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Applying discriminant analysis in researching factors influencing the alignment of accounting information systems: Evidence from Vietnamese small and medium-sized enterprises and policy implications

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ABSTRACT

The alignment of Accounting Information Systems (AIS) is a crucial factor in enhancing the business performance of enterprises. This study aims to identify the primary factors influencing AIS alignment in small and medium-sized enterprises (SMEs) in Vietnam. Based on survey data from 365 SMEs, cluster analysis and discriminant analysis were employed to test the factors affecting AIS alignment. The results reveal six significant factors: owner and manager knowledge, management commitment, employee involvement, information technology (IT) sophistication, external expert advice, and organizational culture. Among these, managerial knowledge and commitment are the most influential determinants. These findings are particularly relevant in the context of Vietnam, where SMEs constitute over 97% of all enterprises and continue to face substantial resource constraints. The study emphasizes that improving AIS alignment necessitates attention to IT infrastructure development, the involvement of internal expertise, and consultation from external specialists. From a practical perspective, the results suggest that government and institutional policies should focus on enhancing digital literacy and managerial capacity, promoting IT infrastructure development, and providing professional consulting services. These measures will assist SMEs in improving AIS alignment, thereby boosting business performance. The study contributes to the academic field of AIS and offers practical policy implications to support SMEs in emerging economies.

Contribution/ Originality: This research contributes to the literature by empirically validating the factors influencing AIS alignment in the context of Vietnamese SMEs. It expands the scope of AIS studies by linking organizational and technological dimensions and emphasizing managerial roles. The policy-oriented recommendations also provide a practical foundation for designing support mechanisms to facilitate effective AIS implementation in the digital transformation era.

1. INTRODUCTION

According to Bagranoff, Simkin, and Norman (2010), AIS is considered a part of the information system (IS) in an enterprise, so AIS are activities designed to collect, process, and provide information to internal and external subjects, serving decision-making. Thus, when considering an effectively operating AIS, it is necessary to consider the information needs of interested parties and the ability of that system to collect and process information. This is also explained in Galbraith (1973) information processing theory; the author affirmed that an IS needs to ensure

that the information processing capacity matches the requirements of the information to be processed, or there must be a match between the capacity and ability to process information with the information processing requirements.

Especially in the context of the rapid development of Technology 4.0, which is being applied across various fields, there has been a profound change in the perception of the role and suitability of AIS, particularly for SMEs. SMEs constitute the majority of Vietnam's economy; however, the use of accounting information systems and IT applications for business decision-making remains limited. Investing in an AIS that is overly complex relative to the information needs can lead to resource wastage, while an AIS that cannot meet information requirements may negatively impact managerial decision-making. Therefore, researching the factors influencing the alignment of AIS will provide a scientific basis to assist organizations in designing effective AIS, thereby enhancing the quality of accounting information.

This study contributes to the literature by investigating how the alignment of AIS an essential digital infrastructure can be enhanced to support business efficiency. In Vietnam, where the government has launched several national policies and programs to accelerate digital transformation among SMEs, such as the National Digital Transformation Program by 2025, with a vision to 2030, evaluating the factors influencing AIS alignment becomes particularly important. Understanding these dynamics not only advances academic inquiry but also offers practical insights for policymakers and enterprise managers aiming to improve SME competitiveness and performance in the digital economy.

2. LITERATURE REVIEW

The alignment of AIS is critical to ensuring that the system effectively supports business decision-making and performance. According to Galbraith (1973), Information Processing Theory states that the capacity of an information system must match the organization's informational needs to maximize its operational effectiveness. This alignment is essential not only in general IS but also when applied specifically to AIS, which encompasses input data sources, processing mechanisms, and output reports. Several studies (e.g., (Chan, Huff, Barclay, & Copeland, 1997; Hussin, King, & Cragg, 2002)) have confirmed that higher alignment between business strategy and IT strategy contributes to improved organizational outcomes.

In the context of Southeast Asia, Ismail and King (2006) study marked a foundational effort in empirically assessing AIS alignment within Malaysian SMEs. Leveraging the 19-dimension framework from Chenhall and Morris (1986), their cluster analysis categorized firms based on AIS alignment levels and confirmed its positive association with business performance. The research was timely and policy-relevant, aligning with Malaysia's national ICT and SME development agenda during the early 2000s. Follow-up studies, Ismail and King (2006) and Ismail and King (2007), extended this work by identifying six influencing factors: IT sophistication, owner/manager knowledge and commitment, external and internal expertise, and firm size. Among these, IT sophistication, accounting knowledge of owners, and both internal and external expertise were found to significantly influence AIS alignment, while firm size and managerial commitment showed weaker or non-significant effects.

Building on the research results of Ismail and King (2006) and Ismail and King (2007), a study by Budiarto (2014) also examined the factors affecting the alignment of AIS and determined the relationship between the alignment of AIS and SME performance. A novel aspect of this study was considering both financial and non-financial business performance. After analyzing the data, the results showed that AIS sophistication, owner commitment, and external IT expertise positively affect the alignment of AIS, and the alignment of AIS positively affects the non-financial performance of SMEs. This research result is also consistent with the research results of Hussin et al. (2002), Cragg, King, and Hussin (2002), and Ismail and King (2007). However, it partially differs from Ismail and King's (2007) research results in testing the relationship between the "owner's commitment" factor and the alignment of AIS in SMEs. Budiarto and Prabowo (2015) continued to conduct a study synthesizing previous

studies related to factors that can affect successful AIS implementation. The synthesis results confirmed a positive relationship between the alignment of AIS in SMEs and the performance of those businesses. At the same time, the authors concluded that research on the alignment of AIS in SMEs, especially in developing countries, remains an interesting topic that needs to be studied.

Based on that, the research team expanded the scope of the study to conduct research on the alignment of AIS with the non-financial performance of SMEs in Indonesia (Dekeng Setyo Budiarto et al., 2018). With 87 valid survey samples collected, the study used three regression models to test the influence of factors (AIS sophistication, owner commitment, external IT expert participation) on the alignment of AIS; the second regression model tested the influence of the alignment of AIS variable on non-financial performance; and the third regression model tested the influence of factors (MAIS sophistication, owner commitment, external IT expert participation) on the organization's non-financial performance. The research results have similar conclusions to Budiarto (2014) research, affirming the positive impact of the factors of AIS sophistication and owner commitment on the alignment of AIS and the positive impact of the alignment of AIS on non-financial performance. However, the research results rejected the hypothesis that the participation of external IT experts positively affects the alignment of AIS. Additionally, a significant new finding of the study is the positive influence of two factors (AIS sophistication, owner commitment) on the non-financial performance of SMEs, while rejecting the hypothesis that the participation of external IT experts positively influences the non-financial performance of SMEs.

Recent domestic studies have also focused on this issue. Nguyen (2015) research applied the Ismail and King (2007) model to study the impact of the alignment of AIS on organizational performance in Hochiminh City businesses, examining whether the results align with those of the Malaysian study. Tran (2017) research also developed Ismail and King (2006) model to assess the relationship between the alignment of AIS and business performance, measuring the influence of factors contributing to the alignment of AIS at 398 Southern region businesses, including both SMEs and large enterprises. The research results indicate that information needs and the ability to meet information needs contribute positively to achieving the alignment of AIS. Further analysis confirms that the alignment of AIS positively impacts business performance.

Aiming to suggest orientations for developing and enhancing the alignment of AIS, Tran (2019) conducted a study with 132 SME samples in Binh Duong Province to identify factors influencing the alignment of AIS. This research not only identified factors influencing the alignment of AIS, as in previous studies, but also measured their impact. Specifically, two factors, business size and managerial involvement, lacked supporting evidence for their hypothesized positive influence on the dependent variable; the remaining five factors positively influenced the alignment of AIS in descending order: managerial knowledge, external expert involvement, internal staff involvement, IT sophistication, and AIS sophistication.

Global studies such as those by Ismail and King (2007), D. S. Budiarto (2014), and Nabizadeh and Omrani (2014) have identified several consistent factors influencing AIS alignment, including IT sophistication, management's knowledge, management's commitment, external expert involvement, and internal staff. However, results are not always uniform, and contextual differences remain significant. In the Vietnamese context, empirical research examining these factors, especially within SMEs, is still limited. Considering the strategic role of SMEs in Vietnam's economy and the national focus on accelerating digital transformation, continued investigation into AIS alignment is crucial for informing both academic inquiry and policy formulation.

Studies primarily inherit the findings of Ismail and King (2006) and Ismail and King (2007) to examine the influence of these factors on the alignment of AIS in various research contexts regarding scope and scale. While numerous studies have identified factors influencing AIS quality or success (e.g., corporate culture, internal control, organizational structure), research on AIS alignment has emphasized that alignment plays a mediating role in achieving AIS effectiveness and business performance (Nguyen, 2021).

From a broader perspective, this topic is not only of academic interest but also closely aligned with policy priorities in Asia, particularly in the context of digital transformation. In Vietnam, the National Digital Transformation Strategy to 2025, Vision to 2030 highlights the need to enhance the digital capacity of enterprises and promote the development of enterprise information systems. Additionally, the Law on Support for SMEs and Decree No. 80/2021/NĐ-CP emphasize the importance of supporting digitalization and information system development for SMEs, which account for over 97% of all businesses.

At the regional level, policy frameworks such as the ASEAN Digital Masterplan 2025 (ADM, 2025) and initiatives from the APEC Policy Support Unit underscore digital readiness, managerial competencies, and IT adoption as key enablers for SME competitiveness and resilience. These documents further reinforce the importance of aligning enterprise information systems particularly AIS with business goals and digitalization strategies.

Therefore, further research exploring factors influencing the alignment of AIS is both theoretically meaningful and practically significant. It contributes to filling the gap between academic understanding and policy implementation in developing economies, supporting business owners, managers, and policymakers in enhancing the quality and relevance of accounting information systems in the digital era.

3. RESEARCH MODEL AND RESEARCH HYPOTHESIS DEVELOPMENT

From the overview of studies on factors affecting the alignment of Accounting Information Systems and the survey on the suitability of AIS in Vietnamese SMEs, the research team formulated research hypotheses for the research model:

3.1. IT Sophistication

AIS is built and deployed based on the IT platform that is or will be implemented in the business. Typically, the owner or manager of the company is the only one who fully understands the company's goals and direction (Thong, 1999).

Therefore, owners and managers who are aware of existing and new technologies will be able to choose the right software for their companies (Hussin et al., 2002). In the context of AIS, owners/managers who possess both IT and accounting knowledge will be better positioned than those who lack this knowledge, as they can understand the company's AIS needs and utilize their IT expertise to identify IT implementations that align with the company's information requirements.

Hypothesis 1 (H_1): IT sophistication has a positive impact on the alignment of AIS in the business.

3.2. Owner and Manager's Knowledge of IT and Accounting Systems (MK)

Hussin et al. (2002), Thong (1999), and Thong (2001) affirmed that the knowledge or understanding of owners and managers about IT and accounting plays an important role in the success of the business's informatization projects, including IT projects applied in accounting.

As the main decision-makers in business, the understanding of owners and managers about accounting will affect the need to use information from AIS. The research of Alnajjar (2017) and Salehi, Rostami, and Mogadam (2010) examined the impact of the owner/manager's understanding on AIS; the results showed a positive relationship between this factor and AIS. Similar results also supported the hypothesis that owner/manager knowledge affects the alignment of AIS in the studies of Ismail and King (2007); Tamoradi (2014), and Nabizadeh and Omrani (2014).

Hypothesis 2 (H_2): The understanding of the owner/manager has a positive impact on the alignment of AIS in the business.

3.3. Commitment of Owner and Manager (MC)

The commitment of owners and managers is measured based on their level of participation in business informatization projects Ismail and King (2007). Although there is little evidence to support this hypothesis in the study by Ismail and King (2007), other studies by Tamoradi (2014) and Alnajjar (2017) concluded the dominant role of the owner/manager in implementing AIS in SMEs as well as a significant impact on the effectiveness of AIS implementation.

Hypothesis 3 (H_3): The commitment of the owner and manager has a positive impact on the alignment of AIS in the business.

3.4. Using External Experts (EX)

Many studies have emphasized the importance of suppliers and consultants for IT projects in SMEs. Accounting firms are also considered a potential source of advice for these businesses on the use of IT in AIS design.

The conclusion in the studies of Ismail and King (2007), Budiarto (2014) and Nabizadeh and Omrani (2014) affirmed that the group of businesses using consulting from external experts, including accounting consulting firms and software service companies, achieved higher AIS suitability than businesses that rarely used consulting from external experts. Thus, it can be seen that the factor of external experts in both accounting and IT affects the alignment of AIS in the business.

Hypothesis 4 (H_4): Utilizing external expert consultation positively impacts the alignment of AIS within the enterprise.

3.5. Using Internal Experts (IN)

Studies have been conducted to explore how IT is applied within enterprises to support meeting information needs, Temtime, Chinyoka, and Shunda (2003); Ismail and King (2006), and Ismail and King (2007), with results indicating strong IT adoption growth in Small and Medium Enterprises (SMEs).

However, Mitchell, Reid, and Smith (2003) found that SMEs' lack of accounting experience, expertise, and IT support hindered achieving IT fit. This suggests that understanding accounting expertise is not solely required of managers/owners; utilizing support from internal accounting and IT experts influences the fit of the designed AIS within the enterprise.

Hypothesis 5 (H_5): Utilizing internal expert expertise positively impacts the alignment of AIS within the enterprise.

3.6. Organizational Culture (OC)

Huynha (2021) suggests that organizational culture is recognized as a driver of AIS acceptance and accounting information quality. Thus, organizational culture can have certain impacts on the alignment of AIS within the unit. Rapina (2014), research also measured organizational culture in relation to AIS quality through norms and codes of conduct guiding behavior within the enterprise; cultural values reflected in the work environment, values of innovation, creativity, risk limitation in task assignment and delegation; and support and interaction within and outside the enterprise. The research indicated that organizational culture influences AIS quality and the success of AIS implementation and design. The alignment of AIS is formed during the implementation and design process.

Hypothesis 6 (H_6): Organizational culture positively impacts the alignment of the AIS within the enterprise. Figure 1 illustrates the proposed research model that explores the factors affecting the alignment of AIS in enterprises.

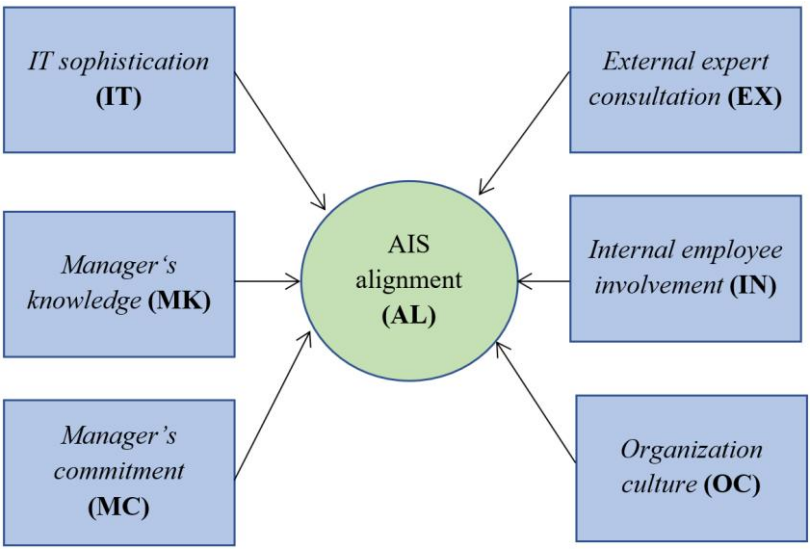

Figure 1. Research model.

The research adopts a mixed-methods approach, combining qualitative and quantitative techniques. Initially, expert interviews were conducted to refine the research model and measurement scales. Based on expert feedback, the authors developed a structured questionnaire using 5-point Likert scales to capture all observed variables.

The alignment of AIS is measured as the interaction between two dimensions: the enterprise's information needs and the AIS's ability to fulfill them. This construct follows the 19 accounting information characteristics from Chenhall and Morris (1986). Influencing factors in the model include: IT sophistication (7 items), manager's knowledge (4 items), manager's commitment (6 items), external expert advice (3 items), internal employee involvement (4 items), and organizational culture (5 items), adopted from prior studies (Budiarto & Prabowo, 2015; Ismail & King, 2007; Tran, 2019) and qualitative findings.

This study was conducted in two main stages, combining qualitative and quantitative research methods to ensure both theoretical depth and empirical reliability. The qualitative stage was implemented through in-depth interviews conducted in two phases: a preliminary interview and a formal interview. In the first phase, the author developed a discussion guide and sought feedback from 2–3 experts with academic or practical experience in the field of AIS and enterprise management. The objective was to refine and revise the survey instrument to ensure clarity in language and to avoid terms that may cause confusion or be inappropriate for the context of SMEs in Vietnam. Furthermore, the interviews also aimed to clarify the role of AIS alignment in enhancing business performance and to explore the potential influencing factors.

Based on the refinements made from the preliminary phase, the formal interview questionnaire was used to conduct in-depth discussions with 9 experts. The purpose was to gather expert opinions on the key accounting information characteristics used to measure AIS alignment, as well as to assess the factors and indicators affecting AIS alignment in actual business settings. After synthesizing and analyzing the qualitative data, the author standardized the observed variables, developed the measurement scales, and proposed a research model that reflects the specific context of Vietnam. The measurement scales were adapted from prior studies such as Ismail and King (2007); Budiarto and Prabowo (2015) and Tran (2019) along with insights gained from the interviews: IT sophistication (7 items), manager's knowledge (4 items), manager's commitment (6 items), external expert advice (3 items), internal employee involvement (4 items), and organizational culture (5 items), adopted from prior studies (Budiarto & Prabowo, 2015; Ismail & King, 2007; Tran, 2019) and qualitative findings.

The quantitative phase was designed to test the proposed model and evaluate the extent to which each factor impacts AIS alignment. The alignment of AIS is formed from the interaction between two measurements: information demand and the system's ability to meet such demand, using the 19 accounting information characteristics proposed by Chenhall and Morris (1986). Specifically, two dimensions were measured: the

importance of the information demand and the availability of the corresponding information in the AIS. Both dimensions were measured using a five-point Likert scale. The importance of accounting information demand was rated as follows: 1 – Not important at all, 2 – Not important, 3 – Neutral, 4 – Important, 5 – Very important. The availability of AIS in meeting these demands was rated on the following scale: 1 – Not available at all, 2 – Not available, 3 – Neutral, 4 – Available, 5 – Fully available. Similarly, observed variables for the independent factors were measured using a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

Due to the absence of a comprehensive and officially published database on SMEs in Vietnam, the authors employed a non-probability convenience sampling method to collect survey data. The sample was limited to SMEs in the Northern provinces of Vietnam to ensure feasibility and alignment with the most recent report by VCCI (2022), which indicated that the proportion of SMEs in this region is higher than the national average. The target respondents were AIS users within the enterprise, including business managers, chief accountants, IT officers, and accountants. Only one questionnaire was collected from each enterprise to avoid data duplication.

After excluding invalid responses either due to non-target respondents (large or micro enterprises) or incomplete information a total of 365 valid responses were retained. The analysis techniques employed in this study included reliability testing (Cronbach's Alpha), exploratory factor analysis (EFA), cluster analysis, and discriminant analysis. These methods were used to identify groups of enterprises with varying levels of AIS alignment and to test the influence of each proposed factor on AIS alignment.

The survey was conducted on 365 SMEs operating across different sectors in Vietnam, primarily in the Northern region. The enterprises were selected using a convenience sampling method, based on accessibility and willingness to participate. While this approach allowed timely data collection, it may introduce some sampling bias due to the uneven representation of industries and regions. To mitigate this, the sample included enterprises from manufacturing, trade, and services, and was diversified in terms of size and digital maturity levels. However, the study acknowledges that the findings may not be fully generalizable to all Vietnamese SMEs, especially those in the Central and Southern regions or in specific niche industries. The descriptive statistics section provides further detail on sample characteristics.

4. DISCUSSION OF RESEARCH RESULTS

The official questionnaire includes 50 questions measured by a 5-point Likert scale, excluding questions related to respondents' demographic information and business information, to measure 1 dependent variable and 7 independent variables in the research model. After filtering, the feedback results include 365 valid responses. Table 1 presents the distribution of business sectors' statistics among the surveyed enterprises.

Table 1. Business sector statistics.

Business sector		Frequency	Percent	Valid percent	Cumulative percent
Valid	Trade and service sector	146	40.0	40.0	40.0
	Industrial sector	120	32.9	32.9	72.9
	Building sector	79	21.6	21.6	94.5
	Agriculture, forestry, and fisheries sectors	12	3.3	3.3	97.8
	Other	8	2.2	2.2	100.0
	Total	365	100.0	100.0	

In Table 1, out of 365 valid responses, the trade and service sector accounts for the largest proportion (40%), followed by the industrial sector (32.9%) and the building sector (21.6%). Meanwhile, enterprises in the agriculture, forestry, and fisheries sectors and those in the "other" category represent only 3.3% and 2.2%, respectively. These figures indicate a diverse sample while highlighting a concentration of firms operating in service and industrial sectors.

Table 2. Descriptive statistical analysis.

Variable	N	Min.	Max.	Mean	Standard deviation	Variable	N	Min.	Max.	Mean	Standard deviation
OC1	365	2.00	5.00	3.356	0.744	IR1	365	1.00	5.00	3.288	0.850
OC2	365	2.00	5.00	3.345	0.716	IR2	365	1.00	5.00	3.288	0.973
OC3	365	2.00	5.00	3.255	0.682	IR3	365	1.00	5.00	3.143	1.080
OC4	365	2.00	5.00	3.364	0.704	IR4	365	1.00	5.00	3.339	0.986
OC5	365	1.00	5.00	3.490	0.963	IR5	365	2.00	5.00	3.090	0.932
EX1	365	2.00	5.00	3.721	0.473	IR6	365	1.00	5.00	3.496	0.824
EX2	365	2.00	5.00	3.712	0.494	IR7	365	1.00	5.00	3.493	0.894
EX3	365	2.00	5.00	3.726	0.476	IR8	365	1.00	5.00	2.959	1.070
IT1	365	1.00	5.00	3.543	0.823	IR9	365	1.00	5.00	2.929	1.079
IT2	365	1.00	5.00	3.512	0.831	IR10	365	1.00	5.00	3.214	0.940
IT3	365	1.00	5.00	3.518	0.793	IR11	365	1.00	5.00	3.362	0.849
IT4	365	1.00	5.00	3.616	0.819	IR12	365	1.00	5.00	3.406	0.802
IT5	365	1.00	5.00	3.586	0.739	IR13	365	1.00	5.00	3.307	0.867
IT6	365	1.00	5.00	3.521	0.921	IR14	365	1.00	5.00	3.436	0.832
IT7	365	1.00	5.00	3.551	0.852	IR15	365	1.00	5.00	3.474	0.728
IN1	365	2.00	5.00	3.622	0.718	IR16	365	1.00	5.00	3.169	1.007
IN2	365	2.00	5.00	3.663	0.682	IR17	365	1.00	5.00	3.197	0.952
IN3	365	2.00	5.00	3.644	0.619	IR18	365	1.00	5.00	3.359	0.756
IN4	365	2.00	5.00	3.775	0.615	IR19	365	1.00	5.00	3.414	0.771
MC1	365	1.00	5.00	3.753	0.730	CR1	365	1.00	5.00	3.458	0.782
MC2	365	2.00	5.00	3.836	0.703	CR2	365	1.00	5.00	3.485	0.779
MC3	365	1.00	5.00	3.858	0.724	CR3	365	1.00	5.00	3.315	0.965
MC4	365	2.00	5.00	3.847	0.733	CR4	365	1.00	5.00	3.501	0.773
MC5	365	1.00	5.00	3.808	0.712	CR5	365	1.00	5.00	3.504	0.769
MC6	365	1.00	5.00	3.323	0.999	CR6	365	1.00	5.00	3.569	0.706
MK1	365	1.00	5.00	3.786	0.736	CR7	365	1.00	5.00	3.603	0.733
MK2	365	1.00	5.00	3.781	0.720	CR8	365	1.00	5.00	3.392	1.001
MK3	365	1.00	5.00	3.756	0.824	CR9	380	2.00	5.00	3.561	365
MK4	365	1.00	5.00	3.759	0.701	CR10	380	2.00	5.00	3.563	365
						CR11	380	2.00	5.00	3.582	365
						CR12	380	2.00	5.00	3.655	365
						CR13	380	2.00	5.00	3.592	365
						CR14	380	2.00	5.00	3.642	365
						CR15	380	2.00	5.00	3.711	365
						CR16	380	2.00	5.00	3.608	365
						CR17	380	2.00	5.00	3.600	365
						CR18	380	2.00	5.00	3.682	365
						CR19	380	2.00	5.00	3.637	365

4.1. Descriptive Statistical Analysis

From Table 2, it can be seen that the average values of the scales for the dependent variable and seven independent variables all reach a relatively high average level (from 2.9288 to 3.8575) on the five-point Likert scale. Thus, it can be observed that the survey opinions are quite focused, and there is a high level of agreement on the scales for the variables.

4.2. Cluster Analysis

To test the research hypotheses, it is first necessary to determine whether there are clusters of businesses with significant differences in the alignment of AIS. Cluster analysis techniques are commonly used to create clusters or groups with highly similar entities based on a number of identified variables. Cluster analysis techniques have the advantage of identifying similarities without imposing any specific model. Also, according to the research by Chan et al. (1997), the authors applied the Moderation model to examine the alignment of AIS in SMEs. Nineteen variables (19 AIS implementation information characteristics) measuring two aspects, the need to use AIS (IR) and

the responsiveness of AIS (CR), are all measured using a 5-point Likert scale. Therefore, the moderation point of each scale, when clustering, ranges from 1 to 25 (IR*CR).

Table 3. Cluster analysis.

Factor	Cluster 1	Cluster 2
Size	118	247
Percent	32.3%	67.7%
MK	3.24	4.02
MC	3.49	3.98
IT	3.03	3.80
IN	3.45	3.78
EX	3.64	3.76
OC	3.14	3.42

Table 3 presents the mean values of key influencing factors in each cluster, showing distinct differences in managerial knowledge, commitment, and technological readiness between the two enterprise groups. Cluster analysis results indicate that 67.7% of surveyed enterprises achieved alignment in their AIS, while 32.3% did not. This result highlights the disparity in readiness and adaptability to managerial information requirements among Vietnamese SMEs. Notably, the most influential factors driving AIS alignment are: manager's knowledge, manager's commitment, and IT sophistication. These findings underscore the pivotal role of managerial capacity and digital readiness in enhancing the effectiveness of AIS operations. Moreover, the results emphasize the importance of IT infrastructure and external consultation especially relevant in the context of Vietnam's ongoing implementation of the National Digital Transformation Strategy 2025, Vision 2030, and SME support policies under Decree No. 80/2021/NĐ-CP. Figure 2 illustrates the distribution of surveyed enterprises into two clusters based on their alignment with AIS. Specifically, 67.7% of the enterprises are classified into Cluster 2, reflecting a higher level of AIS alignment, while the remaining 32.3% fall into Cluster 1, indicating lower alignment.

Although factors such as internal employee involvement, external expert consultation, and organizational culture have relatively lower impact, they still play a supporting role in fostering an environment conducive to AIS alignment. Understanding the varying levels of influence enables both businesses and policymakers to prioritize interventions, particularly in resource-constrained settings.

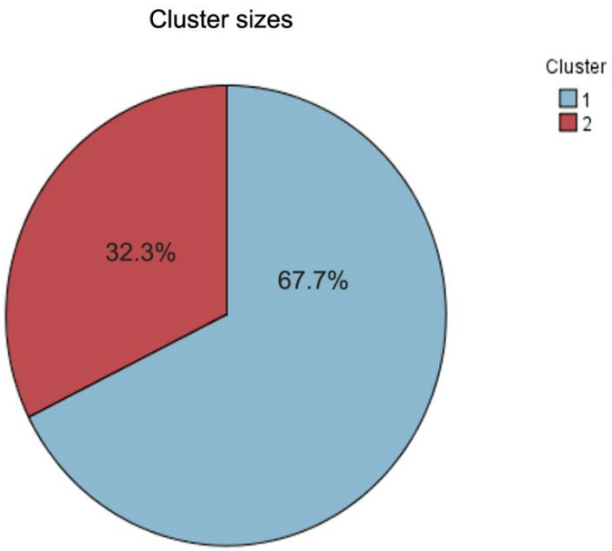

Figure 2. Histogram figure.

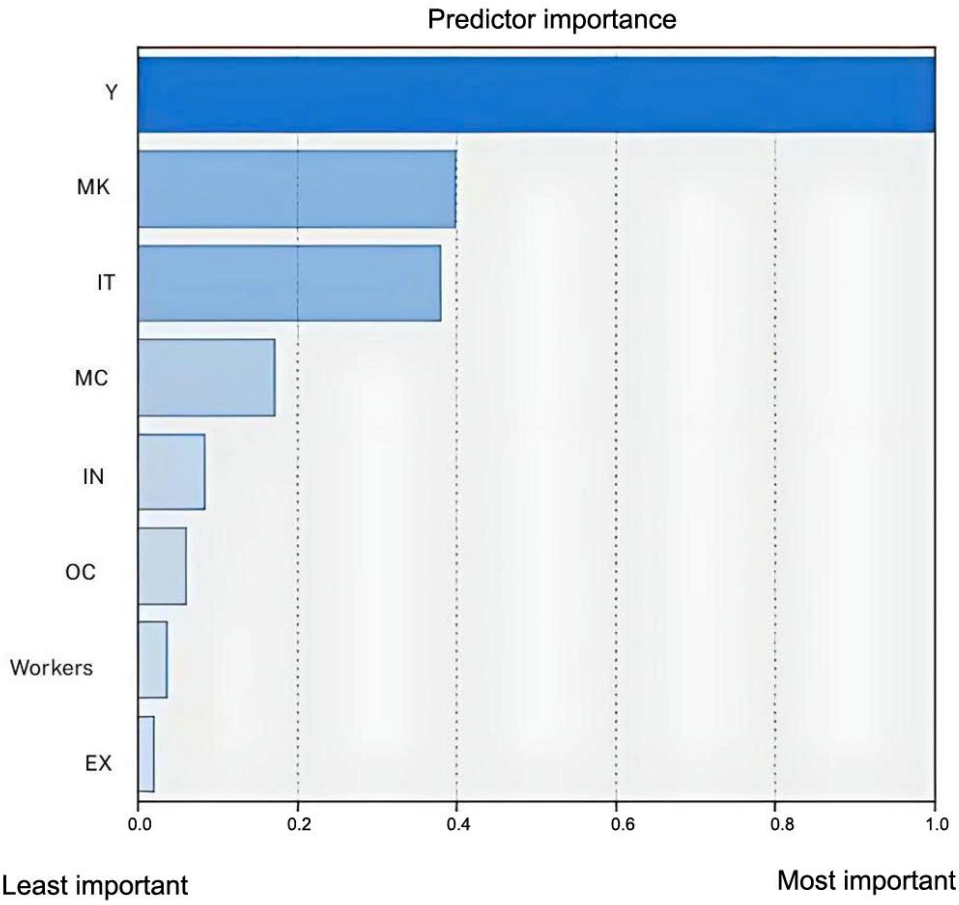

Figure 3. Demonstrates the relative importance of predictor variables in determining the alignment level of the AIS.

Figure 3 demonstrates that the results indicate that managerial knowledge (MK) and IT sophistication (IT) are the most influential factors, whereas external consultation (EX) and firm size (Workers) play a minimal role in the predictive model.

4.2.1. Discriminant Analysis Results

The cluster analysis results divide the total research sample into 2 groups, suitable and unsuitable in AIS, but do not show which factors affect this grouping result and which factors have the ability to differentiate meaningfully. Therefore, applying discriminant analysis is a suitable technique to help the research team explain the above issues.

One of the discriminant analysis requirements is that the dependent variable is categorical (in this study, the dependent variable takes two values, 0 and 1, corresponding to two classified groups: AIS fit and AIS misfit), and the independent variables are continuous (quantitative variables). Thus, the discriminant function will have the following form:

$$ZAL = a + W1 * IT + W2 * MK + W3 * MC + W4 * EX + W5 * IN + W6 * OC$$

Table 4. Demonstrates the test results of group means.

Variable	Wilks' Lambda	F	df1	df2	Sig.
OC	0.945	11.450	1	198	0.001
EX	0.990	1.940	1	198	0.165
IT	0.654	104.626	1	198	0.000
IN	0.948	10.855	1	198	0.001
MC	0.841	37.482	1	198	0.000
MK	0.579	143.723	1	198	0.000

Table 4 presents the test results of group mean equality reveal that most predictor variables exhibit statistically significant differences between groups, except for External Expert Consulting (EX). Individually, only the factors Management/Owner Understanding, Management/Owner Commitment, IT Sophistication, Internal Staff Participation, and Corporate Culture can significantly differentiate between firms with AIS fit and misfit, as their significance coefficients are less than 0.05.

Table 5. Summarizes the discriminant function's eigenvalues.

Function	Eigenvalue	% of variance	Cumulative %	Canonical correlation
1	1.448a	100.0	100.0	0.769

Table 5 summarizes the discriminant function's eigenvalue and canonical correlation, confirming a strong discriminatory power with a canonical correlation of 0.769. Since the dependent variable in this case has only two groups (AIS alignment or not), only one discriminant function is estimated. The eigenvalue is 1.448 and accounts for 100% of the explained variance. The corresponding canonical correlation coefficient is 0.769, indicating that 59.13% of the dependent variable's variance (AIS alignment) is explained by this model ($0.769^2 = 0.5913 = 59.13\%$).

Table 6. Demonstrates Wilks' Lambda value.

Test of function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.409	174.564	6	0.000

Next, we determine whether the estimated discriminant function is statistically significant. Table 6 confirms the overall statistical significance of the discriminant function with a Wilks' Lambda value of 0.409 and a p-value of 0.000, which is much smaller than the 5% significance level. Therefore, we can conclude that the discrimination is statistically significant at the 5% level, and we can proceed to interpret the results.

The importance of the variables is indicated by the absolute value of the standardized coefficients below; the impact level of the variables is ranked in descending order.

Table 7. Illustrates standardized canonical discriminant function coefficients.

Variable	Function
	1
MK	0.641
IT	0.515
IN	0.465
MC	0.279
OC	0.164
EX	0.135

Table 7 ranks the predictor variables by the absolute value of their standardized canonical discriminant coefficients, indicating that MK and IT are the most influential. It can be seen that Management/Owner Understanding is the most important predictor variable for differentiating between the two groups (AIS alignment or not), followed by IT Sophistication, Management/Owner Commitment, Internal Staff Participation, Corporate Culture, and External Expert Consulting.

The positive signs of all predictor variable coefficients indicate that firms with higher Management/Owner Understanding, Management/Owner Commitment, IT Sophistication, External Expert Consulting, Corporate Culture, and Internal Staff Participation tend to achieve better AIS alignment.

Evaluating the discriminant function through the classification results, Table 8 shows the classification results based on the analyzed sample. The correct classification rate is $(39+151)/(42+158) = 95\%$; this rate is calculated based on the selected research sample. To verify the accuracy of the estimated discriminant function, it must be

tested on a randomly selected sample. This rate is (69+75)/(76+89) = 0.873 = 87.3%. We can conclude that this discriminant model is quite effective.

Table 8 shows the classification results.

Row	Data split	Metric	Y	Predicted group membership		Total
				Mismatched	Matched	
Cases selected	Original	Count	Mismatched	39	3	42
			Matched	7	151	158
		%	Mismatched	92.9	7.1	100.0
			Matched	4.4	95.6	100.0
Cases not selected	Original	Count	Mismatched	69	7	76
			Matched	14	75	89
		%	Mismatched	90.8	9.2	100.0
			Matched	15.7	84.3	100.0

Similar to linear regression analysis, discriminant analysis also provides standardized and unstandardized coefficients, as shown in the two tables below. Table 9 displays the unstandardized canonical discriminant function coefficients used to construct the discriminant equation, highlighting the relative contribution of each predictor variable to group separation.

Table 9. Displays the canonical discriminant function coefficients.

Variable	Function
	1
OC	0.295
EX	0.302
IT	1.086
IN	0.904
MC	0.543
MK	1.316
(Constant)	-16.741

With the above results, the discriminant function has the following form:

ZAL = 0.295*OC+0.302*EX+1.086*IT+0.904*IN+0.543*MC+1.316*MK-16.741 (**)

The highest coefficients belong to the variables *manager's knowledge* and *IT sophistication*, further reinforcing the conclusion that managerial capability and digital competency play a pivotal role in enterprise development.

Table 10. Demonstrates functions at group centroids.

Y	Function
	1
Not alignment	-2.322
Alignment	0.617

This Table 10 shows the research team the means of the two groups, Inappropriate and Appropriate, according to the unstandardized discriminant function. From the above results, we can calculate the discriminant score (cutoff point).

$$Z_{score} = -0.00019\frac{\text{Z non} * \text{N non} + \text{Z yes} * \text{N yes}}{\text{N non} + \text{N yes}} = \frac{-2.322 * 42 + 0.617 * 158}{42 + 158}$$

Thus, if there is additional information and a new observation (some new factor not yet discovered), just substitute it into the discriminant function (**), then compare the Z_{AL} value with the Z_{score} to determine which group to classify the observation into. If $Z_{AL} > Z_{score}$, the new observation will be classified into the group with the

alignment of AIS, and vice versa. If $Z_{AL} < Z_{score}$, the new observation will be classified into the group without the alignment of AIS. This approach opens up the potential to apply the model as a decision-support tool for assessing AIS alignment in new enterprises, thereby providing a valuable data foundation for policy formulation aimed at advancing digital transformation in the SME sector.

5. CONCLUSION

The research results have indicated that the Owners'/Managers' knowledge factor is the most important predictor variable used to distinguish between the two groups of AIS suitability, followed by the variables: IT Sophistication, Owners'/Managers' Commitment, Internal Employee Involvement, Organization Culture, and External Expert Advice. Therefore, the study also makes recommendations to improve the level of AIS alignment in Vietnamese SMEs.

Enhancing business owners'/managers' knowledge: As noted by Minh et al. (2024), human resource capacity contributes positively and significantly to the digital transformation process. The managerial knowledge of business leaders reflects their operational capability and strategic vision, enabling them to make contextually appropriate decisions and improve the effectiveness of enterprise operations. When managers possess solid knowledge in accounting, finance, and information technology, they are more capable of making informed decisions and flexibly implementing digital strategies, thereby enhancing the efficiency of AIS deployment and overall corporate governance.

To support the enhancement of managerial capacity in Vietnam, it is essential to promote training programs in business administration and accounting that integrate IT applications such as accounting software, digital data processing, and process automation. This approach aligns with the objectives of the National Digital Transformation Program to 2025 and Vision to 2030, which prioritize the development of digital awareness and management competency among businesses. Simultaneously, the ASEAN Digital Masterplan 2025 (ADM, 2025) also emphasizes the advancement of digital skills and the capacity to participate in the digital economy particularly for SMEs as part of a broader strategy to increase regional competitiveness and resilience.

Increasing the application of IT in many business activities: IT sophistication serves as a critical technical foundation for the efficient and flexible operation of accounting information systems. In practice, IT is applied across various systems within an enterprise, including office support systems, decision-making systems, databases, accounting software, design and manufacturing applications, and telecommunications networks. This factor ranks as the second most influential on AIS alignment in SMEs. Therefore, SMEs need to develop IT investment and development strategies aligned with their business vision and strategic objectives.

Given their limited resources, SMEs should prioritize investment in functional IT components that support access to essential managerial information, rather than attempting to exploit all possible data sources. In the context of rapidly advancing technologies, enterprises should proactively adopt modern accounting software and enterprise-wide systems such as Enterprise Resource Planning (ERP), Supply Chain Management (SCM), or Customer Relationship Management (CRM). When selecting these systems, businesses must carefully consider their ability to generate desired outputs, control data input processes, adapt to internal requirements, and maintain cost-effectiveness relative to firm size.

From a policy perspective, enhancing SMEs' access to and implementation of appropriate technologies should be supported through technical assistance programs, financial incentives, and structured guidance on selecting software solutions. In Vietnam, the National Digital Transformation Strategy to 2025 with a vision to 2030 has clearly defined the goal of developing digital infrastructure and promoting IT applications in business operations. At the regional level, the ASEAN Digital Masterplan 2025 calls for strengthening technical support and technology transfer to SMEs, aiming to narrow the digital divide and improve competitiveness and resilience in the sector.

Owners/managers establish and maintain a commitment to innovation and creativity: The commitment of business owners and managers significantly affects the alignment of accounting information systems, especially in the context of SMEs that typically lack a clear hierarchical structure. Consistent strategic orientation and investment in IS—including goal-setting, resource prioritization, and implementation monitoring—are essential to ensure that the system evolves in line with business needs. This commitment is also reflected in how leaders communicate the importance of AIS to employees and stakeholders, thereby reinforcing an organizational culture aligned with digital transformation.

Enhance internal staff capacity and participation: The participation of internal employees is vital to the effective functioning of AIS. In SMEs, where employees often hold multiple roles, involving them in the analysis, design, and implementation of AIS ensures the system accurately reflects operational realities and increases acceptance and effective use post-deployment. Leveraging existing staff also reduces implementation costs and strengthens internal capacity during the digital transformation process.

Build and cultivate organizational cultural values: Organizational culture is a foundational factor influencing the adoption of new technologies. As a country rich in national identity, Vietnamese enterprises particularly SMEs possess distinct cultural traits. However, many have yet to prioritize cultural development. Organizations with open, adaptive, and learning-oriented cultures are better positioned to integrate AIS effectively. Establishing core values, a spirit of collaboration, responsibility, and adherence to ethical and legal standards creates an enabling environment for new systems to operate smoothly especially crucial for SMEs with limited formalized processes.

Strengthen connections and consultations with experts outside the enterprise: Support from external experts plays a critical role in the design, implementation, and optimization of AIS, particularly when SMEs lack in-house expertise in technology or managerial accounting. While SMEs often hire external consultants, misalignment may arise due to limited understanding of the internal context. Therefore, firms should proactively share accurate information and select reputable consultants to ensure relevant insights and avoid unnecessary costs.

At the policy level, Vietnam's National Digital Transformation Strategy to 2025, with a vision to 2030 (Decision No. 411/QĐ-TTg, 2022), has clearly identified the development of digital enterprises and comprehensive support for SME digital transformation as strategic priorities. Regionally, the ASEAN Digital Masterplan 2025 (ADM, 2025) emphasizes enhancing digital leadership capacity, fostering digital organizational culture, and strengthening expert networks to support SME sustainability.

In addition, the Asian Development Bank (Asian Development Bank, 2023) highlights that expanding advisory networks and knowledge-sharing platforms can significantly improve SME resilience in the face of economic disruptions.

Therefore, strengthening AIS should not only be viewed as an internal imperative but also as an integral part of broader national and regional development strategies for sustainable enterprise growth.

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