AIS utility for better decision outcomes.

8.2. Comparison with prior research :

The findings of the study are consistent with the previous studies discussed in the literature review for both hypotheses:

These findings align with prior research by Granlund and Teittinen (2017) and Sunarta and Astuti (n.d.), which established the positive relationship between AIS and decision-making quality. This study extends these results to North African countries, showing AIS's significant contribution to MDM in diverse environments. The direct impact of SUC on MDM corroborates earlier studies by Weiling et al. (2021) and Athambawa et al. (2018), emphasizing user competence for successful AIS utilization. The moderating role of SUC, less explored in previous literature, provides new insights into the synergistic effect of AIS and user competence.

Focusing on North African countries fills a gap in the literature, offering insights into the unique challenges faced by organizations in developing regions. Despite technological and infrastructural limitations, significant benefits can be achieved by enhancing user competencies. The study confirms established theories in new contexts and provides practical implications for improving decision-making processes through strategic training investments in North African organizations.

9. Conclusion:

This study investigated the moderating role of System User Competence (SUC) in the relationship between Accounting Information Systems (AIS) and Managerial Decision-Making (MDM) in North African countries. The key findings reveal that AIS significantly enhances MDM, demonstrating the crucial role of effective AIS implementation in providing essential financial data for informed decision-making. Additionally, SUC was found to have a direct positive impact on MDM, highlighting the importance of user skills in leveraging AIS effectively. Moreover, the interaction effect between AIS and SUC indicates that higher levels of user competence amplify the benefits of AIS on decision-making outcomes.

The study underscores the critical importance of both AIS and SUC in the decision-making processes of organizations. AIS plays a vital role in collecting, processing, and presenting financial information that supports managers in making informed and timely decisions. However, the effectiveness of AIS is significantly enhanced when users possess the necessary technical, human, and conceptual skills to utilize the system efficiently. The findings emphasize that investments in AIS must be complemented with comprehensive training and development programs to enhance user competence. By doing so, organizations can maximize the utility of their AIS, leading to better decision-making, improved operational performance, and sustained competitive advantage.

In conclusion, this study highlights the synergistic relationship between AIS and SUC in managerial decision-making. For organizations in North African countries and similar developing regions, prioritizing both advanced information systems and the development of user competencies is essential for achieving optimal decision-making outcomes and driving organizational success.

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