FACTORS AFFECTING THE IMPLEMENTATION OF ACCOUNTING INFORMATION SYSTEM AND ITS IMPACT ON THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES: A STUDY IN THE STATE OF PUNJAB

Thesis Submitted for the Award of the Degree of

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DECLARATION

UNDERTAKING FROM PHD SCHOLAR

I hereby declare that I, Priyanka Koundal, have completed PhD thesis work on the title "Factors Affecting the Implementation of Accounting information system and its Impact on the Performance of Small and Medium Enterprises: A Study in the State of Punjab" under the supervision of Dr. Minie Bhalla , Associate Professor in Accounting and Auditing Department of Mittal School of Business, Lovely Professional University for the degree of Doctorate of Philosophy, Lovely Professional University, Phagwara, Punjab.

This is my original research study and I have not submitted elsewhere.

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DECLARATION CERTIFICATE

I, Priyanka Koundal D/O Mr. Surinder Kumar and Mrs. Kiran Bala certify that research work in this PhD thesis is my own bonafide work carried out under the supervision of Dr. Minie Bhalla Associate Professor in Accounting and Auditing Department of Mittal School of Business, Lovely Professional University for a period of December 2020 to May, 2025 at Lovely Professional University, Punjab. The work embodied in this PhD thesis has not been submitted not for the award of any degree/diploma except where due acknowledgement has been made in the text.

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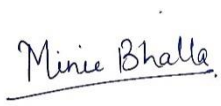

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ABSTRACT

The main aim of this study is to analyse the factors influencing the adoption of Accounting Information Systems and evaluate their impact on the performance of SMEs. The study examines the impact of AIS on key managerial functions such as decision-making, planning, controlling, and coordinating activities while also assessing its impact on the organizational performance of SMEs. Accurate and reliable accounting information is essential for effective management decision-making in business organizations. The growing intricacy and scale of daily transactions make traditional accounting methods insufficient, leading to a transition towards digital solutions. The adoption of AIS in SMEs signifies a notable progression in the management of financial data. This research attempts to examine the implications of AIS adoption in SMEs, emphasizing its potential to enhance operational competence, improve data integrity, and facilitate decision-making processes.

In contemporary management, the reliance on information is paramount for organizational success. Information is often equated with power, underscoring its critical role as a resource that facilitates the development of other resources. The dynamic nature of environments necessitates effective information dissemination across various management levels. The emergence of information systems represents a modern approach aimed at utilizing relevant information to enhance planning, decision-making, and overall outcomes. Consequently, information management is essential and should be regarded as equally significant as personnel, material, and financial resources within an organization.

Accounting is often considered the language of business, and an accounting information system serves as the intelligence and information-providing vehicle of that language. The role of accounting information within an organization is pivotal in assessing its performance and operational effectiveness. The development of sophisticated systems for managing extensive data is essential for ensuring the accuracy and timeliness of information across all management levels. Accounting Information System (AIS) combines Accounting and Information Systems, primarily collecting,

processing, and providing financial information to external and internal users, while accounting itself is an information system. AIS is a combination of principles, practices, and theories that record and account for business transactions in accordance with policies and procedures. It is a structured system designed for identifying, measuring, collecting, analysing, preparing, interpreting, and communicating accounting data. Such advancements facilitate informed decision-making, thereby enhancing the overall efficiency and effectiveness of the services provided by the organization.

The accounting information system, a crucial component of the overall information system, plays a vital role in providing accurate, reliable, and timely information to various decision-making levels within an organization. This information is sourced from actual daily data, making it an essential component of the overall information system. Accounting information systems are integral to modern management practices, serving as vital tools for enhancing planning and operational control. Their significance extends to the decision-making processes within organizations, where the timely and accurate provision of information is crucial. In an era characterized by rapid data generation and accumulation, the reliance on sophisticated accounting information systems becomes imperative for organizations to navigate the complexities of contemporary business environments effectively. The management of every business organization must recognize and leverage these systems to optimize its strategic initiatives and operational efficiency.

Small and medium-sized firms are of substantial importance in promoting economic growth and development, particularly in developing nations. Their contributions transcend basic economic measurements; they are essential for job generation, substantially influencing GDP and fostering innovation and competitiveness. The SME sector is integral to the nation's economy by contributing significantly to GDP, manufacturing output, and exports. The dynamic nature of SMEs underscores their importance in promoting equitable wealth distribution and advancing socioeconomic development across the country. The Industrial Society has rapidly transformed into an Information Society in the rapidly changing world. In order to succeed in a competitive business landscape, organizations must embrace advanced technological

solutions like Accounting Information Systems (AIS) to improve their efficiency and effectiveness. Every business organization necessitates precise and timely accounting information to facilitate decision-making and preserve financial stability, irrespective of its size or scale. Accurate and systematic accounting records are essential for SMEs as they enable effective management and strategic planning. They ensure compliance with regulations, minimize legal penalties, strengthen stakeholder trust, and facilitate well-informed decisions.

However, despite the potential benefits, the studies to analyse the impact of AIS among SMEs, particularly in India, remain limited. While AIS has gained increasing relevance globally, and many SMEs are adopting these systems to improve efficiency, most studies have primarily focused on financial performance, neglecting the specific influence of AIS on non-financial aspects such as planning, controlling, coordination, and decision-making processes. Furthermore, the majority of research has centred on large enterprises or financial institutions, with a limited focus on SMEs. This highlights the need to explore the factors influencing AIS adoption in SMEs and its impact on organizational performance. The Punjab State is promoting SMEs growth through industrial development, infrastructure enhancement, business ease, financial and skill development support, and targeted initiatives for rural areas, aiming to reduce regional disparities and promote inclusive economic development through "MSME-Punjab"(Punjab economic survey 2022-23). while the significance of Accounting Information Systems in enhancing business operations, especially within Small and Medium Enterprises, is increasingly recognized, there exists a notable research gap concerning the specific impacts of AIS in the context of Punjab. The existing literature also reflects a range of perspectives on the influence of AIS on various aspects of business performance, yet there remains a noticeable gap in understanding its impact on the decision-making and non-financial performance of SMEs in Punjab, India. This study seeks to address the existing gap in the literature by systematically assessing the impact of AIS effectiveness on the performance of SMEs in Punjab. This study will provide empirical evidence on how AIS impacts decision-making, planning, controlling, and coordination, areas which

have not been sufficiently covered in the literature, especially within the SME sector in Punjab. Furthermore, it aims to analyse key factors that facilitate the successful adoption of AIS within these enterprises. Additionally, the implementation of AIS, like other technologies, follows a process where organizations encounter different barriers during the implementation phase.

The present study used a quantitative method of research, in which responses are collected through a well-designed structured questionnaire. The Probability sampling technique was used to select the sample from the target population. From the probability sampling techniques, a stratified random sampling technique was applied. This is because Punjab state was divided into four strata, i.e., Majha, Malwa, and Doaba. Four districts were selected from the MALWA region, i.e., Ludhiana, SAS Nagar, Fatehgarh Sahib and Patiala, and one from MAJHA, i.e., Amritsar, and one from the DOABA region, i.e., Jalandhar. Stratified random sampling is helpful in selecting the appropriate respondents who fulfil the purpose of the study by giving information. The sampling frame for this study consists of the registered SMEs in selected districts of Punjab. The composition of this group includes SMEs from the top six districts in terms of the number of SMEs. These districts are located in three regions of Punjab state. The data collection process involved a systematic approach that included the validation and pre-testing of the questionnaire, ensuring its reliability and relevance. Out of the 650 surveys distributed, 424 were returned, with all questions answered, indicating a response rate of 65.23%.

The analysis of the first objective, which encompassed both Descriptive Statistics and the examination of frequency distribution, has provided valuable insights into the factors influencing the adoption of AIS within small and medium enterprises. SPSS 27 was utilized to conduct descriptive statistics. The second objective of the current study was to assess AIS's impact on decision-making in the context of small and medium-sized enterprises (SMEs). The third objective was to analyse the influence of AIS on planning, controlling and coordinating activities of SMEs. Structural equation Modelling was applied to attain these objectives with SMART -PLS4. This evaluation was carried out following a two-step methodology, which included

validating the inner model (measurement model) and considering the outer model (structural model). The impact of AIS on organizational performance was also analysed through structural equation modelling. The present study analysed the impact of AIS on non-financial performance, which includes including customer satisfaction, improvement in product and service quality by providing valuable data on quality metrics, real-time insights that enhance resource allocation and performance monitoring, boosts the agility and responsiveness of SMEs by facilitating the monitoring of market trends and suppliers' information. While AIS is increasingly recognized for its potential to improve business efficiency, decision-making, and overall performance, SMEs often face obstacles that hinder successful Implementation. The fourth objective is to identify the significant barriers that hinder the successful implementation of AIS, thereby highlighting a critical area for further exploration. This study used Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to analyse three main challenges identified from existing literature faced by business organizations in implementing AIS.

Results Revealed that the adoption of accounting information systems is influenced by the perceived usefulness and ease of use. Research shows that when users understand the benefits of AIS in improving job performance and find the system easy to use, they are more likely to accept and effectively use the technology. Therefore, these factors are important for the successful adoption and integration of AIS in organizations. It is evident from the results of SEM-PLS that AIS has a significant positive impact on decision-making; 66.7% of the variability in decision-making (DEM) of SMEs is influenced by AIS. This indicates that AIS has a significant statistical effect on the decision-making process of SMEs. It is also evident from the results that 60.2% of the variability in (PCC) planning, controlling and coordinating activities and 70.09 % variability in (SNFP) SME's non-financial performance of SMEs are influenced by AIS. It indicates the moderate-substantial level of explanatory power. It suggests that an AIS is likely to contribute significantly to an organisation's overall planning, controlling and coordinating activities and non- financial performance of SMEs. Results of EFA and CFA also

highlighted that the obstacles that SMEs encounter when attempting to implement Accounting Information Systems include a lack of efficiency, insufficient accounting skills, and appropriate training.

The presented concluded that accounting information systems improve decision-making processes by providing accurate and timely financial and non-financial information, enhancing strategic, operational, and managerial decisions. It also positively influences planning, controlling, and coordination activities, contributing to organizational efficiency. AIS also significantly impacts non-financial performance, enhancing customer satisfaction, quality improvement, responsiveness, and productivity. However, obstacles like inadequate training, lack of efficiency, and inadequate training hinder its full potential. While the study offers important insights into SMEs in Punjab, its regional focus limits the generalizability of its findings. The distinct economic and technological landscape of Punjab may not be representative of other areas, highlighting the need for future research to include SMEs from various geographic locations. This broader approach would facilitate a more nuanced understanding of the challenges and perceptions related to technological systems in diverse contexts.

Keywords: Accounting Information System, SMEs sector, Decision Making, Organizational Performance, structural equation modelling.

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ABBREVIATIONS

AIS	Accounting Information System
AMOS	Analysis of Moment Structures
AVE	Average Variance Extracted
BSD	Basic strategic decisions
CFA	Confirmatory Factor Analysis
CMV	Common Method Variance
CVR	Content Validity Ratio
CR	Composite Reliability
CVR	Content Validity Ratio
DV	Dependent Variable
DV	Discriminant Validity
DEM	Decision Making
GVA	Gross Value Added
HOC	Higher Order Construct
HTMT	Heterotrait- Monotrait Ratio
HRMD	Human resource management decisions
IAS	Insufficient accounting skills
INT	Inadequate Training
IV	Independent Variable
IQ	Information Quality
KMO	Kaiser-Meyer-Olkin

LV	Latent Variable
LOC	Lower Order Construct
LOE	Lack of Efficiency
MD	Manufacturing decisions
MKD	Marketing Decisions
MM	Measurement Model
PLS	Partial Least Square
PU	Perceived usefulness
PEOU	Perceived Ease of use
R^2	Coefficient of determination
SEM	Structural Equation Modelling
SEQ	Service Quality
SNFP	SME's Non-financial Performance
SYQ	System Quality
SPSS	Statistical Package for Social Sciences

CHAPTER 1
INTRODUCTION

This chapter introduces SMEs, their contribution to the economy, AIS meaning, its benefits, needs, and importance, and the opportunities for SMEs with AIS. It describes the study rationale, outlines the research questions to be answered and explains the scope of the research. The detailed organization of this chapter is as follows:

1.1 Research Background

Small and medium-sized firms (SMEs) are of significant importance in promoting economic growth and development, particularly in developing nations. Their contributions transcend basic economic measurements; they are essential for job generation, substantially influencing GDP and fostering innovation and competitiveness. The SME sector is an integral part of the nation's economy by contributing significantly to GDP, manufacturing output, and exports. It not only fosters rural industrialization and supports backward regions but also serves as a major source of employment, second only to agriculture(Surya et al., 2021). The dynamic nature of SMEs underscores their importance in promoting equitable wealth distribution and advancing socioeconomic development across the country(Wibowo, 2023). The Industrial Society has undergone a rapid transformation into an Information Society in the rapidly changing world. In order to succeed in a competitive business landscape, organizations must embrace advanced technological solutions like Accounting Information Systems (AIS) to improve their efficiency and effectiveness(Vo Van et al., 2024). AIS is an important tool in the modern business environment for a variety of functions, including external reporting, managerial decision-making, and strategy planning.

Accounting is an information system that aims to meet user needs by providing valuable information. It has had a strong relationship with computers since the 1960s, and it has evolved with the growth of networks and decision-support systems since the 1980s(Grande et al., 2011). This computerization of accounting has led to the creation of various

accounting software programs, making them more flexible and accessible to users. Accounting has evolved significantly from its traditional practices to incorporate advanced technology, particularly through the integration of computers and software. This transformation has enhanced the quality and accessibility of financial and non-financial information, allowing users to make informed decisions. The ongoing development of accounting software reflects the growing demand for efficient information systems that cater to diverse user needs, marking a pivotal shift in the field of accounting.

Modern businesses require accurate, timely, and high-quality information for strategic decision-making(Al Dhaen, 2021). The Accounting Information System (AIS) is a computerized method for documenting and tracking a company's accounting procedures using IT capabilities. It gathers, saves, processes, and presents financial and accounting data for decision-making. AIS supports tax, managerial accounting, financial accounting, reporting, and auditing and is often used by management teams and interested parties like creditors, investors, and tax authorities. It helps in obtaining, storing, and evaluating financial and accounting data. Effective accounting information systems are significant for organizations as they enhance performance by providing accurate and timely data. These systems enable better management and decision-making, ensuring that facilities can efficiently handle the vast amounts of information required for operational success.

Every business organization necessitates precise and timely accounting information to facilitate decision-making and preserve financial stability, irrespective of its size or scale(Hall, 2019). Effective decision-making in commercial units hinges on the ability to gather, analyse, and utilize relevant information. From pricing strategies to employee management and financial tracking, the choices made by businesses are fundamentally driven by the data available to them. Therefore, establishing robust systems for information management is crucial for achieving competitiveness and profitability in any commercial endeavour. SMEs need Accounting Information Systems for enhanced financial

management, improved decision-making, regulatory compliance, operational efficiency, scalability, and cost control. AIS helps track financial transactions in real-time, enabling accurate cash flow, profits, and expenses(Romney et al., 2012). It also streamlines financial reporting, reducing errors and non-compliance. AIS automates tasks like invoicing, payroll, and reconciliation, reducing administrative burdens. Its scalability allows SMEs to handle complex financial transactions without operational disruptions(Al-Hattami, 2022). AIS also helps SMEs monitor costs, identify cost-saving opportunities, and improve profitability for smaller enterprises with limited capital.

AIS implementation in every business unit is the main ingredient for success(Khan, 2022). A secure and well-built information system is essential. Implementing an Accounting Information System in SMEs is crucial as it greatly affects different business activities such as performance, planning, and decision-making. There is a pressing need for an in-depth investigation that will analyse the factors that contribute to the adoption of Accounting Information Systems in the SMEs sector. This study will also examine the effects of implementing these systems on decision-making, planning, controlling, and coordinating activities within SMEs. While the implementation of AIS does provide significant advantages, SMEs often encounter numerous challenges throughout the implementation process. Consequently, it is essential to undertake a study that investigates the particular difficulties encountered by small and medium-sized enterprises when they implement accounting information systems. Addressing these challenges is essential to ensuring that SMEs can fully leverage the benefits of AIS for their overall performance and long-term growth.

The MSME sector in Punjab is a vital contributor to the region's economic landscape, offering significant employment opportunities and fostering industrial growth, particularly in rural and underdeveloped areas(B. Singh & Khanduja, 2010). The presence of over 200,000 small-scale units across various industries underscores the sector's importance in driving socioeconomic progress. The government's establishment of 'MSME

Punjab' signifies a strategic initiative aimed at enhancing the competitiveness and sustainability of MSMEs(Mehta, 2021; N. Sharma, 2015). With a focus on critical areas such as credit access, technology modernization, quality assurance, and management practices, this initiative is poised to strengthen the MSME framework in Punjab, thereby promoting balanced regional development and economic resilience. An extensive literature review reveals no study on accounting information systems related to SMEs in Punjab, despite being one of the top 10 states for MSMEs according to the Ministry of Micro, Small, and Medium Enterprises(msme.gov.in). A study focused on SMEs in Punjab is anticipated to yield significant insights regarding the quality of accounting information and its influence on organizational performance and decision-making processes. Additionally, the research will explore the implementation of Accounting Information Systems and its implications for SMEs. The findings are expected to be beneficial for tax authorities because financial reports generated through AIS will be more

authentic and transparent. The implementation of Goods and Services Tax (GST) in India has significantly impacted accounting practices, necessitating the use of computerized accounting software for businesses, including SMEs. This software simplifies record-keeping, filing, and tax compliance, making it crucial for the SME sector to effectively manage finances.

The study aims to fill a gap in the academic literature by analysing factors leading to the adoption of Accounting Information Systems in SMEs in Punjab state. It will provide empirical evidence on how AIS impacts organizational functions, such as decision-making, planning, controlling, and coordination. This study will also analyse the impact of AIS on the organizational performance of SMEs. In this study, we consider non-financial performance. There are studies that measured financial performance in the same context, but there is an absence of studies that analyse the impact of AIS on non-financial performance. AIS furnish accounting information that impacts the financial and non-financial performance of businesses(Sunarta & Astuti, 2023). Financial performance

and non-financial performance are the two aspects used to measure organizational performance utilizing a tool created by (Z. Wang et al., 2014, 2016). Financial performance is assessed using six indicators, namely: 1) return on investment, 2) return on assets, 3) return on credit, 4) average profitability, 5) profit growth, and 6) customer growth. The assessment of non-financial performance is based on five criteria: (1) satisfaction with the customer, (2) quality improvement, (3) regular management, (4) responsiveness, and (5) productivity. It will highlight implementation challenges. The findings may have broader implications for policymakers and regulatory bodies, leading to the development of policies that support AIS adoption. The study will also demonstrate how AIS impacts non-financial aspects, such as organizational coordination and planning, and demonstrate how these systems contribute to improved operational efficiency. It will also lay the groundwork for future research in technology adoption in accounting systems, AIS implementation, and SME performance.

1.1.1 SMEs Sector

MEs significantly impact developing countries' economic growth by driving innovation, job creation, and poverty alleviation, enhancing competitiveness and contributing to a nation's overall economic structure. SMEs are vital for economic stability, growth, and entrepreneurship, contributing to a diversified and resilient economy, especially in developing countries, by fostering entrepreneurship and job creation(Amoah et al., 2022; Surya et al., 2021). In addition, the World Bank has stated on its website that small and medium-sized businesses (also known as SMEs) play a significant role in the majority of economies globally, particularly in developing nations. The majority of businesses throughout the world are small and medium-sized enterprises, which are also significant contributors to the creation of jobs and the growth of the global economy. They represent 90% of enterprises and 50% of jobs worldwide. Up to 40% of emerging economies' GDP comes from formal SMEs. Informal SMEs boost their numbers greatly(Naradda Gamage et al., 2020). We predict 600

million jobs will be needed by 2030 to absorb the rising global workforce; thus, many governments will prioritise SME development (World Bank, 2022).

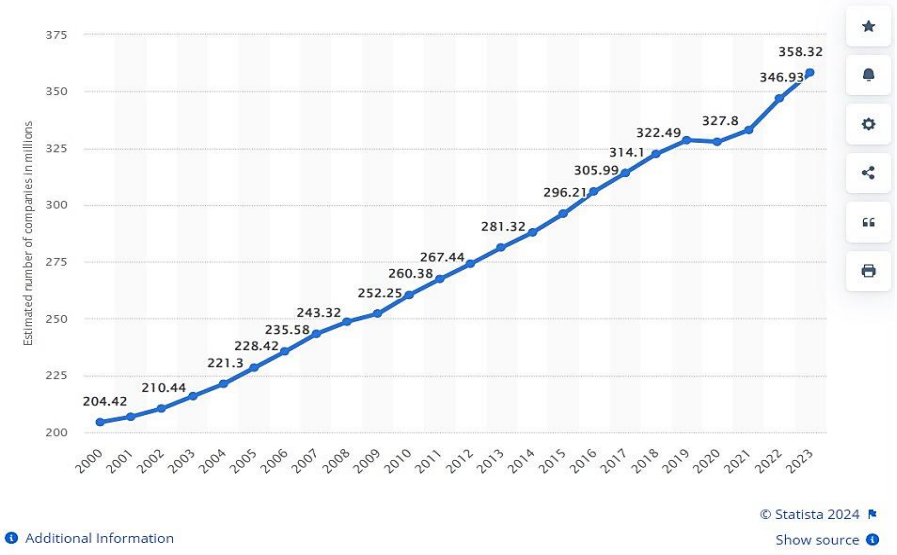


Figure 1.1- Estimated number of Small and Medium sized enterprises (SMEs) worldwide from 2000 to 2023(in millions)

The data illustrates in **Figure 1.1** a significant and consistent increase in the number of small and medium-sized enterprises (SMEs) worldwide from 2000 to 2023, rising from approximately 204.42 million to an estimated 358.32 million. This upward trend, particularly pronounced after 2015, underscores the vital role that SMEs play in the global economy, reflecting their increasing importance and contribution to economic growth and development over the past two decades. The number of small and medium-sized enterprises (SMEs) worldwide has seen a 75% growth from 2000 to 2023, indicating their critical role in economic development. The post-2008 recovery and expansion of SMEs suggest resilience, especially after the 2008 financial crisis. The period after 2015 saw strong growth attributed to technological advancements, digital transformation, and increased access to global markets. Digital tools, such as Information systems like Accounting Information Systems, have facilitated SMEs' growth, enabling them to overcome traditional barriers to scaling up(Al-Okaily et al., 2023; BinSaeed et al., 2023). However, enhanced support

systems, such as better access to finance and updated regulatory frameworks, are needed to sustain and accelerate SMEs' growth.

1.1.2 Indian SMEs Sector

SMEs in India have effectively aligned with the socio-economic policies established by the Government of India, demonstrating their pivotal role in fostering economic growth and stability(Baswala, 2020). By adhering to principles such as judicious foreign exchange usage, labour-intensive production, and the promotion of equitable economic power distribution, SMEs have not only contributed significantly to domestic production and export earnings but have also showcased operational flexibility and low investment requirements(Abonyi, 2015; Raju, 2008). Their ability to develop indigenous technologies and engage in import substitution further underscores their importance in enhancing national self-reliance and competitiveness in both domestic and international markets. Overall, the performance of SMEs reflects a successful implementation of government policies aimed at promoting sustainable economic development and reducing monopolistic tendencies within the industrial sector.

The Ministry of the Indian SME sector highlights the significant contribution of the small and medium enterprises (SMEs) sector to the Indian economy. Over the past five decades, SMEs have grown actively, fostering entrepreneurship and generating large employment opportunities at lower capital costs. They complement large industries as ancillary units, contributing to inclusive industrial development and contributing to the country's economic growth(**https://msme.gov.in/about-us/about-us-ministry)**. The definition of MSMEs varies from country to country, but in an Indian context, **As per the annual report of the Ministry of Micro, Small and Medium Enterprises of India (2020-2021**), The definition of a **micro-enterprise**, "where the investment in Plant and Machinery or Equipment **does not exceed one crore rupees and turnover does not exceed five crore rupees;** (ii) a **small enterprise**, where the investment in Plant and Machinery or Equipment **does not exceed ten**

crore rupees and turnover does not exceed fifty crore rupees; (iii) **a medium enterprise**, where the investment in Plant and Machinery or Equipment **does not exceed fifty crore rupees and turnover does not exceed two hundred and fifty crore rupees**. **It shall come into effect from 01.07.2020"** (Ministry of MSME, 2021)**.**

The MSMED Act of 2006 had a classification criterion for MSMEs based on investment in plant and machinery/equipment, with manufacturing and service units held to a different standard(Nandeeswariah & Ramana, 2021). The Aatmnirbhar Bharat package announced a modification in the classification criteria in May 2020 to be realistic and make doing business easier(Subrahmanya, 2021). The Aatmnirbhar Bharat package has given the MSME sector substantial allocation and priority in the implementation of measures to revive the economy. The Micro sector accounts for more than 99% of the total estimated number of MSMEs, while the small and medium sectors account for 0.52% and 0.01% of the total(B. B. Sahoo & Swain, 2020; Saikia, 2018). The Ministry of MSME launched the Udyam Registration Portal in July 2020 to facilitate new and existing MSMEs, aiming to reduce transaction time and costs for entrepreneurs and promote ease of doing business. The registration process is free, paperless, and digital, with no need for renewal or costs.

Information technologies, like information systems, automate administrative and operational business processes across industries, improving productivity. However, rapid technological advancements and rapid communication lead to a turbulent business pace, requiring SMEs to upgrade their technology infrastructure to provide high-quality information to meet their requirements(Bi et al., 2015). The ongoing digital transformation in small and medium-sized enterprises highlights the critical role of information technology (IT) in enhancing business operations. As SMEs increasingly acknowledge the importance of robust IT infrastructure, particularly through adopting accounting information systems, they position themselves as vital contributors to economic growth and employment(Bhagwat & Sharma,

2007; Ghobakhloo et al., 2011). The development of SMEs in India has been significant and driven by initiatives like Digital India that aim to enhance the ecosystem for manufacturing and services. With a substantial contribution to the GDP and industrial output and job creation, SMEs play a crucial role in the Indian economy(Shelly et al., 2020). Their increasing importance is reflected in the projections of their contribution to GDP, highlighting the potential for continued growth and development in this sector.

Indian SMEs play a key role in the nation's economy, demonstrating a robust technological foundation and a competitive spirit(Rajeevan et al., 2015). Their readiness to embrace change positions them favourably to tackle the challenges associated with adopting advanced IT tools. Notably, the high percentage of SMEs with internet access indicates a significant potential for digital transformation, enabling automated accounting systems through AIS to streamline financial operations, reduce human errors, and provide real-time financial insights for more effective decision-making(Ibrahim et al., 2020). Companies are implementing information systems such as accounting information systems to enhance coordination, decision-making processes, and customer effectiveness in response to global competition and domestic rivalry (Nair et al., 2019). The transition of SMEs to digital accounting through the adoption of AIS is a pivotal development that holds the potential to significantly enhance organizational performance. The advantages of AIS, particularly in terms of efficiency, accuracy, organizational performance, needs comprehensive research to better understand its impact on managerial functions such as decision-making, planning, controlling, and coordination within SMEs. Such investigations are crucial for equipping these enterprises with the knowledge necessary to effectively navigate the complexities of digital transformation, optimize resource allocation, and secure sustainable growth in a competitive digital economy. Thus, advancing our comprehension of AIS's role in SMEs is vital for promoting their adaptation and success

in the modern business environment. This gap highlights the need for additional empirical research to determine the specific factors contributing to adopting AIS in SMEs. It is also important to understand the challenges they face while implementing AIS. The growth and integration of SMEs into the digital economy can be facilitated by identifying and addressing these obstacles.

1.1.3 Accounting Information System

The accounting information derived from the accounting system is considered high quality based on the specific characteristics defining the accounting information quality. High-quality accounting information is essential for stakeholders to make informed decisions that align with their specific needs(Budiarto et al., 2018). The effectiveness and efficiency of an organization's services heavily rely on the accuracy and timeliness of the accounting data provided. Therefore, organizations must develop and implement advanced accounting systems that can effectively manage large volumes of information. It ensures that reliable information is available at all management levels, and organizations can enhance their decision-making processes and overall performance(Sunarta & Astuti, 2023).

The accounting information system is essential for organizational success as it delivers timely and accurate data for informed decision-making. Its integration within the broader information system ensures that management can access reliable reports and lists derived from real-time data, thereby enhancing the effectiveness of strategic decisions(Olumoye, 2013). AIS is widely adopted worldwide for its adaptability and comprehensive coverage of financial and non-financial information for decision-making, management control, and performance management(Saad, 2023). It simplifies the accounting process for businesses by using computer programs for payroll and other functions. These systems, including accounting software, compile financial data for taxes, payroll, and other accounting requirements, including expenses and profits.

An AIS is a structured system that collects, processes, and reports financial data for effective management and planning(Al-Hattami et al., 2022a). It includes procedures, forms, and records to produce accurate financial reports. AIS functions include data collection and processing, financial reporting, automation and efficiency, decision support, and internal control. Modern AIS often uses software to streamline processes, enhance accuracy, and reduce manual errors. Its importance lies in providing critical insights for strategic planning and operational control. Accounting Information Systems (AIS) are essential tools for modern business organizations, providing a structured approach to collecting, storing, and processing financial data. It automates various accounting functions; AIS enhances the efficiency, accuracy, and accessibility of financial information(Mitrović, 2016). This leads to timely financial reporting, effective budgeting and forecasting, and improved cost tracking and analysis. Furthermore, AIS ensures regulatory compliance and supports informed decision-making by delivering real-time insights. Overall, the integration of AIS into business operations significantly contributes to better management and strategic planning, ultimately driving organizational success.

1.2 PUNJAB

Punjab is often referred to as the "Breadbasket of India" due to its substantial contribution to the nation's food grain supply. Covering only 1.5% of India's total geographical area, Punjab accounted for over 20% of the rice and approximately 10% of the wheat in the central pool during the 2022-23 period. The agricultural sector, which is the backbone of Punjab's economy, employs around 26% of the workforce and contributes about 25% to the state's Gross Value Added (GVA).

Agriculture enhances the state's economic performance and facilitates the growth of the industrial and service sectors. The industrial sector is vital for Punjab's economic development, contributing nearly 25% to the state's GVA and providing one-third of employment opportunities. However, the services sector has emerged as the largest contributor to the economy, leading in GVA and employment generation, highlighting

its dominant role in Punjab's economic landscape. As Punjab continues to evolve, the interplay between agriculture, industry, and services remains crucial for sustaining economic growth and development in the region.

Punjab's industrial sector plays a crucial role in the state's economy, contributing significantly to its Gross State Value Added (GSVA) and employment. As of the 2022-23 economic survey, the industrial sector accounts for approximately 25% of Punjab's GSVA, with a projected growth rate of 4% for the year. Manufacturing is the leading sub-sector, highlighting the importance of regional production activities.

Despite a decline in the agricultural sector's share of GSVA over the years, it remains a vital component of Punjab's economy. The state has seen a shift towards a more diversified economic structure, with the services sector also gaining prominence, growing from 43% of GSVA in 2011-12 to 46% in 2022-23. This shift indicates an evolving economic landscape where industrial activities are increasingly important.

Employment-wise, the industrial sector is responsible for about one-third of total employment in Punjab, showcasing its role as a significant job creator. The government has implemented various initiatives to promote industrial development, including enhancing infrastructure and supporting small and medium enterprises, which is essential for sustaining economic growth.

Table 1.1 reflects the sector-wise composition of Gross Value Added (GVA) and employment in Punjab:

Sectors	Employment Share (2017-18)	Share in GVA (2022-23)
Agriculture and Allied Activities	26%	25%
Industry	33.10%	25%
Services	40.90%	50%

Source- Sector-wise composition of GVA (2022-23) and Employment from Punjab Economic Survey 2022-23

1.2.1 SMEs Sector in Punjab

The SME (Small, and Medium Enterprises) sector is vital for Punjab's economic landscape, as highlighted in the Punjab Economic Survey 2022-23. This sector plays a significant role in generating employment opportunities at relatively low capital costs, making it an essential driver for economic growth and development(Gupta et al., 2021). SMEs contribute to the industrialization of rural and backward areas, helping to mitigate regional disparities and fostering socioeconomic growth.

Punjab boasts a robust base of over 200,000 small-scale units involved in various industries, including auto components, bicycle parts, hosiery, sports goods, and agricultural implements. This diverse industrial base supports local economies and enhances the state's overall industrial output.

To further bolster the MSME sector, the Punjab government has established 'MSME Punjab' under the Punjab Industrial and Business Development Authority(Singla & Grover, 2012). This initiative focuses on several key functions to enhance the competitiveness and sustainability of MSMEs in the evolving economic landscape.

The functions of MSME Punjab are designed to enhance the overall competitiveness and sustainability of small and medium enterprises in the state(Manhas et al., 2015). One of the primary objectives is to improve the competitiveness of these enterprises in response to changing market dynamics, ensuring they remain viable and efficient. To support this goal, the initiative facilitates access to credit by ensuring a steady flow of financial resources from banks and financial institutions, which is crucial for the operations and expansion of SMEs. Additionally, SME Punjab provides essential support for technology modernization and upgradation, enabling these enterprises to adopt innovative practices that enhance productivity. Establishing modern testing facilities and quality certification processes is another key

function, ensuring that products meet industry standards and improving their marketability.

Moreover, SME Punjab offers access to contemporary management practices, which helps businesses operate more efficiently and effectively(J. Singh, 2022). The initiative also emphasizes product development support, focusing on design intervention and packaging, which assists SMEs in creating competitive and appealing products. Collectively, these functions underscore the commitment of SME Punjab to foster a robust ecosystem for small and medium enterprises, driving economic growth and development in the region.

The manufacturing and service sectors of SMEs in Punjab encompass a variety of activities that contribute significantly to the state's economy. According to the Punjab Economic Survey 2022-23, manufacturing SMEs primarily produce goods across various industries, including auto components, bicycle parts, hosiery, sports goods, and agricultural implements. These activities generate employment and foster innovation and competitiveness within the sector.

In the service sector, SMEs are involved in diverse activities such as retail, hospitality, healthcare, and IT services. These enterprises provide essential services that support both local communities and larger industries. The growth of service SMEs has been notable, with this sector increasingly contributing to the state's Gross Value Added (GVA) and employment.

Table 1.2-The distribution of SME units across various districts in Punjab, with a total of 29,266 units.

S. No.	District Name	No. of Units
1	LUDHIANA	10106
2	JALANDHAR	2732
3	AMRITSAR	2438
4	PATIALA	1549
5	SAS NAGAR	2308

6	BATHINDA	1213
7	SANGRUR	1081
8	HOSHIARPUR	663
9	MOGA	490
10	GURDASPUR	593
11	KAPURTHALA	511
12	FIROZEPUR	416
13	FAZILKA	556
14	SRI MUKTSAR SAHIB	514
15	TARN TARAN	192
16	BARNALA	383
17	FARIDKOT	330
18	FATEHGARH SAHIB	1782
19	SHAHID BHAGAT SINGH NAGAR	228
20	MANSA	368
21	RUPNAGAR	325
22	PATHANKOT	394
23	MALERKOTLA	94
Total		29266

Source- District-wise no. of SMEs units in Punjab as per msme.gov.in

The distribution of Small and Medium Enterprises across Punjab's districts reveals a complex industrial landscape characterized by distinct regional specializations. Ludhiana's pre-eminence as the leading industrial hub, particularly in textiles and related sectors, underscores its critical economic role within the state. The subsequent contributions of Jalandhar, Amritsar, SAS Nagar, Patiala, and Fatehgarh Sahib further illustrate the diversity of Punjab's industrial base, encompassing traditional manufacturing and growing sectors such as information technology and pharmaceuticals. This analysis highlights the concentration of SME units in these districts and emphasizes the importance of fostering a balanced industrial ecosystem that can support established and emerging industries in Punjab. As per

Punjab economic survey 2022-23, Punjab's key industry clusters drive industrialization in rural and backward areas, addressing regional imbalances. Amritsar focuses on agri & food processing, yarn & textiles, tourism, and switch gears. Ferozepur specializes in agriculture implements, cotton ginning, and agriculture-related activities. Jalandhar is a hub for agricultural implements, sports goods, wooden furniture, leather tanning, surgical instruments, auto components, and hand tools. Hoshiarpur produces agricultural implements, rosin & turpentine oil, paints & varnish, and paperboard. Ludhiana specializes in auto components, bicycles, hand tools, hosiery & knitted outerwear, fasteners, and food processing. Mohali focuses on IT/ITeS & innovation, electronics system design and manufacturing, education & research institutes, automobiles, and bathroom fittings. Fatehgarh Sahib contributes to the heavy manufacturing sector.

1.3 Research Motivation

As per the Punjab Economic Survey 2022-23, Punjab State is actively fostering the growth of the SMEs sector through a comprehensive approach that includes industrial development, infrastructure enhancement, improved ease of doing business, financial and skill development support, and targeted initiatives for rural and backward areas. These efforts emphasize the state's dedication to strengthening the SMEs sector as a vital component of its economic strategy, aiming to drive industrial growth, reduce regional disparities, and promote inclusive economic development. The Punjab government established "MSME-Punjab" to promote MSMEs' growth and expansion, focusing on increasing competitiveness and technology up-gradation.

Accounting Information Systems can be a vital asset for the growth and development of SMEs in Punjab. They provide essential tools for financial management, decision-making, and operational efficiency. AIS allows for accurate financial reporting, cost control, and better forecasting, enabling SMEs to make informed decisions about pricing, expansion, investments, and resource allocation. It also supports compliance with tax laws and regulatory requirements, generating reports for GST, income tax, and other statutory filings. AIS also automates routine tasks, allowing business

owners to focus on strategic activities. It also optimizes resource use by integrating accounting, procurement, and sales functions. AIS also supports growth and scalability, facilitating access to finance and enabling SMEs to adopt e-governance tools and integrate with modern financial technologies. Thus, AIS helps SMEs in Punjab to achieve greater financial control, operational efficiency, and compliance, fostering growth and enabling them to compete more effectively in local and global markets.

The Punjab Government has launched several initiatives to promote digital transformation in SMEs. These include the Invest Punjab Business First Portal, which streamlines regulatory clearances; the "MSME Punjab" initiative, which focuses on improving SMEs competitiveness through technology upgrades and e-governance projects to improve public service delivery; and the Punjab Skill Development Mission, which aims to skill women and persons with disabilities in digital literacy and entrepreneurship. These measures aim to streamline business operations and encourage technology adoption.

The integration of Accounting Information Systems into SMEs in Punjab presents a significant opportunity to advance the government's economic objectives, as detailed in the Punjab Economic Survey 2022-23. It enhances regulatory compliance, facilitates technological modernization, improves financial transparency, supports e-governance initiatives, and promotes rural industrialization. AIS can significantly streamline their managerial operations and foster growth within the SMEs sector. This alignment with government goals not only supports the region's economic development but also contributes to a more competitive and efficient business environment for SMEs across Punjab. This initiative has the potential to enhance Punjab's GDP. This study can highlight the impact of implementing AIS and promoting digital transformation among SMEs in Punjab, thereby contributing to the revival and rejuvenation of these enterprises in the region.

1.4 Statement of the problem

Accounting Information Systems are vital for enhancing SMEs' competitiveness and operational efficiency in Punjab. This research investigates the factors driving AIS adoption, including perceived usefulness and ease of use, variables from the widely used technology acceptance Model. It also examines how AIS impacts managerial decision-making by providing accurate financial and non-financial information. The study also assesses AIS's influence on planning, controlling, and coordinating activities, analysing its contribution to organizational efficiency. The research also identifies challenges SMEs face in implementing AIS, such as lack of efficiency, inadequate training, and insufficient accounting skills. The aim is to provide a comprehensive understanding of AIS adoption, its impact on decision-making, organizational activities, organizational performance, and the challenges SMEs face in leveraging these systems.

1.5 Scope of Study

This study focuses on Small and Medium Enterprises located in Punjab. Data were collected from managers, accountants, owners, and other individuals associated with the accounting departments of SMEs across the top six districts in terms of SME units: Ludhiana, Jalandhar, Amritsar, SAS Nagar, Fatehgarh Sahib, and Patiala. The research encompassed 424 SMEs, comprising 166 from the manufacturing sector and 258 from the services sector. The study examined key business sectors, including hosiery, ready-made garments, textiles, machine and hand tools, chemical industries, bicycle and bicycle parts, repair services, trade, transport, IT/ITeS and innovation, steel re-rollers, sewing machine parts, and financial services. This research seeks to identify the key factors affecting the adoption of Accounting Information Systems within SMEs in Punjab. It also analyses the impact of AIS on SME's managerial activities and organizational performance. The significant role of SMEs in national economic development, coupled with the transformative potential of AIS, suggests that this study's findings will provide important insights for business practitioners, academics, and policymakers. These insights will

assist in developing strategies and policies to improve AIS implementation and utilization in SMEs, thereby contributing to their operational efficiency and growth.

1.6 Research Questions

- What are the factors that led to the adoption of the Accounting Information System in selected SMEs?
- How does implementing an Accounting Information System impact the decision-making of selected SMEs?
- How does implementing Accounting Information Systems affect selected SMEs' planning, controlling, and coordinating activities?
- What are the challenges SMEs face in implementing Accounting Information Systems?

1.7 Structure of the Thesis

There are the following chapters in the thesis: -

Chapter 1 This chapter introduces the research background, problem statement, and significance of the study. It discusses the relevance of SMEs globally and in the Indian context, the reason for choosing this sector, and Punjab's contribution to economic development. The study also discusses the benefits, needs, and importance of accounting information systems for SMEs. The rationale, research questions, and scope of the study are also discussed.

Chapter 2 This chapter reviews existing literature on various research objectives, including literature on variables used and their rationale. It discusses previous research on the SMEs industry, identifies research hypotheses, and addresses gaps found through an extensive literature review.

Chapter 3 This chapter details the research design, population, variables, survey items, research instrument, sample size, sampling technique, survey tool, method of data collection, and data analysis techniques. It outlines the strategies and processes to achieve study objectives and hypotheses, including the research design, sampling technique, sampling framework, and data source.

Chapter 4 This chapter analyses data to solve problems and presents it in tabular format. It discusses the factors leading to SMEs' adoption of accounting information systems in Punjab. The chapter is divided into two major classifications: Descriptive Statistics and Analysis of Factors Leading to AIS Adoption. The first sector provides demographic information about respondents and organizations, while the second section analyses factors leading to AIS adoption in Punjab's SMEs with Descriptive statistics.

Chapter 5 This chapter determines the impact of Accounting Information Systems on the decision-making processes of small and medium-sized enterprises. It thoroughly analyses, including operational definitions, literature, and statistical tests like the KMO measure and Bartlett's test. The study also assesses common method variance and evaluates the reliability and validity of the constructs. The data analysis was conducted using SEM and SMART-PLS4 software.

Chapter 6 This chapter analyses AIS's influence on SMEs' planning, control, and coordination activities. It tests the study's conceptual model, considering the impact of AIS on non-financial performance. The analysis includes operational definitions of variables supported by relevant literature. Key statistical tests, such as the KMO measure and Bartlett's test, are used to assess sampling adequacy and reliability. The data analysis is conducted using structural equation modelling (SEM) with SMART-PLS4 software.

Chapter 7 This chapter examines the challenges SMEs encounter in the implementation of AIS. An extensive literature review was conducted to identify relevant factors associated with these challenges. In the first section, Exploratory Factor Analysis (EFA) was applied using SPSS to assess whether these variables align with the factors within the context of this study. In the second section, these factors were validated and confirmed through Confirmatory Factor Analysis (CFA) using SPSS AMOS 26 Graphics.

Chapter 8 This chapter presents the research study's findings and conclusion, summarizing the analysis and interpretation, revealing the broad conclusion of the study, and including a discussion of the findings.

Chapter 9 This chapter encompasses implications, limitations, recommendations, contributions, and suggestions for future research.

CHAPTER 2:

REVIEW OF LITERATURE

A literature review thoroughly analyses existing scholarly works on a particular topic, identifies knowledge gaps, synthesises relevant information, and provides context for new research. This chapter deals with the study of relevant literature for the thesis. In order to get a complete understanding of the impact of accounting information Systems on SMEs' decision-making, planning, controlling, and coordinating activities and organizational performance, a comprehensive review of the literature was undertaken. The past and contemporary studies clarifying various dimensions of AIS, DEM, PCC, SNFP and challenges faced during implementation have been carefully examined. To support the need of this study, the gap in the previous studies was identified. Extant existing literature has been categorized as follows:

2.1 Literature on factors affecting Adoption of Accounting information systems

2.2 Literature on the Impact of Accounting Information Systems on Decision-Making

2.3 Literature on the Influence of Accounting information systems on planning, controlling and coordinating activities and Organizational Performance of SMEs

2.4 Literature on Challenges in the Implementation of an Accounting Information Systems

2.1 Literature on Factors Affecting the Adoption of AIS

2.1.1 An Overview of Accounting Information System (AIS)

An Information System (IS) is a structured framework that collects, processes, stores, and distributes information within an organization. It consists of hardware, software, data, procedures, and people. The primary purpose of an IS is to support operations, management, and decision-making by providing timely and accurate information. By enabling effective control and reporting, an Information System helps organizations achieve their objectives and goals(Gelinas et al., 2018). It is

a system with interconnected components collaborating to accomplish a specific purpose.

Accounting is a fundamental process that involves recording, summarizing, and reporting business transactions. It is essential for businesses as it helps in making informed decisions and provides information to stakeholders(Bilal & Tawfik, 2022). The accounting field encompasses various areas, such as financial accounting, managerial accounting, and taxation. Accounting has great significance in these areas as it facilitates tasks such as payroll, accounts receivable, accounts payable, inventory management, and budgeting. The use of computers in accounting started in the 1960s, and this connection developed further with the introduction of networks and decision-support systems in the 1980s (Rosati & Paulsson, 2017). The computerization of accounting has brought about increased flexibility and a broader range of accounting practices (Hosack et al., 2012). As a result, numerous accounting software programs have been created and are easily accessible to those interested in the market.

Accounting software packages play a crucial role in the Accounting Information System (AIS) by utilizing computer technology to provide real-time information to users (Minovski et al., 2020; Trigo et al., 2014a). AIS is an integration of accounting and information systems that incorporates technology to enable immediate access to business data. This immediate access to current data enables users to make informed decisions regarding costing, whether in large-scale projects or individual products, by leveraging information from previous projects and sales. The ability to quickly and accurately communicate this information through various mediums enhances its value. Accounting software is a valuable tool for businesses, providing basic accounting functions such as input, processing, and output. There are two classifications of accounting software: low-end and high-end. Low-end software is suitable for small companies as it combines all accounting functions into one software (Basile et al., 2002; Shveda et al., 2021). High-end software, on the other hand, separates each accounting function into modules, allowing for more

efficient data processing and producing various outputs. Personal computer-based accounting software has further enhanced the capabilities of accounting systems by enabling the computerization of manual systems and facilitating connectivity between multiple computers via networks. This has greatly improved the speed and accuracy of processing transactions for companies operating in different locations.

AIS is a combination of Accounting and Information Systems, primarily responsible for collecting, processing, and providing financial and non-financial information to both internal and external users, although the recognition of accounting as an information system is relatively recent(Monteiro & Cepêda, 2021). Accounting, as an information system, is designed to cater to the varied needs of its users by offering a plethora of valuable information. The main goal is to enhance the quality, quantity, and methods of information. AIS also aid accountants in maintaining general ledger information, creating spreadsheets for strategic planning, and distributing financial reports.

Accounting is often considered the language of business, and an accounting information system (AIS) is the intelligence of that language. It involves data identification, collection, storage, development, measurement, and communication, making it an information system that collects, records, stores, and processes data for decision-making. It is a system that efficiently collects, records, stores, and processes data in order to generate valuable information for decision-makers (Romney et al., 2012). AIS subsystems handle both financial such as sales of products to customers, purchases of inventory from vendors, and cash disbursements and receipts and non-financial transactions, such as customer changes, to maintain customer files and keep track of inventory levels. The AIS consists of three primary subsystems: the Transaction Processing System (TPS), responsible for supporting day-to-day business activities by generating reports and documents; the General Ledger/Financial Reporting System (GL/FRS), which produces conventional financial statements; and the Management Reporting System (MRS), which delivers specialized financial reports and decision-

making information for internal management purposes. The components of this system encompass individuals, protocols, data, software, IT infrastructure, and measures for internal controls and security.

An AIS consists of six components:

1. The individuals utilizing the system.

2. The methods and guidelines employed for data collection, processing, and storage.

3. The information pertaining to the organization and its business operations.

4. The software utilized for data processing.

5. The AIS utilizes a comprehensive information technology infrastructure, encompassing computers, peripheral devices, and network communications devices.

6. The measures or internal controls in place to protect AIS data and ensure its integrity.

An AIS consists of six components that enable it to perform three crucial business functions: collecting and storing data on organizational activities, resources, and personnel; transforming data into information for management planning, execution, control, and evaluation; and providing adequate controls to safeguard assets and data.

Thus, AIS consists of accounting standards, practices, and theories. They are designed to record accounting transactions and activities of a commercial enterprise, accounting for them in accordance with guidelines and strategies(Basel J. A. Ali,Ibrahim A. Abu-AlSondos, 2020; Murugan et al., 2024). They organize, record, summarize, and report monetary transactions, providing records and statistics about an organization's operations. They guide personnel, owners, clients, and other key individuals within the organization, providing information to support managerial decision-making techniques.(AlBastaki & Hamdan, 2023) defines an accounting information system as a computer-based system for collecting, storing, processing, and communicating financial data through

financial statements. It aids in organizational decision-making and is the centre of accounting information, requiring the correct software programmer for proper functioning.

2.1.2 Significance of AIS in Business Organizations

An efficient Accounting Information System is crucial for providing quality information that is appropriate, timely, current, and accessible. This can be achieved through prompt recording and proper classification of transactions and events, generating necessary information on a timely basis, making the information available to the right person, and implementing proper controls. According to(Gelinas et al., 2018), an efficient Accounting Information System should identify and record all valid transactions, describe transactions in sufficient detail for proper classification, measure the value of transactions accurately, determine the appropriate accounting period for recording transactions, and present transactions and related disclosures properly in the financial statements. AIS allows business organizations to perform various tasks, as listed below.

Record-keeping of Business Transactions

Accounting Information Systems (AIS) are essential for accurate and efficient business record-keeping. They automate transaction recording, maintain detailed records of accounts payable, accounts receivable, inventory, and fixed assets, and follow a standard chart of accounts for data management(Hall, 2019). AIS also maintains an audit trail, ensuring transactions are properly authorized, processed, and recorded. Additionally, AIS reduces the likelihood of errors in financial data by automating calculations and providing validation checks, ensuring data integrity and accuracy. (Etim, 2011) explores the efficiency of accounting information systems in service, merchandising, and manufacturing organizations. It identifies factors like proper documentation, controls, communication, and monitoring in a system. A study(Amiri & Salari, 2013) about AIS and software packages in Kerala, India, highlights the importance of software packages in enhancing financial statements'

trustworthiness and relevance by recording all relevant business transactions.

Data Processing and Financial Reporting

An accounting information system is essential for organizations as it helps in data processing, financial reporting, streamlining financial operations, making informed business decisions, improving internal controls and compliance, increasing efficiency, reducing the risk of fraud, providing valuable insights through data analysis and reporting, and enhancing the overall financial health of an organization(Romney et al., 2012). (Agung, 2015) stated that an accounting information system encompasses a company's entire scope of accounting transactions. It includes the procedures for processing these transactions and ultimately generating financial reports. Based on research(Mitrović, 2016; Sagara, 2015), accounting information systems (AIS) play a significant role in producing high-quality financial statements. The integration of the input, process, and output of AIS are crucial foundations for effective financial reporting systems.

Inventory Management

An accounting information system is crucial for inventory management, enabling real-time tracking of inventory levels, streamlining the ordering process, and optimizing turnover(Hall, 2019). It provides valuable insights into product sales, enabling informed decisions about inventory levels and pricing strategies. AIS play a decisive role in enhancing the accuracy of inventory records. Through mechanisms such as real-time data tracking, automation of data entry, improved demand forecasting, enhanced reporting and analytics, and integration with other systems, businesses have accurate and up-to-date information about their inventory levels(Romney et al., 2012). By minimizing human error, optimizing stock levels, and providing insights into inventory performance, AIS contributes to more reliable and precise inventory management practices.

Human resource management

AIS streamline HR processes, automate payroll, track employee benefits, and maintain accurate records. They reduce administrative burdens, minimize errors, and ensure efficient data processing. AIS also aids decision-making by providing real-time insights into workforce metrics. (Al-rabei et al., 2015) Found that the use of Accounting Information Systems positively correlates with enhancing the human resources management cycle in Jordanian Islamic Banks. The findings indicate that AIS can improve various functions within the HRM cycle, including hiring, training, performance evaluation, and compensation. These results provide valuable insights for decision-makers in Jordanian Islamic Banks, highlighting the potential benefits of integrating AIS into their HRM practices. By leveraging AIS, these banks can enhance their overall HRM processes and ultimately improve organizational performance.

Tax Compliance

Accounting Information Systems (AIS) are crucial for tax compliance automating tasks like tracking, calculating, and reporting taxes. They reduce errors, ensure accurate tax obligations, and aid in tax return preparation. AIS can adapt to changes in tax legislation, providing up-to-date calculations and reporting, thereby avoiding penalties and facilitating compliance for businesses. (Abdallah, 2013) demonstrates that the use of accounting information systems significantly impacts the quality of financial statements submitted to the Income Tax and Sales department in Jordan. The findings indicate that the use of accounting information systems positively affects the quality of financial statements. (Al-Frijat, 2014) the accounting information system used in the Income Tax Department in Jordan positively impacts the effectiveness of tax audits and collection. The system is operated by qualified human resources and an advanced computer system, and it also meets the requirements of good control systems.

Strengthening Internal Managerial Control

Accounting Information Systems (AIS) enhance managerial internal control by automating financial data management, reducing errors and fraud, and enforcing internal controls. AIS offer significant benefits to businesses by enabling quick responses to complex issues and ensuring the reliability of financial information processes when integrated with a proper internal control system. This improves efficiency, operational goals, and performance(Teru et al., 2017). (Adase, 2021) found that the effectiveness of internal control systems plays a significant role in the relationship between accounting information systems and the performance of small businesses in Sunyani. The study also found no direct effect of AIS effectiveness on firm performance, but there is an indirect effect through the internal control system. Therefore, it is recommended that small firms implement robust and effective internal control systems to improve their performance.

Support informed decision-making

Accounting Information Systems (AIS) are crucial in facilitating informed decision-making by providing timely and accurate financial data. By automating data collection and processing, AIS ensures that managers have access to reliable financial information, allowing them to evaluate the current financial status, assess risks, and identify opportunities. Additionally, AIS supports scenario analysis and budgeting, enabling decision-makers to make more informed, data-driven choices that align with the organization's goals. (Al-Hattami, 2022) emphasizes the significance of accounting information systems (AIS) in enhancing decision-making effectiveness (DME) for small and medium-sized enterprises (SMEs) in less developed countries (LDCs). The research demonstrates that the success of AIS has a positive impact on DME, with factors like information quality, use, and user satisfaction playing a crucial role. It significantly influences decision-making quality and sustainability in business organizations(Lutfi et al., 2020).

Enhance organizational and operational efficiency

Accounting Information Systems (AIS) improve operational efficiency by automating financial tasks, streamlining processes, and reducing errors. This accelerates tasks like invoicing, payroll, and financial reporting, allowing employees to focus on strategic activities. AIS integrates financial functions, facilitating seamless communication, decision-making, and resource management, leading to a more efficient and cost-effective operation. It improves business efficiency, increases competitiveness, facilitates management decision-making, enhances internal controls, improves the quality of financial reports, and facilitates company transactions(Teru et al., 2017). (Onaolapo & Odetayo, 2012) investigates the impact of automated accounting information systems (AIS) on construction companies in Ibadan, Nigeria, revealing that robust AIS enhances financial reporting quality and operational efficiency. (Yoshikuni et al., 2023)Explores the integration of emerging technologies with AIS in North and South American organizations, revealing that effective AIS enhances operational efficiency and innovation.

2.1.3 Relevance of AIS in SMEs

SMEs significantly contribute to a country's economic development by driving innovation, creating employment, and contributing to GDP. They foster regional development, reduce income disparities, enhance market competition, and support the integration of new technologies and sustainable practices. Effective AIS has become crucial for any organisation, including SMEs, to survive and grow (Hussein & ABDULLAH, 2011). The accounting information system is essential for Small and Medium Enterprises to manage and record business transactions. It involves structured processes of collecting, storing, and processing financial data, previously done manually but now digitally processed using accounting software. The AIS helps SMEs keep track of their income, expenses, and other financial activities and plays a crucial role in generating reports that provide a clear picture of the company's financial health. It also aids in tasks like budgeting, inventory management, and ensuring compliance with financial regulations. The

advent of computers and information technology has made manual bookkeeping obsolete, allowing even small organizations to automate their accounting systems using low-cost software. Accounting information systems fulfil organizational needs by generating financial reports and contributing to effective financial management and decision-making within the smaller business context.

Small and Medium-Sized Enterprises (SMEs) face numerous challenges and opportunities in the ever-changing business environment. To effectively navigate this landscape and succeed in a competitive market, SMEs must utilize various resources, including the Accounting Information System (AIS). The AIS serves as an essential tool for SMEs, enabling them to efficiently manage their financial transactions, track performance, and make informed business decisions. By leveraging the capabilities of an AIS, SMEs can streamline their operations, improve accuracy in financial reporting, and ultimately enhance their overall business performance. The study conducted by (Radzi et al., 2024) concludes that the development and implementation of a competent Accounting Information System (AIS) is crucial for the successful performance and operational efficacy of Small and Medium-Sized Enterprises (SMEs) in Perlis. The research findings indicate a high correlation between AIS and financial performance, as well as moderate correlations between AIS and management performance and AIS and organizational performance and suggest that more attention should be given to the usefulness of AIS in achieving effective performance in SMEs in Perlis.

Cloud-based Accounting Information Systems provide SMEs with a flexible, cost-effective solution for managing financial data and processes. By utilizing cloud technology, SMEs can benefit from real-time financial information, improved decision-making, and enhanced organizational performance. The impact of cloud-based AIS usage on the effectiveness of AIS and organizational performance (OP) within SMEs was explored (Vo Van et al., 2024). An online survey targeting chief accountants in Vietnamese SMEs demonstrated that the use of cloud-

based AIS significantly enhances both AIS effectiveness and organizational performance. Micro, Small, and Medium Enterprises (MSMEs) are vital contributors to national economic development, offering significant employment opportunities and driving innovation. Their ability to effectively manage and utilize accounting information is essential for sustaining growth and ensuring long-term success. A study (Doloksaribu et al., 2023) involving 62 MSME owners from the East Medan sub-district, covering a total of 162 units, revealed that the behaviour of MSME actors has a positive impact on the use of accounting information systems.

AIS improves internal control in small and medium enterprises by providing a structured framework for managing financial data and reporting. They reduce errors and fraud, improve reporting efficiency, and reduce unauthorized access. AIS also enhances transparency, accountability, and regulatory compliance, making it crucial for informed decision-making. (Rudiyanto et al., 2022) explores the critical factors influencing the effectiveness of small and medium-sized enterprises in Banten, with a focus on accounting information systems (AIS), internal control systems (ICS), and task suitability (ST). The research highlights the importance of these systems in enhancing organizational performance. The findings suggest a balanced relationship between AIS and ST, demonstrating that AIS is a significant predictor of improved organizational outcomes. AIS significantly impact the performance and management of Small and Medium Enterprises. They streamline financial processes, provide accurate data, automate routine tasks, enhance decision-making, support strategic planning, and offer tools for budgeting, forecasting, and variance analysis.

The effective use of Accounting Information Systems can greatly benefit small and medium-sized enterprises by enhancing their decision-making and strategy-building processes. AIS provides accurate and timely financial data, enabling informed decision-making and the development of robust strategies. By integrating various financial and operational data, AIS allows managers to assess the financial health of the company,

identify trends, and forecast future performance. (Alnajjar, 2017)examines the impact of accounting managers' knowledge and top management support on accounting information systems in 74 SMEs in the trading, services, and manufacturing sectors. The results show that these systems significantly influence performance management and organizational performance. The study suggests that using accounting information systems aids decision-making and strategy building, ultimately increasing a company's performance.

Investing in robust accounting systems is crucial for the long-term success and growth of small and medium-sized enterprises. These systems offer advantages such as improved accuracy in financial reporting, enhanced efficiency in managing accounts, and timely access to critical financial information. By investing in advanced accounting systems, SMEs can streamline their financial operations, reduce the risk of errors, and facilitate better decision-making through accurate and real-time data analysis. It allows detailed monitoring of organizational performance, which includes tracking increases in turnover, revenue, and the customer base. (Esmeray, 2016) investigates how the use of Accounting Information Systems by SMEs in Kayseri, Turkey, affects various performance indicators. Research-based on interviews with 60 firms in the organized industrial zone revealed that as the number of employees increases, the use of AIS also rises, showing a positive correlation with growth in sales, customer base, and revenue.

(Rustan et al., 2022) also investigates the effectiveness of a marketing information system in increasing the turnover of SMEs. The research was conducted in Makassar City and involved seven food culinary SMEs. Data was collected through library research, interviews, and field observations. It used multiple linear regression analysis and qualitative data analysis. The results showed that strengthening the marketing information system can increase SMEs' turnover. The study also highlighted the importance of accounting information systems in recording transactions, grouping, and preparing financial statements and highlights the potential benefits of implementing marketing information

systems in SMEs. The accounting information system also contributes to the growth of micro, small, and medium enterprises (MSMEs). The majority of MSMEs in Hubli, North Karnataka Region, are found to be following accounting information system practices in their day-to-day operations(Nadaf & Navi, 2021). Therefore, it can be concluded that an accounting information system provides important information for decision-making and is a key factor in determining the success or failure of a business organization.

Accounting Information Systems have become essential for Small and Medium Enterprises (SMEs) as they significantly enhance financial performance and operational efficiency. AIS automates accounting processes, minimizing errors and boosting record processing efficiency. It ensures accurate financial statements, reduces operational costs and allows for effective resource allocation. AIS provides critical business insights, facilitating informed decision-making. It enhances data security, improves interdepartmental communication, and supports strategic planning and compliance with financial regulations. The integration of AIS in SMEs accounting functions leads to better performance and growth.

2.1.4 Factors responsible for accounting information system adoption based on existing literature

The accounting information system is a crucial tool for businesses as it processes data and economic transactions to provide relevant and reliable information for decision-making. It goes beyond the traditional role of producing financial reports and can be utilized for planning, managing, and controlling business activities, including budgeting. Full adoption of the accounting information system is essential to attain its full benefits (Kharuddin et al., 2010). In business organizations, the implementation of information systems contributes to improved performance and efficiency. The implementation of effective resource management, budgeting, forecasting, and expenditure control improves the overall health of a company. Effective operations planning and control are facilitated by accounting information systems, which offer

both actual and budgeted data(Grande et al., 2011). The utilization of an accounting information system is crucial in enhancing a company's value by facilitating the generation of internally produced financial statements. These statements serve as valuable tools for the company in formulating more effective strategic plans.

The accounting information system is an integral component of organizational management information systems. Its primary purpose is to measure a business's financial and non-financial performance and carry out accounting functions within the organization. This computer-based system is designed to identify, collect, record, and analyse financial data. Managers primarily utilize accounting information systems to make strategic decisions and actions and provide financial reports to external users. According to a comprehensive literature review, the following studies have identified the factors contributing to adopting accounting information systems, as indicated in **table 2.1** below.

Table 2.1- Factors that contribute to the adoption of accounting information systems as per existing studies

S.no	Title of Article	Factors	Sources
1.	"A Review on Determinants of Accounting Information System Adoption"	Human Resource, Management Commitment Perceived Ease of Use Government Support Perceived usefulness, Performance Expectancy	(Tilahun, 2019)

2.	"Accounting Information System Adoption Among Indonesian MSMEs: A Conceptual Model for Cloud Computing"	Cloud computing characteristics, organizational readiness, Government intervention, Perceived ease of use, and perceived usefulness	(Hamundu et al., 2021)
3.	"Analysis of factors affecting the Implementation of computer-based accounting Information system on small and medium Enterprises"	Perceived usefulness, Perceived ease of use, Attitude towards using, Intention to use, and Actual usage	(Azizah, 2017)
4.	"Factors Determining Nurse Acceptance of Hospital Information Systems"	Perceived usefulness Perceived ease of use Information quality System quality Service quality	(Lu et al., 2012)
5.	"Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology"	Perceived usefulness Perceived ease of use	(Davis, 1989a)
6.	"Perceived Ease of Use, Perceived Usefulness and the Usage of Computerized Accounting Systems: A	Perceived usefulness Perceived ease of use	(Lanlan et al., 2019)

	Performance of Micro and Small Enterprises (MSEs) in China"		
7.	"Understanding the Intention to Adopt Cloud-based Accounting Information System in Jordanian SMEs"	Perceived usefulness, Security concern, Organizational readiness, Competitive pressure Supplier computing support	(Lutfi, 2022)
8.	**"**Factors Influencing the Adoption and Implementation of Accounting Information Systems in Manufacturing Firms: Thailand Evidence"	Top management support, User training and education, and steering committees	(Wongsim, 2016)
9.	"Cloud-Based Accounting Adoption in Jordanian Financial Sector"	Perceived ease of use Organizational competency, Service quality, System quality, Perceived usefulness	(ELDALABEEH et al., 2021)
10.	"Factors influencing accounting information system usage by oil companies & performance outcomes"	Trust, Training, Top management support Technical support Perceived ease of use	(Magboul et al., 2024)

Source- Researchers' compilation of factors from a literature review of Existing Studies

Next, we discussed the studies outlined in Table 2.1 above in detail, underscored the key factors we identified from these studies, and discussed their findings and results.

(Tilahun, 2019) identifies key determinants of AIS adoption by companies worldwide. Factors such as human resources, performance expectancy, perceived ease of use, top management support, perceived usefulness and government support influence adoption. The benefits of adopting accounting systems include increased functionality, improved accuracy, faster processing, cost control, and better external financial reporting. (Hamundu et al., 2021) Proposes a conceptual model to influence MSMEs' intention to adopt cloud accounting (ITAC) using constructs from a preliminary study. The model includes variables such as cloud computing characteristics, organizational readiness, government intervention, perceived ease of use, and perceived usefulness as factors that lead to information system adoption.

The research(Azizah, 2017) investigates factors influencing the implementation of computer-based accounting information systems in SMEs). Based on Davis's Technology Acceptance Model (TAM) theory, the study measures the system's usefulness, ease of use, attitude towards use, intention to use, and actual usage. The results indicate that perceived ease of use and attitude towards using are key factors influencing the system's implementation. (Lu et al., 2012) explores factors influencing nurses' acceptance of hospital information systems using an evaluation model derived from the Technology Acceptance Model and Information System Success Model. The research, conducted at a regional hospital in Taiwan, found that system quality, information quality, and service quality positively correlated with perceived ease of use and usefulness. Information quality had the greatest influence on perceived usefulness and ease of use, while perceived usefulness significantly influenced system acceptance.

(Davis, 1989b) develop and validate new scales for two variables: perceived usefulness and perceived ease of use, which are hypothesized to be fundamental determinants of user acceptance and adoption of information system. The scales were tested for reliability and construct validity in two studies involving 152 users and four application programs. The results show

that the scales have high reliability and exhibit convergent, discriminant, and factorial validity. Perceived usefulness was found to be significantly correlated with both self-reported current usage and self-predicted future usage, while perceived ease of use was also significantly correlated with current and future usage. (Lanlan et al., 2019) examines the relationship between the model of technology acceptance (TAM) and the use of Computerized Accounting Systems (CAS) among accountants in micro and small enterprises (MSEs) in Xi'an, Shaan Xi, China. The findings indicate a positive connection between perceived ease of use, perceived usefulness, and the use of CAS. This research provides valuable insights for accountants, business owners, and the research community to understand the correlation between technology acceptance, adoption and the utilization of CAS.

The objective of the research conducted by (Lutfi, 2022) was to determine the variables that influence the intention of SMEs in Jordan to implement cloud-based accounting information systems (CB-AIS). The results indicated that perceived usefulness, security concerns, top management support, organizational readiness, competitive pressure, and supplier computing support substantially influence the intention to adopt CB-AIS. The study conducted by (Wongsim, 2016) aimed to understand the factors that influence the successful adoption of AIS and its impact on AIS performance. The study used a combination of case studies and surveys to gather data. The results of the case studies suggested nine factors that may influence AIS adoption, which led to the development of a preliminary framework. The survey questionnaires were then distributed to 189 respondents from the accounting and computer fields in Thailand to test the research framework. The results indicated that the top three critical factors for ensuring AIS adoption were top management support, user training and education, and steering committees.

(ELDALABEEH et al., 2021)explores the factors influencing the adoption of cloud accounting in financial sectors. It uses the technology acceptance model (TAM), technology-organization-environment, and De Lone and Mc Lean model to analyze the factors. The study was empirically evaluated using survey data from 187 managers in Jordanian bank branches. Results showed that top management support, organizational competency, service quality,

system quality, perceived usefulness, and ease of use positively influenced the intention to use cloud accounting. This contributes to a theoretical understanding of factors influencing cloud accounting adoption. Another study(Magboul et al., 2024) concludes that the use of accounting information systems (AISs) in Sudan's top five oil companies significantly impacts financial and non-financial performance. Factors such as top management support, trust, training, technical support, and perceived ease of use influence the usage of AISs. The study also highlights the practical application of AISs and their value in the oil industry.

2.1.5 Factors influencing the AIS adoption

Based on the literature reviewed, it is clear that the adoption of AIS (Accounting Information Systems) is primarily influenced by two key factors: perceived ease of use and perceived usefulness. These factors play a significant role in determining the extent to which AIS is adopted in small and medium-sized enterprises.

Perceived Usefulness

Perceived usefulness is of great importance in the adoption of Accounting Information Systems (AIS). Users are more likely to adopt AIS if they believe it will enhance their job performance, improve efficiency and productivity, support decision-making, and provide a competitive advantage. The perceived usefulness of AIS directly influences how users evaluate the benefits of the system in improving their work and contributing to organizational success(Qader et al., 2022). The Technology Acceptance Model (TAM) is a well-known theory that aims to examine all factors that influence the adoption of technology(Davis, 1989a). Perceived usefulness is a crucial factor in the Technology Acceptance Model (TAM), influencing users' intentions to adopt and utilize technology. It is defined as a person's trust in a system's ability to improve their job performance and is closely linked to perceived ease of use. A smoother user experience often leads to a stronger belief in the system's utility. Research shows that perceived usefulness significantly affects users' intentions to use technology, with higher perceived usefulness indicating a higher likelihood

of adoption. This relationship is fundamental to TAM, which aims to explain how users accept and use technology in various contexts. Therefore, perceived usefulness is a fundamental variable in the TAM, reflecting users' beliefs about the effectiveness of technology in enhancing their performance.

Perceived Ease of Use

Perceived Ease of Use is a main factor in the Technology Acceptance Model (TAM), indicating a user's belief that a system or technology will be easy to learn and operate(Lanlan et al., 2019). It reduces the learning curve, increases user satisfaction, lowers resistance to change, and boosts productivity. It also implies lower costs associated with training and support, which is a significant factor for SMEs when deciding to adopt a new system. It is a crucial aspect of the TAM, indicating how users perceive a system as easy to use(Davis, 1989a). It significantly influences perceived usefulness, as users are more likely to recognize its utility, increasing their intention to use it. PEOU, along with PU, influences users' attitudes and intentions towards technology adoption(Kholilah et al., 2022). Understanding this can help organizations design user-friendly systems, enhancing user engagement and acceptance and facilitating higher adoption rates. The PU of information systems has a significant impact on their adoption(Meiryani et al., 2021). When systems are easy to use, users are less resistant to using them and are more satisfied with their experience. This ultimately leads to greater acceptance and effective utilization of the system.

2.2 Literature on the impact of AIS on Decision-Making

2.2.1 Delone Mclean model of information System- Dimensions of AIS

Accounting information systems are essential for businesses to collect, store, process, recover, and report financial data. Owners, accountants, advisors, business analysts, administrators, and auditors are among the stakeholders who employ them(S. B. P. Patel, 2015). Organizational decision-making is facilitated by these systems, which can be tailored to the organization's environment, structure, and task requirements. Cost

accounting, management accounting, price, and profitability are accounting instruments that offer managers valuable information to assist them in making financial and economic decisions. This research study aims to investigate the correlation between enterprise profitability and accounting information systems.

Information Systems (IS) are crucial in organizations for collecting, processing, storing, and disseminating information. They enhance efficiency, improve decision-making, and enable innovation. Information Systems (IS) include hardware and software and organizational structures, processes, and strategies. They facilitate communication, streamline operations, and provide data-driven insights for strategic decisions. IS integrates various functional areas for organizational success. There is a conceptual model used to evaluate the effectiveness of any information system known as the DeLone and McLean Information System Success Model(Delone & Mclean, 2003). It aids in understanding IS effectiveness, contributing to decision-making and organizational performance, and remains a vital tool for theoretical exploration and empirical analysis in Information Systems.

The DeLone and McLean Information System Success Model (D&M IS Success Model) is a comprehensive framework for evaluating the success of information systems (IS). Developed in 1992, it identifies six key dimensions: System Quality, Information Quality, Service Quality, Use, User Satisfaction, and Net Benefits(Delone & Mclean, 2003; Jeyaraj, 2020). System Quality focuses on the technical aspects of the IS, such as reliability, ease of use, and performance. Information Quality assesses the output of the IS in terms of accuracy, relevance, completeness, and timeliness. Service Quality evaluates the support services provided by the IS, including responsiveness, technical support, and user assistance. Use measures the extent to which the IS is actually employed by its intended users, including frequency and manner of use. User satisfaction reflects the extent to which users are content with the IS, which is crucial for determining the overall success of the system. Net Benefits assess the overall impact of the IS on the organization,

including improvements in efficiency, decision-making, and competitive advantage. The D&M IS Success Model is valuable for academic research as it offers a structured and theoretically grounded framework for evaluating IS success, enabling researchers to identify factors contributing to the effective implementation and use of IS.

Information Quality

The information quality factor in the DeLone and McLean Information Systems Success Model is crucial for assessing the characteristics of information produced by an information system. It is evaluated based on attributes such as relevance, accuracy, timeliness, and completeness(Sirsat & Sirsat, 2016). High-quality information enhances decision-making processes and contributes to the effectiveness of organizational operations. The information quality factor is interrelated with system quality and service quality, and empirical studies consistently show that it significantly impacts user satisfaction and overall system success. Overall, understanding and ensuring information quality is essential for the success of an information system in meeting user needs and organizational goals.

Service Quality

In the DeLone and McLean Information Systems Success Model, the service quality factor plays a crucial role in evaluating the effectiveness of the support and services provided alongside an information system. This dimension assesses how well the service aspects of the system meet user expectations and needs. Service quality encompasses attributes such as reliability, responsiveness, assurance, empathy, and tangibles(Alzahrani et al., 2019; Sirsat & Sirsat, 2016). High service quality directly influences user satisfaction and the intention to use the system, leading to increased satisfaction and a greater likelihood of continued use. It also interacts with other model dimensions, such as system quality and information quality, to enhance user satisfaction and usage intentions. Overall, the service quality factor is essential for assessing how well an information system supports its users through

effective service delivery, contributing to the overall success of the system.

System Quality

The DeLone and McLean Information Systems Success Model emphasizes the system quality factor as a crucial aspect of an information system's effectiveness and overall success. Key attributes include ease of use, reliability, flexibility, response time, and ease of learning. High system quality directly impacts user satisfaction and the likelihood of continued use, leading to improved decision-making and organizational performance(Alzahrani et al., 2019; Yamin & Sweiss, 2020). The system quality factor interacts with other dimensions of the DeLone and McLean model, such as information and service quality. A high-quality system enhances information production, improving user satisfaction and perceived net benefits. Thus, the system quality factor is vital for assessing the technical effectiveness of an information system and its role in achieving overall organizational success.

The following studies highlight the importance of information, service, and system quality in evaluating the effectiveness of an information system, assessing its ability to meet user needs, support decision-making, and contribute to organizational performance.

(Li & Wang, 2021) used DeLone and McLean's information system success model to measure the impact of users' intention to continue using cloud financial accounting systems. A sample of 289 faculty and finance staff with experience in using these systems was tested using Partial Least Squares (PLS). Results showed that user participation positively impacts satisfaction with system quality, information quality, and service quality, and system quality and service quality positively affect user trust. The quality of the system also mediates the intention to continue using the system through satisfaction and trust. Another study(Al-Hattami, 2022) examines the impact of accounting information systems (AIS) on decision-making effectiveness (DME) among SMEs in less developed countries (LDCs). Using the DeLone and McLean model,

the study uses a questionnaire sent to 323 Yemeni SMEs and PLS-SEM software to analyze data. Results show that AIS information quality, use, and user satisfaction positively influence DME. Service quality is insignificant. The study reduces research gaps on AIS success in SMEs and LDCs and offers practical guidelines for SMEs to assess and anticipate the success of AIS applications. It is one of the first to introduce empirical evidence of AIS's success and its role in economic development.

(Bahari & Mahmud, 2018) suggested that system quality, information quality, and service quality have a positive and significant effect on both individual and organizational performance. These findings support the DeLone and McLean IS model and suggest that organizations should strive to develop high-quality information systems supported by vendors in order to produce good-quality information. The results of this study have implications for the development of Accounting Information Systems, Management Information Systems, and Performance Management Systems and contribute to the overall knowledge in these areas. (Duy Phuong & Dai Trang, 2018) also used DeLone and McLean's information system success model to assess the impact of service quality, system quality, and information quality on repurchase intention in a smartphone-based ride-hailing service in Vietnam. Data was collected from 427 customers using Grab and Uber services. The results confirmed that electronic service quality significantly predicts overall perceived service quality and positively affects repurchase intention.

Another study(Ariyanto et al., 2020) aimed to assess the user's perception of Primary Care applications at primary health facilities BPJS in Malang. The DeLone & McLean (D&M) Update IS Success Model was used to measure the success of the information system. The study found that primary care applications can be considered successful information systems based on the six dimensions of success in the D&M Update IS Success Model: Information Quality, System Quality, Service Quality, Use, User Satisfaction, and Net Benefits. (Al-Hattami, 2022)

validates the D&M IS success model in the accounting information system (AIS) of the banking sector in Yemen, a least developed country. Data was collected from AIS users in seven commercial banks using a self-administered questionnaire. Structural equation modelling via PLS was used to validate the model's constructs. Results showed that system usage is predicted by information quality, system quality, and user satisfaction, while user satisfaction with AIS is predicted by information quality only. Thus, Information Systems (IS) research focuses on three critical dimensions: Information Quality, Service Quality, and System Quality. Information Quality ensures accurate, relevant, and timely data; Service Quality influences user satisfaction and system utilization, and System Quality assesses system reliability and ease of use.

2.2.2 The Significance of Accounting information in decision-making

Accounting information is crucial for strategic business decisions, clearly representing a company's financial health and operational performance. It aids in informed decision-making, performance evaluation, budgeting and forecasting, cost analysis and control, investment decisions, risk management, stakeholder communication, and strategic planning(Olumoye, 2013). Accounting data provides insights into past performance, current financial status, and future projections, enabling managers to evaluate potential strategies and initiatives. It also aids in budgeting and forecasting, understanding costs associated with products and services, and assessing the viability of investments. It also aids in risk management, identifying cash flow, debts, and other financial obligations, ensuring long-term sustainability and stability. Transparent accounting practices foster trust with stakeholders, enabling informed decisions and growth(Gelinas et al., 2018). Accounting information's relevance lies in its ability to meet the needs of various users, including managers, investors, creditors, and regulatory bodies. It must be understandable, relevant, reliable, and comparable. It should be presented clearly, concisely, and accurately reflect the company's financial situation, ensuring users can make sound decisions. The characteristics of accounting information are as follows:

Relevance

Relevance in accounting is a crucial aspect that influences users' decision-making processes, affecting both internal and external stakeholders. According to Generally Accepted Accounting Principles (GAAP), relevant information must be useful, understandable, timely, and pertinent to decision-making (Bilal & Tawfik, 2022). Key aspects of relevance include its influence on decision-making, timeliness, predictive and confirmatory value, materiality, and user-specific relevance. The relevance characteristic of accounting information is crucial as it directly impacts the economic decisions made by users. Maintaining the relevance of accounting data is essential for effective financial reporting and overall business success. When financial data is omitted or falsified, it can significantly influence these decisions. Therefore, relevant information helps users evaluate past, present, and future events, improve their evaluations, and enhance their ability to predict future events. This emphasizes providing users with accurate and timely accounting information (Mechta et al., 2023).

Reliability

Reliability is the quality of information free from bias and errors, accurately representing the organization's events or activities. It is a primary qualitative property of information, ensuring it is trustworthy and reliable allowing management to pursue its functions effectively(Bilal & Tawfik, 2022). Reliability is particularly important in accounting information, as it demonstrates the potential for dependability on it. Reliability in accounting information is crucial for several reasons. It builds trust and credibility with stakeholders, enabling them to engage in business transactions and invest. It also aids in informed decision-making, allowing management to assess performance, identify trends, and allocate resources effectively. It ensures compliance with regulatory requirements and accounting standards, ensuring consistency and transparency(Romney et al., 2012). It also aids in risk management, enabling businesses to assess their financial health, forecast future performance, and implement strategies

to mitigate potential risks. Thus, reliability is a critical characteristic of accounting information, ensuring financial data's accuracy, completeness, and neutrality. It directly impacts stakeholder trust and the effectiveness of financial reporting.

Completeness

Completeness in accounting ensures all necessary financial information is included in financial statements, enabling informed decision-making and revealing material information that influences a company's financial health and operational results(Hall, 2019; Trigo et al., 2014a). Completeness in accounting information is crucial for business operations. It enhances decision-making by giving stakeholders a comprehensive understanding of a company's financial position, enabling informed evaluation of risks, performance assessment, and future strategies. It builds trust and credibility, establishes strong stakeholder relationships, and prevents scepticism. The property aims to make all information on a specific item available through an accounting information system that processes all transactions related to that item. This completeness characteristic ensures all necessary information is available for users, and it is crucial that accounting information is relevant to all activities related to each other and provided in the form of relevant financial reports.

Timeliness

Timeliness is an essential aspect of relevance, as it ensures information is available to decision-makers before it loses importance or becomes outdated, preventing it from being of interest to users. Timeliness in accounting refers to providing accounting information at the right time for users, ensuring it remains valuable and effective during decision-making periods(Mechta et al., 2023). This is crucial for impacting events or decisions. In the financial report field, timeliness is based on the periodicity of financial reports and the time period between the financial period ending and the report's issuing or availability. Real-time data is essential in today's fast-paced business environment, allowing

managers to respond swiftly to changes, making it highly relevant for day-to-day operational decisions(Trigo et al., 2014b). Using AIS, users are promptly presented with information that enables them to make a decision. Timely disclosure of financial information allows users to make informed decisions, and the earlier the information is disclosed, the more valuable it becomes.

Understandable

This feature enables users to comprehend the significance of information, ensuring that the system's derived information is understood by its users. The effective communication of information is essential for its comprehension and practical application. When information is presented in a clear and accessible manner, users can easily understand its importance(Romney et al., 2012). Accessible knowledge is highly sought after by individuals as it can be effectively utilised in making informed choices. This implies that information should be communicated in a manner that is readily comprehensible to the individual making the decision. The annual report's clarity and user-friendliness are achieved through its classification, characterization, and presentation, which includes numerous disclosures, tables, and illustrations, along with an index of difficult terms specific to each industry, ensuring easy comprehension for users(Hall, 2019). Accounting information quality is evaluated through its understandability, measured by simplicity and clarity in expression and user awareness. Complexity can lead to loss of important content and ineffective reporting.

Verifiable

Verifiability is crucial in accounting information utilization, as it confirms measures accurately and minimizes measurement bias. It helps affirm events or economic things accurately and contributes to determining the relevance of measures to decision-making purposes. Verifiability is a key aspect of accounting information, ensuring the accuracy and reliability of financial data(Bilal & Tawfik, 2022; Gelinas

et al., 2018). It involves independent verification processes by external parties, such as auditors or regulators, using the same data and assumptions. This establishes trust among stakeholders, such as investors, creditors, and regulatory authorities, as it assures that financial statements accurately represent the company's financial position. Verifiable information in accounting enhances the reliability and credibility of financial information, allowing stakeholders to confirm its accuracy and make informed decisions based on trustworthy data.

Accessible

Accessible information refers to the availability of information to users when they require it and in a format that is suitable for their use. Accessibility to accounting information is crucial for researchers, decision-makers, and stakeholders to quickly and easily obtain and understand the data they need(Gelinas et al., 2018). When accounting information is accessible, it promotes transparency, efficiency, and informed decision-making. This ensures that the insights and conclusions drawn from the study are based on readily available and comprehensible data. It fosters transparency and trust, allowing users to evaluate performance, assess risks, and make strategic choices(Romney et al., 2012). Accessibility also ensures regulatory compliance, as organizations must provide accessible financial information to avoid legal penalties and enhance their reputation. It also facilitates better communication and engagement with stakeholders, leading to stronger relationships and potential collaboration.

Therefore, the characteristics of accounting information, including accuracy, timeliness, relevance, completeness, understandability, accessibility, and verifiability, play a crucial role in effective decision-making within organizations. The study(Mohsin et al., 2022) investigates the role of accounting information systems (AIS) in enhancing decision-making in Iraqi companies. Using a descriptive approach, the researchers analyse the characteristics of AIS in the decision-making process. The results show that the relevance, accuracy, and efficiency of AIS significantly impact the decision-making process. These characteristics

ensure that decisions are based on reliable and precise data, allowing decision-makers to act promptly, allocate resources efficiently, and consider all relevant variables. Additionally, these characteristics enable stakeholders to comprehend and interpret the information accurately, maintain the flow of information, and validate the data, ultimately enhancing the quality and efficacy of decision-making processes. Overall, the presence of these characteristics contributes to organizational performance and success.

2.2.3 Importance of AIS in Decision-Making of SMEs

Decision-making is an integral part of management and is often considered an integrated task. Management relies on financial and economic information gathered by management accounting to judge the effectiveness of various alternatives(Hanifi & Taleei, 2015). In today's turbulent world, management information systems and accounting information systems are indispensable tools for decision-making. Organizations are advised to invest in information technology tools to improve efficiency, effectiveness, and overall performance. Having an efficient AIS is crucial for management decision-making in today's business world. AIS is vital for all organizations, regardless of whether they are for-profit or non-profit. AIS provides information that helps managers understand their tasks and make decisions with reduced uncertainty(Olumoye, 2013). AIS is not limited to financial data but also includes descriptive and quantitative information useful for decision-making by various stakeholders such as investors, suppliers, lenders, customers, governments, and the public(Ježovita, 2015; Romney et al., 2012). AIS is derived from accounting data, and its purpose is to enhance decision-making and improve corporate performance. Therefore, AIS is a valuable tool for organizations to make important decisions based on comprehensive accounting information.

Accounting information is crucial for an organization's success as it provides qualitative and quantitative details in a readable form. It aids stakeholders in decision-making and is generated from transactions in the finance and account section. This information covers areas like financial

and non-financial aspects. Inadequate use of accounting information can hinder goal achievement and the organization's progress. Accounting is a process that involves keeping records of financial and non-financial transactions, classifying them, evaluating and analysing them, and providing timely reports to users for decision-making (Hall, 2019). It also involves processing documents related to business financial performance, such as payroll, expenditures, and other obligations, as well as non-financial performance, such as customer satisfaction metrics, employee performance data, and operational efficiency of business organizations.

An Accounting Information System generates information by processing business transactions. It encompasses various components such as people, equipment, computer programs, data storage, communication networks, and organizational procedures(Romney et al., 2012). AIS not only processes financial transactions but also non-financial transactions that impact the preparation and presentation of financial statements(Paula Monteiro et al., 2022). AIS is a formal framework responsible for collecting, analysing, and converting information into actionable insights, enabling more informed decision-making. The effectiveness of an organization relies on the performance of its data framework, which consists of various subsystems for data collection, processing, validation, analysis, and storage. AIS is designed to prioritize informed decision-making, execution planning, and control at all levels of the organization(Jawabreh & Alrabei, 2012).

The success and longevity of a business, whether it is an individual or corporate enterprise, is contingent upon the quality of decisions made and implemented. These decisions are greatly influenced by the information provided by the accounting system in place. Therefore, it is essential for organizations to have an accounting system that produces appropriate, accurate, detailed, and up-to-date information. Making decisions is an essential part of every organisation, and management is responsible for making a wide variety of decisions, both financial and non-financial. AIS provides essential information about the firm's

activities to managers and external stakeholders, enabling rational and intelligent judgments(Shuhidan et al., 2015). External stakeholders, such as investors, creditors, government, tax agencies, and the public, also play a role in decision-making. Financial and non-financial information are essential for making optimal decisions. AIS play a crucial role in providing management with effective, efficient, and timely information. This information is essential for decision-making processes within an organization.

SMEs contribute significantly to economic development. In today's competitive business landscape, they require effective use of information and technology. SMEs are increasingly adopting Information Systems (IS) to improve operational efficiency, decision-making, and competitiveness. IS helps gather, process, and analyse data, enabling informed decisions based on real-time data. It automates routine tasks, leading to cost savings and increased productivity. Accounting information systems are essential for SMEs as they contribute to improved performance through the reduction of human errors, cost and time(Kareem et al., 2024) explores the role of accounting information systems (AIS) in enhancing the performance of small-and medium-sized enterprises (SMEs). The research, involving 450 questionnaires, found that SMEs' strategies and AIS use significantly impacted their performance. AIS can help avoid human errors, provide cost-against-time savings, and aid in timely internal decision-making.

Effective utilization of AIS can greatly enhance the operational efficiency and decision-making capabilities of small and medium-sized enterprises. AIS empowers SMEs to make informed decisions by offering accurate, reliable, and easy-to-use data.(Abdullah et al., 2023)emphasizes the importance of an accounting system generating accurate and reliable data that is easy for management to use in making informed decisions.(Maelah et al., 2021)examined the relationship between management accounting information (MAI), decision-making, and cloud computing among Malaysian SMEs. A survey of 384 enterprises found that all dimensions of MAI, including broad scope,

timeliness, aggregation, and integration, positively influenced decision-making. The findings suggest organizations should recognize the importance of MAI and strategize how to relate to information characteristics in decision-making. (Trabulsi, 2018) also investigates the impact of accounting information systems (AIS) on organizational performance, specifically cost reduction, quality improvement, and effective decision-making. Data was collected from SMEs in Saudi Arabia using questionnaires and smart partial least squares analysis. The findings show that AIS significantly enhances overall performance and all dimensions, including cost reduction, quality improvement, and decision-making. Another study (Ullah et al., 2014)concludes that accounting information plays a significant role in strategic decision-making in various areas, such as basic strategic decisions, manufacturing decisions, human resource decisions, long-term investment decisions, and marketing decisions. The results show a strong relationship between accounting information and strategic decisions, and a significant number of respondents in manufacturing industries in Bangladesh always use accounting information when making strategic decisions.

Therefore, Accounting information aids managers in a clearer understanding of their tasks, reducing uncertainty and facilitating informed decision-making. Accounting and financial information are crucial for effective management decision-making, as they are widely used and regarded as essential. Accounting information, categorized into financial and non-financial aspects, is utilized by decision-makers for strategic, tactical, and operational decisions, requiring careful execution to achieve the organization's goals and objectives. Accounting systems can significantly enhance decision-making by providing essential information relevant to both the decision-maker and the decision itself. Decision-making is the ultimate goal of an Accounting Information System. The AIS generates information that is important for internal and external users to make informed decisions. As discussed in the following section, SMEs make various decisions using accounting information from AIS.

2.2.4 Dimensions of Decision-Making

The dimensions of decision-making within SMEs can be categorized into key types, including basic strategic decisions (BSD), manufacturing decisions (MD), human resource management (HRMD) decisions, and marketing decisions (MKD). Each of these decisions has significance in shaping the overall direction and success of the organization. Basic strategic decisions involve long-term planning and resource allocation to achieve the company's goals. Manufacturing decisions focus on optimizing production processes, inventory management, and quality control. HRM decisions pertain to recruiting, training, and managing the workforce, while marketing decisions involve product development, pricing, and promotional strategies. Accounting Information Systems support SMEs in making informed decisions across these dimensions, ultimately enhancing their organizational performance.

Basic Strategic Decisions

SMEs make basic strategic decisions such as setting corporate vision, setting objectives, planning for expansion, deciding on geographic domain and business unit composition, and identifying core competencies and competitive advantages(Hussein & ABDULLAH, 2011; Ullah et al., 2014). These decisions are the foundation and helpful to set the company's future course. Accounting information supports these decisions by providing data on costs, revenues, profitability, and financial health, enabling informed and strategic decision-making. The use of an AIS is crucial for SMEs in various strategic decision-making processes. AIS supports the setting of corporate vision and mission, assists in setting corporate objectives, and evaluates growth strategies. Overall, AIS is an essential tool for SMEs to make informed and strategic decisions.

Manufacturing Decisions

SMEs rely on accounting data to make critical manufacturing decisions that enhance operational efficiency and strategic planning. This includes evaluating the costs and benefits of technology and equipment

configurations to optimize automation and maintenance processes(Akeem et al., 2019; Ullah et al., 2014). Accounting insights also help determine the ideal size and location for manufacturing resources, ensuring capacity meets production demands. Additionally, accounting data is used to refine production planning, optimize schedules, and manage inventory effectively. Financial metrics derived from accounting information also inform strategic decisions, such as vertical integration, by assessing the viability of expanding operations. Lastly, effective cost management is achieved by balancing production costs with product quality.

Human Resource Management Decisions

Integrating accounting information into human resource management decisions can benefit small and medium-sized enterprises. By utilizing accounting metrics, SMEs can make more cost-effective recruitment strategies, evaluate candidates' potential productivity, and understand the financial implications of promotion, transfer, and retrenchment decisions(Alzoraiki et al., 2024; Ullah et al., 2014). Accounting insights also aid in analysing training programs' costs and performance improvements, fostering an organizational culture that supports strategic goals, and enhancing accountability and fairness in reward systems. Ultimately, the strategic use of accounting information enables SMEs to optimize resource allocation, improve financial performance, and enhance overall organizational effectiveness**.**

Marketing Decisions

SMEs can greatly benefit from leveraging accounting information in their marketing decisions. By utilizing accounting data, SMEs can evaluate the cost-effectiveness of different selling and marketing strategies, optimize resource allocation, and shape promotional policies(Rustan et al., 2022; Ullah et al., 2014). Accounting insights also enable SMEs to analyse the profitability of different customer segments, make informed sales commission decisions, and inform marketing research efforts. By integrating accounting information into their decision-making processes,

SMEs can make data-driven choices that enhance their competitive position and optimize organisational performance.

2.2.5 Hypotheses

We framed the following main and sub-hypotheses based on an extensive literature review. IQ, SEQ, and SYQ are dimensions of AIS and BSD, and HRMD, MD, and MKD are dimensions of decision-making. These are discussed in detail in the data analysis chapter.

Main Hypothesis

Ha1- AIS has a statistically significant positive impact on the decision-making of SMEs.

Sub-Hypotheses

Ha 1.1- There is a statistically significant positive relationship between IQ of AIS and BSD.

Ha 1.2- There is a statistically significant positive relationship between IQ of AIS and HRMD.

Ha 1.3 -There is a statistically significant positive relationship between IQ of AIS and MD.

Ha 1.4 - There is a statistically significant positive relationship between IQ of AIS and MKD.

Ha 1.5 -There is a statistically significant positive relationship between SEQ of AIS and BSD.

Ha 1.6 -There is a statistically significant positive relationship between SEQ of AIS and HRMD.

Ha 1.7 - There is a statistically significant positive relationship between SEQ of AIS and MD.

Ha 1.8 -There is a statistically significant positive relationship between SEQ of AIS and MKD.

Ha 1.9 -There is a statistically significant positive relationship between SYQ of AIS and BSD.

Ha 1.10 -There is a statistically significant positive relationship between SYQ of AIS and HRMD**.**

Ha 1.11-There is a statistically significant positive relationship between SYQ of AIS and MD.

Ha 1.12-There is a statistically significant positive relationship between SYQ of AIS and MKD.

2.3 Literature on the Influence of AIS on planning, controlling and coordinating activities of SMEs

2.3.1 Relevance of AIS in Managerial functions of business organizations

Information systems (IS) have significantly impacted the business sector, attracting significant investment. Assessing their worth and efficacy requires measuring their success or effectiveness(Delone & Mclean, 2003; Jeyaraj, 2020). An accounting information system (AIS) is a type of information system that focuses on the financial and economic activities of a company. It serves as a tool that all businesses can utilize to achieve success and to survive in a competitive world(Al-Matari et al., 2022; Esmeray, 2016). It is essential in ensuring the seamless functioning of businesses. AIS is essential for effective management because it facilitates informed decision-making, enhances operational efficiency, and supports strategic planning in business organizations(A Ali & AlSondos, 2020).

AIS provides accounting information that aids in planning and decision-making processes, integrates with management systems for real-time data analysis, streamlines accounting processes to reduce time and costs, and supports various managerial functions by providing relevant financial insights. Additionally, AIS enhances transparency and accountability by facilitating communication of financial status across the organization. (Al-Fasfus & Shaqqour, 2018)found that the AIS plays a significant role in providing useful information for the planning and control processes in Jordanian commercial banks. The study also identified a statistically significant relationship between the AIS and the achievement of various management functions, specifically the planning

and control processes. The AIS was found to provide an appropriate level of control to ensure the integrity of the company's resources and to form a future outlook on the company's results. The study recommends increasing the reliability of the AIS in the planning and control processes.

The effectiveness of an AIS is determined by how well it aligns with the specific needs of an organization and its ability to monitor and provide accurate information. System fit, or the alignment between the AIS design and organizational requirements is crucial for determining system effectiveness(Nicolaou, 2000). Without proper alignment, the AIS may not be able to provide the necessary support for decision-making processes and overall business operations. Additionally, regular monitoring and evaluation of the AIS performance can help identify areas for improvement and ensure continued effectiveness(Ismail & King, 2007). Regular monitoring and evaluation can also help to identify any potential risks or issues that may arise, allowing for timely adjustments to be made. By continuously assessing the AIS performance, organizations can ensure that it remains aligned with their evolving needs and objectives(Prasad & Green, 2015).

In today's information revolution era, where access to knowledge is fast and widespread, organizations must recognize the importance of the role played by the accounting information system (Almbaidin, 201a4). The world has transformed into a global village driven by information and knowledge, and the reliance on machines for processing and utilizing this information has become essential. The availability of efficient information systems is crucial for the success or failure of any organization. These systems support and coordinate administrative operations such as planning, observation, and decision-making. They also serve as a means of communication between the organization and its internal and external environment. The business organization needs to develop a comprehensive information system to manage its expanding operations, competition, human resources, and financial activities. This system should facilitate the flow of information from various units,

analyse it, and use it to improve administrative operations, particularly in accounting. Accounting information systems are considered essential for producing and utilizing important information related to the economic impact, income, wealth, and resources of communities. The AIS system provides essential information that greatly improves task efficiency for its users.(Zakaria et al., 2017)evaluates the impact of AIS on users' task efficiency in selected Malaysian public sector agencies. The computerized AIS facilitates data gathering, storage, and dissemination for planning, controlling, coordination, analysis, and decision-making. A questionnaire was distributed to users, and the findings indicate that the current AIS significantly impacts task efficiency in budgeting, financial reporting, auditing, and financial controlling processes. It highlights that the current adoption of AIS has met its objectives and significantly contributed to the efficiency of accounting-related tasks.

Accounting information systems aid in the efficient operation of administrative operations by providing necessary information for planning, observation, and decision-making. These functions are crucial for achieving organizational objectives, enabling the rationalization of administrative decisions and enhancing performance levels to achieve organizational goals. A study(Ali et al., 2016) on Jordanian industrial corporations found a significant correlation between accounting systems and information quality. It recommended that Jordanian public shareholding companies use accounting information to improve management performance, highlighting the importance of accounting systems in planning, observation, and decision-making. AIS streamlines financial information handling, analysis, and documentation within organizations, enabling SMEs to efficiently oversee operations and make informed decisions, thereby ensuring continuous growth and rapid growth through effective administration(Nadaf & Navi, 2021).

Thus, Accounting Information Systems are essential tools for effectively managing financial data and facilitating decision-making within a business. AIS combines information technology with accounting

principles to gather, analyse, and display accurate financial information. Without AIS, corporate activities cannot be effectively planned, coordinated, or controlled. The application of AIS is crucial for adapting best practices and predicting future strategic business goals. Additionally, the digitization of businesses, particularly small and medium-sized enterprises (SMEs), through AIS and other information technology innovations provides opportunities for increased efficiency and growth.

2.3.2 Significance of AIS in Planning

The planning function is essential in management, as it involves identifying goals, objectives, and future results. It is a crucial activity for business management as it helps them generate awareness, identify problem areas, and make informed decisions for the future(Almbaidin, 2014). It involves determining goals, objectives and desired results and outlining the necessary activities, programs, and procedures to achieve these goals(Kraus et al., 2007). (Alathamneh, 2020)defines it as the path established for authorities in advance to guide the decision-making and execution phases of the work being performed. The planning process is closely connected to accounting, particularly in business organizations(Gelinas et al., 2018). Budget planning is a crucial tool in the planning process, with upper management setting strategic goals for business organizations, middle management translating these goals into actionable methods, and lower management implementing the plans and methods to achieve the desired objectives.

However, businesses cannot maintain a strong competitive position or attain value without a well-defined planning procedure(Suarez et al., 2016). The management function involves setting a detailed roadmap for a firm to achieve its goals, and identifying its objectives and strategies(Nilsson & Stockenstrand, 2015). Managers utilize various information sources for effective planning, aiding firms in resource management and achieving objectives in today's globalized corporate environment, requiring accurate, timely, and sufficient information(Hutahayan, 2020). Accounting information is considered the

primary source that aids management in effective planning(Al-Fasfus & Shaqqour, 2018). In order to facilitate effective planning within business organizations, Accounting Information Systems (AIS) furnish required accounting information. This information is beneficial for the purpose of establishing objectives, predicting future trends, and formulating strategies.

Managers rely on AIS's financial and accounting information to evaluate the company's past performance and create future strategies. An effective AIS is crucial for developing workable plans and achieving the company's short- and long-term goals. AIS has become essential for all businesses, regardless of size, as operating or planning without such a system is no longer feasible. (Al-Hattami et al., 2022a)concluded that the success of accounting information systems (AIS) positively impacts the planning process's effectiveness in small- and medium-sized enterprises (SMEs) in Yemen. Specifically, focusing on AIS information quality, system quality, user satisfaction, and usage can enhance the effectiveness of the planning process. Another study (Alathamneh, 2020) also concludes that the reliability of accounting information systems (AIS) has a significant impact on enhancing the planning process requirements at Jordanian Commercial Banks. The findings suggest that AIS can assist in the development of plans and policies related to various activities, and it is recommended that management to focus on AIS for this purpose.

2.3.2 Significance of AIS in Controlling

Control activity involves organizations implementing policies, procedures, and practices to achieve objectives, manage risks, and ensure efficient operations while monitoring and enforcing compliance with established standards and protocols(Nilsson & Stockenstrand, 2015). Business firms need to have a planning and follow-up process (control) in order to maintain a competitive position, attain value, ensure success, and improve performance(Alomari et al., 2018; Nilsson & Stockenstrand, 2015). The control process is an important management function that involves monitoring and measuring actual performance and comparing it to planned performance. Management control is

crucial to organizational functioning, as it helps direct and control activities, achieve corporate goals, and determine competitive advantage. It is a necessary tool for managers to plan, budget, analyse, measure, and evaluate information for decision-making(Al-Qudah, 2011).

Managers require credible, comprehensive, expeditious, and adequate information to execute effective control. This is especially important in the modern business environment, which is defined by rapid fluctuations in markets and globalization(Alomari et al., 2018). An accounting information system is capable of furnishing this information. It is evident from the literature that IS/IT, including AIS, is crucial for firms in various management functions, particularly control processes. Efficient AIS prevents errors, processes data quickly, and produces meaningful reports. It enables reporting to stakeholders, monitoring activities, and improving the firm's ability to resist and control competition(Al-Fasfus & Shaqqour, 2018; Almbaidin, 2014).

AIS is essential for businesses, and it is unreasonable for any company to operate without it. The success of AIS has generated more interest and search for such systems(Al-Hattami et al., 2021).(Appiah et al., 2014; M.-H. Wang & Yang, 2016) highlights the significance of Accounting Information Systems in successful enterprises, irrespective of their size and geographical location. AIS has evolved into a widely adopted business system that is no longer limited to large enterprises. While large enterprises have played a crucial role in introducing and implementing AIS, it is increasingly important for small and medium-sized enterprises (SMEs) to effectively manage their collective intellect. A study (Al-Hattami & Kabra, 2024) conducted to assess the influence of AIS on managerial control of SMEs, it provides valuable empirical evidence on the relationship between AIS success and MCE in a less developed country context also highlighted that the success of an AIS has a positive impact on management control effectiveness (MCE) among small and medium-sized enterprises (SMEs) in Yemen. Specifically, the quality of AIS information, system, and usage were

found to positively influence MCE. Another study (Al-Fasfus & Shaqqour, 2018) concludes that the AIS is significant for planning and control processes in Jordanian commercial banks. It found a significant relationship between the AIS and the achievement of management functions, particularly in planning and control. The AIS ensures the control and integrity of resources and helps predict future performance.

2.3.3 Significance of AIS in Coordinating

Coordinating activity is essential for organizations to align and integrate different functions, departments, or processes. It helps in achieving common objectives, minimizing conflicts, and improving overall efficiency. Coordination is a key organizational activity that involves bringing elements of a complex activity or organization into a harmonious or efficient relationship. It can be described in terms of mechanisms(Melin & Axelsson, 2005). Information systems play a crucial role in coordinating work by facilitating information storage, retrieval, and transmission, providing tools for task completion, and establishing a rhythm and schedule for work processes(Shen et al., 2015). An Information System (IS) is a technology used for data collection, storage, and management, while an Accounting Information System (AIS) is a specialized subset for capturing, processing, and reporting financial data for business operations. Accounting information systems centralize financial and operational data, facilitating communication across departments and promoting collaboration among SMEs(Basel J. A. Ali,Ibrahim A. Abu-AlSondos, 2020). It supports the alignment of business processes, maintains consistency and coherence, and enhances coordination and collaboration within the organization.

The alignment between accounting information system design and organizational coordination and control requirements has a significant impact on the perceived effectiveness of accounting information systems. This, in turn, affects decision-makers satisfaction with accuracy and monitoring organizational effectiveness(Nicolaou, 2000). The research (Håkansson & Lind, 2004; Rodríguez-Ardura & Meseguer-Artola, 2020; Wiersma, 2009)emphasizes the importance of accounting

information in facilitating coordination within and between organizations, highlighting the need for effective integration of AIS, the use of tools like the Balanced Scorecard and value chain analysis, and the significance of tacit coordination and aggregated information. It underscores the necessity for adaptive and well-integrated accounting practices to support coordination activities.

Thus, Effective information systems are vital for the success of an organization, as they play a key role in supporting and coordinating administrative operations such as planning, observation, and decision-making. The systematic literature review(Wahyuni, 2023) suggests that the implementation of AIS can have a positive impact on the performance of small and medium-sized enterprises (SMEs). The review highlights that AIS provides crucial information for management, facilitating coordination and efficiency across different departments. Effective implementation of AIS can lead to improved organizational performance, including enhanced coordination and operational efficiency.

Ha2- AIS has a statistically significant positive influence on the planning, controlling and coordinating activities of SMEs.

2.3.4 Organizational Performance

Organizational performance is an essential aspect for the success and survival of companies in today's competitive world. It involves measuring the actual output of an organization against its intended goals and objectives(Sunarta & Astuti, 2023). Organizational performance is a multidimensional concept that encompasses both financial and non-financial aspects(Hutahayan, 2020). While financial metrics have traditionally been the primary focus, there is a growing recognition of the importance of non-financial factors, such as employee satisfaction and sustainability(Gutterman, 2023). The use of an information system is common among organizations as it helps to enhance the efficiency of business operations by computerizing existing processes and improving overall performance. Technology has significantly impacted professional

life, revolutionizing tasks through information systems (IS)(Nabot, 2023). Digitalization initially reduced workload by using technology for repetitive tasks, allowing organizations to focus on advanced situations improving performance and productivity. Strategic utilization of information systems and tools is crucial for efficiency, enabling data collection and processing for decision-making and improving organizational performance(Dagiliene & Šutiene, 2019). An AIS is an information system that pertains to the company's financial and economic operations. It is evident from the literature(Ali et al., 2016; Alnajjar, 2017; Nadaf & Navi, 2021; Prasad & Green, 2015) that organizations that utilize quality accounting information systems are more likely to be effective and efficient, leading to improved performance. The accounting information system plays a crucial role in providing high-quality accounting information to assist management in their duties. Therefore, the success of an organization in achieving its goals is heavily reliant on the quality of the accounting information system used. Quality accounting information supports organizations in making better decisions and enhancing overall organizational performance.

Financial Performance

Financial indicators are important for measuring financial performance, stability, and growth. Profitability indicators such as return on investment, return on equity, and profit margins are commonly used to assess short-term performance(Simon et al., 2015). Financial stability is represented by a strong cash flow pipeline and Indicators of growth include increased organizational size, expansion to new locations, and strategic alliances and mergers(Ahmad & Zabri, 2016b). In the study conducted by (Al-Mamary et al., 2020; Choongo, 2017), it was found that firm performance in small and medium-sized enterprises (SMEs) can be measured using two categories: financial performance and non-financial performance. Financial performance measures include various indicators such as return on assets, return on equity, profit to revenue ratio, cash flow from operations, profit, return on investment, revenue

growth, market share gained, productivity, effectiveness, and efficiency. On the other hand, non-financial performance measures encompass indicators such as corporate image, reputation, quality of human resources, customer base, brand devotion, investment in research and development, new product development, capacity to develop competitive profile, market orientation and development(Zehir et al., 2016).Therefore, Financial performance is a key indicator of a company's profitability and resource management, encompassing revenue, profitability, cost structure, cash flow, and assets and liabilities. Key performance indicators (KPIs) like ROI, Gross Margin, and Net Profit Margin assess a company's economic health and operational efficiency.

Non-Financial Performance

There are two categories of firm performance in SMEs: financial and non-financial. Financial performance measures include return on assets, profit, and efficiency, while non-financial performance includes corporate image, reputation, human resources, customer base, and competitive profile (Al-Mamary et al., 2020; Choongo, 2017). Organizations are shifting from a purely financial focus to non-financial performance measures like customer retention, satisfaction, employee turnover, and product development(Hernaus et al., 2012). (Anwar & Shah, 2021) explores nonfinancial performance, which encompasses aspects of a business's performance not directly linked to financial metrics. It highlights customer satisfaction, employee satisfaction, product/service quality, and employee loyalty as crucial elements for a business's success and sustainability despite not directly contributing to financial metrics. Accounting Information Systems provide information to analyse non-financial performance metrics(Budiarto & Prabowo, 2019). They contribute to quality measurement by tracking and reporting on product and service quality, helping organizations improve customer satisfaction. AIS also aids in identifying inefficiencies and streamlining operations by measuring process completion time. Additionally, AIS enables organizations to track workforce productivity, assess employee

performance, and optimize resource allocation(Yamin & Sweiss, 2020). By gathering data on customer feedback and engagement, AIS provides insights into customer satisfaction and loyalty. Thus, AIS alignment with organizational strategies enhances strategic decision-making processes by providing relevant non-financial information for long-term planning and operational control.

2.3.5 Role of AIS in Enhancing Organizational Performance

Organizational performance is a key concern for many today, as it involves setting goals, monitoring progress, and making adjustments to achieve these goals more effectively and efficiently(Ha et al., 2016). Organizations are increasingly utilizing accounting information systems to automate business activities, integrate all activities, and enhance efficiency, gaining a competitive advantage(Sunarta & Astuti, 2023). Quality accounting information systems support business needs, making organizations more effective and efficient. Accounting Information System is seen as the live wire and bloodline in the functioning of any economic entity by facilitating the accomplishment of accounting functions through the use of records, transactions, and appropriate tools. AIS provides users with the necessary information to plan, control, and operate their organizations, thereby maximizing the wealth of stakeholders(Ironkwe & Nwaiwu, 2018; Romney et al., 2012). It also enhances the quality of accounting records and promotes efficient communication and collaboration between different departments and branches of organizations, as well as with external stakeholders.

Accounting Information Systems (AIS) significantly improve organizational performance by providing critical data and insights that support decision-making, strategic planning, and operational efficiency(A Ali & AlSondos, 2020). AIS facilitates better decision-making by providing accurate and timely financial and non-financial information, enabling managers to assess the organization's performance, forecast future trends, and make informed strategic choices. It also enhances operational efficiency by integrating various functional areas, reducing redundancies, and improving productivity and

operational efficiency. AIS aids in strategic planning by generating relevant data that informs business strategies, aligning with organizational strategy(Al-Hattami et al., 2022a). It also provides tools for performance measurement, allowing organizations to track key performance indicators and assess the effectiveness of their operations. AIS contributes to knowledge management by capturing and organizing data for insights and learning, enhancing the organization's ability to innovate and adapt to changes in the business environment(Kareem et al., 2021). Data integrity and reliability are crucial for maintaining trust in the information used for decision-making and effective management.

(Soudani, 2012)examines the usefulness of accounting information systems (AIS) for effective organizational performance. Using data from 74 listed companies in the Dubai Financial Market, the research found that AIS is useful and has a significant impact on organizational performance. AIS was found to be the most critical factor in firms recorded in DFM, as it significantly affects money-related execution and hierarchical execution. This highlights the importance of AIS in enhancing organizational performance. AIS is crucial for SMEs to efficiently manage their operations, achieve economic benefits, and maintain optimal performance(Jalloul et al., 2022). A generalized accounting system is essential for SMEs' financial and economic activities. A versatile and effective accounting software is needed to develop financial reports and evaluate the financial health of enterprises. The study (Grande et al., 2011)examined the impact of Accounting Information Systems (AIS) on performance measures in Spanish SMEs. The findings showed a positive relationship between SMEs using AIS for fiscal and bank management and improved performance indicators and productivity.

In the Financial Statements, Accounting Information Systems are essential for collecting, recording, storing, and processing data to produce valuable financial information for decision-making. They enhance overall company performance by providing financial and non-financial information. The success of AIS in daily business operations

encourages improvement by improving decision-makers knowledge and quality(Paula Monteiro et al., 2022). In a study by (Abd Allah al-Ba'aj et al., 2018), it was concluded that accounting information systems are crucial for the efficiency and performance of banks. These systems provide quality and useful data for strategic management, whether financial or non-financial. Despite challenges in many countries, the use of accounting information systems is necessary for organizational growth and development. The system helps decision-makers make better decisions, leading to the achievement of strategic goals. However, there is a need to improve user knowledge and increase the effectiveness of accounting information systems to meet planning process requirements.

The accounting information system significantly impacts performance management and organizational performance. The use of the accounting information system helps decision-makers make informed decisions, leading to the development and improved performance of the organization(Alnajjar, 2017). A study conducted(Agung, 2015) in manufacturing companies investigates the impact of the Accounting Information System (AIS) on the organizational effectiveness of small and medium-sized enterprises (SMEs). AIS is crucial for effective business operations, but many organizations focus on only a few parts, leading to ineffective utilization. The updated IS Success Model was used, and questionnaires were distributed to 827 companies. Results showed that AIS elements, including System Quality, Information Quality, Service Quality, and System Use, significantly influence organizational effectiveness. Therefore, implementing AIS is essential for increasing organizational effectiveness in manufacturing companies. Service quality, information quality, and system quality are significant factors in the success of an Accounting Information System (AIS) and can contribute to increased organizational performance, particularly in the banking sector(Ali et al., 2016).

Managers and owners of SMEs should prioritize the implementation of AIS and focus on developing their knowledge management capabilities to improve overall performance(Kareem et al., 2021). (Lutfi et al.,

2020) suggests that SMEs need to adopt and utilize digital accounting systems (DAS) in order to enhance their performance. The study also found that DAS usage has a positive and significant impact on DAS performance. It recommends that the government of Jordan should promote the importance of DAS for SMEs through a campaign. Based on the findings of (Sunarta & Astuti, 2023), it can be concluded that there is a positive relationship between accounting information system quality and organizational performance. The study was conducted in in rural banks in the Province of Bali, Indonesia. This suggests that improving the quality of accounting information systems can lead to better organizational performance, and this effect is partially mediated by the quality of the accounting information itself.

Based on the findings mentioned, it can be concluded that implementing an appropriate information system, specifically an AIS (Accounting Information System), is beneficial for SMEs (Small and Medium Enterprises) and can positively impact their organizational performance. IT investment and the use of technology can make a company stronger, more flexible, and better able to respond to customer demands. Additionally, having an AIS that is consistent with the company's needs can lead to better performance. Therefore, it is important for SMEs to choose an AIS that fits their needs in order to support their operational processes and achieve their objectives.

2.3.6 AIS and Non-financial Performance of SMEs

In recent years, there has been a growing interest among modern organizations in non-financial performance measures. These measures are seen as a way to provide managers with additional information such as customer satisfaction, employee satisfaction, productivity, product quality, and market share(Ahmad & Zabri, 2016b). Other indicators of non-financial performance include improvements in customer service, employee and customer retention rates, and social responsibility practices(Paula Monteiro et al., 2022). The AIS subsystems are responsible for processing both financial and nonfinancial transactions that have an impact on financial transactions. This includes updating

customer information, such as names and addresses, which may not be considered financial transactions but are crucial for future sales processing(Hall, 2019).

The application of accounting information systems in an enterprise can provide financial information for planning, control, and decision-making, ultimately improving the overall performance of the company, both financially and non-financially(Romney et al., 2012). Based on the empirical investigation (Ironkwe & Nwaiwu, 2018)conducted in Nigeria, it can be concluded that accounting information systems have a significant positive effect on both financial and non-financial measures of companies. This suggests that the development of accounting information systems based on international standards can enhance the credibility and fairness of financial reporting, not only locally but also globally.

Accounting Information System (AIS) is essential for Small and Medium Enterprises (SMEs) to survive in a competitive environment, as it affects non-financial performance directly or through mediating variables such as AIS alignment, AIS sophistication, and owner commitment.(Budiarto et al., 2018) study found that there is a significant relationship between AIS alignment and non-financial performance in small firms. The research showed that factors such as AIS sophistication, owner commitment, and external IT expertise have a significant impact on AIS alignment. Furthermore, AIS alignment was found to have a significant effect on non-financial performance in small and medium enterprises. Accounting Information Systems are vital in analysing non-financial performance, providing insights beyond traditional financial metrics. They aid decision-making and improve operational efficiency, making them essential for assessing non-financial outcomes. The quality of AIS indirectly influences decision-making success and overall non-financial performance, accounting for 62% of their variance, according to a study(Paula Monteiro et al., 2022). The Integration of AIS plays a pivotal role for SMEs to improve their non-financial performance. AIS enables better decision-making, enhances operational efficiency, and fosters communication, leading to achieving financial goals, strengthening

customer relationships, boosting employee engagement, and enhancing overall organizational effectiveness. As SMEs face competition, leveraging AIS for non-financial metrics is essential for sustainable growth and long-term success.

Ha3- AIS has a statistically significant positive impact on the Organizational performance of SME

2.4 Literature on Challenges in the implementation of AIS

2.4.1 Challenges identified during AIS implementation based on existing studies.

In today's business environment, business corporations across various industries are significantly reliant on information systems. Information systems (IS) are crucial in business environments, responding to business requirements, ensuring effective planning and control, and providing a competitive advantage by improving outcomes, reducing mistakes, increasing efficiency, and reducing costs(Almalki et al., 2017). (Saeidi et al., 2019)emphasizes the significance of information technology in business operations, stating that organizations not only strengthen their operations but also seek new opportunities for competitive advantage. According to (Nabot, 2023), an organization's Information Systems (IS) helps to maintain collaboration between divisions and ensure resource allocation for new property, product, and machine development. It addresses the needs of shareholders, clients, and employees, who all benefit from the organization's success in achieving their goals. Rapid information technology (IT) advancements have led to changing trends in various areas. User-friendly systems and organizations' desire for informed computerization have simplified computer usage, making accounting tasks faster and more precise.

Technology advancements have led to the computerization of information systems, replacing manual accounting systems with computerized ones(Hall, 2019). Computerized systems process data and distribute accounting information, replacing manual systems in small business organizations. Accounting software programs gather sales,

purchases, receivables, payables, cash receipts, disbursements, and payroll data, generating financial statements and managing cash flow. Improved administrative management in accountancy and finance is possible through an accounting information system, which allows for risk assessment and future earnings prediction. However, some authors(Almalki et al., 2017; Kiwango & Omar, 2021; Steil et al., 2021) argue that high performance is only achieved when companies can afford certain technological developments. According to (Rahman et al., 2015), businesses may see an overall decline in performance after implementing accounting software, and it can take several years to reap the benefits. The effectiveness of an accounting information system is determined by decision-makers judgment of its utility in meeting operational, managerial, and budgetary needs inside the businesses.

(Aziz et al., 2022) examines the challenges faced by Malaysian SMEs in implementing accounting software systems. Data from 102 managers and IT staff revealed that insufficient accounting skills and inadequate training significantly impact the implementation of these systems. However, efficiency did not affect the process. The research recommends managers conduct more training programs to enhance staff's capabilities in accounting and finance, especially in operating accounting software systems. Another study(Serhan, 2020) investigates the development of accounting information systems and the challenges they face in their implementation within developing countries, with a focus on Lebanon. Despite significant progress in accounting professions, there has been limited emphasis on AIS adoption. The research identifies key barriers, including organizational structure, technological limitations, inadequate training, and financial constraints. This study also recommends that enhancing the training and education of managers and accountants, securing financially viable contracts for AIS implementation, and adapting organizational structures to support technological advancements can be helpful to overcome those challenges.

Accounting Information Systems (AIS) are essential for effective financial management in organizations, but challenges like organizational structure, management, and cultural factors can hinder their successful implementation. The study(Rapina et al., 2023) highlights several challenges affecting the successful implementation of Accounting Information Systems (AIS) in Indonesia's banking sector. The first is the lack of adequate accounting skills among staff, which can lead to errors and inefficiencies in financial reporting. The second is the inadequate training provided to employees, which can result in poor system adoption and underutilization of features. The third challenge is the quality of internal processes, which are often overlooked during the implementation process which can lead to systems not aligning well with existing business processes. These challenges collectively impact the successful implementation of accounting information systems. The study examines(Salehi, 2011) barriers to implementing accounting information systems in companies listed on the Tehran Stock Exchange. It identifies organizational structure, middle managers, human resources, environmental factors, financial issues, and organizational culture as the main obstacles. To overcome these, management, financial managers, and staff must be trained by experienced teachers, and financial issues should be addressed. Rewarding managers and staff can encourage them to use the new system and learn from its advantages.

Accounting Information Systems (AIS) enhance financial management and decision-making by integrating technology with accounting principles, enhancing accuracy, ensuring regulatory compliance, improving internal controls, and enhancing communication across departments, leading to increased efficiency and collaboration. However, several challenges can hinder their successful implementation, especially in developing economies(Almalki et al., 2017; Aziz et al., 2022; Shaikh et al., 2021). One major issue is the lack of efficiency in system operations, often due to poor alignment between AIS and existing business processes. This can lead to delays and errors in financial reporting and decision-making. Insufficient training for employees is

another major challenge, as many organizations fail to provide adequate training, resulting in underutilization of system features and a lack of confidence among employees. This resistance to change can reduce the potential benefits of AIS. Insufficient accounting skills among staff are another barrier to effective AIS implementation. Without these skills, employees are more likely to make errors, leading to inaccurate financial reporting and analysis, which can undermine the reliability of the information produced by AIS. Addressing these issues is essential for enhancing the overall performance of AIS.

2.4.2 Impact of Lack of Efficiency on the implementation of AIS

(Rogers, 2016) identified efficiency as a primary motivator for businesses to implement computerized accounting systems. They emphasized that the drive for efficiency underpins the decision to adopt such systems. (Ladan Shagari et al., 2017)elaborated that AIS is designed to enhance the quality and effectiveness of business processes and reduce costs. Additionally, AIS provides accurate real-time demand data, promotes global awareness, introduces new reporting tools, and facilitates integration and collaboration across risk areas and business operations (Shagari, 2017). (Hadid & Al-Sayed, 2021)argued that efficient implementation of accounting systems depends on aligning three key factors: the organization's understanding of its needs, the system's ability to address typical problems, and the system's compatibility with the organization's values and expectations. This alignment is crucial for ensuring that the system meets the organization's specific requirements and enhances overall efficiency. Furthermore, (Ibrahim et al., 2020)highlighted the importance of effective project management and comprehensive training for system users in achieving efficient AIS implementation. They noted that without proper training and skill development, even well-designed systems may fail to realize their full potential. Inefficiencies in these areas can lead to underperformance, increased costs, and suboptimal utilization of the accounting software. Thus, addressing these efficiency-related

challenges is essential for successful AIS deployment and maximizing its benefits.

2.4.3 Impact of Inadequate accounting Skills on the implementation of AIS

Accounting skills are vital for AIS success, as they enable employees to accurately collect, process, and report financial data. Insufficient skills can lead to implementation failures, errors, inefficiencies, and underutilization, negatively impacting decision-making and organizational performance. (Ladan Shagari et al., 2017)contended that a shortage of skilled staff significantly undermines the effectiveness of Accounting Information Systems (AIS) strategies and contributes to organizational failure. Similarly, (Pulakanam & Suraweera, 2010) observed that the lack of personal accounting expertise among small and medium-sized enterprises (SMEs) is a more prevalent issue than the absence of technical skills. Despite the development of user-friendly software packages for small business accounting, which reduce the need for traditional accounting skills such as double-entry bookkeeping, the problem persists. (Ismail, 2009) highlighted those common errors, such as incorrect data entry into accounts and misapplication of accounting functions, frequently occur in small businesses. These errors often necessitate the intervention of external consultants to rectify. Addressing the gap in accounting skills is crucial for improving the effectiveness of AIS implementation and ensuring that organizations can fully leverage their accounting software systems. Enhanced training and support for staff are essential to mitigate these issues and achieve successful integration of AIS.

2.4.4 Impact of Inadequate training on the implementation of AIS

Insufficient training can lead to system utilization issues, errors, decreased productivity, resistance to change, higher costs, and compliance issues among employees, compromising financial integrity. Wong et al. (2014) assert that effective training is essential for improving the implementation of accounting software systems, as it addresses gaps

in IT expertise and knowledge of IT benefits. Additionally, robust financial support from suppliers or consultants can reduce the risk of IT failures in small businesses by offering technical assistance training and creating a supportive environment (Igbaria and Tan, 1997). However, key barriers to providing adequate training include limited time, financial constraints, and a lack of commitment to continuous learning. Duxbury et al. (2003) highlight that the cost of employee training significantly impacts the success of IT projects. This poses a major challenge for small and medium-sized enterprises (SMEs), which often operate on tight budgets and may lack the resources to invest in advanced technologies and comprehensive training programs. To overcome these challenges, businesses must prioritize training as a strategic investment. Providing adequate training and financial resources is crucial for ensuring the effective implementation of accounting software systems and maximizing their potential benefits. Addressing these issues can lead to improved system performance, reduced operational disruptions, and enhanced overall organizational efficiency.

The implementation of technology in Small and Medium-sized Enterprises (SMEs) is hindered by several challenges, as identified in the literature. One key challenge is resource limitations, as SMEs often face financial constraints that limit their ability to invest in new technologies. This makes it difficult for them to effectively adopt digital solutions(Nyamwesa, 2024). Another challenge is skill gaps, as many SMEs lack employees with the necessary technological know-how, making it challenging to successfully implement digital technologies(Almalki et al., 2017; Kaluge, 2023). Data security and privacy concerns are also a significant challenge for SMEs, as they are particularly vulnerable to data breaches, which raises concerns about adopting cloud computing and other digital technologies(Senarathna et al., 2016). Integration issues with existing systems can complicate the adoption of new technologies, leading to resistance to change within the organization. Additionally, navigating the complex regulatory landscape

poses a challenge for SMEs in terms of regulatory compliance(Bello et al., 2024).

Based on the above literature, it is apparent that the lack of efficiency and inadequate training have a significant impact on the implementation of accounting information systems in SMEs. It highlights the importance of having sufficient accounting skills, particularly in management accounting and commercial awareness, in order to effectively implement accounting software systems. Additionally, the studies emphasize the need for comprehensive training programs to enhance the skills, knowledge, behaviours, and competency of employees involved in the implementation process. These studies also suggest that ineffective management, outdated processes, and resistance to change can hinder the successful implementation of accounting information systems.

2.5 Research Gap

Accounting Information Systems are becoming increasingly essential for small and medium-sized enterprises to enhance decision-making, improve operational efficiency, and remain competitive in today's dynamic business environment. Research(A Ali & AlSondos, 2020; Budiarto et al., 2018; Ismail, 2009; Nadaf & Navi, 2021) indicates that organizations adopting AIS tend to achieve better financial and non-financial performance compared to those relying on traditional accounting methods. However, despite the potential benefits, the studies to analyse the impact of AIS among SMEs, particularly in India, remain limited. While AIS has gained increasing relevance globally, and many SMEs are adopting these systems to improve efficiency, most studies have primarily focused on financial performance, neglecting the specific influence of AIS on non-financial aspects such as planning, controlling, coordination, and decision-making processes. Furthermore, the majority of research has centred on large enterprises or financial institutions, with a limited focus on SMEs. This highlights the need to explore the factors influencing AIS adoption in SMEs and its impact on organizational performance. The Punjab State is promoting SMEs growth through industrial development, infrastructure enhancement, business ease, financial and skill development support, and

targeted initiatives for rural areas, aiming to reduce regional disparities and promote inclusive economic development through "MSME-Punjab"(Punjab Economic Survey 2022-23). while the significance of Accounting Information Systems in enhancing business operations, especially within Small and Medium Enterprises, is increasingly recognized, a notable research gap exists concerning AIS's specific impacts in Punjab. The existing literature also reflects a range of perspectives on the influence of AIS on various aspects of business performance, yet there remains a noticeable gap in understanding its impact on the decision-making and non-financial performance of SMEs in Punjab, India. This study seeks to address the existing gap in the literature by systematically assessing the impact of AIS effectiveness on the performance of SMEs in Punjab. This study will provide empirical evidence on how AIS impacts decision-making, planning, controlling, and coordination, areas which have not been sufficiently covered in the literature, especially within the SME sector in Punjab. Furthermore, it aims to analyse key factors that facilitate the successful adoption of AIS within these enterprises. Additionally, the implementation of AIS, like other technologies, follows a process where organizations encounter different barriers during the implementation phase. Understanding these challenges is crucial to developing strategies that promote effective implementation. It is imperative to identify the challenges SMEs face during the implementation of AIS. AIS has the potential to significantly contribute to improving the business processes and overall performance of SMEs. The present study aims to address these gaps by exploring the impact of AIS implementation on non-financial performance, with a focus on SMEs in Punjab.

CHAPTER -3
RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a systematic approach to studying a field involving principles, procedures, and strategies for data collection, analysis, and interpretation. It aims to provide a structured, reliable, and objective approach to investigating research questions. Key components include research design, sampling techniques, data collection methods, data analysis procedures, validity and reliability, and ethical considerations. The research methodology guides researchers through the entire process, ensuring a systematic, rigorous, and ethical approach, ensuring the credibility and trustworthiness of the findings.

The chapter provides a comprehensive overview of the research methodology used in the study. It includes a detailed description of the methods for data collection and analysis, as well as the research design and procedures followed. The chapter also discusses the sampling techniques used and provides an explanation of the research instruments employed. Additionally, it addresses the validity and reliability of these instruments. Overall, the chapter presents a thorough explanation of the procedures for data collection and analysis.

The study focuses on examining the impact of implementing AIS on small and medium-sized enterprises (SMEs) in the state of Punjab. It utilizes both primary and secondary data from different sources.

3.2 Problem Statement

Small and Medium Enterprises are vital for economic growth, employment generation, and improving living standards in developing nations, acting as a vital pillar for economic development and employment generation. Accurate and systematic accounting records are essential for small and medium-sized enterprises as they enable effective management and strategic planning. They ensure compliance with regulations, minimize legal penalties, strengthen stakeholder trust, and facilitate well-informed decision-making. Thorough accounting records foster transparency, accountability, and trust among

stakeholders. Presently, Accounting Information System is a computer-based system used by business organizations to manage financial transactions, produce reports and ensure accurate and efficient accounting practices. AIS streamlines data collection, minimizes errors in financial reporting, offers immediate access to information, improves communication between departments, and ensures the security of sensitive data with strong internal controls. It ensures precise financial records.

SMEs are rapidly recognizing the importance of implementing AIS to improve operational efficiency and make strategic decisions. AIS is essential for small and medium-sized enterprises because it provides accurate financial information, enables informed decisions, and facilitates tasks like bookkeeping, payroll, and reporting. They aid in strategic planning, performance evaluation, regulatory compliance, and data security, promoting sustainable growth. There is a dearth of research on the Accounting Information System and its impact on the organizational performance of SMEs. This study aims to explore the factors that contribute to the adoption of AIS in SMEs, as well as its effects on decision-making, planning, controlling, and coordinating activities. Additionally, it will investigate the challenges faced during the implementation of AIS in SMEs, particularly in Punjab. SMEs in Punjab, a crucial economic sector, have been largely overlooked in studies examining the quality of accounting information provided by Accounting Information Systems. Limited research exists on the implementation and effectiveness of AIS in SMEs, which can significantly enhance operational efficiency and decision-making processes. Existing studies often focus on financial performance, neglecting non-financial metrics like customer satisfaction and operational efficiency. The introduction of the Goods and Services Tax (GST) in India in 2017 has significantly changed accounting practices, making it necessary for SMEs to use computerized accounting software. This study focuses on SMEs in Punjab to assess the quality of accounting information and its impact on performance and decision-making. This will provide valuable insights into the impact of AIS on SMEs in Punjab. Therefore, this study aims to offer valuable insights to SME owners,

policymakers, and researchers on the implementation of AIS and its implications for the Punjab SME sector.

3.3 Research objectives of the study

The literature review reveals a lack of studies on the impact of implementing Accounting Information Systems (AIS) on the SME's organizational performance, as well as the factors influencing the adoption of AIS and the challenges faced by SMEs in implementing AIS in the context of Punjab state, particularly Punjab. To address this gap in the literature, the following objectives have been formulated to contribute to the existing knowledge by filling the identified gap.

1) To analyse the factors that led to adoption of accounting Information System (AIS) in selected SMEs.
2) To determine the impact of accounting Information System (AIS) on decision-making of SMEs.
3) To analyse the influence of accounting Information System (AIS) on planning, controlling, coordinating activities of selected SMEs.
4) To explore the challenges in implementation of accounting Information System (AIS) with respect to SMEs.

3.4 Research Design

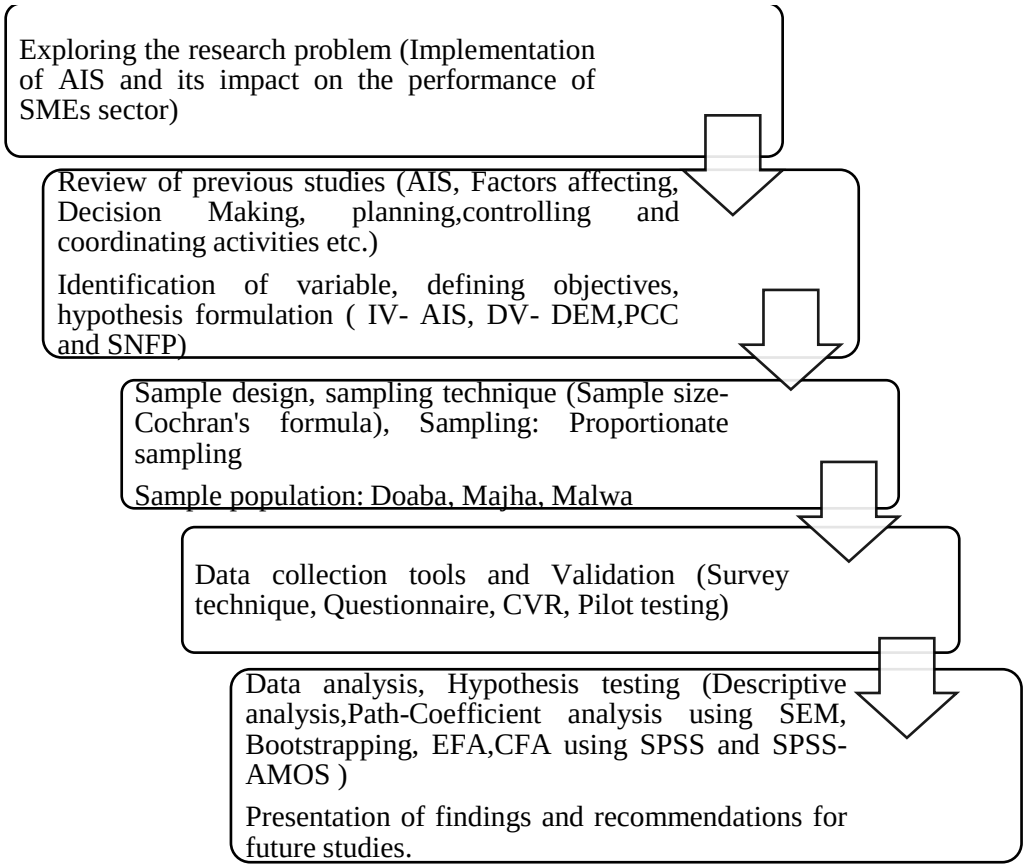
"Research design provides the glue that holds the research project together"(Trochim & Donnelly, 2001). Research design is a plan that integrates all elements of a quantitative study to ensure credible, bias-free, and generalizable results(Dannels, 2018). Research design plays a vital role in social science studies, offering a well-organised framework for gathering and analysing data. It guarantees the precision, dependability, and authenticity of insights, guiding the evaluation of problems, testing of theories, and description of phenomena(Nayak & Singh, 2021). A well-crafted design, regardless of its approach, contributes to the advancement of knowledge.

There are many types of research designs, and this study used descriptive and exploratory, explanatory and experimental research designs. In order to gain a better understanding of previous research in a specific field, an

exploratory research study was conducted. The purpose of this research design was to investigate the factors, constructs, and methodologies that have been utilized in previous research. The explanatory research design is used to explain relationships and causality between variables, focusing on understanding underlying reasons. It is typically used after exploratory research has identified potential relationships, and is often uses quantitative tools like surveys.

Descriptive research design describes a population's or respondents' characteristics, providing a snapshot of its current state. It includes observational methods and surveys to provide detailed and accurate descriptions of variables and conditions without assessing causality. Experimental research design tests hypotheses by measuring the effect of variables on others, aiming to establish causal relationships. It provides evidence of causality when specific hypotheses need to be tested. In this study, the researchers conducted an extensive literature review to identify the measures or constructs necessary to achieve their research objectives. This process involved exploring the relationships between these constructs, which fall under both exploratory and explanatory research. Afterwards, the researchers collected data from respondents to describe the characteristics of the population or sample, which is considered part of descriptive analysis. Finally, the researchers tested the formulated hypotheses, which were part of the experimental research.

3.5 Research Process



3.6 Scope of Study: Rationale and Justification for Selecting SME's Sector

Economic growth is crucial for promoting development, particularly in developing countries, where small and medium enterprises (SMEs) play a significant role in sustaining growth. SMEs play a crucial role in the global economy, contributing to job creation, GDP growth, and innovation. They play a significant role in economic development, particularly in developing countries, where they contribute significantly to national income. SMEs promote entrepreneurial skills and a flexible business environment, addressing unemployment and contributing to sustainable growth. The World Bank highlights the significant role of Small and Medium Enterprises (SMEs) in economies, particularly in developing countries. SMEs account for 90% of businesses and 50% of employment globally, contributing up to 40% of national income in emerging economies. With 600 million jobs needed by 2030 to absorb the growing global workforce, SME development is a high priority for governments worldwide(Weerakkody, 2023). The Ministry of MSME in India also quoted the following on its website: "The SME sector, a

prime pillar of the economy, has significantly contributed to economic development over the last five decades"(Pandit, 2017). The SME sector nurtures entrepreneurship, generates large employment opportunities, and complements large industries as ancillary units. It contributes to inclusive industrial development, making it a vital component of the country's economy.

The significance of the SME sector highlights the need for authentic and transparent financial records(Iranmanesh et al., 2023). Accurate financial records can facilitate the growth of SMEs by enabling better decision-making and managerial activities, ultimately contributing to improved organizational performance. The implementation of an effective Accounting Information System can play a significant role in the growth of SMEs; it is a crucial tool in an organization, responsible for accurately recording and storing financial data, generating reports, ensuring compliance with standards, implementing robust internal controls, supporting decision-making, and facilitating efficient communication of financial information. Conducting a study to assess the impact of AIS on the SME sector would provide valuable insights for policymakers and owners.

The research is conducted in Punjab state, involving all registered SMEs from the selected districts as a sampling frame. According to the Ministry of Micro, Small, and Medium Enterprises, Punjab ranks among the top 10 states in terms of MSMEs. Punjab State is a significant hub for small and medium-sized enterprises across various sectors, including textiles, manufacturing, agriculture, and services. SMEs in Punjab significantly contribute to the economy, fostering employment, economic growth, job creation, and innovation, as they form a significant portion of the industrial sector(B. Singh & Khanduja, 2010). Punjab has over 2 lakh small-scale units in various sectors, including auto components, bicycle parts, hosiery, sports goods, and agricultural implements. The government established 'MSME Punjab' to enhance competitiveness, ensure credit flow, support technology upgradation, modernize facilities, provide management practices, and support product development. With an extensive literature review, we found that there is a lack of research on the quality of accounting information provided by AIS in SMEs in Punjab, limited research on their implementation and effectiveness, and the

neglect of non-financial performance metrics such as customer satisfaction and operational efficiency, which are crucial for a holistic evaluation of SMEs' performance. The implementation of the Goods and Services Tax (GST) in India has had a profound impact on businesses, especially small and medium enterprises (SMEs), as they are now required to electronically report their transactions. This has resulted in the adoption of computerized accounting software, streamlining the process of maintaining precise records and generating reports for GST filing. Thus, it is imperative to conduct a study on the effects of AIS. Hence, a study focusing on SMEs operating in Punjab is likely to yield valuable insights into evaluating the reliability of accounting information and its influence on performance, decision-making, and the implementation and outcomes of the AIS in SMEs.

3.7 Sampling and Sampling Design

Sampling is a crucial aspect of research as it determines the proportion of the population to be tested and facilitates the research process. The design of the sample involves determining the population frame, selecting the appropriate sampling technique, and determining the sample size. The representativeness of the population is a key consideration in determining the sample size. Overall, careful consideration and planning are necessary when making decisions about sampling in order to ensure the validity and reliability of the research findings.

3.7.1 Target Population

The target population of the study covered all registered and licensed SMEs in the manufacturing sector and Service sector in the Punjab state. This information was gathered from the District Industrial Centre (DIC) of selected districts. The population is divided into MALWA, MAJHA and DOABA regions. Districts were selected on the basis of no. SMEs.

3.7.2 Sampling Frame

The sampling frame for this study consists of the registered SMEs in selected districts of Punjab. The composition of this group includes small and medium-sized enterprises (SMEs) from the top six districts in terms of the number of SMEs. These districts are located in three regions of Punjab state.

3.7.3 Sample Unit

The sampling unit for this study includes the owners, managers and accounting staff of SMEs registered in the three regions of Punjab state as respondents for the purpose of giving quality information through the structured questionnaire.

3.7.4 Sampling Technique

The Probability sampling technique was used to select the sample from the target population. From the probability sampling techniques, a stratified random sampling technique(Rahman et al., 2022) was applied. This is because Punjab state was divided into three strata, i.e., Majha, Malwa, and Doaba. Four districts were selected from the MALWA region, i.e., Ludhiana, SAS Nagar, Fatehgarh Sahib and Patiala, and one from MAJHA, i.e., Amritsar, and one from the DOABA region, i.e., Jalandhar. Stratified random sampling is helpful in selecting the appropriate respondents who fulfil the purpose of the study by giving information.

3.7.5 Sample Size

Increasing demand for research has created a need for an efficient method of determining the sample size needed to be representative of a given population. The following formula was applied to draw a representative sample (respondents) of owners of SMEs out of a target population to draw the required sample size, the researcher applied Cochran's (1977) sample size formula(Uakarn et al., 2021).

Using the formula $n_0 = \frac{Z^2 pq}{d^2}$

Where: no = 1 required sample size?

$Z^2 = 1.96$ is the value of the standard variant at a 95% confidence level.

p = 0.5 estimated characteristic of the target population

q = 1 - 0.5

d^2 = acceptable margin of error for proportion being estimated = 0.05

$$n_0 = \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2} = \frac{3.8416 \times 0.25}{0.0025} = \frac{0.9604}{0.0025} = 384.16$$

Cochran's (1977) correction formula was used to calculate the final sample size. Accordingly, these calculations are as follows:

$$n = \frac{no}{\frac{(1+no)}{N}} \quad n = \frac{384}{\frac{1+384}{23292}}$$

Where: N is population size

no- required return sample size according to Cochran's (1977), formula- 384

$$n = \frac{384}{\frac{(1+384)}{23.292}} \quad n = \frac{384}{1+0.0164} = \frac{384}{1.016486} = 377.77 \text{ or } 378$$

n = required return sample size because sample > 5% of population n

Table 3.1. Proportional allocation of Sample Size of each selected district

s.no	Geographical Regions of Punjab	Name of districts	District wise population of each stratum	Sample to be taken by using proportionately stratification
	MALWA	**LUDHIANA**	8227	247
		SAS NAGAR	1791	54
		PATIALA	1236	37
		FATEHGARH SAHIB	1393	42
2.	**MAJHA**	**AMRITSAR**	1858	56
3.	**DOABA**	**JALANDHAR**	2148	64
	TOTAL		16653	500

Source- Researchers own compilation of Proportional allocation of Sample Size of each selected district

https://dashboard.msme.gov.in/udyam_dist_wise.aspx?stid=3

After the calculation of the total population and sample size, proportionate allocation of sample size(Cheung, 2021) was applied in order to calculate the number of respondents proportionately from the SMEs of Doaba, Majha and Malwa regions. A sample size of 378 is adequate for a population of up to 23,292. It was observed that the results were satisfactory and that sampling adequacy was present in the previous research(Al-Hattami et al., 2022a, 2024; Al-Hattami, 2021), which also had a similar sample size. Therefore, the sample size was determined to be 500 in accordance with the aforementioned criteria. Out of 500 samples, 424 were selected for additional data processing. As a result, the sample size was taken into account for the study, as the previous studies had samples of similar size. A sample size of 500 was also chosen because SPSS, AMOS, and Smart-PLS were employed for data analysis. A minimum of 100 samples is required to employ this data analysis method; therefore, the sample size was determined to be 500.

For this research, Punjab state has been selected. The sampling frame includes all registered SMEs from the selected districts. While Cochran's formula indicated a sample size of 378, a sample size of 500 was chosen to enhance the robustness of the findings. This larger sample size accounts for potential non-responses and ensures greater representativeness and precision in the results.

3.8 Sources of Data

In the following section of the chapter, the sources of data used for conducting the research are discussed. In order to achieve the objectives of the study, the data plays an essential role. Data is an important tool in research, and in this study, data is gathered from primary and secondary sources.

3.8.1 Primary Sources

Primary data is essential for the integrity and authenticity of scholarly research. It allows researchers to obtain original, firsthand information relevant to their specific research questions, generating precise insights that secondary data sources cannot provide. Primary data also ensures high control over data quality, allowing researchers to design methodologies and minimize bias. It fosters the generation of new knowledge, filling gaps in understanding

in fields where secondary data is scarce. It enhances the credibility and authenticity of research findings, as studies relying on firsthand data are perceived as more robust and trustworthy.

The respondents of the study were contacted personally through mail, mobile internet, and telephone. In our study, a questionnaire survey has been used for the data collection for gathering data relevant to the study. The current study adopted the quantitative approach for the collection of data. For this purpose, a sample of 500 respondents was selected surveys were conducted, and questionnaires were distributed to assess the impact of AIS on the SME's Sector.

3.8.2 Secondary Sources

Secondary data, such as existing literature and government reports about SMEs' contribution towards economic development, is essential in academic research on SMEs. It provides a comprehensive understanding of the existing knowledge, contextual background, and empirical benchmarks, enriching the research process and outcomes. Secondary data helps situate the current study within the broader academic discourse, avoiding redundancy and identifying key theories, concepts, and frameworks.

This secondary information has been collected from various publications relating to accounting information systems and the factors affecting and impacting AIS implementation in the SME sector of Punjab. Different books, journals, and magazines of executing agencies viz World Bank, Ministry of Micro, Small& Medium Enterprises, Government of India, District Industrial Centre (DIC). Libraries of Lovely Professional University, Jalandhar; National Institute of Technology, Jalandhar; and Guru Nanak Dev University, Amritsar, have been consulted to make the study more updated, meaningful, and comprehensive and also to supplement findings of the study.

3.9 Data Collection Tool

The researcher utilized a questionnaire as the data collection tool. The questionnaire was self-administered and developed by the researcher, with reference to existing literature. It was administered through both online and offline methods, making it a widely used approach for data collection. The

questionnaire consisted of a pre-defined series of questions with constructs aimed at gathering data from respondents. The development of a logical and reliable questionnaire involved the following stages.

Stage 1: Draft of questionnaire

The researchers developed a questionnaire that is divided into two parts. The first component aims to gather the demographic information of the respondents and SMEs. The second section addresses variables and aims to assess the study objectives and test hypotheses. The survey questionnaire initially consists of 92 statements, which are divided into different constructs: PU (Perceived Usefulness) with 5 statements, PEOU (Perceived Ease of Use)(Kholilah et al., 2022) with 5 statements, IQ (Information Quality) with 7 statements, SEQ (Service Quality) with 5 statements, SYQ (System Quality) with 7 statements, BSD (Basic Strategic decisions) with 4 statements, MD (Manufacturing Decisions) with 4 statements, HRMD (Human Resource Management Decisions) with 5 statements, MKD (Marketing Decisions) with 5 statements, SNFP (SME's Non- financial performance)(Saad, 2023) with 10 statements, PCC (Planning, controlling and coordinating) with 17 statements, LOE (Lack of efficiency) with 5 statements, IAS (Inadequate accounting skills) with 8 statements, and INT (Inadequate training) with 5 statements(Aziz et al., 2022). IQ, SEQ, and SYQ are lower-order constructs of the higher-order construct "AIS"(Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022). BSD, MD, MKD, and HRMD are considered lower-order constructs of the higher-order construct "DEM" (Al-Hattami & Kabra, 2022; Al-Okaily et al., 2022; Lutfi et al., 2022; Ullah et al., 2014).

Stage 2: Validation of the questionnaire

Content Validity Ratio Lawshe, 1975: The study adapted the instrument from earlier studies, and in order to assess the validity of the instrument in the SME sector, performing content validity is required. The degree to which the measurement instrument's items accurately reflect the full content domain is known as content validity or CV. A CV ratio (CVR) is a numerical figure that indicates the instrument's level of validity based on expert evaluations of the

CV and tells us whether a certain item is legitimate. In the Content Validity Ratio, the researcher is required to get input from the panel of subject matter experts regarding the items created for the study's constructs. The researcher applied the Content Validity Ratio in order to examine the 'Essential', 'Useful but not essential', and 'Not Necessary' statements from the questionnaire. The validity of the items is assessed by experts familiar with the instrument's content domain.

We have distributed the questionnaire through Google Forms and hard copies. We spread the questionnaire through connections made through LinkedIn accounts majorly and by visiting the SME accountants and CAs (Chartered accountants). We get the questionnaire validated by industry experts (SME accountants, chartered accountants) and academicians (Professors). Details of the experts are given in the table (3.2).

The formula for the computation of CVR=

$$\text{CVR}= ne\ -\frac{N}{2} / \text{N/2}$$

- Ne= is the number of panellists identifying as an item 'essential.'
- N= is the total of number of panellists
- If all the panel members marked any item as 'essential' - CVR is 1.
- If none of the panel member marked any item as 'essential- CVR is 0
- When the number of panellists rating an item as 'essential' is more than half, but less than all, CVR is between 0- 0.99.

Table 3.2: Details of Experts

EXPERTS		**Affiliation**	**Experience**
Industry Experts	Expert1	Chartered Accountant, Ludhiana	3 Years
	Expert2	Chartered Accountant, Punjab & Delhi	8 Years
	Expert3	Chartered Accountant,	13 Years

		Phagwara	
	Expert4	Chartered Accountant, Kapurthala	7 Years
	Expert5	CS/CA/LLB, Jammu	7 Years
	Expert6	Chartered Accountant, Phagwara	3 Years
Academicians	Expert7	Professor, Mittal School of Business, Lovely Professional University	21 years
	Expert8	Assistant professor, Asia Pacific Institute of Management, New Delhi	6 Years
	Expert9	Assistant Professor, Indian Institute of Management Visakhapatnam	5 Years
	Expert10	Associate Professor, VIT-AP School of Business, VIT-AP University	15 Years

Source: Compiled from survey

Table 3.3: Minimum values for CVR

S. No	No. of panellists	Minimum values of CVR
1	5	.99
2	6	.99
3	7	.99
4	8	.75
5	9	.78
6	**10**	**.62**

7	11	.59
8	12	.56

Source: Lawshe, 1975

Table 3.4 Computation of CVR of constructs

Face validity of Constructs using (CVR= $ne - \frac{N}{2}$ / N/2)								
Item Label	**CVR**	**< 0.62**	**Item Label**	**CVR**	**< 0.62**	**Item Label**	**CVR**	**< 0.62**
PU1	1	Y	**BSD4**	0.8	Y	**PCC8**	0.7	Y
PU2	0.6	N	**MD1**	0.8	Y	**PCC9**	0.7	Y
PU3	1	Y	**MD2**	1	Y	**PCC10**	0.2	N
PU4	1	Y	**MD3**	0.8	Y	**PCC11**	1	Y
PU5	1	Y	**MD4**	0.2	N	**PCC12**	0.7	Y
PEOU1	0.8	Y	**HRMD1**	1	Y	**PCC13**	0.8	Y
PEOU2	0.8	y	**HRMD2**	0.8	Y	**PCC14**	1	Y
PEOU3	0.2	N	**HRMD3**	0.8	Y	**PCC15**	0.8	Y
PEOU4	1	Y	**HRMD4**	0.2	N	**PCC16**	0.2	N
PEOU5	0.8	Y	**HRMD5**	0.2	N	**PCC17**	0.8	Y
IQ1	0.8	Y	**MKD1**	0.2	N	**LOE1**	1	Y
IQ2	0.8	Y	**MKD2**	1	Y	**LOE2**	1	Y
IQ3	0.4	N	**MKD3**	0.8	Y	**LOE3**	0.4	N
IQ4	0	N	**MKD4**	0.8	Y	**LOE4**	0.8	Y
IQ5	0.2	N	**MKD5**	0.8	Y	**LOE5**	1	Y

IQ6	1	Y	**SNFP1**	0.8	Y	**IAS1**	0.8	Y
IQ7	0.8	Y	**SNFP2**	0.7	Y	**IAS2**	1	Y
SEQ1	0.8	Y	**SNFP3**	0.8	Y	**IAS3**	0.4	N
SEQ2	1	Y	**SNFP4**	0.8	Y	**IAS4**	0.8	Y
SEQ3	0.8	Y	**SNFP5**	0.4	N	**IAS5**	0.8	Y
SEQ4	0.6	N	**SNFP6**	0.2	N	**IAS6**	0.8	Y
SEQ5	0.2	N	**SNFP7**	1	Y	**IAS7**	0.8	Y
SYQ1	1	Y	**SNFP8**	0.4	N	**IAS8**	0	N
SYQ2	1	Y	**SNFP9**	0.8	Y	**INT1**	1	Y
SYQ3	1	Y	**SNFP10**	0.8	Y	**INT2**	0.8	Y
SYQ4	0.8	Y	**PCC1**	1	Y	**INT3**	0.8	Y
SYQ5	1	Y	**PCC2**	0.8	Y	**INT4**	1	Y
SYQ6	0.2	N	**PCC3**	0.2	N	**INT5**	1	Y
SYQ7	0.2	N	**PCC4**	0.8	Y			
BSD1	0.8	Y	**PCC5**	0.4	N			
BSD2	0.8	Y	**PCC6**	0.8	Y			
BSD3	1	Y	**PCC7**	0.8	Y			

Source- Computed CVR of constructs using threshold value (CVR is less than 0.62- statements not accepted)

Validity is an essential attribute of an instrument that ensures it accurately measures what it was designed to measure(N. Patel & Desai, 2020; Taherdoost, 2016). It is necessary to assess the validity of an instrument to confirm that it effectively captures the true differences in the attribute being measured. Validity encompasses various aspects and components within its

concept. The Content Validity Ratio (CVR) is a crucial tool in academic research studies, particularly in assessing the validity and reliability of questionnaires(N. Patel & Desai, 2020). It ensures relevance and essentiality by involving experts in rating each item's essentiality, providing comprehensive coverage of all dimensions of the construct. CVR enhances content validity by covering the entire domain of the construct, improving reliability and accuracy.

The research questionnaire in this study has been validated by 10 experts in industry and academia. Based on the table provided, statements are not accepted if the CVR is below 0.62. The questionnaire was distributed to a panel of 10 experts who possess extensive knowledge in their respective fields, as mentioned in Table 3.2. Based on Lawshe's research (table 3.3), statements with values below 0.62 will be removed from the questionnaire. Out of the 92 statements in the questionnaire, a total of 72 statements were retained due to their CVR being equal to or greater than 0.62. PU2(Related to the error-free system) and PEOU3(Regarding enhancement of skill set with AIS) were both discarded. If other questionnaire items already assess the accuracy and reliability of AIS-generated reports, the PU2 could seem unnecessary.

The research focuses on the operational impact of AIS rather than personal skill development, so PEOU3 may not align with the study's core objectives. IQ3, IQ4, and IQ5(reliability, accuracy and understandable accounting information) are repetitive statements because they lead to unnecessary duplication. SEQ4 (comprehensive information to complete task) - SEQ4 is ambiguous, causing inconsistent responses. More specific items are needed to capture different aspects of information quality. SEQ5 (usage of AIS without facing any problem)- It lacks specificity and objectivity, which may result in different interpretations among respondents. SYQ6 (provide series of reports that need information from outside) & SYQ7(provide adequate information); both statements are removed because they duplicate information already addressed elsewhere in the study. MD4, although, states that production cost control and product management do not directly align with the core research objectives. HRMD4(related to organization culture and management style) &

HRMD5(related to reward and punishment with usage of AIS) are deleted statements deemed irrelevant to the central focus of the research, which is the implementation of AIS in SMEs. Although AIS can influence organizational culture and management decisions, these aspects were not the study's primary objectives. SNFP5(relevant to employee position), SNFP6(related to working conditions) and SNFP8 (related to decision-making in all areas) are also removed because the focus of the study is on understanding the direct effects of the system on performance rather than the indirect effect resulting from decisions and also considered as repetitive statements. PCC3(variation in planning), PCC5(related to control on wastage), and PCC10(Team collaboration on task) are also removed because these are not relevant in the present study context. LOE3(Required plenty of time), IAS3(needs additional support for the financial task) and IAS8(feels difficult to keep up with accounting regulations and standards) are the statements which highlight the challenges faced in AIS implementation are not included due to non-contributory nature.

Stage 3: Measurement and Scaling

Measurement and scaling play a critical role in research by providing a structured approach to quantifying variables and maintaining consistency in data collection(Crowther & Lancaster, 2012). This systematic approach enables precise data analysis and comparison, ultimately enhancing the reliability and validity of research findings. Additionally, effective measurement and scaling support clear communication of results and aid in accuracy. Measurement scales are valuable tools in research for obtaining answers to specific questions. These scales consist of closed-ended questions and are categorized into four types: nominal, ordinal, interval, and ratio scales. Researchers commonly utilize ordinal and interval scales when measuring responses in questionnaires, as they allow for the arrangement and comparison of data in a specific order.

Nominal scale: The nominal scale represents the most basic level of measurement in research, characterized by its use of labels or categories to classify qualitative data without implying any order or hierarchy among the categories(Lalla, 2017). The nominal scale allows for the classification of

variables into distinct groups, such as gender, race, or types of cuisine, where each category is mutually exclusive and collectively exhaustive. This scale does not facilitate any arithmetic operations beyond counting frequencies; thus, the mode is the only meaningful measure of central tendency applicable to nominal data. As a result, nominal data is often represented in statistical analyses through frequency distributions, bar charts, or pie charts, which visually depict the prevalence of each category. The nominal scale is essential in various fields, including social sciences and market research, where the categorization of non-numeric data is critical for understanding and interpreting trends and patterns within a population. It represents numbers only and does not allow for any meaningful interpretation.

Ordinal scale: This scale depicts the ranking to see the difference in the ranking and then to find out if any relationship exists, for example, country-wise ranking, performance-wise ranking, to know about personal feelings related to happiness, to measure satisfaction levels(Lalla, 2017). In this type of data, nonparametric tests were applied, such as the Kruskal Wallis test, Runs test, Wilcoxon matched pairs sign rank test, and Friedman test. In this study, this scale is preferred to obtain age-wise information. Using an ordinal scale allows for the ranking and comparison of observations, such as consumers' product usage. By coding usage levels and assigning values to different categories, we can determine the sequence and relationship between different levels of usage. This measurement method provides valuable information about the order and magnitude of our observations. Ordinal scales are measurement tools that categorize data into ordered categories, allowing for the ranking of variables based on specific attributes. They provide a meaningful sequence for comparison, like customer satisfaction surveys. However, they do not quantify exact differences between categories, limiting statistical analyses. Ordinal scales are used in fields like social sciences and market research to interpret attitudes and behaviours.

Interval scale: An interval scale accurately measures the range of values, allowing for accurate rank order determination and direct assessment of value discrepancies. The interval scale is a quantitative measurement scale that ranks variables and maintains equal distances between them, allowing for

meaningful comparisons(Gadrich et al., 2015). It is positioned above nominal and ordinal scales in the hierarchy of measurement levels. It lacks a true zero point, making it arbitrary and not indicating the absence of the measured attribute. Interval scales enable the calculation of statistical measures like mean, median, and mode and are useful in fields like psychology, education, and market research. Examples include temperature, IQ scores, and standardized test scores. However, multiplication and division are not applicable due to the absence of a true zero point.

Ratio scale: This is a valuable type of measurement scale that provides meaningful comparisons of absolute magnitudes and enables the comparison of ratios(Kothari, 2004). They possess the properties of an interval scale but also include a true zero point, allowing for the representation of actual amounts of variables. This true zero allows for statistical techniques and manipulations to be applied, such as multiplication, division, calculating measures of central tendency, and determining coefficients of variation. Ratio scales are commonly used in various fields, such as in measuring weight, height, age, and income.

Stage 4: Pre-testing the questionnaire (Pilot Survey)

Pilot testing is a preliminary small-scale investigation conducted to evaluate the feasibility, time, cost, and adverse events and improve the study design before a larger-scale study. Before surveying the desired sample size, it is essential to ascertain the perception of the respondents/participants on one side and the dependability of the research procedure on the other. A Pilot Survey is a preliminary survey in which the researcher collects data from a subset of 10% of the sample population. This survey enables the researcher to anticipate the pattern of responses, identify essential modifications in the research, increase the probability of success, and maybe prevent irrelevant statements in the study. To assess the dependability of our research study, we have undertaken a preliminary survey in the SME sector of Punjab. survey allows researchers to anticipate the response patterns, identify necessary research changes, increase the chances of success, and potentially eliminate unnecessary statements from the study. **test** assesses the internal consistency of scales or test items, ranging from 0 to

1, with higher values indicating more excellent reliability. It ensures items measure the same underlying construct in research(Taherdoost, 2016). A Pilot Survey is a preliminary survey undertaken to evaluate respondents' impressions and the reliability of the research procedure, involving 10% of the total sample size before conducting the main survey(Kailay, 2023). We have also pre-tested a study on a sample size of 72. The Cronbach alpha was calculated using SPSS software, a widely used statistical tool in research. This test aims to evaluate the internal consistency of different constructs. The Cronbach's Alpha coefficient, as shown in Table 3.5, exceeds the acceptable threshold of 0.7(Shkeer & Awang, 2019; Taber, 2018). This confirms the reliability of the items. All values of latent constructs used in this study meet the threshold given by (Cronbach, 1951; Taber, 2018), ensuring the reliability of the research questionnaire.

Table 3.5: Lee Cronbach in 1951(Cronbach, 1951)

Cronbach' Alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Good and Acceptable
$0.7 > \alpha \geq 0.6$	Acceptable
$0.6 > \alpha \geq 0.5$	Unacceptable
$0.5 \geq \alpha$	Poor

The formula for Cronbach's alpha is:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Where: N = the number of items.

$\bar{c}$ = average covariance between item pairs.

$\bar{v}$ = average variance.

Table 3.6- Values of Cronbach alpha of all constructs

Sr. No.	Variables under study	No. of Respondents	Cronbach's Alpha	Scale type	Cons-istency
1	Accounting Information System (AIS)	72	0.867	5-point Likert scale	Excellent
2	Decision Making (DEM)	72	0.894	5-point Likert scale	Good
3	Planning, controlling and coordinating (PCC)	72	0.910	5-point Likert scale	Excellent
4	SMEs Non-financial Performance (SNFP)	72	0.839	5-point Likert scale	Good
5	Lack of efficiency (LOE)	72	0.890	5-point Likert scale	Good
6	Insufficient accounting skills (IAS)	72	0.878	5-point Likert scale	Good
7	Inadequate training (INT)	72	0.836	5-point Likert scale	Good

Source- Cronbach alpha values of constructs computed through SPSS

All of the constructs mentioned in Table 3.6 have successfully met the threshold criteria of Cronbach alpha, indicating high internal consistency and reliability. This finding provides confidence in the quality of the data. This leads to further data analysis of the research objectives of the study.

Stage 5: Final Questionnaire

PU	**Perceived usefulness** (Davis, 1989; Meiryani et al., 2021; Tubaishat, 2018)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
PU1	AIS provides authentic information.					
PU2	AIS in my job would enable me to accomplish tasks more quickly.					
PU3	AIS gives me greater control over my work.					
PU4	AIS improves the quality of work I do.					
PEOU	**Perceived Ease of Use** (Davis, 1989; Meiryani et al., 2021; Tubaishat, 2018)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
PEOU1	Learning to operate AIS would be easy and understandable for me.					
PEOU2	I would find AIS to be flexible to handle the large amount of data.					
PEOU3	The AIS is user-friendly and provides effective guidance for task execution.					
PEOU4	Overall, I find the "AIS" easy to use.					
IQ	**Information Quality** (Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
IQ1	The information provided by the AIS is relevant and reliable.					
IQ2	The information of the AIS is presented in a useful format.					
IQ3	The information provided by the AIS is up–to–date.					
IQ4	AIS provides me with comprehensive information to complete my tasks.					
SEQ	**Service quality Quality** (Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SEQ1	The staff of technical support provides satisfactory support to all users of the AIS.					
SEQ2	AIS ensures precise processing of all data related to SMEs' activities.					
SEQ3	AIS provides reports that reflect the results of the SME's activities carried out during a specified period as required.					

SYQ	**System quality Quality** (Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SYQ1	An AIS is friendly to the users.					
SYQ2	AIS provides all the information at the appropriate time.					
SYQ3	The operational speed of the AIS is satisfactory.					
SYQ4	The AIS secures data against unauthorized alteration.					
SYQ5	The AIS is regularly examined and maintained by IT unit staff.					
BSD	**Basic strategic decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
BSD1	AIS contributes to decision-making for SMEs' objectives.					
BSD2	The AIS aids SMEs' growth strategy decisions.					
BSD3	The AIS supports geographic and business unit composition decisions.					
BSD4	AIS provides a library and archive for all files, programs, and data which can be stored in separate folders.					
MD	**Manufacturing Decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
MD1	AIS helps to make production equipment decisions (Technology selection, equipment configuration, and maintenance policies).					
MD2	AIS is utilized in making decisions related to infrastructure (including factors such as the size, capacity, location, and focus of Manufacturing resources).					
MD3	AIS facilitate Production planning and control decision (Production and order, material control systems).					
HRMD	**Human resource management Decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**

HRMD1	AIS is helpful in Human resources policies related decisions (Acquisition, Recruitment i.e., internal and external), Selection and hiring decisions).					
HRMD2	AIS is useful in Promotion, Transfer, and Retrenchment related decisions.					
HRMD3	AIS is helpful in Training and development-related decisions.					
MKD	**Marketing Decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
MKD1	AIS is utilized in Promotional Policies (Advertising & others) related decisions.					
MKD2	AIS is useful in Market segmentation-related decisions.					
MKD3	AIS is helpful in Sales Commission-related decisions.					
MKD4	AIS is utilized in Marketing Research (new product development) related decisions.					
SNFP	**SMEs' non-financial performance**(Budiarto & Prabowo, 2019; Saad, 2023)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SNFP1	The company's decisions led to significant advantages in terms of operations, management, and performance.					
SNFP2	The consideration of long-term best practices in future decisions regarding operations has a substantial impact on enhancing performance.					
SNFP3	The decisions taken have contributed to maximizing operational efficiency and effectiveness.					
SNFP4	The decisions made in the company determine its success.					
SNFP5	Company's decisions enhanced productivity at work.					

SNFP6	The decisions made in a company have increased its employee and customer retention rates.					
SNFP7	The decisions made with AIS in SMEs help to improves its operational performance.					
SNFP8	AIS enhances the efficiency and quality of decision-making processes.					
PCC	**Planning, Controlling, and coordination activities**(Al-Hattami et al., 2022a; Al-Hattami & Kabra, 2022; Melin & Axelsson, 2005)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
PCC1	AIS has great significance from the management perspective in improving the level of strategic plans.					
PCC2	AIS provides a basis for planning investment operations by the management.					
PCC3	The plans and objectives of the company are processed based on information provided by the AIS.					
PCC4	The reliance of management in the firm on AIS aids in improving Planning process effectiveness.					
PCC5	AIS of the firm gives financial information with predictive capabilities, which aids management in making plans.					
PCC6	AIS helps us calculate the average cost of raw materials that are taken out of warehouses.					
PCC7	AIS helps management find and analyse deviations by providing cost information.					
PCC8	AIS provides information on the cost elements needed for the preparation of ratios that contribute to control.					

PCC9	AIS helps compare options and choose the best one (with less cost and higher benefit).					
PCC10	AIS assists the firm's management in controlling the implementation of planned activities.					
PCC11	AIS provides reports to management about operational performance, allowing management to take corrective actions and make decisions.					
PCC12	AIS provides a good evaluation of the annual budget through coordination between different departments of the company.					
PCC13	AIS ensures the effectiveness of your suppliers in handling your orders related to your job.					
PCC14	AIS ensures good coordination among various functions within the company.					
PCC15	AIS generated information ensures high efficiency in internal meetings and discussions.					
LOE	**lack of efficiency**(Aziz et al., 2022; Shaikh et al., 2021)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
LOE1	Incorrect data entry by the user can cause a misrepresentation of financial reporting by AIS.					
LOE2	Lack of Understanding about AIS may lead to erroneous financial data.					
LOE3	The individual found it challenging to execute manual accounting tasks in accounting software (ledgers, income statements, and balance sheets).					
LOE4	Untrained staff cannot use the input interface to easily record data.					

IAS	**Insufficient accounting skills**(Aziz et al., 2022; Shaikh et al., 2021)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
IAS1	Users with poor accounting knowledge may struggle to understand and utilize AIS.					
IAS2	Inadequate training in accounting principles and practices can contribute to the challenge of implementing AIS.					
IAS3	Lack of time for employees to learn and adapt to new systems can lead to errors, inefficiencies, and difficulties in interpreting and analysing AIS data.					
IAS4	Due to a lack of proper accounting skills, a user may enter data into incorrect accounts or statements.					
IAS5	Users or staff who are new to AIS might unintentionally create financial reports that aren't completely accurate.					
IAS6	Inaccurate data entry could potentially cause financial data loss.					
INT	**Inadequate training**(Aziz et al., 2022; Shaikh et al., 2021)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
INT1	The lack of software training and guidance makes difficult for staff to use accounting software.					
INT2	On-the-job training of AIS might be costly.					
INT3	Insufficient training can lead to employees struggling with the AIS, causing frustration, errors, decreased job satisfaction, and work performance					
INT4	Insufficient training could potentially impact the effectiveness of AIS, leading to a decrease in the quality of accounting information and internal control.					
INT5	The successful implementation of an accounting software system requires proper employee training and top management support.					

3.10 Conceptual Framework of the Study

This study examines the role of Accounting Information Systems in Small and Medium-sized Enterprises and its impact on three dependent variables: Decision-Making (DEM), Planning, Controlling, and Coordination (PCC), and SMEs' Non-Financial Performance (SNFP). The three indicators of information quality (IQ), service quality (SEQ), and system quality (SYQ) in this conceptual model of AIS being independent variables are derived from the Delone-Mclean model of information systems(Sirsat & Sirsat, 2016). AIS is seen as the technological backbone of SMEs, providing accurate, timely, and relevant information for informed, data-driven decisions. DEM has three indicators, which include basic strategic decisions, marketing decisions, manufacturing decisions, and human resource management decisions(Alzoraiki et al., 2024; Ullah et al., 2014). It enhances planning by providing insights into resource allocation, forecasting, and scheduling and aiding in controlling by monitoring performance and aligning with strategic goals. AIS indirectly contributes to improving non-financial aspects of performance, such as customer satisfaction, employee engagement, innovation, and corporate social responsibility. The study concludes that the effective use of AIS in SMEs leads to enhanced decision-making, better planning, controlling, and coordination, and significant improvements in non-financial performance.

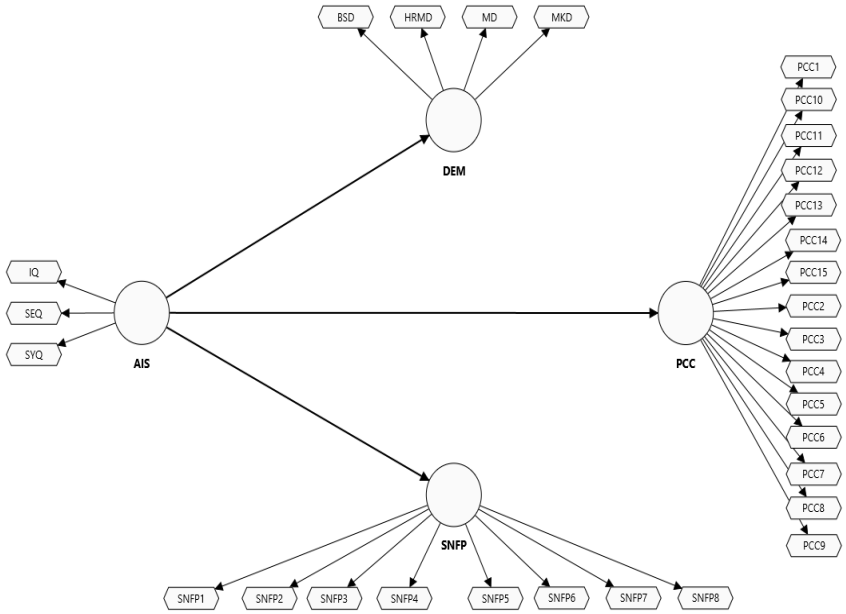


Figure 3.1- Conceptual Framework of the Study

3.11 Research Hypotheses of Study

Ha1- AIS has a statistically significant positive impact on the decision-making of SMEs.

Ha2- AIS has a statistically significant positive influence on the planning, controlling and coordinating activities of SMEs.

Ha3- AIS has a statistically significant positive impact on the Organizational performance of SMEs.

3.12 Data Analysis Tools

3.12.1 Statistical Package for Social Sciences (SPSS)-Descriptive Statistics

SPSS Descriptive Statistics plays a crucial role in data analysis by providing a foundation for understanding and summarizing data. They offer insights into central tendency, dispersion, and overall distribution, helping researchers to understand basic characteristics before moving on to more complex analyses. Additionally, they help identify data quality issues, simplify complex data, and enable informed decision-making. Descriptive statistics serve as a baseline for further analysis, setting the stage for inferential statistics and hypothesis testing(Kothari, 2004). They can be used to compute measures of central tendency, dispersion, frequency distributions, cross-tabulation, data summarization, and profile analysis(Lynch, 2013). The use of SPSS for descriptive statistics is crucial in summarizing and interpreting data sets. SPSS provides a user-friendly interface and a range of statistical measures to compute central tendency and variability. These statistics are essential for initial data analysis, allowing researchers to identify patterns and anomalies. SPSS also offers robust graphical capabilities for enhanced data visualization. However, it is important to note that descriptive statistics do not imply causality, and it is necessary to combine them with inferential techniques for comprehensive data analysis. Overall, SPSS serves as a powerful tool for researchers to make informed decisions based on their data.

3.12.2 Structural Equation Modelling Using SMART-PLS

Structural Equation Modeling (SEM) is a valuable statistical technique that allows researchers to analyze complex relationships between observed and latent variables. It combines aspects of factor analysis and multiple regression

analysis, providing a comprehensive framework for understanding direct and indirect effects within a theoretical model(Dash & Paul, 2021). SEM is particularly useful in testing hypotheses, handling latent variables, and assessing the overall fit of a model to the data. It offers a versatile approach to research, allowing for the simultaneous estimation of multiple equations and the examination of mediation and moderation effects. Additionally, SEM provides various goodness-of-fit measures and visual representations, aiding researchers in refining their models and effectively communicating their findings(Sarstedt et al., 2014). Overall, SEM enhances the rigour and validity of research analyses and contributes to the advancement of knowledge in various disciplines. Structural equation modelling (SEM) is a crucial statistical technique that allows researchers to analyze complex relationships among variables. It provides a framework for testing theoretical models and assessing the direct and indirect effects of variables. SEM enhances the understanding of intricate data structures and can handle multiple dependent relationships simultaneously. It is particularly useful in validating measurement models and improving model fit, providing insights into causal relationships and facilitating hypothesis testing. However, the effectiveness of SEM is contingent on the quality of the data and the appropriateness of the model specified. Overall, SEM is indispensable for advancing empirical research by providing robust analytical capabilities.

SMART-PLS is a powerful tool for analyzing complex relationships in research, especially in social sciences and business studies(Arasinah Kamis et al., 2021). It can handle small sample sizes and non-normal data distributions, making it accessible for various research contexts. It facilitates the modelling of latent variables and their relationships, enhancing the reliability of results for decision-making. Its user-friendly interface and comprehensive reporting features make it attractive for researchers without extensive statistical backgrounds. It is a highly significant software tool in the field of structural equation modelling. It offers several advantages over traditional covariance-based SEM methods, including its flexibility with small sample sizes and complex models, prediction-oriented approach, ability to handle non-normal data, and assessment of complex relationships such as mediation and

moderation effects(Sarstedt et al., 2014). SMART-PLS also provides advanced techniques for model validation and robustness, as well as a user-friendly interface that makes it accessible to researchers with varying levels of statistical training. Its application spans multiple disciplines, and it is particularly effective in path modelling with latent variables. Overall, SMART-PLS is a powerful tool that enables researchers to gain deep insights, validate theories, and make robust predictions, contributing to the advancement of knowledge in various fields.

3.12.3 SPSS-AMOS

SPSS AMOS is a valuable tool in Confirmatory Factor Analysis (CFA) as it provides a robust platform for validating measurement models(Shrestha, 2021). The software's advanced features enable researchers to analyze intricate models, assess the fit of their data, account for measurement errors, and conduct hypothesis testing. This empowers them to enhance their theoretical frameworks and guarantee the precision and dependability of their measurement constructs. The visualization capabilities of AMOS also assist in understanding the connections between latent variables and their indicators. The interface of this software is crafted to be user-friendly while still offering robust statistical tools(Verma & Verma, 2024). Researchers can use it to analyze intricate models and accurately evaluate the relationships between observed and latent variables. Furthermore, SPSS-AMOS provides a variety of estimation methods that can improve the accuracy of parameter estimates in CFA. Overall, SPSS-AMOS enhances the dependability of research findings and empowers researchers to obtain meaningful insights from their data.

3.12.4 Factor Analysis

Factor analysis is a statistical technique that was developed in the early 1990s by Charles Spearman. Its main purpose is to condense large amounts of data by identifying correlations and patterns(Wheelwright et al., 2020). Factor analysis is based on the idea that observable variables can be reduced to a smaller number of unobservable latent variables with less common variance. However, there are certain requirements that need to be met in order to perform factor analysis, such as normality within the data, absence of outliers, and a linear relationship between factors and variables. Additionally, a factor

should have at least three variables and a sample size of at least 300 for it to be considered valid(Kyriazos, 2018). It is a widely used and valuable statistical method in research. It is particularly useful for data reduction and identifying underlying relationships among variables. Factor analysis allows researchers to simplify complex datasets by grouping correlated variables into fewer factors, enhancing interpretability and facilitating hypothesis testing. Its utility has been demonstrated in various fields, including psychology, market research, and education(Shrestha, 2021). However, it is important to consider the sample size and data appropriateness when applying factor analysis, as poor application can lead to misleading conclusions. Additionally, careful interpretation is necessary to avoid overgeneralization of the identified factors. Despite these considerations, factor analysis remains a relevant and valuable tool in research.

- **Kaiser-Meyer-Olkin (KMO)**: The Kaiser-Meyer-Olkin (KMO) measure is an important statistic in factor analysis that assesses the adequacy of sample size and the suitability of data for this type of analysis. It determines the extent to which variables can be grouped into underlying factors by evaluating the proportion of common variance among them. A KMO value closer to 1 indicates that the data are suitable for factor analysis, while values below 0.50 suggest that factor analysis may not be appropriate(Nguyen Thi Phuong Thao, 2022). The KMO measure plays a crucial role in ensuring the reliability and meaningfulness of the factor extraction process, making it an essential step in validating constructs in research studies.
- **Bartlett's Test of Sphericity:** The statistical test described is a crucial step in factor analysis as it determines whether the correlation matrix of variables is significantly different from an identity matrix(Shrestha, 2021). A significant result indicates that the data is suitable for factor analysis, while a non-significant result suggests that the data might not be appropriate for this technique. This test confirms the presence of a patterned relationship among variables, which is necessary for identifying underlying factors. It assesses whether the assumption that variables are uncorrelated is valid by examining the correlation matrix

and determining if there are any significant correlations between variables. A score less than 0.05 indicates that the variables do not form an identity matrix, making factor analysis unsuitable. Conversely, a significant result (0.05 or higher) suggests that the variables are sufficiently related, allowing for meaningful exploratory factor analysis(Nguyen Thi Phuong Thao, 2022).

3.13 Relevance of Study

This study is highly significant for stakeholders such as business owners, managers, policymakers, government agencies, technology providers like AIS vendors and researchers who are working in the SME sector. This study provides insights about factors promoting the adoption of AIS. It demonstrates how AIS can improve decision-making and business operations by providing accurate and transparent accounting information. Policymakers can use the findings to design initiatives supporting widespread AIS adoption. The research also contributes to the academic field and serves as a practical resource for business consultants. Overall, it supports SMEs' growth and sustainability through effective AIS adoption.

3.14 Summary

This chapter describes the study's research design and methodology, including the sample size, demographics, sampling technique, and formulation of the hypothesis. It highlights the significance of instrument design in accomplishing the intended objectives of the research. The study involves a discussion of the independent variable (IV), i.e., Accounting Information Systems (AIS), and Dependent variables, including Decision Making (DEM), Planning, Controlling, Coordinating activities (PCC), and Organizational Performance (non-financial aspects of SMEs). In addition, this study also examines the factors influencing the adoption of AIS in SMEs through descriptive analysis and addresses challenges faced by SMEs in implementing AIS using Confirmatory Factor Analysis (CFA) using AMOS. The research was carried out in Punjab because of the state's significant SME sector. A thorough summary of the study framework, including the creation

and validation of the survey instrument, the sample plan, and the procedure for gathering data, is given in this chapter. It also includes the statistical techniques used for data analysis after the evaluation of secondary data and an extensive literature review in the process of choosing the SME sector.

CHAPTER-4

FACTORS THAT LED TO THE ADOPTION OF ACCOUNTING INFORMATION SYSTEM (AIS) IN SELECTED SMES

The main aim of this chapter is to analyse the factors that contribute to the adoption of accounting information systems in the small and medium-sized enterprises (SMEs) sector. In the current scenario, the adoption of technology has become vital to every sector. The same thing applies to the business sector as well. Regardless of whether it is a large, medium, or small-scale enterprise, in order to survive in this competitive environment, it is imperative for businesses to embrace and adapt to new technological advancements. Therefore, this objective has been established to analyse the factors that contribute to the adoption of AIS in SMEs.

In order to achieve this objective, we employ descriptive statistics to examine the factors that contribute to the adoption of AIS. The data has been gathered using structured surveys from individuals such as owners, managers, accountants, and other professionals who utilise AIS in small and medium-sized enterprises (SMEs). Questionnaires were given to the respondents using both online and offline methods to collect data. The data was gathered from small and medium-sized enterprises (SMEs) between October 2023 and August 2024. Out of the 650 surveys distributed, 424 were returned, with all questions answered, indicating a response rate of 65.23%. This chapter is structured into two main sections: Descriptive statistics and frequency distribution, as well as a descriptive analysis of factors influencing adoption in small and medium enterprises (SMEs) in Punjab. The initial section provides comprehensive information about the respondents and their organisations. The following sections presents the frequency distribution and descriptive statistics of variables related to the factors that contribute to the adoption of AIS in small and medium-sized enterprises (SMEs) in Punjab.

Objective 1: To analyse the factors that led to adoption of Accounting Information System (AIS) in selected SMEs.

4.1 Descriptive Statistics

4.1.1 Profile of Respondents

4.1.2 Profile of enterprises

4.2 Cross-Tabulation Results of Enterprise Size and Type with Software Utilization by SMEs

4.3 Factors of AIS adoption in SMEs of Punjab

4.3.1 Operational definitions of Variables

4.3.2 Content Validity and Pilot Testing of Variables

4.3.3 KMO and Bartlett's test of Sphericity

4.3.4 Tested Common Method Variance (Harman's Single factor test)

4.3.5 Frequency distribution and descriptives of responses on factors of adoption.

4.4 Discussion

4.1 Descriptive Statistics

4.1.1 Demographic Profile of Respondents

The descriptive statistics provide an overview of the demographic information of the sample used in this study. Percentage analysis was used to describe the distribution of demographic characteristics in the sample. The study collected demographic information on the age, gender, qualifications, experience, and designations of respondents in small and medium-sized enterprises (SMEs).

Table 4.1: Demographic profile of the respondents

Demographic	**Statement**	**Frequency**	**Percent %**
Gender	Male	367	86.6
	Female	57	13.4
Age Group	Under 30	20	4.7
	31-40	145	34.2
	41-50	208	49.1
	Over 50	51	12
Education	Senior Secondary	73	17.2
	Bachelor degree	167	39.4
	Master degree	83	19.6
	Professional Degree	79	18.6
	Other	22	5.2
Experience	Up to 5 years	60	14.2
	5 to 10 years	140	33
	10 to 15 years	107	25.2
	15 to 20 years	82	19.3
	Over 20 years	35	8.3
Designation	Owner	183	43.2
	Manager	90	21.2
	Accountant	141	33.3
	Other	10	2.4

Source- Demographics characteristics Computed through SPSS 27

Frequency Distribution of Respondent's Gender

Gender was categorised into two broad classifications: male and female. There was a significant difference in the number of male respondents compared to female respondents. The majority of respondents were male, accounting for 86.6%, while the remaining 13.4% were female as shown above table 4.1. This data indicates that females exhibit a lower propensity to follow a career in the industrial sector.

Frequency Distribution of Respondent's Age

The data presented in Table 4.1 reveals that a substantial proportion of the participants from small and medium-sized enterprises (SMEs) (49.1%) belong to the age bracket of 41–50 years. Out of the participants, 34.2% belong to the age bracket of 31–40 years. Furthermore, (12%) of the participants belong to the age category of 50 years and above. Only a fraction (4.7%) of the participants belong to the age category of under 30. The age distribution indicates that the majority of respondents in SMEs fall within the middle-aged category, while there is a lesser proportion of participants from younger age groups.

Frequency Distribution of Respondent's Qualification

Table 4.1 presents the frequency distribution of qualifications among research respondents in SMEs. The qualifications are categorized into five groups: senior secondary, Bachelor's degree, Master's degree, professional degrees (such as CA, CMA, CS), and other qualifications (like diplomas). The data shows that 22 respondents (5.2% of the total) had diploma/certification qualifications. 167 respondents (39.4% of the total) had qualifications up to the Bachelor's level. 83 respondents (19.6% of the total) had qualifications up to the Master's level. 79 respondents (18.6% of the total) had professional degrees. Only 73 respondents (17.6% of the total) had completed senior secondary education.

Frequency Distribution of Respondent's Experience in the field

Table 4.1 presented above shows the professional experience of respondents employed in the SMEs sector. According to the data, there were 60 respondents who had less than 5 years of experience. These respondents accounted for 14.2 percent of the total number of respondents. There were 140 respondents with 5-10 years of experience, which accounted for 33 percent of the total. In addition, there were a total of 107 individuals with 10-15 years of experience, accounting for 25.2 percent of the total. Out of the total number of respondents, 82 individuals had experience ranging from 15 to 20 years, accounting for 19.3 percent of the total. Out of the total number of respondents, 35 individuals had more than 20 years of experience, accounting for 8.3 percent of the respondents. The majority of respondents have 5-10 years of experience in SME's sector.

Frequency Distribution of Respondent's Designation

The table 4.1 also illustrates the frequency distribution of respondents according to their responsibilities within their respective organizations. The majority of the respondents are classed as Owners, totalling 43.2% (n=183) of the overall sample. Managers form 21.2% (n=90) of the respondents, while Accountants make up 33.3% (n=141). A relatively small fraction, 2.4% (n=10), falls under the group classified as Other. This distribution shows a varied range of organizational responsibilities, with a strong emphasis on owners and accountants, which may reflect the study's target population.

4.1.2 Organizational Profile

The organizational profile provides a comprehensive overview of SMEs, categorizing them by scale and highlighting their diverse operations. It also details their specific activities, including manufacturing and services sectors. It is shown in the table below, which consists the count of small industries and their respective percentages, as well as the further bifurcation of manufacturing and

service enterprises in the sample. Medium enterprises are also represented in the same manner in the table 4.2 below.

Frequency Distribution of SMEs according to size, type and location:

The table provides an overview of the distribution of small and medium-sized enterprises (SMEs) in Punjab, categorized by enterprise size, type, and location. It was discovered that a total of 318 enterprises fell into the small category, with 197 of them being in the manufacturing sector and 121 in the services sector. Additionally, there were 106 medium-sized enterprises, with 61 in manufacturing and 45 in services. There was a total of 258 manufacturing enterprises and 166 services enterprises. There is a total of 209 SMEs in Ludhiana, 61 in Jalandhar, and 49 in Amritsar. Additionally, there are 35 SMEs in Fatehgarh Sahib, 40 in SAS Nagar, and 30 in Patiala are part of the sample of study as shown in table. We further categorize the distribution based on the type of enterprise (services and manufacturing) and the scale of the enterprises (small and medium). This stratification offers a comprehensive understanding of the regional and industrial characteristics of SMEs in these regions as displayed in table 4.2.

Table 4.2 -Frequency Distribution of the SMEs according to size, type and location

District (Location)	**Size of Enterprise**			
	Small		**Medium**	
	Type of Enterprise		**Type of Enterprise**	
	Manufacturing	**Service**	**Manufacturing**	**Service**
	Count	**Count**	**Count**	**Count**

Ludhiana	103	60	29	17
Amritsar	19	15	08	07
Fatehgarh Sahib	18	09	05	03
Jalandhar	23	18	12	08
Patiala	15	08	03	04
SAS Nagar	19	11	04	06
Total	197	121	61	45

Source- SME's distribution Computed through SPSS 27

The table 4.2 data reveal that Ludhiana has the highest number of small and medium-sized firms (SMEs) compared to other regions, with a particular concentration in the manufacturing sector. The remaining five enterprises are evenly distributed between manufacturing and services. This data also suggests a regional shift towards manufacturing-focused enterprises. These findings highlight Ludhiana's significance as a prominent hub for SMEs.

Types of Industries: The table 4.3 presented below displays the various industries with their frequency distribution considered under study. It encompassed nearly all the key sectors of Punjab, such as machinery and hand tool manufacturing, sports, textile, hosiery, cycling and cycling components, agriculture, automotive parts, and other significant service industries. The data highlights a wide range of representation across different industries, each making unique contributions to the overall count of 424 industries surveyed. The transport, storage, and courier sector, comprising 32 industries, accounts for 7.55% of the total. Advertising/Marketing/Communication, Maintenance and Repair, Tour and Travel, and Financial and Insurance sectors contribute 6.60%, 6.37%, and 6.13% respectively. The overall count varies between 15 and 24 industries, each contributing between 3.54% and 5.66%. This distribution

highlights the industrial landscape's variety, including service-oriented and manufacturing sectors across the surveyed industries.

Table 4.3: Different types of industries

Types of Industries	Number in Total	Percentage in Total
Hand and machine tools	23	5.42
Hosiery and textiles	20	4.72
Electronics and IT	15	3.54
Cycle and Cycle parts	16	3.77
Sports goods	22	5.19
Agriculture and Food processing	15	3.54
Automobiles and Auto parts	24	5.66
Chemicals and Pharmaceuticals	19	4.48
Printing and Packaging	13	3.07
Building and Construction	16	3.77
Transport, Storage, Courier	32	7.55
Maintenance and Repair	27	6.37
Advertisement/Marketing/Communication	28	6.60
Financial and Insurance	26	6.13
Tour and Travel	27	6.37
Trading firms	22	5.19

Real Estate	15	3.54
Hospitality	22	5.19
Consultants	24	5.66
Others	18	4.25
Total	424	100.0

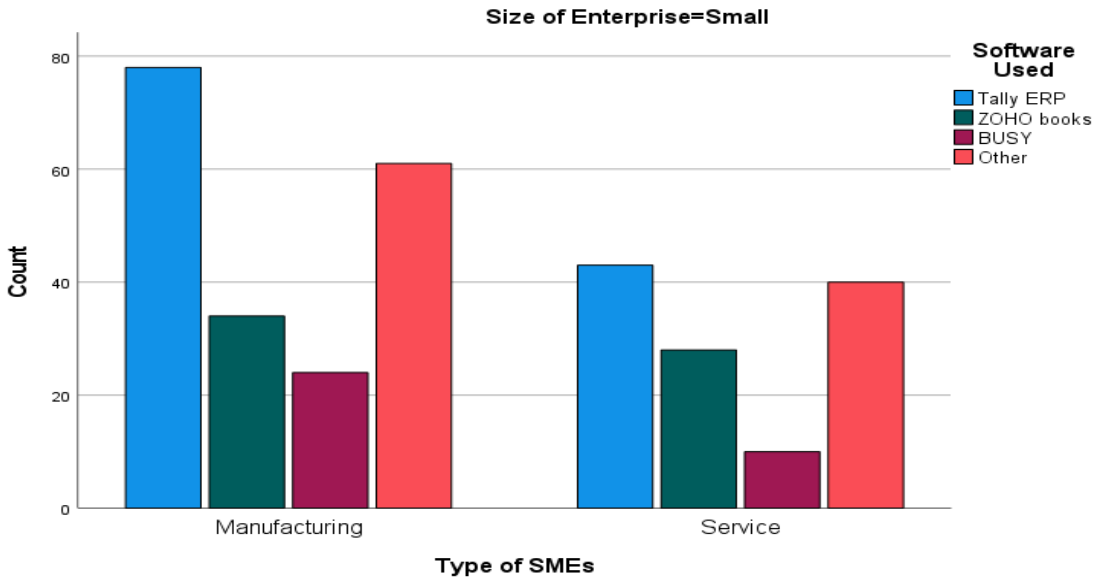
Source- Obtained from SPSS 27

4.2 Cross-Tabulation Results of Enterprise Size and Type with Software Utilization by SMEs (Tabular and Graphical Representation)

Table 4.4-Cross tabulation results computed through SPSS 27

Type of SMEs * Software Used * Size of Enterprise Crosstabulation							
Count							
Size of Enterprise			Software Used				Total
			Tally ERP	ZOHO books	BU SY	Other	
Small	Type of SMEs	Manufacturing	78	34	24	61	197
		Service	43	28	10	40	121
	Total		121	62	34	101	318
Medium	Type of SMEs	Manufacturing	18	20	8	15	61
		Service	16	4	6	19	45
	Total		34	24	14	34	106
Total	Type of SMEs	Manufacturing	96	54	32	76	258
		Service	59	32	16	59	166
	Total		155	86	48	135	424

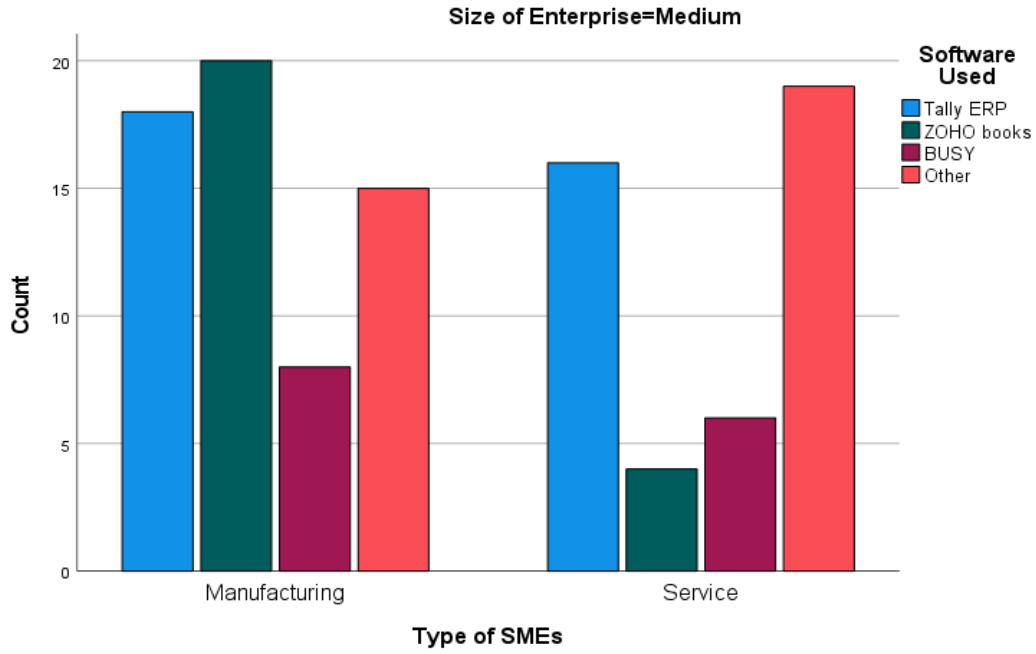
Figure 4.1- Graphical Representation of Cross-Tabulation Results of Small Enterprises



Source- Obtained from SPSS 27

In this study, we also examined the commonly used accounting software among Small and Medium Enterprises (SMEs) as shown in table 4.4 and figure 4.1 & 4.2, specifically looking at enterprise size (Small and Medium) and sector (Manufacturing and Service). The data showed that Tally ERP was the most popular choice among Small Enterprises, with a significant number of users in both the Manufacturing and Service sectors. In the Manufacturing sector, Tally ERP was used by 78 SMEs, followed by ZOHO Books, BUSY, and other software options like Cat pro, Quick books, Pioneer and MARG ERP. In the service sector, Tally ERP was again prominent, with a smaller number of users than Manufacturing. In Medium Enterprises, Tally ERP also had a leading position but with fewer users overall. This analysis highlights Tally ERP's strong presence and widespread adoption among SMEs in India.

Figure 4.2 - Graphical Representation of Cross-tabulation Results of Medium Enterprises



Source- Obtained from SPSS 27

4.3 Factors that lead to the adoption of AIS in SMEs

In addition to the descriptive statistics of the demographic variables of the study, we examined the factors that contribute to the adoption of AIS in SMEs in this objective. We have selected the variables of the technology acceptance model (TAM) for this analysis: perceived usefulness and perceived simplicity of use. It is extensively employed in the context of the adoption of new technological advancements, as indicated by the existing literature. The Technology Acceptance Model (TAM) is a crucial academic framework that focuses on user acceptance of new technologies. It is developed by Davis in 1989(Azimah & Ria, 2024; Davis, 1989b). TAM emphasizes perceived usefulness and ease of use as primary determinants of adoption. It facilitates systematic research into the adoption process, enabling researchers to identify and analyze key factors influencing technology adoption.

The study focuses on perceived usefulness and ease of use as foundational constructs within the Technology Acceptance Model

(TAM), providing clarity, simplicity, and a clear theoretical framework for analyzing technology adoption.

4.3.1 Operational Definitions of Variables with Sources

Perceived Usefulness (PU)-(Davis, 1989b; Lutfi, 2022) defined PU as the extent to which decision-makers are persuaded that the organization's performance could be improved by the adoption of a specific technology. Perceived usefulness is an individual's belief that a technology will improve their job performance based on their subjective assessment of its functional benefits. It is a crucial factor in technology adoption, as it influences the user's intention to use and adopt new technology, influencing their behaviour towards new implementations. Perceived usefulness in an accounting information system relates to an individual's belief in its capacity to improve performance. Whether or not individuals have faith in the system's efficacy determines their willingness to utilize it, which in turn impacts the system's overall effectiveness. A rise in perceived usefulness enhances user confidence in the system's capacity to facilitate tasks and make decisions(Amin et al., 2014; Meiryani et al., 2021; Wallace & Sheetz, 2014; Wicaksono et al., 2023)

Perceived Ease of Use (PEOU)- Perceived ease of use refers to the extent to which an individual believes that utilizing an accounting information system (AIS) requires minimum effort. Based on the research in the field of information systems, PEOU has emerged as a key factor in studying and evaluating how users accept a specific technology. Perceived ease of use, as defined by the(Davis, 1989b), refers to an individual's opinion that utilizing a technology will require minimal effort. This construct includes elements such as ease of learning, an intuitive interface, and minimal complexity. Increased perceived ease of use minimizes potential obstacles to adoption, promoting a favourable attitude towards the technology and improving its acceptance. It has a substantial influence on a user's inclination to embrace the technology. Eventually, we might conclude that Perceived ease of use refers to the belief that an information technology system is

easy to use and understand. It creates a sense of comfort and willingness for users to use the system(Amin et al., 2014; Lutfi, 2022; Meiryani et al., 2021; Tubaishat, 2018; Wallace & Sheetz, 2014; Wicaksono et al., 2023).

4.3.2 Content and Face Validity and Reliability statistics of Research instrument

Content validity furnishes evidence regarding the extent to which the items of an evaluation tool are pertinent and representative of the intended latent construct for the specific purpose of assessment(Almanasreh et al., 2019). Lawshe's approach(Aithal & Aithal, 2020; Kailay, 2023; Lawshe, 1975; N. Patel & Desai, 2020; Taherdoost, 2016), known as the Content Validity Ratio (CVR), is a method used to evaluate the validity of content in this study, involving a group of experts assessing the relevance of each item in an instrument. In this study, the questionnaire was evaluated by a panel of 10 experts, both academics and industry professionals. According to (Almanasreh et al., 2019; Karimian & Masoudi, 2024), CVR values of more than 0.62 statements were accepted for this study and content validity index (CVI) is calculated for the complete instrument after recognising items for inclusion. CVI is the average of the retained items' CVR values(Gilbert & Prion, 2016). According to (Karimian & Masoudi, 2024; N. Patel & Desai, 2020), a CVI above 0.80 is considered favourable. In our study, the CVI is 0.81, which meets this threshold. It ensures the validity of the content of the questionnaire.

Cronbach alpha reliability test assesses the internal consistency of scales or test items, ranging from 0 to 1, with higher values indicating more excellent reliability. It ensures items measure the same underlying construct in research(Taherdoost, 2016). A Pilot Survey is a preliminary survey undertaken to evaluate respondents' impressions and the reliability of the research procedure, involving 10% of the total sample size before conducting the main survey(Kailay, 2023). We have also pre-tested a study on a sample size of 72. The Cronbach alpha was calculated using SPSS software, a widely used statistical tool in

research. This test aims to evaluate the internal consistency of different constructs. The Cronbach's Alpha coefficient, as shown in Table 3.5, exceeds the acceptable threshold of 0.7(Shkeer & Awang, 2019; Taber, 2018). This confirms the reliability of the items. All values of latent constructs used in this study meet the threshold given by (Cronbach, 1951; Taber, 2018), ensuring the reliability of the research questionnaire. The Cronbach's alpha values for Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) obtained from the reliability test conducted using SPSS are 0.848 and 0.808, respectively. Both of these values meet the threshold criteria.

4.3.3 Kaiser's Measure of Sampling Adequacy and Bartlett's test of sphericity of PU and PEOU

The Kaiser-Meyer-Olkin (KMO) test is utilised to evaluate the suitability of using factor analysis on a given dataset by measuring sample adequacy, and KMO and Bartlett's test assesses all of the relevant data together (Napitupulu et al., 2017; Williams et al., 2010a). According to (Iskamto et al., 2020; Shkeer & Awang, 2019; Shrestha, 2021; Ul Hadia et al., 2016), Bartlett's Test of Sphericity resulted in a significant result (P-value < 0.05) for all the constructs indicating a strong level of significance and Kaiser-Meyer-Olkin Measure of Sampling Adequacy for all the constructs should be higher than 0.6, and 0.5 indicating that the sample size is sufficient. Table 4.5 and 4.6 suggest that variables PU and PEOU meet the threshold limits, allowing researchers to proceed with further analysis. The p-values from tests indicate significant associations between variables, and the dataset is not spherical, as indicated by Bartlett's test results with a p-value below 0.05.

Table 4.5- Kaiser–Meyer–Olkin (KMO) and Barlette test of PU Variable computed with SPSS 27

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.946
Bartlett's Test of Sphericity	Approx. Chi-Square	2693.302
	Df	28
	Sig.	0.00

Table 4.6- Kaiser–Meyer–Olkin (KMO) and Barlette test of PEOU Variable computed with SPSS 27

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.938
Bartlett's Test of Sphericity	Approx. Chi-Square	3450.104
	Df	105
	Sig.	0.00

4.3.4 Research Instrument Biasness (Common Method Biasness-CMB)

The common method variance (CMV) issue has gained significant attention among today's business researchers(Eichhorn, 2014; Jordan & Troth, 2020). CMV biases occur when a common scaling approach distorts substantively driven causal effects, resulting in systematic variation in responses from a single data source(Fuller et al., 2016). When it comes to testing for CMB, Harman’s single-factor test is the statistical method we have seen the most frequently(Jordan & Troth, 2020). Harman's single-factor test is used to assess CMV bias,

ensuring study validity and reliability by proactively addressing it. (Fuller et al., 2016) Highlights the effectiveness of Harman's one-factor test, a widely utilised post-hoc method for addressing CMV, in identifying potential biases in survey-based marketing or business research. The presence of common method bias can be detected when a latent factor accounts for more than 50% of the Variance and when a single component explains over 50% of the covariance between items and criterion constructs(Eichhorn, 2014; Rodríguez-Ardura & Meseguer-Artola, 2020).

To optimise the output quality of our developed research instrument, we have implemented Harman's single-factor test utilising SPSS-Dimension Reduction-Factor analysis. The test results indicated that a single-factor solution could only explain 42.03 % of the total variation for PU and 40.8% for PEOU, considerably less than the minimum requirement of 50%. Evidently, common technique bias is not a significant issue in this research.

Table 4.7- Common method Variance of PU Computed using SPSS 27

Factors	**Extraction Sum of Square loadings**		
	Total	%age of Variance explained	% Cumulative
	6.305	42.031	42.031

Table 4.8 -Common method Variance of PEOU Computed using SPSS 27

Factors	**Extraction Sum of Square loadings**		
	Total	%age of Variance explained	% Cumulative
	4.902	40.854	40.854

4.3.5 Frequency distribution of responses on Perceived usefulness (PU)

Table 4.9 contains responses to statements (PU1, PU2, PU3, PU4) concerning the perceived utility of an Accounting Information System (AIS). Each statement is assessed on a 5-point Likert scale that ranging from "Strongly Agree" to "Strongly Disagree," with the corresponding totals and percentages of respondents for each category.

PU1-The results shows that a majority of respondents (76.79%) strongly agree or agree that the AIS provides authentic information, indicating a high level of trust and perceived authenticity. However, only a small fraction (96.66%) disagrees or strongly disagree, suggesting that issues related to information authenticity are minimal. This indicates a high level of trust in the system.

PU2-The survey indicates that a majority of respondents (82.0%) believe that using AIS in their job would help them complete tasks more quickly. This suggests that the system is perceived as efficient and effective in enhancing productivity. However, only 8.01% of respondents disagree, indicating that most users find the system beneficial for task completion.

PU3- The survey findings indicate that the majority of respondents (85.8%) believe that AIS provides them with a higher sense of control over their work, which suggests its importance in the effective management and oversight of job processes. Nevertheless, a minor proportion (7.07%) of respondents disagree, indicating that the system may not be as effective as previously believed.

PU4-The survey results indicate that a majority of respondents (39.60%) believe that AIS greatly enhances the quality of their work, while a significant percentage (40.56%) hold a different perspective, indicating that there is still potential for further enhancements to address the concerns of the minority. Most respondents agree that AIS is a valuable tool for enhancing work quality.

Respondents generally consider the Accounting Information System (AIS) to be a beneficial instrument, as it enhances task efficiency,

improves work quality, and provides authentic information. The system's overall positive evaluation remains robust despite a few negative responses, suggesting that there is scope for refinement.

Table 4.9-Frequency distribution of responses on PU computed through descriptive statistics

Items	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)	
	Count	%	Count	%	Count	%	Count	%	Count	%
PU1-AIS provides authentic Information.	156	36.7	170	40.09	52	12.26	35	7.07	11	2.59
PU2- AIS in my job would enable me to accomplish tasks more quickly.	175	41.27	173	40.80	42	9.9	22	5.18	12	2.83
PU3- AIS gives me greater control over my work.	188	44.30	176	41.50	30	7.07	18	4.24	12	2.83
PU4- AIS improves the quality of work I do.	168	39.60	172	40.56	43	10.14	23	5.42	18	4.24

Source- Computed from SPSS 27

Frequency distribution of responses on Perceived ease of Use (PEOU)

The data provided in table 4.10 showcases the respondents' perspectives on the ease of use of an Accounting Information System (AIS). These perspectives

were gathered through a series of statements that were evaluated on a 5-point Likert scale, ranging from "Strongly Agree" to "Strongly Disagree." The analysis of data offers valuable perspectives on how users perceive the usability of the AIS.

Table 4.10-Frequency distribution of responses on PEOU computed through descriptive statistics

Items	Strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)	
	Count	%	Count	%	Count	%	Count	%	Count	%
PEOU1- Learning to operate AIS would be easy and understandable for me	166	39.15	156	36.79	59	13.91	30	7.07	13	3.08
PEOU2- I would find AIS to be flexible to handle the large amount of data	157	37.02	167	39.38	56	13.20	33	7.78	11	2.59
PEOU3- The AIS is user-friendly and provides effective guidance for task execution.	154	36.32	168	39.62	52	12.26	31	7.31	19	4.48
PEOU4- Overall, I find the “AIS” easy to use.	159	37.52	161	37.97	49	11.55	41	9.66	14	3.36

Source- Computed from SPSS 27

PEOU1-The majority of respondents (75.94%) believe that learning to operate the AIS would be easy and understandable. This indicates a general agreement that the system has an intuitive design and user-friendly learning curve. Only a small percentage (10.13%) disagrees, suggesting that while most users find it easy to learn, there is a minority who may need additional support or training.

PEOU2-Based on the survey results, it is evident that a significant majority of respondents (76.40%) have expressed confidence in the AIS's ability to effectively handle large volumes of data. This finding highlights the system's impressive robustness and scalability. However, a small percentage of users have expressed their disagreement, indicating that there may be room for improvement in the way data is handled. Based on the survey results, it is evident that a considerable number of respondents have expressed their trust in the system's capacity to effectively handle large amounts of data.

PEOU3- The AIS has been widely praised for its ease of use and efficiency in completing tasks, as evidenced by a survey of 154 participants. Most people (75.94%) agree with this, showing favourable views of the system's usability and support features. On the other hand, 11.79% of respondents have a different perspective, indicating that there might be users who could benefit from improved user support or training. The survey results indicate that most users find the AIS to be user-friendly and beneficial.

PEOU4- Based on the responses, it is evident that a significant majority (75.49%) of users find the AIS to be user-friendly, which reflects positively on the system's ease of use. However, a small percentage (13.02%) of users disagree, indicating that there are still some challenges in system usability for certain individuals. These issues could be resolved by implementing system enhancements or providing additional user training and support, as indicated by the table.

Most respondents perceive the Accounting Information System (AIS) as user-friendly, flexible, and simple to learn. Nevertheless, a limited number of users reported experiencing issues, suggesting the necessity for ongoing support and enhancements. The positive reception of the system suggests its success, but it

also suggests areas for further development and user assistance to enhance the overall user experience.

Table 4.11-Mean and Standard Deviation of PU and PEOU computed through descriptive statistics

	Descriptive Statistics					
		N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
(PU)	AIS provides authentic information.	424	1	5	4.11	.926
	AIS in my job would enable me to accomplish tasks more quickly	424	1	5	4.25	.837
	AIS gives me greater control over my work	424	1	5	4.32	.751
	AIS improves the quality of work I do	424	1	5	4.31	.785
(PEOU)	Learning to operate AIS would be easy and understandable for me.	424	1	5	4.25	.851
	I would find AIS to be flexible to handle a large amount of data.	424	1	5	4.18	.839
	The AIS is user-friendly and provides effective guidance for task execution.	424	1	5	4.14	.899
	Overall, I find the “AIS” easy to use.	424	1	5	4.11	.945
	Valid N (listwise)	424				

Source- Obtained through SPSS 27

Table 4.11 displays descriptive statistics for a survey study that examines the perceived usefulness (PU) and perceived ease of use (PEOU) of an Accounting Information System (AIS) among 424 participants. The average scores on the PU items range from 4.11 to 4.32, suggesting that respondents generally express agreement with positive remarks regarding the AIS. The participants express that the AIS offers genuine information (mean = 4.11, SD = 0.926), enhances task efficiency (mean = 4.25, SD = 0.837), provides better work autonomy (mean = 4.32, SD = 0.751), and elevates work quality (mean = 4.31, SD = 0.785). The high mean scores, together with the comparatively low standard deviations, indicate a robust and continuous positive opinion of the utility of the AIS.

Similarly, the PEOU items had mean values ranging from 4.11 to 4.25, indicating that respondents generally see the AIS as straightforward to use. The participants unanimously acknowledged that acquiring the skills to operate the AIS would be straightforward and comprehensible (mean = 4.25, SD = 0.851). They also agree that the AIS is adaptable in managing substantial volumes of data (mean = 4.18, SD = 0.839). Furthermore, they agree that the AIS is user-friendly and offers efficient assistance for task execution (mean = 4.14, SD = 0.899). Overall, they find the AIS to be easily usable (mean = 4.11, SD = 0.945). The persistent positive judgements are strengthened by the moderate variability in responses, as evidenced by the standard deviations.

In general, the survey indicates that participants have a positive perception of AIS in terms of its usefulness and convenience. There is a particularly strong consensus on its potential to provide greater control over work and enhance job quality. The consistently high average scores on both PU (Perceived Usefulness) and PEOU (Perceived Ease of Use) items indicate that the surveyed respondents typically have a positive attitude towards the AIS (Accounting Information System).

4.4 Discussion

In this chapter, we delve into a comprehensive analysis of the demographic profile of both the respondents and organisations. In the following section, we examined the factors that contributed to the implementation of accounting information systems in the SMEs sector. For the analysis of the first objective,

we utilised two variables from the TAM Model (Technology Acceptance Model): perceived usefulness and perceived ease of use. These factors have been extensively studied in existing literature as key drivers of technology adoption. The TAM model has been expanded upon by researchers, but for our study, we chose to focus on the basic model. The decision to include perceived usefulness and perceived ease of use as key variables in this study is well-supported for several reasons. Firstly, these constructs are basic to the Technology Acceptance Model (TAM) proposed by(Davis, 1989b), which is a widely recognized and well-established theoretical framework in the field. Numerous empirical studies have consistently demonstrated the strong predictive power of these variables in explaining technology adoption across different contexts and populations(Amin et al., 2014; Andarwati et al., 2020; Meiryani et al., 2021; Tubaishat, 2018; Wallace & Sheetz, 2014) and focusing on perceived usefulness and perceived ease of use, the study adopts a straightforward and clear approach, which reduces the complexity of the analysis and enhances the interpretability of the findings. This simplicity also ensures that the results can be applied to a wide range of information systems and user demographics, thus increasing the generalizability of the study's conclusions.

Before analysing the variables, several preliminary analyses were conducted to ensure the validity and reliability of the study instrument. The content and face validity of the instrument were examined, along with the KMO-Bartlett test of sphericity and an assessment of common method variance. The findings from these analyses indicated that the instrument was valid and reliable, with a high level of internal consistency among the items. Additionally, the KMO-Bartlett test confirmed that the data was appropriate.

After conducting the first evaluation of the research instrument, we thoroughly examined the demographic profile of the respondents. This included factors such as gender, age group, education qualification, industry experience, and their respective designations. The organisation profile includes an in-depth description of SMEs based on their size, type, location, and the activities they are involved in. Additionally, it is important to evaluate the accounting software currently being utilised in their industry. The data was examined

using SPSS descriptive statistics. Following that, we proceed with an investigation of the factors, utilising descriptive statistics as part of our analysis.

The survey results show(table3) a generally positive perception of the Accounting Information System (AIS) among users, with high mean scores across both perceived usefulness and perceived ease of use constructs. Based on frequency distribution table 1 for the factor PU -Users largely agree that the AIS provides authentic information, enables quicker task accomplishment, offers greater control over work, and improves the quality of work performed. As per Frequency distribution table 2 for the Factor PEOU- Users find the AIS easy to learn and understand, flexible in handling large amounts of data, user-friendly with effective guidance for task execution, and overall easy to use. High percentages of respondents agree or strongly agree with these statements, indicating that the AIS is both useful and easy to use, which are significant factors for successful technology adoption. The positive feedback on perceived usefulness and perceived ease of use aligns with the Technology Acceptance Model, indicating that these constructs significantly influence users' acceptance and satisfaction with the AIS(Fitrios, 2016; Magboul et al., 2024; Mohammed & Braim, 2022; Qader et al., 2022; Shankar & Kumari, 2019; Wicaksono et al., 2023). Therefore, the results highlight the importance of these factors in the design and implementation of information systems to ensure high user adoption and effective utilization.

A similar study conducted by (Ayu Anjani, 2020) investigates the impact of perceived usefulness, ease of use, and attitudes on the behavioural interest of E-commerce-based accounting information systems. The research, conducted using SPSS version 22.00, involved 35 Lazada employees and used a questionnaire method. Results showed that perceived usefulness, ease of use, and attitudes all influence the behavioural interest of E-commerce-based accounting information systems, with these factors acting simultaneously. Another study(WIRYANTI, 2020) investigates the impact of perceived ease of use on the quality of accounting information systems in a Jakarta-based oil & gas company. The research involved 60 staff members, directors, and managerial-level users. Results showed that perceived ease of use affects

information system quality, but other factors like standard operating procedures and internal company controls also influence this. The study(Kholilah et al., 2022) examines the impact of perceived usefulness, ease of use, facilitating condition, social influence, and personal innovativeness on cloud computing adoption among Indonesian students. Results show that perceived ease of use and facilitating conditions are the primary factors determining cloud adoption intentions. Other variables, such as usefulness, social influence, and personal innovativeness, did not affect adoption intentions.

(Lanlan et al., 2019) investigates the relationship between technology acceptance (TAM) and the use of Computerized Accounting Systems (CAS) among accountants in micro and small enterprises (MSEs). The study uses an online survey to gather feedback from 400 respondents in Xi'an, China. Results show a beneficial connection between perceived ease of use, usefulness, and CAS use. This study could guide accountants, business owners, and researchers in understanding the correlation between technology acceptance and CAS usage. (Wallace & Sheetz, 2014) proposes a model based on the technology acceptance model (TAM) to explain and predict the use of software measures for project management and process improvement. The model operationalizes the perceived usefulness construct based on the desirable properties of software measures, providing guidance for software engineers and software metrics coordinators planning measurement programs. analyses factors affecting SMEs' adoption of accounting systems in Erbil, Kurdistan. Factors such as perceived business activities, ease of use, reporting features, and security features positively impact system adoption. Costs have insignificant effects. The study suggests developers should create user-friendly programs tailored to SMEs' needs.In terms of reliability and validity of the adoption scale, a study conducted by (Hendrickson & Latta, 1996) examines the reliability and validity of the perceived usefulness and ease of use instrument developed by Davis (5) in management information systems (MIS) research. The test-retest reliability methodology, along with other tests, confirms that the instrument is a reliable and valid tool for MIS research. The research(Azizah, 2017) investigates factors influencing the implementation of

computer-based accounting information systems in Small and Medium Enterprises (SMEs) using Davis's Technology Acceptance Model (TAM) theory. Data from 33 questionnaires was collected from Dieng-Mart Swalayan users, and the results showed that perceived ease of use and attitude towards using are key factors.

The adoption of accounting information systems (AIS) is influenced by the perceived usefulness and ease of use. Research shows that when users understand the benefits of AIS in improving job performance and find the system easy to use, they are more likely to accept and effectively use the technology. Therefore, these factors are important for the successful implementation and integration of AIS in organizations.

CHAPTER-5

DETERMINING THE IMPACT OF ACCOUNTING INFORMATION SYSTEM (AIS) ON DECISION MAKING IN THE CONTEXT OF SMES

5.1 Introduction-

This chapter focuses on determining the impact of AIS on decision-making in the context of small and medium-sized enterprises (SMEs). Decision-making is a crucial aspect of every business organisation. Business executives have made several types of decisions, such as basic strategic decisions (BSD), manufacturing decisions (MD), human resource management decisions (HRMD), and marketing decisions (MKD)(Ullah et al., 2014) and, for making such decisions, every business requires an authentic, accurate, and dependable information source. Accounting information systems play a significant role, according to existing literature. AIS is a sophisticated information system that efficiently collects, stores, and processes data for business organisations, ensuring seamless communication of relevant information to its users(Trigo et al., 2016). Initially, manual methods were used for accounting. Still, with the advancement of technology, accounting software such as Tally ERP, Zoho Books, Marg ERP, etc, have been created to serve as accounting information systems. These software applications are specifically tailored to meet the needs of commercial enterprises. These software applications act as an accounting information system that offers accurate information to users of all business sizes, enabling them to make well-informed decisions. The current research has further enhanced the existing literature by examining the influence of AIS on the decision-making processes of small and medium enterprises. Examining the relationship between these constructs is crucial for understanding the impact of the accounting information system on informed decisions in the study.

To achieve the second objective of the study, data has been collected from 424 participants representing small and medium enterprises in Punjab from Majha, Malwa, and Doaba regions. An adapted scale was utilised in this investigation. It included 11 statements of AIS, each with three latent variables and 14

statements of decision-making, each containing four constructs. Scales have been evaluated for their reliability and validity, and the results have been represented with Cronbach alpha values of 0.867 (AIS) and 0.894 (DEM), which are much higher than the permitted limits. In the later stages, PLS-SEM was utilised with Smart PLS (version 4) to evaluate the measurement and structural models. This evaluation was carried out following a two-step methodology, which included validating the inner model (measurement model) and considering the outer model (structural model). Based on a comprehensive evaluation of the relevant literature, the following objective and hypothesis have been constructed:

Objective 2: To determine the impact of Accounting Information System (AIS) on decision making of SMEs.

Ha1- AIS has a positive statistically significant impact on the decision-making of SMEs.

The subsequent procedural framework is implemented to achieve this objective.

5.2 Operational Definitions of Variable Used with Sources Used in this study

Table 5.1 Operational Definitions of Variables used in the study

Higher order construct	Lower Order Construct	Operational Definition	Sources
AIS (Accounting information system)	Information Quality-**IQ**	**Information Quality** refers to the quality of outputs from the system, such as reports. It assesses the ability of a system to produce timely, accurate, relevant, and complete information for decision-making.	(Kareem et al., 2021; Matsuo et al., 2023; Paula Monteiro et al., 2022; Saad, 2023; "The

	Service Quality-**SEQ**	**Service quality** refers to the gap between customers' expectations and their opinions of service delivery. The quality of service includes essential factors like reliability, responsiveness, assurance, and tangible aspects.	DeLone and McLean Model of Information Systems Success," 2003)
	System Quality-**SYQ**	**System quality** refers to the technical soundness of the information system processing, including software and data components, as a whole. The system's quality includes ease of use, flexibility, reliability, speed of get to (response time), and framework security.	
DEM (Decision making)	Basic strategic decisions-**BSD**	**Basic strategic decisions** have a long-term impact on businesses, requiring a detailed examination of accounting information for effective long-term strategic decision-making. AIS provides a clear picture of the business's financial health, such as revenue, expenses, and overall profitability, to help make better strategies.	(Al-Hattami & Kabra, 2022; Al-Okaily et al., 2022; Al-Okaily & Al-Okaily, 2022; Lutfi et al., 2022; Shuhidan et

	Manufacturing Decisions-**MD**	Manufacturing decisions refer to accounting information, particularly production and equipment costs, and tracking inventory levels is crucial for making informed decisions in the manufacturing process and optimising operations.	al., 2015; "The DeLone and McLean Model of Information Systems Success," 2003; Ullah et al., 2014)
	Human Resource Management Decisions-**HRMD**	**Human resource management Decisions** require using accounting information, encompassing aspects such as automated payroll calculations and providing payroll data for recruiting, training, and promotions, supervised by the human resource manager.	
	Marketing Decisions-**MKD**	**Marketing Decisions** require detailed accounting information for sales managers to make well-informed marketing decisions, such as developing new products or calculating proper sales commissions.	

Ha 1.1- There is a statistically significant positive relationship between IQ of AIS and BSD.

Ha 1.2- There is a statistically significant positive relationship between IQ of AIS and HRMD.

Ha 1.3 -There is a statistically significant positive relationship between IQ of AIS and MD.

Ha 1.4 - There is a statistically significant positive relationship between IQ of AIS and MKD.

Ha 1.5 -There is a statistically significant positive relationship between SEQ of AIS and BSD.

Ha 1.6 -There is a statistically significant positive relationship between SEQ of AIS and HRMD.

Ha 1.7 - There is a statistically significant positive relationship between SEQ of AIS and MD.

Ha 1.8 -There is a statistically significant positive relationship between SEQ of AIS and MKD.

Ha 1.9 -There is a statistically significant positive relationship between SYQ of AIS and BSD.

Ha 1.10 -There is a statistically significant positive relationship between SYQ of AIS and HRMD**.**

Ha 1.11-There is a statistically significant positive relationship between SYQ of AIS and MD.

Ha 1.12-There is a statistically significant positive relationship between SYQ of AIS and MKD.

5.3 Content and Face Validity and Reliability statistics of Research instrument

Content validity furnishes evidence regarding the extent to which the items of an evaluation tool are pertinent and representative of the intended latent construct for the specific purpose of assessment(Almanasreh et al., 2019). Lawshe's approach(Aithal & Aithal, 2020; Kailay, 2023; Lawshe, 1975; N. Patel & Desai, 2020; Taherdoost, 2016), known as the Content Validity Ratio (CVR), is a method used to evaluate the validity of content in this study, involving a group of experts assessing the relevance of each item in an instrument. In this study, the questionnaire was evaluated by a panel of 10 experts, both academics and industry professionals. According

to (Almanasreh et al., 2019; Karimian & Masoudi, 2024), CVR values of more than 0.62 statements were accepted for this study and content validity index (CVI) is calculated for the complete instrument after recognising items for inclusion. CVI is the average of the retained items' CVR values(Gilbert & Prion, 2016). According to (Karimian & Masoudi, 2024; N. Patel & Desai, 2020), a CVI above 0.80 is considered favourable. In our study, the CVI is 0.81, which meets this threshold. It ensures the validity of the content of the questionnaire.

Cronbach alpha reliability test assesses the internal consistency of scales or test items, ranging from 0 to 1, with higher values indicating more excellent reliability. It ensures items measure the same underlying construct in research(Taherdoost, 2016). A Pilot Survey is a preliminary survey undertaken to evaluate respondents' impressions and the reliability of the research procedure, involving 10% of the total sample size before conducting the main survey(Kailay, 2023). We have also pre-tested a study on a sample size of 72. The Cronbach alpha was calculated using SPSS software, a widely used statistical tool in research. This test aims to evaluate the internal consistency of different constructs. The Cronbach's Alpha coefficient, as shown in Table 3.5, exceeds the acceptable threshold of 0.7(Shkeer & Awang, 2019; Taber, 2018). This confirms the reliability of the items. All values of latent constructs used in this study meet the threshold given by (Cronbach, 1951; Taber, 2018), ensuring the reliability of the research questionnaire.

The Cronbach's alpha test is conducted utilising the SPSS software, as illustrated in Table 5.2

Table 5.2 Cronbach alpha values of variables

Measures Name	**Cronbach alpha value(α)**	**Scale type used**	**Consistency**
Information Quality-**IQ**	0.889	5-point Likert scale	Good

Service Quality-**SEQ**	0.917	5-point Likert scale	Excellent
System Quality-**SYQ**	0.820	5-point Likert scale	Good
Basic strategic decisions-**BSD**	0.894	5-point Likert scale	Good
Manufacturing Decisions-**MD**	0.897	5-point Likert scale	Good
Human Resource Management Decisions-**HRMD**	0.852	5-point Likert scale	Good
Marketing Decisions-**MKD**	0.800	5-point Likert scale	Good

Source- Computed using SPSS-27

5.4 Kaiser's Measure of Sampling Adequacy and Bartlett's test of sphericity of AIS and DEM variables

The Kaiser-Meyer-Olkin (KMO) test is utilised to evaluate the suitability of using factor analysis on a given dataset by measuring sample adequacy, and KMO and Bartlett's test assesses all of the relevant data together (Napitupulu et al., 2017; Williams et al., 2010a). According to (Iskamto et al., 2020; Shkeer & Awang, 2019; Shrestha, 2021; Ul Hadia et al., 2016), Bartlett's Test of Sphericity resulted in a significant result (P-value < 0.05) for all the constructs indicating a strong level of significance and Kaiser-Meyer-Olkin Measure of Sampling Adequacy for all the constructs should be higher than 0.6, and 0.5 indicating that the sample size is sufficient. Tables 5.3 and 5.4 suggest that variables AIS and DEM meet the threshold limits, allowing researchers to proceed with further analysis. The p-values from tests indicate significant associations between variables, and the dataset is not spherical, as indicated by Bartlett's test results with a p-value below 0.05.

Table 5.3 -Kaiser–Meyer–Olkin (KMO) and Barlette test of HOC- AIS Variable

KMO and Bartlett's Test -AIS		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	1878.675
	df	66
	Sig.	.000

Source- Computed with SPSS 27

Table 5.4 Kaiser–Meyer–Olkin (KMO) and Barlette test of HOC- DEM Variable

KMO and Bartlett's Test- DEM		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.883
Bartlett's Test of Sphericity	Approx. Chi-Square	2714.536
	df	91
	Sig.	.000

Source- Computed with SPSS 27

5.5 Research Instrument Biasness (Common Method Biasness-CMB)

The common method variance (CMV) issue has gained significant attention among today's business researchers(Eichhorn, 2014; Jordan & Troth, 2020). CMV biases occur when a common scaling approach distorts substantively driven causal effects, resulting in systematic variation in responses from a single data source(Fuller et al., 2016). When it comes to testing for CMB, Harman's single-factor test is the statistical method we have seen the most frequently(Jordan & Troth, 2020). Harman's single-factor test is used to assess CMV bias, ensuring study validity and reliability by proactively addressing it. (Fuller et al., 2016) Highlights the effectiveness of Harman's one-factor test, a widely utilised post-hoc

method for addressing CMV, in identifying potential biases in survey-based marketing or business research. The presence of common method bias can be detected when a latent factor accounts for more than 50% of the Variance and when a single component explains over 50% of the covariance between items and criterion constructs(Eichhorn, 2014; Rodríguez-Ardura & Meseguer-Artola, 2020). To optimise the output quality of our developed research instrument, we have implemented Harman's single-factor test utilising SPSS-Dimension Reduction-Factor analysis. The test results indicated that a single-factor solution could only explain 40.8% of the total variation for AIS and 42.3% for DEM, considerably less than the minimum requirement of 50%. Evidently, common technique bias is not a significant issue in this research.

Table 5.5- Common Method Variance of AIS

Factors	**Extraction Sum of Square loadings**		
	Total	% age of Variance explained	% Cumulative
	4.902	40.854	40.854

Source- Computed with SPSS 27

Table 5.6- Common Method Variance of DEM

Factors	**Extraction Sum of Square loadings**		
	Total	% age of Variance explained	% Cumulative
	5.298	42.344	42.344

Source- Computed with SPSS 27

5.6 Structural equation modelling

Structural equation modelling (SEM) is a statistical technique used in social sciences and psychology to test and estimate causal relationships between variables, identifying direct and indirect effects and providing a comprehensive understanding of underlying mechanisms. It is a technique used to explain multiple statistical relationships through visualisation and model validation, and it also allows for discussing complex models. It extends traditional linear modelling techniques like multiple regression

analysis and ANOVA(Dash & Paul, 2021; Hair et al., 2013; Sarstedt et al., 2022). Path analysis and measurement model are the two models evaluated by structural equation modelling (SEM). The initial part is the measurement model, also commonly called the outer model(Hair, 2011). The second part is the structural/path model, also known as the inner model(Hair, 2011). The first step is assessing a measurement model, which involves analysing the reliability of the individual items and the validity of the measurements, both in terms of convergent and discriminant validity(Hair et al., 2020). It was also determined how each statement contributes significantly to its parent constructs through outer loadings. In regards to the measurement model in the figure, the arrows connecting the blue circles and yellow boxes represent the measurement models that assess the reliability and validity of constructs. The structural model is represented by arrows connecting the blue circles. It signifies the relationship between independent latent measures and dependent measures.

5.6.1 Measurement Model – An Assessment of the Validity and Reliability of Lower Order Measures and Formulating Higher Order Constructs

This Model highlights the importance of measuring latent variables through observed indicators before conducting path analysis. Latent variables, which cannot be directly measured, are derived from observed variables and tested for reliability and validity to ensure accurate measurement. This process is crucial for establishing the foundation of path analysis among the latent variables. The study aims to assess the reliability and validity of three latent measures of AIS (Accounting Information Systems), Information quality (IQ), Service quality (SEQ), and System quality (SYQ) and four latent measures of DEM (Decision Making), Basic strategic decisions (BSD), Human Resource Management Decisions (HRMD), Manufacturing Decisions (MD), Marketing Decisions (MKD).

This analysis first focuses on evaluating the extent to which items are associated with their underlying construct by measuring their outer

loadings. In addition, we evaluate the overall reliability of the constructs by utilising measurements such as Cronbach alpha and composite reliability. Next, we can evaluate the accuracy of each construct by analysing its discriminant validity through the use of HTMT and its convergent validity through the use of AVE. We can assess any potential bias in the study instrument by assessing VIF results to identify multicollinearity issues after all the values have been satisfied or meet their respective thresholds. We can proceed with the path model analysis.

The study addresses the complexity arising from exogenous and endogenous latent variables with multiple lower-order constructs., which can complicate result analysis. To streamline the model and enhance comprehension of variable relationships, the approach involves converting these constructs into a higher-order construct (HOC) or Hierarchical Component Model (HCM) (Sarstedt et al., 2019). This consolidation process merges the lower-order constructs into a unified higher-order construct, simplifying the analysis(Sarstedt et al., 2014). The reflective-reflective type HOC or HCM model(Sarstedt et al., 2019) has been evaluated in this study. In this research, we first discussed establishing the reflective-reflective higher-order constructs of AIS and DEM using the repeated indicators approach. The lower-order constructs IQ, SEQ, and SYQ are part of the higher-order construct AIS, measured using 12 indicators. Similarly, the lower-order constructs BSD, MD, HRMD, and MKD are part of the higher-order construct DEM, which is calculated using 14 indicators. All indicators of the lower-order components are simultaneously assigned to the reflective measurement model. Figure **5.1** demonstrates the indicators and construct relationships (LOCs) before analysing the results measurement model of HOCs.

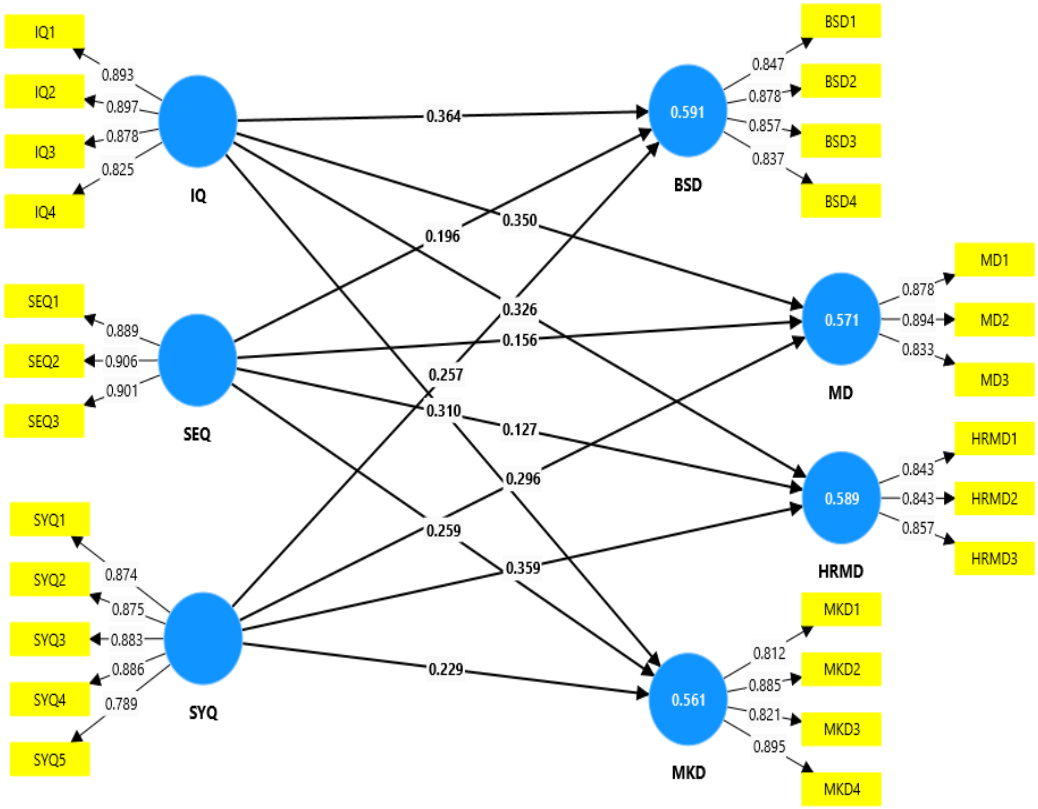


Figure 5.1- Measurement Model results of LOCs- Pls-algorithm graphical output by SMART-PLS 4

- **Indicators Reliability - Factor Loadings**

  The first step in evaluating a reflective measurement model is to examine the indicator or factor loadings. Factor loading, also known as outer loading, is a key component of the reflective measurement model. It indicates the extent to which each indicator or item is associated with its corresponding latent construct. Factor loadings determine the individual items' significance with the construct they are intended to measure(Dash & Paul, 2021; Hair et al., 2012). The researchers employed factor loadings as a statistical method to assess the reliability of indicators in their study. High outer loadings on a construct suggest that the indicators associated with the construct share a significant amount of Variance (Jony & Serradell-López, 2021). This phenomenon is called indicator reliability, indicating that the items measure the same underlying construct. The statistical significance of the outer loadings of the indicators is an essential requirement.

  Nevertheless, the outer loadings must meet a minimum requirement of 0.7(Alyahia et al., 2024; Hair et al., 2011; Pertheban et al., 2023) when all

indicators under a latent construct have a factor loading of 0.5 to 0.6 and above, which is considered also acceptable in some large sample empirical studies(Dash & Paul, 2021). However, if the outer loading of an indicator is less than 0.50, it should be removed(Hair et al., 2019; V. Singh & Ahuja, 2023). We analysed the outer loadings of the indicators. Table 5.7 presents the calculated factor loadings for the indicators used in this study.

Table 5.7- Outer loadings, VIF, Cronbach alpha, Composite reliability values of Measures

Measures	**Items**	**Outer Loadings**	**VIF**	**Cronbach's alpha**	**Composite reliability**
Basic Strategic Decisions	**BSD1**	0.847	1.746	**0.877**	**0.879**
	BSD2	0.878	2.178		
	BSD3	0.857	2.029		
	BSD4	0.837	1.491		
Human Resource Management Decisions	**HRMD1**	0.843	1.452	**0.804**	**0.806**
	HRMD2	0.843	1.84		
	HRMD3	0.857	1.648		
Information Quality	**IQ1**	0.893	1.378	**0.896**	**0.898**
	IQ2	0.897	1.746		
	IQ3	0.878	1.575		
	IQ4	0.825	1.388		
Manufacturing Decisions	**MD1**	0.878	1.428	**0.837**	**0.840**
	MD2	0.894	1.588		
	MD3	0.833	1.471		
Marketing Decisions	**MKD1**	0.812	1.757	**0.875**	**0.880**
	MKD2	0.885	2.151		
	MKD3	0.821	2.353		

	MKD4	0.895	2.287		
Service Quality	**SEQ1**	0.889	1.452	**0.881**	**0.882**
	SEQ2	0.906	1.84		
	SEQ3	0.901	1.648		
System Quality	**SYQ1**	0.874	1.722	**0.913**	**0.913**
	SYQ2	0.875	1.959		
	SYQ3	0.883	1.885		
	SYQ4	0.886	1.822		
	SYQ5	0.789	1.597		

Source- Computed Using SMART-PLS 4

The study assessed latent construct measures using the Partial Least Squares (PLS) algorithm. Results indicate that all values of the outer loading of each item with their respective construct meet the threshold criteria, with all values exceeding 0.7 indicating excellent model fit in Table 5.7. Outer loading of all four indicators of BSD construct ranges between 0.837 to 0.878, 3 indicators of HRMD range between 0.843 to 0.857, 4 indicators of IQ range between 0.825 to 0.897, 3 indicators of MD range between 0.833 to 0.894, 4 indicators of MKD ranges between 0.812 to 0.895, 3 indicators of SEQ range between 0.889 to 0.906 and 5 indicators of SYQ ranges between 0.789 to 0.886. It is evident that nearly all factor loadings exceed 0.7, which is considered an excellent model fit for further analysis.

- **Internal Consistency Reliability of Constructs (Cronbach alpha and Composite reliability)**

The second step in assessing the measurement model involves evaluating internal consistency reliability, using composite reliability and Cronbach alpha, with higher values indicating higher levels of reliability. Cronbach alpha and composite reliability in SEM-PLS are crucial for assessing the internal consistency and reliability of measurement scales in structural equation modelling(Hair et al., 2019). Composite reliability outshines the

traditional measure of Cronbach's alpha since it calculates CR co-efficient using actual loadings. According to(Alyahia et al., 2024; Hair et al., 2011; Sarstedt et al., 2014), Internal Consistency Reliability in Research Composite reliability should exceed 0.70, acceptable values: 0.60-0.70 and satisfactory to good values: 0.70-0.95. The acceptable threshold for Cronbach's alpha and CR values is more than 0.70, as suggested by (Hair et al., 2019). Composite reliability and Cronbach's alpha values for the construct were calculated using Smart PLS 4. The measurement findings of Cronbach's alpha and CR are shown in Table 6. For each of the constructs, the relevant values of CR and Cronbach's Alpha are determined, and they are found within the given ranges and meet the thresholds. From Table 5.7 the values for CRs and Cronbach alpha are BSD-(CR-0.879; Cronbach α- 0.877), HRMD-(CR-0.806; Cronbach α- 0.804), IQ-(CR-0.898; Cronbach α- 0.896), MD-(CR-0.840; Cronbach α- 0.837), MKD-(CR-0.880; Cronbach α- 0.875), SEQ-(CR-0.882; Cronbach α- 0.881), SYQ-(CR-0.913; Cronbach α- 0.913), Results revealed that it aligns with the model precisely, and the items are assessing their underlying constructs. In addition, the constructs demonstrated a Cronbach's alpha value exceeding 0.7, indicating strong internal consistency reliability. The findings provided strong evidence for the effectiveness of the suggested measurement model in accurately capturing the relationship between the latent variables and the indicators, thus ensuring the model's reliability.

- **Collinearity Statistics- VIF**

  The survey-based approach uses a collinearity assessment to address Common Method Bias or multicollinearity issues, ensuring the Variance Inflation Factors (VIF) value is checked before constructing structural relationships. However, when considering PLS-SEM, VIF is commonly used to evaluate significant collinearity levels in the measurement model(Jony & Serradell-López, 2021).

  The presence of multicollinearity was evaluated using variance VIF in this study. It refers to a situation where two variables believed to have a causal relationship measure the same construct(Yamin & Sweiss, 2020). The

recommended VIF values for assessing multicollinearity issues are less than 3.3, as suggested by (Hair et al., 2019; Pertheban et al., 2023; M. Sharma et al., 2022; Yamin & Sweiss, 2020). The multicollinearity values for the AIS variables and Decision-Making factors are listed in Table (5.7). All of the VIF values are less than 3, indicating no collinearity issue with the data in this study.

- **Convergent Validity (AVE)**

  Convergent validity refers to assessing whether the constructs accurately measure what they are intended to measure. The average-variance-extracted (AVE) value is utilised to assess convergent validity. It is recommended that the AVE of each concept should be equal to or greater than 0.50(Al-Hattami et al., 2024; Arasinah Kamis et al., 2021; Hair et al., 2019). In this study, we examined the Convergent validity of measures using SMART PLS 4. The AVE values of BSD=0.656, HRMD=0.689, IQ=0.588, MD=0.662, MKD=0.714.SEQ=0.688, SYQ=0.619. The AVE values are above 0.50, which shows that the constructs have convergent validity in Table 5.8. This means that all the variables used in the construct are reliable, which indicates good reliability. Results indicate that the measurement model developed for the present research displays good and reliable convergent validity. Consequently, we can proceed to analyse structural model relationships further.

- **Discriminant Validity (HTMT)**

  Once the convergent validity was confirmed, we also evaluated the discriminant validity. Discriminant validity refers to how a particular construct can be differentiated empirically. It signifies that each construct within a model is distinct and separate from the others (Ateeq et al., 2024; M. Sharma et al., 2022). The discriminant validity can be evaluated by cross-loading of indicator, Fornell & Larcker criterion and Heterotrait-monotrait (HTMT) correlation ratio (Arasinah Kamis et al., 2021). The recently introduced heterotrait-monotrait ratio of correlations method, also known as the HTMT method, was used for discriminant validity evaluation(Ab Hamid et al., 2017). (Hair et al., 2019) suggests that HTMT is calculated by taking the average correlations between items across

different constructs and comparing them to the average correlations between items within the same construct. The discriminant validity of the measuring items was assessed using the HTMT approach. This technique was developed by (Gold et al., 2001). The criteria to be met is that the HTMT values should be below 0.85 or 0.90, as recommended by (Al-Hattami et al., 2024; Henseler et al., 2015; Pertheban et al., 2023; Yamin & Sweiss, 2020). It is evident from considering Table 5.8 that all of the HTMT values of all latent measures are within the acceptable range. It was determined that the measurement model contained adequate levels of convergence and disparity. These findings provide evidence that the constructs have sufficient discriminant validity.

Table 5.8 -Convergent Validity (AVE) and Discriminant Validity (HTMT) values

Measures	**Average Variance Extracted (AVE)**	**Discriminant Validity (HTMT)**						
		BSD	HRMD	IQ	MD	MKD	SEQ	SYQ
Basic Strategic Decisions (BSD)	0.656							
Human Resource Management Decisions (HRMD)	0.689	**0.512**						
Information Quality (IQ)	0.588	0.671	**0.499**					
Manufacturing Decisions (MD)	0.662	0.65	0.786	**0.636**				

Marketing Decisions (MKD)	0.714	0.548	0.582	0.565	**0.651**			
Service Quality (SEQ)	0.688	0.512	0.593	0.499	0.786	**0.582**		
System Quality (SYQ)	0.619	0.876	0.572	0.646	0.617	0.639	**0.572**	

Source- Computed using SMART PLS 4

5.6.2 Structural Model Assessment

Once the LOCs measurement model is found reliable and valid after evaluation, then the next step is to calculate construct validity and reliability of higher-order measures (HOCs), which are AIS and DEM. These measures were evaluated using the SMART PLS 4-PLS algorithm. Both Higher-Order Constructs (HOCs), AIS and DEM, met the criterion values for factor loadings, which were more than 0.7(Pertheban et al., 2023). The outer loadings of AIS constructs are IQ-0.939, SEQ-927, SYQ-948, and DEM constructs are BSD-0.920, HRMD-0.933, MD-0.924, MKD- 0.926. Reliability statistics (Cronbach's alpha of AIS - 0.932, DEM-0.944 and composite reliability of AIS- 0.933, DEM-0.945) also satisfied the threshold values (Hair et al., 2019). validity statistics such as AVE values (convergent of AIS-0.880, DEM-0.857) are more than 0.5(Hair et al., 2012), and HTMT values of discriminant validity (DEM – 0.810) also met the threshold, which is 0.9(Yamin & Sweiss, 2020). Furthermore, no difficulties with multicollinearity were detected, all VIF values of Latent measures are less than 3 and met the threshold criteria (BSD-2.744, HRMD- 2.384, IQ- 2.893, MD- 2.947, MKD-2.096, SEQ-2.455, SYQ-2.394). After verifying the evaluation results of the measurement model, the next phase involves evaluating the structural model.

The inner model is referred to as the structural model. It assesses predictive capabilities and relationships between unobserved and latent

constructs, focusing on the coefficient of determination(R^2), predictive relevance of the model (Q^2), and path coefficients (hypotheses testing) for evaluation(Aburumman et al., 2023). First of all, the coefficient of determination (R^2) is a widely used evaluation criterion for structural models. It quantifies the predictive power of the model(Jony & Serradell-López, 2021). It signifies the cumulative impact of all interconnected independent constructs on the dependent construct. Structural Model Assessment uses R2 values for predictive accuracy and in-sample predictive power, while Stone-Geisser's Q2(Stone, 1974) value evaluates predictive relevance and out-of-sample predictive power(Jony & Serradell-López, 2021; Legate et al., 2023). The structural model involves the verification of several structural relationships between latent constructs to determine whether the hypothesis should be accepted or rejected(Al-Hattami et al., 2024). Path coefficients evaluated using bootstraping in Smart PLS as shown in figure 5.2. Bootstrapping is a technique where a large number of random observations are drawn from the original sample, returning each observation to the population before drawing the next one(Hair et al., 2013).

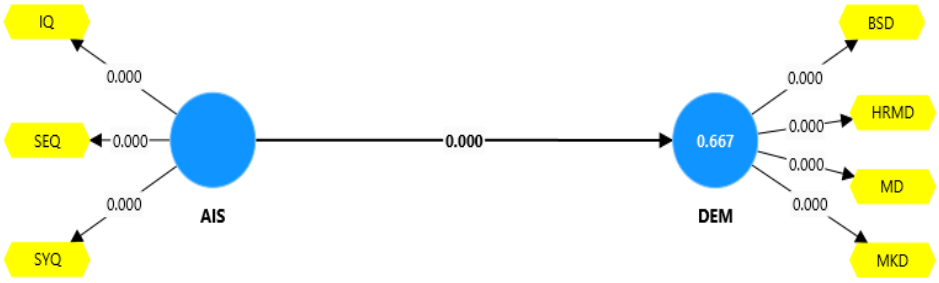


Figure 5.2- Graphical output of Bootstrapping results of HOCs computed through Smart-pls 4

- **Coefficient of Determination- R^2**

  In Partial Least Squares Structural Equation Modelling (PLS-SEM), the R square (R^2) statistics quantify the amount of variation in the endogenous construct that the exogenous constructs can explain. It is most widely utilised to assess the structural model. In general, this implies that one or more independent variables can explain a change in the dependent

variable(Shmueli et al., 2019). The majority of researchers interpret the coefficient of determination (R^2) to assess model fit in-sample, predicting case values of the total sample, but it only evaluates a model's explanatory power. R^2 is also known as in-sample predictive power. R^2 is a statistical measure that can vary from 0 to 1, with higher values indicating a greater ability for explanation. The R^2 values of 0.75, 0.50, and 0.25 are those that can be deemed significant, moderate, and weak, respectively, as a guideline(Aburumman et al., 2023; Hair et al., 2019). We also assessed the coefficient of determination in this study to study the impact of AIS on the decision-making of SMEs. R^2 was evaluated to compute the explanatory power of AIS. Figure 5.2 demonstrates the relationship considered with accounting information system (AIS), which explains 66.7% of the variability in decision-making (DEM) of SMEs. The present study found that the value of R2 is 0.667, indicating a moderate-substantial level of explanatory power. It suggests that a higher AIS is likely to contribute significantly to an organisation's overall decision-making (DEM).

- **Assessment of Predictive Relevance- Q^2**

  The structural model assessment uses R2 values for predictive accuracy and relevance within a sample. In contrast, the predictive relevance (Q^2) measure indicates the model's ability to make accurate predictions outside of the sample data. Positive values of Q^2 suggest that the exogenous constructs have predictive relevance for the endogenous construct being studied(Al-Emran et al., 2019). (Hair et al., 2019; Tehseen et al., 2019) reported that when Q2 was more significant than 0, the model demonstrated predictive relevance, and Values above 0, 0.25, and 0.50 indicate different levels of predictive accuracy for the PLS path model, ranging from small, medium and large.

  At last, we assessed the model's predictive relevance by utilising the Stone Geisser (Q^2) method (Geisser, 1974; Stone, 1974) through the PLS predict technique in SMART PLS 4.0 software. In this investigation, we found that Q2 had a value of 0.474 (BSD), 0.549 (HRMD), 0.429 (MD), and 0.382 (MKD), as shown in Table 5.9, all of which are greater than zero. The values of Q^2 come up within the range of 0.3 to 0.6, indicating a

significant level of predictive relevance. Thus, this current research has validated the predictive significance.

Table 5.9 -Assessment of Predictive Relevance

	Q^2 predict
BSD	0.474
HRMD	0.549
MD	0.429
MKD	0.382

Source- Predictive relevance within sample calculated through PLS-predict SMART-PLS 4

- **CVPAT**

It is a cross-validated predictive ability test that is created to perform a pairwise comparison between two theoretically derived models to assess their predictive capabilities for all the dependent latent variables at once. CVPAT was first introduced by (Liengaard et al., 2021) for the purpose of comparing prediction-oriented models in PLS-SEM. (P. N. Sharma et al., 2023) expanded the use of the CVPAT to assess the prediction capabilities of the model. The test compares a model's predictive accuracy with naïve indicator averages and a linear model benchmark using an inferential test(Cheah et al., 2024).

The CVPAT evaluates if PLS-SEM's average loss is significantly lower than benchmarks, ensuring a difference below zero (p-value < 0.05) to support the model's higher predictive capabilities. We tested the CVPAT method in this study, and the results are shown in Tables 5.10 and 5.11**.** In Table 5.10, which displays the CVPAT results report, the PLS-SEM model exhibits significantly better results than the Indicator Average model, as evidenced by the statistically significant t value and the negative average loss difference. This implies that the PLS-SEM model exhibits a far better data fit than the basic indicator average (IA). In comparison to Table 5.11, the PLS-SEM model demonstrates superior performance compared to the Linear Model (LM). Despite a positive average loss difference, the t & p-value indicates that the difference is statistically significant, suggesting that the PLS-SEM model offers superior predictive accuracy compared to

the Linear Model. In conclusion, the comparisons clearly demonstrate that the PLS-SEM model outperforms both the Indicator Average (IA) and Linear Model (LM) benchmarks in terms of predictive accuracy. This is evident from the significant t values and p values, as shown in table 5.10 & 5.11.

Table 5.10- CVPAT results of indicator average (IA) using SMART-PLS 4 pls predict/CVPAT

	PLS loss	IA loss	Average loss difference	t value	p-value
DEM	0.519	1.006	-0.486	9.944	0
Overall	0.519	1.006	-0.486	9.944	0

Source- CV PAT- PLS -SEM vs Indicator average (IA) computed using SMART-PLS 4

Table 5.11- CVPAT results of linear Model (LM) using SMART-PLS 4 pls predict/CVPAT

	PLS loss	LM loss	Average loss difference	t value	p-value
DEM	0.519	0.406	0.113	9.798	0
Overall	0.519	0.406	0.113	9.798	0

Source- CV PAT- PLS -SEM vs Linear Model (LM) computed using SMART-PLS 4

- **Relevance & Significance of Path Coefficients – Hypothesis Testing**

  This research employed the bootstrapping technique in combination with SmartPLS4 to validate the path coefficients for statistical significance. In particular, bootstrapping was utilised to generate t-values for each path coefficient. Additionally, p-values were calculated for the hypotheses, as detailed in Table 5.12. The analysis of the relationship between accounting information systems (AIS) and decision-making (DEM) found a positive impact on the dependent variable, DEM. The relationship was determined to be statistically significant at the 0.05 level, with a beta value (β) of 0.817, a mean(μ) of 0.814, a standard deviation (σ) of 0.029, a t-value of 28.541, and a p-value of less than 0.05. Therefore, Ha1 was accepted. The relationships between LOCs also found significant at a 0.05 level,

(IQ→BSD)- (β=0.364, SD=0.065, t=5.596, p<0.05), **(IQ→HRMD)** - (β=0.326, SD=0.073, t=4.49, p<0.05), **(IQ→MD)**- (β=0.35, SD=0.074, t=4.715, p<0.05), **(IQ→MKD)** - (β=0.31, , SD=0.07, t=4.434, p<0.05), **(SEQ→BSD)**- (β=0.19, , SD=0.06, t=3.255, p<0.05), **(SEQ→HRMD)** - (β=0.127, , SD=0.059, t=2.135, p<0.05), **(SEQ→MD)** - (β=0.156, , SD=0.061, t=2.541, p<0.05), **(SEQ→MKD)** - (β=0.259, SD=0.058, t=4.48, p<0.05),), **(SYQ→BSD)** - (β=0.257, SD=0.068, t=4.059, p<0.05), **(SYQ→HRMD)** - (β=0.359, SD=0.066, t=5.429, p<0.05), **(SYQ→MD)** - (β=0.296, SD=0.073, t=2.541, p<0.05), **(SYQ→MKD)** - (β=0.229, SD=0.69, t=3.34, p<0.05).

Using the bootstrapping method with the help of SMART PLS-4, we determined that the path coefficient for Ha3 is below 0.05. This indicates that AIS has a significant statistical effect on the decision-making process of SMEs. Significant path coefficients were also observed between latent constructs (LOCs) of AIS (HOC) and DEM (HOC), as presented in Table 10. These findings align with (Al-Okaily et al., 2022; Lutfi et al., 2022; Monteiro et al., 2021; Saad, 2023) and (Ateeq et al., 2024; Hattami et al., 2021; Ullah et al., 2014). It suggests that an effective accounting information system leads to more informed and accurate decisions, improving operational efficiency and organisational performance. AIS streamlines operational processes, reduces errors, and provides timely information, giving organisations a competitive edge and contributing to long-term success. Accurate financial and non-financial drive growth and profitability, while a well-functioning accounting information system ensures regulatory compliance and improved transparency in financial reporting.

Table 5.12-Path co-efficient results

Hypothesis	Original sample (O)-β	Sample mean (M)-μ	Standard deviation (STDEV)-σ	T statistics (|O/#STDEV|)	P values	Results
IQ -> BSD	0.364	0.362	0.065	5.596	0.00	Accepted

IQ -> HRMD	0.326	0.325	0.073	4.49	0.00	Accepted
IQ -> MD	0.35	0.347	0.074	4.715	0.00	Accepted
IQ -> MKD	0.31	0.308	0.07	4.434	0.00	Accepted
SEQ -> BSD	0.196	0.196	0.06	3.255	0.001	Accepted
SEQ -> HRMD	0.127	0.126	0.059	2.135	0.033	Accepted
SEQ -> MD	0.156	0.156	0.061	2.541	0.011	Accepted
SEQ -> MKD	0.259	0.26	0.058	4.48	0.00	Accepted
SYQ -> BSD	0.257	0.257	0.068	3.791	0.00	Accepted
SYQ -> HRMD	0.359	0.358	0.066	5.429	0.00	Accepted
SYQ -> MD	0.296	0.296	0.073	4.059	0.00	Accepted
SYQ -> MKD	0.229	0.228	0.069	3.34	0.001	Accepted
Accounting Information System (AIS)->Decision-Making (DEM)	**0.817**	**0.814**	**0.029**	**28.541**	**0.00**	**Accepted**

Source- Path co-efficient results of hypothesis computed using bootstrapping SMART-PLS 4

5.7 Conclusion and Discussion

The study has examined the impact of AIS's dimensions (Information quality, service quality, and system quality) on the decision-making of the SME sector. The effectiveness of AIS was assessed by considering the three dimensions (IQ, SEQ, SYQ) described in the D&M-ISS model(Delone & Mclean, 2003; Paula Monteiro et al., 2022; Saad, 2023). This present research evaluates the impact of accounting information systems on decision-making in strategic decision areas, including basic strategic

decision(BSD), manufacturing decision)(MD), human resource management decision(HRMD), and marketing decision(MKD) as suggested by(Bukunmi et al., 2018; Ullah et al., 2014). After conducting a thorough analysis of the existing literature, we developed Hypothesis (Ha3), Which states that "**AIS has a positive statistically significant impact on the decision-making of SMEs".**

In order to carry out this research, we first formulated a hypothesis and identified latent components for AIS (Accounting Information Systems) and DEM (Decision-Making). Subsequently, we provided a clear and precise operational description for each of these latent constructs supported by relevant literature. In light of this, we also examined the relationships among LOCs of AIS and DEM. Prior to determining the extent of the associations between the latent variables, we first examined the content and face validity of the study instrument, also conducted the KMO-Bartlett test of sphericity, and examined the common method of variance. The results of these analyses indicated strong validity and reliability of the instrument, as well as a high level of internal consistency among the items. Furthermore, the KMO-Bartlett test confirmed that the data was suitable for factor analysis and supported the robustness of our research methodology.

Structural equation modelling was employed as a statistical methodology for analysing data using SMART-PLS4. The initial step in SEM-PLS involved assessing the measurement model. The measurement model assessment involved the initial validation of lower-order constructs (LOCs) of AIS and DEM through the use of the PLS algorithm. The results computed reliability statistics, which encompass the factor loadings of each item to its corresponding construct, as well as Cronbach's alpha and composite reliability. The study subsequently examined the validity of constructs by employing measures of convergent validity (AVE) and discriminant validity (HTMT) and assessed the presence of collinearity issues through VIF values. Using the latent variable score (LV score), LOCs were converted to higher order constructs HOCs (AIS&DEM) when they satisfied the threshold criteria. Subsequently, we proceeded to a coefficient of determination R^2 in order to assess the impact of the AIS-

independent variable (IDV) on the DEM-dependent variable (DV) by examining the variance. In addition, we evaluated the predictive relevance by utilising Q square and CVPAT. Once all the requirements were met, we proceeded to test the hypothesis of the study using the bootstrapping approach of SMART-PLS 4.

The findings have shown that The IQ of AIS has a statistically significant association with the variables of DEM (BSD, HRMD, MD, and MKD), as shown in Table 5.12. Similarly, there is a statistically significant association between SEQ and SYQ of AIS with BSD, HRMD, MD, and MKD Of DEM. After converting in higher-order constructs (HOCs) and analysed the results using bootstrapping, we obtained the path coefficient results, which showed that the p-value was less than 0.05. The findings have evidently proven that AIS has a statistically significant relationship with DEM. According to the findings of the study, the quality of the information that is offered by accounting information systems adds value to the success of decision-making, which has made it an essential component for the success of businesses(Paula Monteiro et al., 2022). Accounting information is crucial for organisations worldwide to facilitate objective attainment and appropriate decision-making in economic disciplines, benefiting both internal and external parties involved(Lutfi et al., 2022). A study(Al-Qudah, 2011) conducted in the banking sector revealed that the implementation of AIS had a favourable effect on internal control, allowing banks to furnish precise and prompt information for both strategic and operational decision-making. A similar study conducted in the banking sector analyses the impact of digital accounting systems on decision-making(Al-Okaily et al., 2022). The empirical results indicate that the information quality of AIS significantly influences decision-making quality in Jordanian banks' digital accounting systems, playing a crucial role in improving the banking industry's digital accounting. The literature on accounting information systems primarily focuses on their role in improving decision-making processes by providing accurate, time-based information. However, the results of the study(Khazanchi & Munkvold, 2000) indicate a strong relationship between accounting information systems and decision-making.

Another study was undertaken to examine the influence of accounting information systems on the Oman food industry's decision-making process(Bilal & Tawfik, 2022). The sample was collected from 100 managers from selected companies. The findings reveal that the comparability, reliability, and relevance of accounting information provided by AIS significantly influence decision-making, with these characteristics being the most significant determinants. This study(Sajady et al., 2008) assessed the efficacy of accounting information systems. The sample, obtained from financial managers of listed companies at the Tehran Stock Exchange, was assessed. The findings suggested that the introduction of accounting information systems in these organisations led to enhancements in managers' decision-making process. The Influence of accounting Information Systems on Decision-Making in the Nigerian Insurance Sector was evaluated by (Olumoye, 2013). The study highlights the significant role of accounting information systems in management decision-making in insurance companies. It emphasizes the importance of providing relevant, timely, and accurate information for effective decision-making. The study highlights the growing awareness among Nigerian insurance companies that information systems can be used to produce meaningful, relevant, and accurate information for decision-making.

Decision-making is a crucial aspect of organizational management, as it plays a significant role in achieving the objectives of an organization. It is a regular and essential function that receives considerable attention in the field of management. A review study(Kelton et al., 2010) was conducted to analyse the impact of AIS‘s Information presentation format on Judgement and Decision Making. It suggests that the impact of AIS’s information presentation format is widespread and influences individuals' decision-making process in various situations. An empirical study was conducted to analyse the influence of the AIS on the efficiency of decision-making among small and medium-sized enterprises (SMEs) in less developed nations. A survey is constructed and distributed to the owners and managers of 323 Yemeni small and medium-sized enterprises (SMEs) across several industries. The acquired data was analysed and tested using PLS-SEM

software. The study reveals significant positive associations between AIS (Accounting Information Systems) and DME (Decision-Making Effectiveness) success. Specifically, the results indicate that the quality of AIS information, its use, and user satisfaction positively influence decision-making effectiveness(Al-Hattami, 2022). In addition, SME owners and managers can clearly understand the positive impact of AIS success on enhancing the efficacy of business decision-making with the aid of the study's findings. Conversely, the study results might inspire those who rely on traditional manual accounting techniques to adopt AIS.

The ability to make effective decisions is a crucial administrative skill that greatly influences the success of an organization's management. Whether positive or negative, the outcome of a decision has significant implications for the organization, including its ability to achieve its goals, objectives, and policies(Drucker et al., 2006). Therefore, Decision makers rely on various types of information to make effective decisions. In today's business environment characterized by globalization and rapid market changes, decision-makers must have access to sufficient, comprehensive, and timely information(Ježovita, 2015). The literature extensively acknowledges the significance of Information Technology/Information Systems (IT/IS), including Accounting Information Systems (AIS), and the advantages they offer to organizations in various areas of administrative operations, specifically decision-making. The study(Fly, 2017) aimed to examine the effectiveness of management information systems in decision making within the Irbid Municipality. Findings concluded that the Information systems, expert systems, and decision support systems moderately enhance decision-making effectiveness in Greater Irbid Municipality, indicating a relationship between their use and decision-making stages.

In the present era, accounting departments heavily depend on accounting information systems (AIS) to make informed decisions using up-to-date and relevant data. The integration of emerging technologies with AIS has the potential to improve various accounting practices. Consequently, organizations prioritize the adoption of contemporary AIS and emerging technologies to enable decision-making that enhances strategic flexibility

and overall performance. The study(Yoshikuni et al., 2023) explores the impact of information systems infrastructure integration on strategic flexibility and innovation, mediated by IS-SEM practices and decision-making performance. The research framework and hypothesis are examined using data from 388 Brazil and the United States organisations. The research suggests that accounting information systems practitioners and researchers should focus on integrating information systems infrastructure and strategic enterprise management practices to enhance decision-making performance and strategic flexibility.

Accounting information is crucial for understanding an organization's financial situation and making strategic decisions, as long-term effects on the business require analysis of this information for effective decision-making. The study(Ullah et al., 2014) conducted in Bangladesh evaluated accounting information usage by decision-makers in strategic decision areas, including basic strategic decisions, manufacturing decisions, human resource decisions, long-term investment decisions, and marketing decisions. The study's results prove a significant relationship between accounting information and strategic decisions, and strategic decisions in all the selected areas significantly depend on accounting information. It is also observed from the analysis of the opinion of the respondents that 44.44% of the respondents always use accounting information in making strategic decisions in manufacturing industries in Bangladesh.

The implementation of an accounting information system has been widely recognized as a valuable tool for organizations to enhance decision-making and improve overall performance. This system facilitates the tracking of expenses, revenues, and profits by providing timely and accurate financial data. Moreover, it strengthens internal controls and ensures compliance with regulatory requirements, thereby promoting transparency and accountability in financial reporting. Additionally, an accounting information system streamlines processes and reduces the risk of errors or fraud. By centralizing accounting information in a database, management can easily access and analyze data, leading to more informed decision-making. Furthermore, this system offers real-time updates on the financial health of a business,

enabling prompt adjustments to be made in response to market changes. The efficiency and accuracy provided by an accounting information system can enhance overall business performance and competitiveness. Automating routine tasks and generating detailed reports saves time and resources that can be allocated to other critical aspects of the business. In conclusion, the implementation of an accounting information system offers numerous benefits that significantly contribute to the success and growth of a company.

Chapter-6

INFLUENCE OF ACCOUNTING INFORMATION SYSTEM (AIS) ON PLANNING, CONTROLLING, COORDINATING ACTIVITIES AND ORGANIZATIONAL PERFORMANCE OF SELECTED SMES.

6.1 Introduction-

This chapter focuses on determining the influence of AIS on planning, controlling, coordinating activities, and Organizational performance in the context of small and medium-sized enterprises (SMEs). Accounting information systems play a significant role, according to existing literature. AIS is a sophisticated information system that efficiently collects, stores, and processes data for business organizations, ensuring seamless communication of relevant information to its users(Trigo et al., 2016). Accounting Information Systems (AIS) are essential tools for Small and Medium Enterprises (SMEs) to plan, control, and coordinate their activities effectively(Al-Hattami et al., 2022b; Al-Hattami & Kabra, 2024; Nicolaou, 2000). They provide accurate financial data, performance monitoring, and communication, aiding in forecasting, budgeting, resource allocation, strategic planning, risk management, performance measurement, internal controls, and variance analysis. AIS facilitates seamless information sharing across departments, integrates business functions, and provides real-time financial reporting, ensuring sustainable growth and success.

AIS furnishes accounting information that impacts businesses' financial and non-financial performance (Sunarta & Astuti, 2023). Financial performance and non-financial performance are the two aspects used to measure organizational performance utilizing a tool created by (Z. Wang et al., 2014, 2016). Financial performance is assessed using six indicators, namely: 1) return on investment, 2) return on assets, 3) return on credit, 4) average profitability, 5) profit growth, and 6) customer growth. The assessment of non-financial performance is based on five criteria: (1) satisfaction with the customer, (2) quality improvement, (3) regular management, (4) responsiveness, and (5) productivity. The current research has further

enhanced the existing literature by examining the influence of AIS on the planning, controlling, coordinating activities, and organizational performance of small and medium enterprises. The majority of the current literature primarily examines the measurement of the impact on the financial performance of business organizations. However, there is a scarcity of literature that specifically addresses the impact on non-financial performance. Therefore, in this study, we aim to assess the influence of AIS on the non-financial performance of SMEs.

Examining the relationship between these constructs is crucial for understanding the impact of the accounting information system on the planning, controlling, coordinating activities, and organizational performance of SMEs in the study. To achieve the third objective of the study, data was collected from 424 participants representing small and medium enterprises in Punjab from the Majha, Malwa, and Doaba regions. An adapted scale was utilised in this investigation. It included 11 statements on AIS, each with three latent variables, 15 statements on planning, controlling, and coordinating activities (PCC), and 08 statements on SMEs' non-financial performance (SNFP). Scales have been evaluated for their reliability and validity, and the results have been represented with Cronbach alpha values of 0.867 (AIS), 0.910 (PCC), and 0.839 (SNFP), which are much higher than the permitted limits. In the later stages, PLS-SEM was utilised with Smart PLS (version 4) to evaluate the measurement and structural models. This evaluation was carried out following a two-step methodology, which included validating the inner model (measurement model) and considering the outer model (structural model). Based on a comprehensive evaluation of the relevant literature, the following objective and hypothesis have been constructed:

Objective 2: To analyse the influence of Accounting Information System (AIS) on planning, controlling, coordinating activities and Organizational performance of selected SMEs.

Ha2- AIS has a positive statistically significant influence on the planning, controlling and coordinating activities of SMEs.

Ha3- AIS has a positive statistically significant impact on the Organizational performance of SMEs.

The subsequent procedural framework is implemented to achieve this objective.

6.2 Operational Definitions of Variable Used with Scale Used in this study

Table 6.1 Operational Definitions of Variable

Higher order construct	**Lower Order Construct**	**Operational Definition**	**Sources**
AIS (Accounting information system)	Information Quality-**IQ**	**Information Quality** refers to the quality of outputs from the system, such as reports. It assesses the ability of a system to produce timely, accurate, relevant, and complete information for decision-making.	(Kareem et al., 2021; Matsuo et al., 2023; Paula Monteiro et al., 2022; Saad, 2023; "The DeLone and McLean Model of Information Systems Success," 2003)
	Service Quality-**SEQ**	**Service quality** refers to the gap between customers' expectations and their opinions of service delivery. The quality of service includes essential factors like reliability, responsiveness, assurance, and tangible aspects.	
	System Quality-**SYQ**	**System quality** refers to the technical soundness of the information system processing, including software and data components, as a whole. The	

		system's quality includes ease of use, flexibility, reliability, speed of get to (response time), and framework security.	
PCC (Planning, Controlling and Coordinating activities)	Accounting Information Systems support **managerial planning** by offering real-time financial insights. Managers utilize these systems to create detailed budgets and allocate resources based on historical financial data stored in the AIS. **Controlling** refers to the ongoing monitoring and assessment of actual performance against planned goals within the SME, facilitated by real-time financial updates from the AIS. **Coordinating activities** encompass utilizing the centralized database of AIS to foster seamless collaboration among different departments, thereby ensuring uniformity in financial data and fostering harmonious organizational work.		(Al-Hattami et al., 2022b, 2022a; Al-Hattami & Kabra, 2024; Jawabreh & Alrabei, 2012; Nicolaou, 2000)**.**
SNFP (SME's Non-Financial Performance)	**SMEs' non-financial performance** measures how well a company is achieving its strategic goals, including customer satisfaction, employee productivity, innovation, market share, and sustainability, to guide strategy alignment and decision-making, giving an overall perspective for informed decision-making and strategic alignment by including non-financial factors.		(Budiarto & Prabowo, 2019; Saad, 2023)

Source- Operational Definitions of Variables from literature review of existing studies

6.3 Content and Face Validity and Reliability statistics of Research instrument

Content validity furnishes evidence regarding the extent to which the items of an evaluation tool are pertinent and representative of the intended latent construct for the specific purpose of assessment(Almanasreh et al., 2019). Lawshe's approach(Aithal & Aithal, 2020; Kailay, 2023; Lawshe, 1975; N. Patel & Desai, 2020; Taherdoost, 2016), known as the Content Validity Ratio (CVR), is a method used to evaluate the validity of content in this study, involving a group of experts assessing the relevance of each item in an instrument. In this study, the questionnaire was evaluated by a panel of 10 experts, both academics and industry professionals. According to (Almanasreh et al., 2019; Karimian & Masoudi, 2024), CVR values of more than 0.62 statements were accepted for this study, and the content validity index (CVI) is calculated for the complete instrument after recognising items for inclusion. CVI is the average of the retained items' CVR values(Gilbert & Prion, 2016). According to (Karimian & Masoudi, 2024; N. Patel & Desai, 2020), a CVI above 0.80 is considered favourable. In our study, the CVI is 0.81, which meets this threshold. It ensures the validity of the content of the questionnaire.

Cronbach alpha reliability test assesses the internal consistency of scales or test items, ranging from 0 to 1, with higher values indicating more excellent reliability. It ensures items measure the same underlying construct in research(Taherdoost, 2016). A Pilot Survey is a preliminary survey undertaken to evaluate respondents' impressions and the reliability of the research procedure, involving 10% of the total sample size before conducting the main survey(Kailay, 2023). We have also pre-tested a study on a sample size of 72. The Cronbach alpha was calculated using SPSS software, a widely used statistical tool in research. This test aims to evaluate the internal consistency of different constructs. The Cronbach's Alpha coefficient, as shown in Table 2, exceeds the acceptable threshold of 0.7(Shkeer & Awang, 2019; Taber, 2018). This confirms the reliability of the items. All values of latent constructs used in this study meet the

threshold given by (Cronbach, 1951; Taber, 2018), ensuring the reliability of the research questionnaire.

The Cronbach's alpha test is conducted utilising the SPSS software, as illustrated in Table 6.2

Table 6.2 Cronbach alpha values of constructs

Measures Name	Cronbach alpha value(α)	Scale type used	Consistency
Information Quality-**IQ**	0.889	5-point Likert scale	Good
Service Quality-**SEQ**	0.917	5-point Likert scale	Excellent
System Quality-**SYQ**	0.820	5-point Likert scale	Good
Planning, Controlling and coordinating -**PCC**	0.910	5-point Likert scale	Excellent
SME's Non-Financial Performance-**SNFP**	0.839	5-point Likert scale	Good

Source- Cronbach alpha computed using SPSS-27.

6.4 Kaiser's Measure of Sampling Adequacy and Bartlett's test of sphericity of AIS and DEM variables

The Kaiser-Meyer-Olkin (KMO) test is utilised to evaluate the suitability of using factor analysis on a given dataset by measuring sample adequacy, and KMO and Bartlett's test assesses all of the relevant data together (Napitupulu et al., 2017; Williams et al., 2010a). According to (Iskamto et al., 2020; Shkeer & Awang, 2019; Shrestha, 2021; Ul Hadia et al., 2016), Bartlett's Test of Sphericity resulted in a significant result (P-value < 0.05) for all the constructs indicating a strong level of significance and Kaiser-

Meyer-Olkin Measure of Sampling Adequacy for all the constructs should be higher than 0.6, and 0.5 indicating that the sample size is sufficient. Table 6.3, 6.4 and 6.5 suggest that variables AIS, PCC, and SNFP meet the threshold limits, allowing researchers to proceed with further analysis. The p-values from tests indicate significant associations between variables, and the dataset is not spherical, as indicated by Bartlett's test results with a p-value below 0.05.

Table 6.3 Kaiser–Meyer–Olkin (KMO) and Barlette test of HOC- AIS Variable computed with SPSS 27

KMO and Bartlett's Test of AIS		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	1878.675
	df	66
	Sig.	.000

Source- Computed with SPSS 27

Table 6.4 Kaiser–Meyer–Olkin (KMO) and Barlette test of PCC Variable computed with SPSS 27

KMO and Bartlett's Test of PCC		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.917
Bartlett's Test of Sphericity	Approx. Chi-Square	2473.445
	df	105
	Sig.	.000

Source- Computed with SPSS 27

Table 6.5 Kaiser–Meyer–Olkin (KMO) and Barlette test of SNFP Variable computed with SPSS 27

KMO and Bartlett's Test of SNFP	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.910

Bartlett's Test of Sphericity	Approx. Chi-Square	2427.915
	df	28
	Sig.	.000

Source- Computed with SPSS 27

6.5 Research Instrument Biasness (Common Method Biasness-CMB)

The common method variance (CMV) issue has gained significant attention among today's business researchers(Eichhorn, 2014; Jordan & Troth, 2020). CMV biases occur when a common scaling approach distorts substantively driven causal effects, resulting in systematic variation in responses from a single data source(Fuller et al., 2016). When it comes to testing for CMB, Harman's single-factor test is the statistical method we have seen the most frequently(Jordan & Troth, 2020). Harman's single-factor test is used to assess CMV bias, ensuring study validity and reliability by proactively addressing it. (Fuller et al., 2016) Highlights the effectiveness of Harman's one-factor test, a widely utilised post-hoc method for addressing CMV, in identifying potential biases in survey-based marketing or business research. The presence of common method bias can be detected when a latent factor accounts for more than 50% of the Variance and when a single component explains over 50% of the covariance between items and criterion constructs(Eichhorn, 2014; Rodríguez-Ardura & Meseguer-Artola, 2020). To optimise the output quality of our developed research instrument, we have implemented Harman's single-factor test utilising SPSS-Dimension Reduction-Factor analysis. The test results indicated that a single-factor solution could only explain 40.8% of the total variation for AIS,42.03% for PCC and 47.9% for SNFP, considerably less than the minimum requirement of 50%. Evidently, common technique bias is not a significant issue in this research.

Table 6.6 Common method Variance of AIS

Factors	Extraction Sum of Square loadings		
	Total	%age of Variance explained	% Cumulative
	4.902	40.854	40.854

Source- Computed using SPSS 27

Table 6.7 Common method Variance of PCC Computed using SPSS 27

Factors	Extraction Sum of Square loadings		
	Total	%age of Variance explained	% Cumulative
	6.305	42.031	42.031

Source- Computed using SPSS 27

Table 6.8 Common method Variance of SNFP Computed using SPSS 27

Factors	Extraction Sum of Square loadings		
	Total	%age of Variance explained	% Cumulative
	3.838	47.973	47.973

Source- Computed using SPSS 27

6.6 Structural equation modelling

Structural equation modelling (SEM) is a statistical technique used in social sciences and psychology to test and estimate causal relationships between variables, identifying direct and indirect effects and providing a comprehensive understanding of underlying mechanisms. It is a technique used to explain multiple statistical relationships through visualisation and model validation, and it also allows for discussing complex models. It extends traditional linear modelling techniques like multiple regression analysis and ANOVA(Dash & Paul, 2021; Hair et al., 2013; Sarstedt et al., 2022). Path analysis and measurement model are the two models evaluated by structural equation modelling (SEM). The initial part is the measurement model, also commonly called the outer model(Hair, 2011). The second part is the structural/path model, also known as the inner model(Hair, 2011). The first step is assessing a measurement model, which

involves analysing the reliability of the individual items and the validity of the measurements, both in terms of convergent and discriminant validity(Hair et al., 2020). It was also determined how each statement contributes significantly to its parent constructs through outer loadings. Regarding the measurement model in the figure, the arrows connecting the blue circles and yellow boxes represent the measurement models that assess the reliability and validity of constructs. The structural model is represented by arrows connecting the blue circles. It signifies the relationship between independent latent measures and dependent measures.

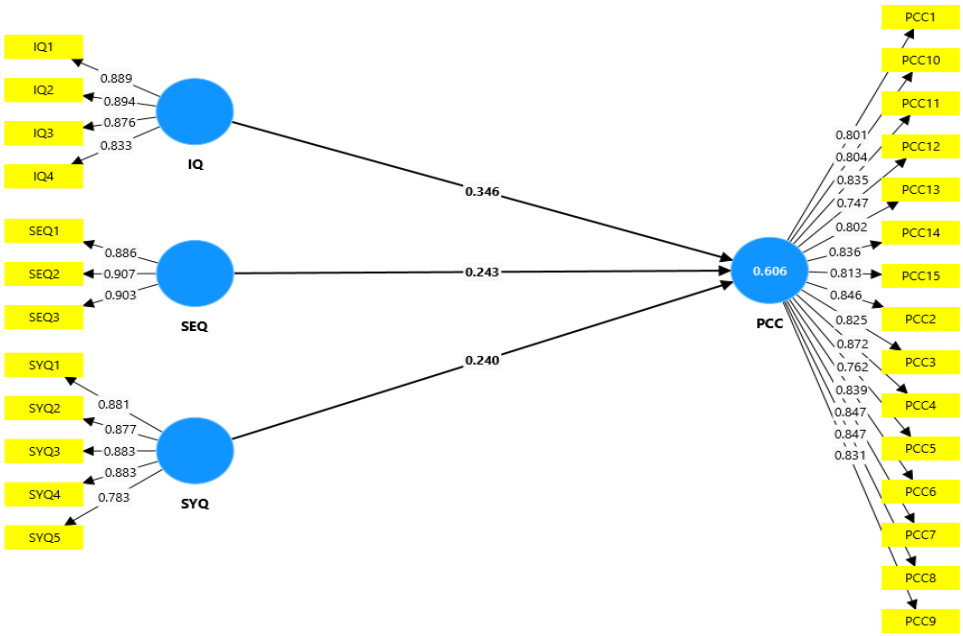
6.6.1 Measurement Model – An Assessment of the Validity and Reliability of Lower Order Measures and Formulating Higher Order Constructs

This Model highlights the importance of measuring latent variables through observed indicators before conducting path analysis. Latent variables, which cannot be directly measured, are derived from observed variables and tested for reliability and validity to ensure accurate measurement. This process is crucial for establishing the foundation of path analysis among the latent variables. The study aims to assess the reliability and validity of three latent measures of AIS (Accounting Information Systems), Information quality (IQ), Service quality (SEQ), and System quality (SYQ), PCC (Planning, Controlling, and coordinating activities) and SNFP (SME's Non- Financial Performance).

This analysis first focuses on evaluating the extent to which items are associated with their underlying construct by measuring their outer loadings. In addition, we evaluate the overall reliability of the constructs by utilising measurements such as Cronbach alpha and composite reliability. Next, we can evaluate the accuracy of each construct by analysing its discriminant validity through the use of HTMT and its convergent validity through the use of AVE. We can assess any potential bias in the study instrument by assessing VIF results to identify multicollinearity issues after all the values have been satisfied or meet their respective thresholds. We can proceed with the path model analysis.

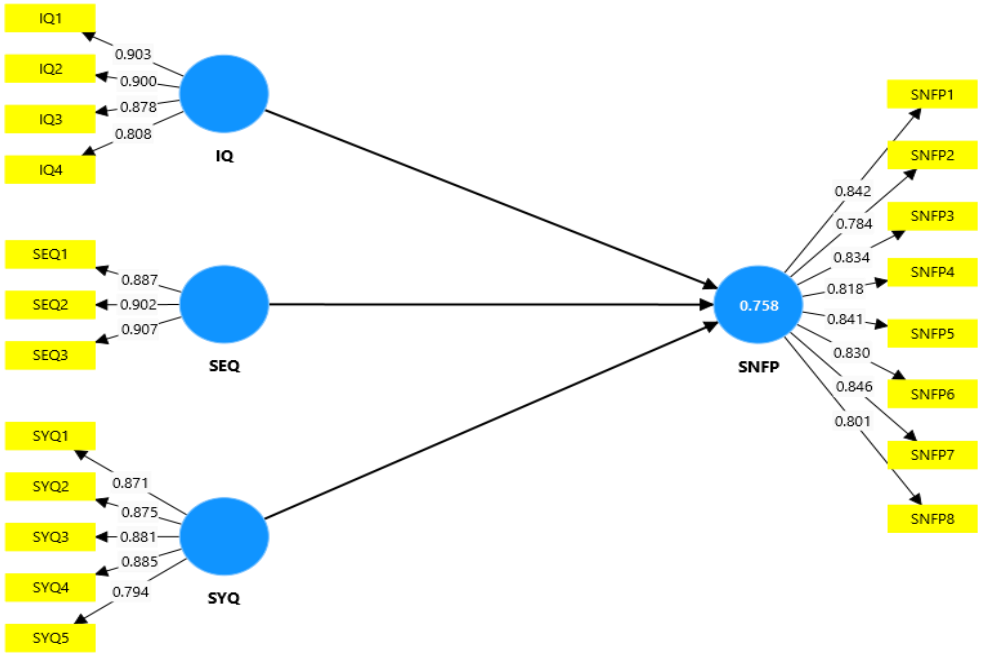
The study addresses the complexity arising from exogenous and endogenous latent variables with multiple lower-order constructs., which can complicate result analysis. To streamline the model and enhance comprehension of variable relationships, the approach involves converting these constructs into a higher-order construct (HOC) or Hierarchical Component Model (HCM) (Sarstedt et al., 2019). This consolidation process merges the lower-order constructs into a unified higher-order construct, simplifying the analysis(Sarstedt et al., 2014). The reflective-reflective type HOC or HCM model(Sarstedt et al., 2019) has been evaluated in this study. In this research, we first discussed establishing the reflective-reflective higher-order constructs of AIS and PCC using the repeated indicators approach. The lower-order constructs IQ, SEQ, and SYQ are part of the higher-order construct AIS, measured using 12 indicators. Similarly, the lower-order constructs PCC, calculated using 15 indicators, and SNFP, calculated using 08 indicators. All indicators of the lower-order components are simultaneously assigned to the reflective measurement model. Figures 6.1 and 6.2 demonstrate the indicators and construct relationships (LOCs) before analysing the results measurement model of HOCs.

Figure 6.1 Measurement results of LOCs- Pls-algorithm graphical output



Source- Graphical Output of Measurement results of LOCs- Pls-algorithm by SMART-PLS 4

Figure 6.2 Measurement results of LOCs- Pls-algorithm graphical output by SMART-PLS 4



Source- Graphical Output of Measurement results of LOCs- Pls-algorithm by SMART-PLS 4

- **Indicators Reliability - Factor Loadings**

  The first step in evaluating a reflective measurement model is to examine the indicator or factor loadings. Factor loading, also known as outer loading, is a key component of the reflective measurement model. It indicates the extent to which each indicator or item is associated with its corresponding latent construct. Factor loadings determine the individual items' significance with the construct they are intended to measure(Dash & Paul, 2021; Hair et al., 2012). The researchers employed factor loadings as a statistical method to assess the reliability of indicators in their study. High outer loadings on a construct suggest that the indicators associated with the construct share a significant amount of Variance (Jony & Serradell-López, 2021). This phenomenon is called indicator reliability, indicating that the items measure the same underlying construct. The statistical significance of the outer loadings of the indicators is an essential requirement.

  Nevertheless, the outer loadings must meet a minimum requirement of 0.7(Alyahia et al., 2024; Hair et al., 2011; Pertheban et al., 2023) when all indicators under a latent construct have a factor loading of 0.5 to 0.6 and

above, which is considered also acceptable in some large sample empirical studies(Dash & Paul, 2021). However, if the outer loading of an indicator is less than 0.50, it should be removed(Hair et al., 2019; V. Singh & Ahuja, 2023). We analysed the outer loadings of the indicators. Table 7 presents the calculated factor loadings for the indicators used in this study.

Table 6.9- Outer loadings, VIF, Cronbach alpha, Composite reliability of Measures

Measures Name	Items	Outer Loadings	VIF	Cronbach Alpha	Composite Reliability
Information Quality	IQ1	0.889	1.378	0.896	0.896
	IQ2	0.894	1.746		
	IQ3	0.876	1.575		
	IQ4	0.833	1.388		
Planning, controlling, coordinating activities	PCC1	0.801	1.980	0.965	0.966
	PCC10	0.804	1.340		
	PCC11	0.835	2.035		
	PCC12	0.747	1.857		
	PCC13	0.802	1.706		
	PCC14	0.836	1.712		
	PCC15	0.813	1.729		
	PCC2	0.846	2.037		
	PCC3	0.825	1.345		
	PCC4	0.872	1.780		
	PCC5	0.762	1.812		
	PCC6	0.839	1.789		
	PCC7	0.847	1.676		

	PCC8	0.847	1.718		
	PCC9	0.831	1.914		
Service Quality	SEQ1	0.886	1.452	0.881	0.881
	SEQ2	0.907	1.840		
	SEQ3	0.903	1.648		
System Quality	SYQ1	0.881	1.722	0.913	0.914
	SYQ2	0.877	1.959		
	SYQ3	0.883	1.885		
	SYQ4	0.883	1.822		
	SYQ5	0.783	1.597		
SME's Non-Financial Performance	SNFP1	0.842	1.256	0.933	0.934
	SNFP2	0.784	1.837		
	SNFP3	0.834	1.95		
	SNFP4	0.818	1.198		
	SNFP5	0.841	1.737		
	SNFP6	0.83	1.714		
	SNFP7	0.846	1.694		
	SNFP8	0.801	1.644		

Source- Computed Using SMART-PLS 4

The study assessed latent construct measures using the Partial Least Squares (PLS) algorithm. Results indicate that all values of the outer loading of each item with their respective construct meet the threshold criteria, with all values exceeding 0.7 indicating excellent model fit in Table 6.9. Outer loading of all fifteen indicators of PCC construct ranges between 0.747 to 0.872, 8 indicators of SNFP range between 0.784 to 0.846, 4 indicators of IQ range between 0.833 to 0.894, 3 indicators of SEQ range between 0.886 to 0.907 and 5

indicators of SYQ ranges between 0.783 to 0.877. It is evident that nearly all factor loadings exceed 0.7, which is considered an excellent model fit for further analysis.

- **Internal Consistency Reliability of Constructs (Cronbach alpha and Composite reliability)**

  The second step in assessing the measurement model involves evaluating internal consistency reliability, using composite reliability and Cronbach alpha, with higher values indicating higher levels of reliability. Cronbach alpha and composite reliability in SEM-PLS are crucial for assessing the internal consistency and reliability of measurement scales in structural equation modelling(Hair et al., 2019). Composite reliability outshines the traditional measure of Cronbach's alpha since it calculates CR co-efficient using actual loadings. According to(Alyahia et al., 2024; Hair et al., 2011; Sarstedt et al., 2014), Internal Consistency Reliability in Research Composite reliability should exceed 0.70, acceptable values: 0.60-0.70 and satisfactory to good values: 0.70-0.95. The acceptable threshold for Cronbach's alpha and CR values is more than 0.70, as suggested by (Hair et al., 2019). Composite reliability and Cronbach's alpha values for the construct were calculated using Smart PLS 4. The measurement findings of Cronbach's alpha and CR are shown in Table 6.9. For each of the constructs, the relevant values of CR and Cronbach's Alpha are determined, and they are found within the given ranges and meet the thresholds. From Table 6.9 the values for CRs and Cronbach alpha are IQ-(CR-0.896; Cronbach α- 0.896), PCC-(CR-0.966; Cronbach α- 0.965), SEQ-(CR-0.881; Cronbach α- 0.881), SEQ-(CR-0.881; Cronbach α- 0.882), SYQ-(CR-0.914; Cronbach α- 0.913) and SNFP-(CR-0.934; Cronbach α- 0.933). Results revealed that it aligns with the model precisely, and the items are assessing their underlying constructs. In addition, the constructs demonstrated a Cronbach's alpha value exceeding 0.7, indicating strong internal consistency reliability. The findings provided strong evidence for the effectiveness of the suggested measurement model in accurately capturing the relationship between the latent variables and the indicators, thus ensuring the model's reliability.

- **Collinearity Statistics- VIF**

  The survey-based approach uses a collinearity assessment to address Common Method Bias or multicollinearity issues, ensuring the Variance Inflation Factors (VIF) value is checked before constructing structural relationships. However, when considering PLS-SEM, VIF is commonly used to evaluate significant collinearity levels in the measurement model(Jony & Serradell-López, 2021).

  The presence of multicollinearity was evaluated using variance VIF in this study. It refers to a situation where two variables believed to have a causal relationship measure the same construct(Yamin & Sweiss, 2020). The recommended VIF values for assessing multicollinearity issues are less than 3.3, as suggested by (Hair et al., 2019; Pertheban et al., 2023; M. Sharma et al., 2022; Yamin & Sweiss, 2020). The multicollinearity values for the AIS variables and Decision-Making factors are listed in table 6.9. All of the VIF values are less than 3, indicating no collinearity issue with the data in this study.

- **Convergent Validity (AVE)**

  Convergent validity refers to assessing whether the constructs accurately measure what they are intended to measure. The average-variance-extracted (AVE) value is utilised to assess convergent validity. It is recommended that the AVE of each concept should be equal to or greater than 0.50(Al-Hattami et al., 2024; Arasinah Kamis et al., 2021; Hair et al., 2019). In this study, we examined the Convergent validity of measures using SMART PLS 4. The AVE values of IQ=0.763, PCC=0.674, SEQ=0.808, SYQ=0.744, SNFP=0.680. The AVE values are above 0.50, which shows that the constructs have convergent validity in Table 6.10 and 6.11. This means that all the variables used in the construct are reliable, which indicates good reliability. Results indicate that the measurement model developed for the present research displays good and reliable convergent validity. Consequently, we can proceed to analyse structural model relationships further.

- **Discriminant Validity (HTMT)**

  Once the convergent validity was confirmed, we also evaluated the discriminant validity. Discriminant validity refers to how a particular construct can be differentiated empirically. It signifies that each construct within a model is distinct and separate from the others (Ateeq et al., 2024; M. Sharma et al., 2022). The discriminant validity can be evaluated by cross-loading of indicator, Fornell & Larcker criterion and Heterotrait-monotrait (HTMT) correlation ratio (Arasinah Kamis et al., 2021). The recently introduced heterotrait-monotrait ratio of correlations method, also known as the HTMT method, was used for discriminant validity evaluation(Ab Hamid et al., 2017). (Hair et al., 2019) suggests that HTMT is calculated by taking the average correlations between items across different constructs and comparing them to the average correlations between items within the same construct. The discriminant validity of the measuring items was assessed using the HTMT approach. This technique was developed by (Gold et al., 2001). The criteria to be met is that the HTMT values should be below 0.85 or 0.90, as recommended by (Al-Hattami et al., 2024; Henseler et al., 2015; Pertheban et al., 2023; Yamin & Sweiss, 2020). It is evident from considering table 6.10 and 6.11 that all of the HTMT values of all latent measures are within the acceptable range. It was determined that the measurement model contained adequate levels of convergence and disparity. These findings provide evidence that the constructs have sufficient discriminant validity.

  Table 6.10-Convergent Validity (AVE) and Discriminant Validity (HTMT) of Measures

Measures	**Average Variance Extracted (AVE)**	**Discriminant Validity (HTMT)**				
		IQ	PCC	SEQ	SYQ	SNFP
Information Quality (IQ)	0.763					

Planning, controlling, and coordinating activities (PCC)	0.674	0.785				
Service Quality (SEQ)	0.808	0.499	0.656			
System Quality (SYQ)	0.744	0.646	0.832	0.572		

Source- Computed using SMART PLS4

Table 6.11-Convergent Validity (AVE) and Discriminant Validity (HTMT) of Measures

	Average Variance Extracted (AVE)	**Discriminant Validity (HTMT)**			
		IQ	SEQ	SNFP	SYQ
Information Quality (IQ)	0.763				
Service Quality (SEQ)	0.808	0.499			
SME's Non-Financial Performance (SNFP)	0.68	0.757	0.667		
System Quality (SYQ)	0.743	0.646	0.572	0.771	

Source- Computed using SMART PLS4

6.6.2 Structural Model Assessment

Once the LOCs measurement model is found reliable and valid after evaluation, then the next step is to calculate construct validity and reliability of higher-order measures (HOCs), which are AIS and DEM. These measures were evaluated using the SMART PLS 4-PLS algorithm. Higher-order Construct (HOC), AIS, and LOCs (Lower Order Constructs) PCC, SNFP, met the criterion values for factor loadings, which were more

than 0.7(Pertheban et al., 2023). Reliability statistics such as Cronbach's alpha and composite reliability of AIS, PCC, and SNFP also satisfied the threshold values (Hair et al., 2019). validity statistics such as AVE values, which show convergent validity of AIS, PCC, and SNFP) are more than 0.5(Hair et al., 2012), and HTMT values of discriminant validity of each measure also met the threshold, which is 0.9(Yamin & Sweiss, 2020). Furthermore, no difficulties with multicollinearity were detected, and all VIF values of latent measures were less than 3 and met the threshold criteria. After verifying the evaluation results of the measurement model, the next phase involves evaluating the structural model.

The inner model is referred to as the structural model. It assesses predictive capabilities and relationships between unobserved and latent constructs, focusing on the coefficient of determination(R^2), cross-validated redundancy(Q^2), and path coefficients (hypotheses testing) for evaluation(Aburumman et al., 2023). First, the coefficient of determination (R^2) is a widely used evaluation criterion for structural models. It quantifies the predictive power of the model(Jony & Serradell-López, 2021). It signifies the cumulative impact of all interconnected independent constructs on the dependent construct. Structural Model Assessment uses R^2 values for predictive accuracy and in-sample predictive power, while Stone-Geisser's Q2(Stone, 1974) value evaluates predictive relevance and out-of-sample predictive power(Jony & Serradell-López, 2021; Legate et al., 2023). The structural model involves the verification of several structural relationships between latent constructs to determine whether the hypothesis should be accepted or rejected(Al-Hattami et al., 2024). Path coefficients evaluated using bootstraping in Smart PLS as shown in figure 2. Bootstrapping is a technique where a large number of random observations are drawn from the original sample, returning each observation to the population before drawing the next one(Hair et al., 2013).

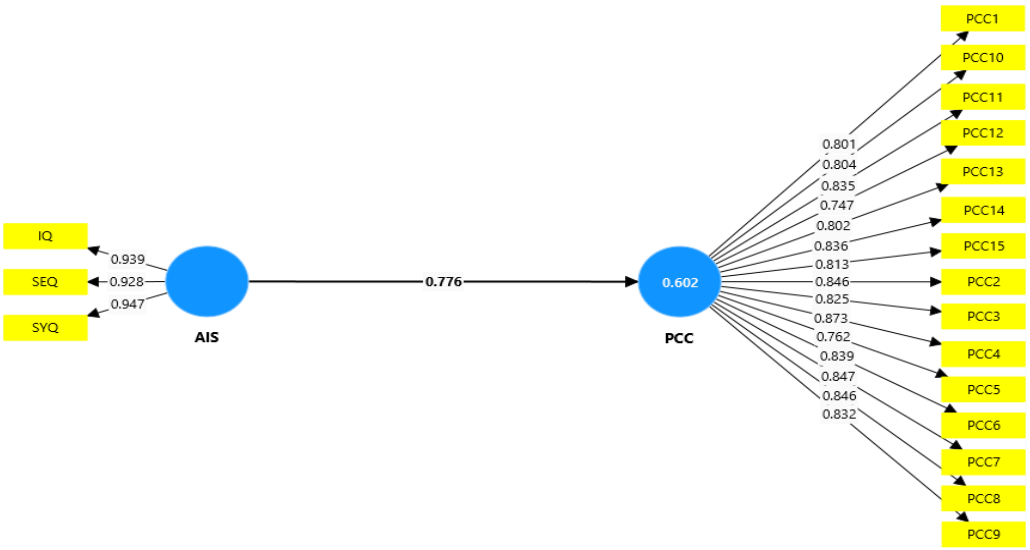


Figure 6.3 Bootstrapping Graphical output of HOCs computed through Smart-pls 4

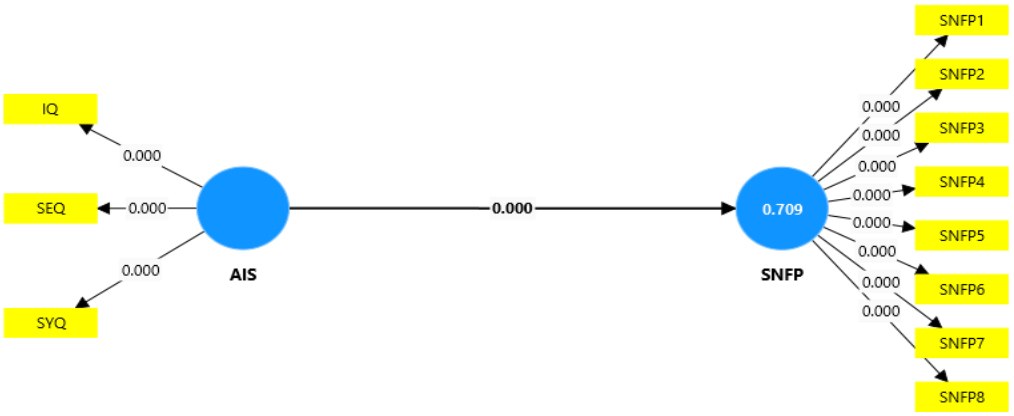


Figure 6.4 Bootstrapping Graphical output of HOCs computed through Smart-pls 4

- **Coefficient of Determination- R^2**

  In Partial Least Squares Structural Equation Modelling (PLS-SEM), the R square (R^2) statistics quantify the amount of variation in the endogenous construct that the exogenous constructs can explain. It is most widely utilised to assess the structural model. In general, this implies that one or more independent variables can explain a change in the dependent variable(Shmueli et al., 2019). The majority of researchers interpret the coefficient of determination (R^2) to assess model fit in-sample, predicting case values of the total sample, but it only evaluates a model's explanatory power. R^2 is also known as in-sample predictive power. R^2 is a statistical

measure that can vary from 0 to 1, with higher values indicating a greater ability for explanation. The R^2 values of 0.75, 0.50, and 0.25 are those that can be deemed significant, moderate, and weak, respectively, as a guideline(Aburumman et al., 2023; Hair et al., 2019). We also assessed the coefficient of determination in this study to analyze the influence of AIS on the planning, controlling, and coordinating activities and its impact on the organizational performance of SMEs. R^2 was evaluated to compute the explanatory power of AIS. Figures 6.3 and 6.4 demonstrate the relationship considered with the accounting information system (AIS), which explains 60.2% of the variability in (PCC) of SMEs and 70.09 % variability in SNFP (SME's non-financial performance). The present study found that the values of R2 are 0.602 and 0.709, indicating a moderate-substantial level of explanatory power. It suggests that a higher AIS is likely to contribute significantly to an organization's overall planning, controlling, and coordinating activities and non- financial performance of SMEs.

Assessment of Predictive Relevance- Q^2

The structural model assessment uses R2 values for predictive accuracy and relevance within a sample. In contrast, the predictive relevance (Q^2) measure indicates the model's ability to make accurate predictions outside of the sample data. Positive values of Q^2 suggest that the exogenous constructs have predictive relevance for the endogenous construct being studied(Al-Emran et al., 2019). (Hair et al., 2019; Tehseen et al., 2019) reported that when Q^2 was more significant than 0, the model demonstrated predictive relevance, and Values above 0, 0.25, and 0.50 indicate different levels of predictive accuracy for the PLS path model, ranging from small, medium and large.

At last, we assessed the model's predictive relevance by utilising the Stone Geisser (Q^2) method (Geisser, 1974; Stone, 1974) through PLS predict technique in SMART PLS 4.0 software. In this investigation, we found that Q^2 had a value of 0.658 (PCC) and 0.563 (SNFP), as shown in Table 6.12, all of which are greater than zero. The values of Q^2 come up within the range of 0.5 to 0.6, indicating a significant level of predictive

relevance. Thus, this current research has validated the predictive significance.

Table 6.12- Assessment of Predictive Relevance

Measures Name	Q^2predict
PCC	0.658
SNFP	0.563

Source- Predictive relevance with in sample calculated through PLS-predict SMART-PLS 4

- **CVPAT**

  It is a cross-validated predictive ability test that is created to perform a pairwise comparison between two theoretically derived models to assess their predictive capabilities for all the dependent latent variables at once. CVPAT was first introduced by (Liengaard et al., 2021) for the purpose of comparing prediction-oriented models in PLS-SEM. (P. N. Sharma et al., 2023) expanded the use of the CVPAT to assess the prediction capabilities of the model. The test compares a model's predictive accuracy with naïve indicator averages and a linear model benchmark using an inferential test(Cheah et al., 2024).

  The CVPAT evaluates if PLS-SEM's average loss is significantly lower than benchmarks, ensuring a difference below zero (p-value < 0.05) to support the model's higher predictive capabilities. We tested the CVPAT method in this study, and the results are shown in Tables 6.13,6.14,6.15 and 6.16**.** In Tables 6.13 and 6.15, which display the CVPAT results report, the PLS-SEM model exhibits significantly better results compared to the Indicator Average model, as evidenced by the statistically significant t value and the negative average loss difference. This implies that the PLS-SEM model exhibits a far better data fit than the basic indicator average (IA). In comparison to Tables 6.14 and 6.16, the PLS-SEM model demonstrates superior performance compared to the Linear Model (LM). Despite a positive average loss difference, the t & p-value indicates that the difference is statistically significant, suggesting that the PLS-SEM

model offers superior predictive accuracy compared to the Linear Model. In conclusion, the comparisons clearly demonstrate that the PLS-SEM model outperforms both the Indicator Average (IA) and Linear Model (LM) benchmarks in terms of predictive accuracy. This is evident from the significant t values and p values, as shown in Tables 6.13,6.14, 6.15, and 6.16.

Table 6.13-CVPAT results of indicator average (IA) of PLS predict/CVPAT

	PLS loss	IA loss	Average loss difference	t value	p-value
PCC	0.549	0.764	-0.215	9.956	0.01
Overall	0.549	0.764	-0.215	9.956	0.01

Source- CV-PAT LV SUMMARY-PLS SEM VS, Indicator Average (IA) using SMART-PLS 4

Table 6.14 -CVPAT results of linear Model (LM) of PLS predict/CVPAT

	PLS loss	LM loss	Average loss difference	t value	p-value
PCC	0.549	0.57	-0.021	5.687	0.00
Overall	0.549	0.57	-0.021	5.687	0.01

Source- CV-PAT LV SUMMARY-PLS SEM VS, Linear Model (LM) using SMART-PLS 4

Table 6.15 - CVPAT results of indicator average (IA) of PLS predict/CVPAT

CV-PAT LV SUMMARY-PLS SEM VS, Indicator Average (IA)

	PLS loss	IA loss	Average loss difference	t value	p-value
SNFP	0.571	0.782	-0.211	8.942	0.01
Overall	0.571	0.782	-0.211	8.942	0.00

Source- CV-PAT LV SUMMARY-PLS SEM VS, Indicator Average (IA) using SMART-PLS 4

Table 6.16- CVPAT results of linear Model (LM) of PLS predict/CVPAT

	PLS loss	LM loss	Average loss difference	t value	p-value
SNFP	0.571	0.591	-0.02	4.198	0.01
Overall	0.571	0.591	-0.02	4.198	0.01

Source- CV-PAT LV SUMMARY-PLS SEM VS, Linear Model (LM) using SMART- PLS 4

- **Relevance & Significance of Path Coefficients – Hypothesis Testing**

  This research employed the bootstrapping technique in combination with SmartPLS4 to validate the path coefficients for statistical significance. In particular, bootstrapping was utilised to generate t-values for each path coefficient. Additionally, p-values were calculated for the hypotheses, as detailed in Table 6.17. The analysis of the relationship between accounting information systems (AIS) and planning, controlling, and coordinating activities (PCC) found a positive impact on the dependent variable, PCC. The relationship was determined to be statistically significant at the 0.05 level, with a beta value (β) of 0.813, a mean(μ) of 0.815, a standard deviation (σ) of 0.019, a t-value of 43.588, and a p-value of less than 0.05. Therefore, Ha2 was accepted.

  Using the bootstrapping method with the help of SMART PLS-4, we determined that the path coefficient for Ha3 is below 0.05. This indicates that AIS has a significant statistical effect on the planning, controlling and coordinating activities of SMEs. These findings align with (Al-Hattami et al., 2022b; Al-Hattami & Kabra, 2022; Jawabreh & Alrabei, 2012; Nicolaou, 2000). The integration of Accounting Information Systems (AIS) has a significant impact on the planning, controlling, and coordinating activities of Small and Medium Enterprises (SMEs). The first benefit of AIS is its ability to provide accurate and timely financial data. This feature greatly assists in strategic planning and enables informed decision-making processes(Al-Hattami et al., 2022a). Additionally, it improves internal controls through the automation of routine transactions

and the enforcement of regulatory standards(Fly, 2017). The third benefit of AIS is its ability to support coordination across multiple departments(Nicolaou, 2000). This is achieved by providing a centralized platform for financial information, which in turn promotes organizational efficiency. In addition, the utilization of AIS (Accounting Information Systems) in small and medium-sized enterprises (SMEs) leads to enhanced financial monitoring and performance analysis. The use of AIS (Accounting Information Systems) allows small and medium-sized enterprises (SMEs) to promptly adjust to market fluctuations by providing up-to-date information on financial status and operational performance indicators. AIS streamlines operational processes, reduces errors, and provides timely information, giving organisations a competitive edge and contributing to long-term success. Accurate financial and non-financial drive growth and profitability, while a well-functioning accounting information system ensures regulatory compliance and improved transparency in financial reporting.

Table 6.17- Path co-efficient results of hypothesis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Accounting Information System (AIS) ->Planning, Controlling and coordinating activities (PCC)	0.813	0.815	0.019	43.588	0.01

Source- Computed using bootstrapping of SMART-PLS 4

The analysis of the relationship between accounting information systems (AIS) and SME's non-financial performance (SNFP) found a positive impact on the dependent variable, SNFP. The relationship was determined to be statistically significant at the 0.05 level, with a beta value (β) of

0.754, a mean(μ) of 0.756, a standard deviation (σ) of 0.023, a t-value of 32.338, and a p-value of less than 0.05 as shown in table 6.18. Therefore, Ha3 was accepted. Using the bootstrapping method with the help of SMART PLS-4, we determined that the path coefficient for Ha3 is below 0.05. This indicates that AIS has a significant statistical impact on the SMEs' non-financial performance. These findings align with (Ahmad & Zabri, 2016b; Hattami et al., 2021; Paula Monteiro et al., 2022; Sunarta & Astuti, 2023). It suggests that the use of Accounting Information Systems (AIS) significantly affects the non-financial performance of Small and Medium Enterprises (SMEs).

The impact of an accounting information system on the non-financial performance of small and medium-sized enterprises (SMEs) is significant. This system provides real-time data on key performance indicators, enabling better decision-making and strategic planning. The implementation of this technology has the potential to optimize workflows and enhance operational effectiveness, resulting in increased productivity and overall business prosperity. By incorporating functions like inventory management and sales tracking, an accounting information system can assist SMEs in streamlining their operations and reducing costs. Furthermore, the utilization of this technology improves transparency and accountability within the organization, promoting trust among stakeholders and facilitating sustainable growth in the long run. In the current fast-paced business landscape, an accounting information system is a valuable tool for SMEs seeking to maintain competitiveness. It allows businesses to quickly adapt to market fluctuations and make well-informed choices using precise financial information. In conclusion, the incorporation of AIS allows small and medium-sized enterprises (SMEs) to attain long-term expansion and uphold a competitive advantage by enhancing different non-financial performance measures(Paula Monteiro et al., 2022).

Table 6.18 Path co-efficient results of hypothesis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Accounting Information System (AIS) -> SME's non-financial performance (SNFP)	0.754	0.756	0.023	32.338	0.00

Source-Computed using bootstrapping of SMART-PLS 4

A statistically significant positive relationship is observed between the implementation of an accounting information system (AIS) and non-financial performance of SMEs, as demonstrated by a p-value of less than 0.05. This finding supports the hypothesis that an AIS positively influences non-financial aspects of organizational performance, such as operational efficiency, customer satisfaction, management productivity and sustainability.

6.7 Conclusion and Discussion

The study has examined the impact of AIS's dimensions (Information quality, service quality, and system quality) on the planning, controlling, and coordinating activities of the SME sector. The effectiveness of AIS was assessed by considering the three dimensions (IQ, SEQ, SYQ) described in the D&M-ISS model(Delone & Mclean, 2003; Paula Monteiro et al., 2022; Saad, 2023). This present research evaluates the impact of AIS on PCC on as suggested by (Al-Hattami et al., 2022a; Al-Hattami & Kabra, 2024; Jawabreh & Alrabei, 2012). After conducting a thorough analysis of the existing literature, we developed Hypothesis (Ha4), Which states that "AIS has a positive statistically significant influence on the planning, controlling and coordinating activities of SMEs".

In order to carry out this research, we first formulated a hypothesis and identified latent components for AIS (Accounting Information Systems) and PCC (Planning, Controlling, and Coordinating activities). Subsequently, we

provided a clear and precise operational description for each of these latent constructs supported by relevant literature. In light of this, we also examined the relationships among LOCs of AIS and PCC. Prior to determining the extent of the associations between the latent variables, we first examined the content and face validity of the study instrument, also conducted the KMO-Bartlett test of sphericity, and examined the common method of variance. The results of these analyses indicated strong validity and reliability of the instrument, as well as a high level of internal consistency among the items. Furthermore, the KMO-Bartlett test confirmed that the data was suitable for factor analysis and supported the robustness of our research methodology.

Structural equation modelling was employed as a statistical methodology for analysing data using SMART-PLS4. The initial step in SEM-PLS involved assessing the measurement model. The measurement model assessment involved the initial validation of lower-order constructs (LOCs) of AIS and PCC through the use of the PLS algorithm. The results computed reliability statistics, which encompass the factor loadings of each item to its corresponding construct, as well as Cronbach's alpha and composite reliability. The study subsequently examined the validity of constructs by employing measures of convergent validity (AVE) and discriminant validity (HTMT) and assessed the presence of collinearity issues through VIF values. Using the latent variable score (LV score), LOCs were converted to higher order constructs HOC (AIS) when they satisfied the threshold criteria. Subsequently, we proceeded to a coefficient of determination R^2 in order to assess the impact of the AIS-independent variable (IDV) on the PCC-dependent variable (DV) by examining the variance. In addition, we evaluated the predictive relevance by utilising Q square and CVPAT. Once all the requirements were met, we proceeded to test the hypothesis of the study using the bootstrapping approach of SMART-PLS 4.

The findings show that the IQ of AIS has a statistically significant association with the variable PCC, as shown in Table 6.17. Similarly, there is a statistically significant association between SEQ and SYQ of AIS with PCC. After converting in higher-order constructs (HOCs) and analysed the results using bootstrapping, we obtained the path coefficient results, which showed that the

p-value was less than 0.05. The findings have evidently proven that AIS has a statistically significant relationship with PCC. The study's findings highlight the importance of accurate and reliable information provided by accounting information systems in driving effective planning, controlling, and coordinating activities. These systems play a crucial role in determining the success of businesses.

A Similar study was conducted by (Al-Hattami et al., 2022a) to assess the impact of AIS on the effectiveness of the planning process in small and medium enterprises (SMEs) in least-developed nations. This study has developed a theoretical model based on the IS success model(Delone & Mclean, 2003). The components of the model were tested using structural equation modelling through Smart PLS on a sample of 325 small and medium-sized enterprises (SMEs). The findings suggest that the success of AIS has a positive impact on PPE (Planning process effectiveness) for SMEs when they prioritize factors such as information quality, system quality, user satisfaction, and usage. The study(Alathamneh, 2020) examined the impact of Accounting Information Systems (AIS) reliability on planning process requirements at Jordanian Commercial Banks. A descriptive analytical approach was used, with 145 questionnaires distributed to executive managers, financial managers, and department heads. The results showed AIS reliability significantly enhances planning process requirements, recommending management to focus on AIS for developing plans and policies. Another Study (Al-Fasfus & Shaqqour, 2018)investigates the role of the AIS in Jordanian commercial banks' planning and control processes, focusing on its inputs and relationship with these processes. The sample consisted of 39 respondents, including three senior management staff members. Statistical procedures were used to analyze the collected data, including mean, standard deviations, repeat distributions, and a sample t-test. The results showed a significant relationship between the AIS and management functions, planning, and control processes. The study recommends increasing the reliability of the AIS in these processes to ensure the integrity of resources and future outlooks.

(Zakaria et al., 2017) evaluates the impact of accounting information systems (AIS) on users' task efficiency in selected Malaysian public sector agencies.

The computerized AIS facilitates data gathering, storage, and dissemination for planning, controlling, coordination, analysis, and decision-making. The findings suggest that the current AIS significantly enhances task efficiency in budgeting, financial reporting, auditing, and financial controlling processes. Information systems enhance organizational coordination by organizing interdependent actions into coherent patterns, resulting in meaningful outcomes. Shifting the allocation of coordination from specific events to systemic issues might lead to a more predetermined and stable kind of coordination but at the expense of interpersonal and flexible coordination(Melin & Axelsson, 2005). (Jarah et al., 2023) investigates the impact of the internal control system (ICS) on the relationship between the accounting information system (AIS) and employee performance (EP) in Jordanian Islamic banks. A sample of 92 respondents, representing a response rate of 70.22%, was selected from 105 branches. The data showed a clear correlation between AIS and EP, with the ICS having a statistically significant impact. It proves that the utilization of AIS (Accounting Information Systems) for the acquisition of information needed by different bank users is widespread. This practice significantly influences decision-making processes and facilitates organizational and administrative cooperation inside banks. On the other hand, in some context (Al-Hattami & Kabra, 2024) presents an opposing perspective, it investigates the influence of AIS success on Management Control (MCE) in Yemen, a less developed country. The data was gathered from a sample of 315 small and medium-sized enterprise (SME) owners and managers utilizing the Smart PLS 3 software. The findings of the study revealed a clear correlation between the success of the AIS and MCE. Specifically, factors such as information quality, system quality, and usage were found to have a positive influence on MCE. Nevertheless, the impact of service quality on MCE was found to be insignificant, and there was no significant relationship between user satisfaction and MCE. This study presents the initial empirical evidence of the success of AIS in Yemen. Overall, but still the data suggests that accounting information systems enhance small and medium-sized businesses' (SMEs) ability to plan, control, and coordinate their operations.

We extended this analysis; furthermore, we explored the impact of AIS on the organizational performance of SMEs. As per existing literature, the Organizational performance of business organizations can be categorized as financial performance and non- financial performance. This present research investigated the impact of the non-financial performance of SMEs (SNFP). Similarly to the previous analysis, this study used structural equation modelling (SEM-PLS) to analyze data using SMART-PLS 4. The initial step involved assessing the measurement model, validating lower-order constructs of AIS and SNFP, and computing reliability statistics. The study then assessed construct validity, collinearity issues, and the impact of the AIS-independent variable on the SNFP-dependent variable. Predictive relevance was evaluated using Q square and CVPAT. The hypothesis was tested using the bootstrapping approach of SMART-PLS 4.

AIS has a positive statistically significant impact on Organizational performance of SMEs and was made to assess the impact of AIS on SMEs non- financial performance. The findings have shown that an AIS has a statistically significant association with the variable SNFP, as shown in Table 6.18. We analysed the results using bootstrapping, and we obtained the path coefficient results, which showed that the p-value was less than 0.05. The findings have evidently proven that AIS has a statistically significant relationship with SNFP. It indicates that accounting information systems have a considerable impact on the non-financial performance of small and medium-sized enterprises (SMEs). A study(Saad, 2023) conducted to investigate the evaluate AIS using De Lone and Mc Lean's information system model among Sudanese banks. Data from 103 AIS users was collected through a survey questionnaire. Results showed significant effects of system and information quality on system usage but not service quality. AIS use significantly affects business performance. (Khan, 2022) examines the impact of accounting information systems (AIS) on the performance of Small and Medium-sized Enterprises (SMEs) in Pakistan. The research uses questionnaires and statistical analysis to gather data from SMEs across various sectors. The findings indicate that AIS implementation positively impacts SMEs' performance in areas such as quality improvement, cost-cutting, and

management productivity. This research (Budiarto & Prabowo, 2019)investigates the impact of accounting information systems (AIS) alignment on non-financial performance in small and medium enterprises (SMEs), focusing on indigenous and non-indigenous ethnics. Data was collected from 87 small firm owners through a mail questionnaire survey. Results showed a positive effect of AIS alignment on SMEs' non-financial performance, with no significant difference between indigenous and non-indigenous groups. A similar study (Budiarto & Prabowo, 2019)examines the impact of AIS alignment on the non-financial performance of 87 SMEs in the Yogyakarta region using questionnaires. Results indicate that sophisticated AIS and owner commitment significantly influence non-financial performance. A study (Sunarta & Astuti, 2023) evaluates the mediating role of accounting information quality in the relationship between accounting information system quality and organizational performance in rural banks in Bali-Indonesia. The results show that both system quality and information quality significantly positively impact organizational performance, with accounting information quality partially mediating the effect of system quality. The study(Ironkwe & Nwaiwu, 2018) found a significant positive correlation between AIS and corporate performance measurements, indicating that good AIS can provide a competitive advantage through informed decision-making and control, ultimately improving corporate performance.

Ultimately, the findings and results indicate that the accounting information system of small and medium enterprises plays a crucial role in their planning, controlling, and coordinating activities. AIS provides valuable data to help organizations plan their future course of action to achieve their objectives. It also helps in addressing any discrepancies or deviations that may arise. AIS improves coordination among departments by providing information based on their specific business needs. In addition, we expanded our analysis to include an examination of the influence of AIS on the performance of small and medium-sized enterprises. There are two main categories to consider when evaluating organizational performance: financial performance and non-financial performance. Numerous studies have been conducted to measure financial performance, but there is a scarcity of research on measuring the

impact on non-financial performance. This present research aims to explore the effects of non-financial performance on small and medium-sized enterprises (SMEs). Research has demonstrated that AIS has a substantial influence on the non-financial performance of SMEs. Non-financial performance encompasses a range of indicators, including customer satisfaction, quality improvement, effective management, responsiveness, productivity, and sustainability. These indicators are crucial for organizational performance.

6.8 Overall Testing of Conceptual Model

In order to ensure the reliability and precision of the proposed or conceptual model of the study, thorough testing was carried out using SMART PLS4, a reliable tool for Partial Least Squares Structural Equation Modelling (PLS-SEM). The model went through extensive testing using SMART PLS4, which allowed for the evaluation of both the measurement and structural models, ensuring the reliability and validity of the constructs. A series of statistical tests, including the Stone-Geisser Q^2 test for predictive relevance, were utilized in SMART PLS4 to evaluate the model's performance and predictive power. A cross-validation was conducted using a CV-PAT approach in SMART PLS4. Performance metrics like the Standardized Root Mean Square Residual (SRMR), and the R^2 values were calculated using SMART PLS4 to quantitatively assess the model's accuracy and explanatory power. The results from the SMART PLS4 testing phase demonstrated a strong level of precision, with the performance metrics consistently meeting the desired criteria. This confirms the effectiveness of the model in accurately predicting the desired outcomes.

The study also used SMART PLS4 to validate inner model relationships using bootstrapping. 5,000 bootstrap samples were generated to calculate standard errors, t-values, and confidence intervals for path coefficients. This rigorous approach provided robust insights into the significance and strength of latent construct relationships. The bootstrapping run confirmed hypothesized relationships, demonstrating statistically significant path coefficients that support the theoretical framework. This additional layer of analysis ensures the model's reliability and validity.

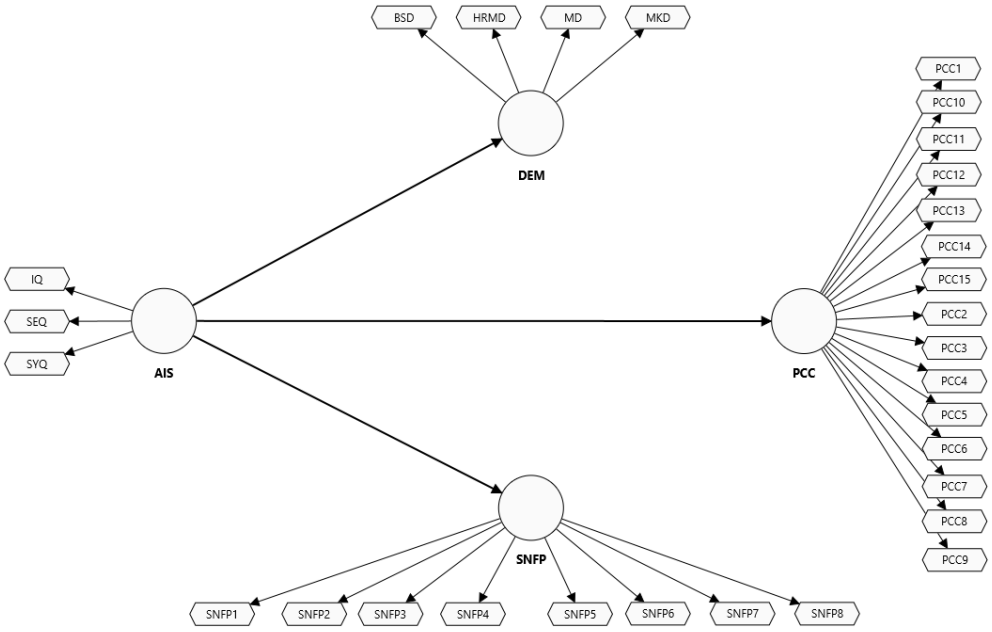


Figure 6.5- Researcher's Own construction- Conceptual Model of the study

Relevance & Significance of Path Coefficients – Hypothesis Testing

Table 6.19: Testing Hypothetical relationships among variables

	Original sample (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**
AIS -> Decision Making	0.817	0.814	0.029	28.567	0.00
AIS -> PCC	0.776	0.773	0.037	20.687	0.01
AIS -> SNFP	0.84	0.838	0.023	36.567	0.00

Source- Computed using bootstrapping of SMART-PLS4

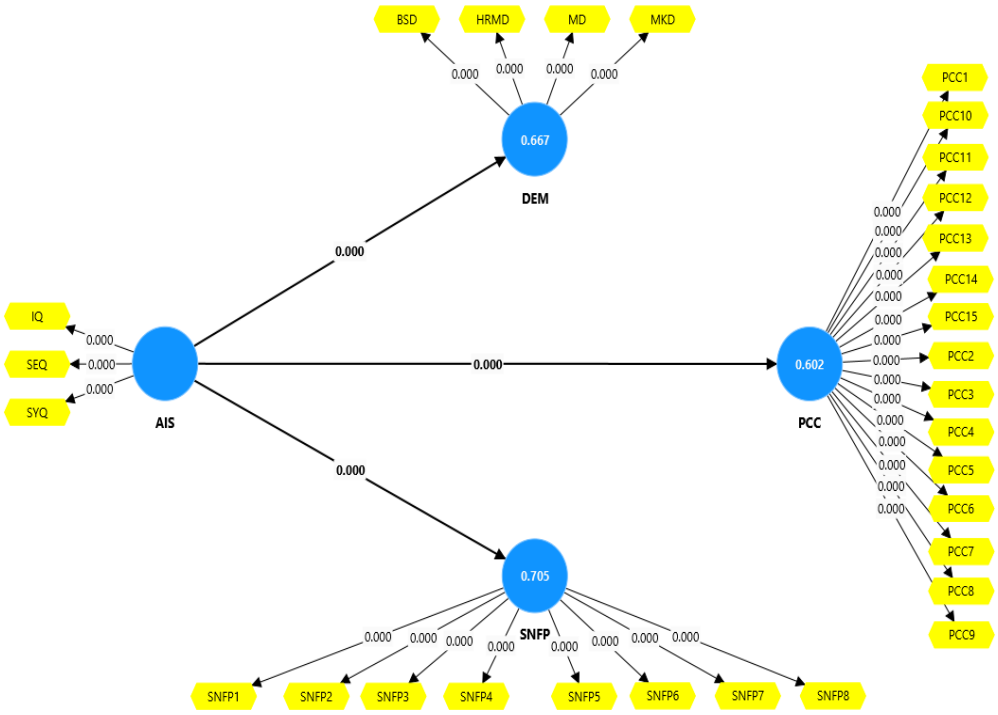


Figure 6.6- Graphical output of bootstrapping results using SMART-PLS4

Discussion

An analysis of the relationships between Accounting Information Systems (AIS) and three outcome variables—Decision Making, Planning, Controlling, and Coordinating (PCC), and Small and Medium-sized Enterprises' (SMEs) Non-Financial Performance (SNFP)—provides valuable insights. The path coefficient (**β**)of 0.817 for AIS and Decision Making, along with a sample mean of 0.814, a standard deviation **(SD)** of 0.029, a **t**-statistic of 28.567, and a **p**-value of 0.00, demonstrates a strong positive correlation. This suggests that AIS significantly improves decision-making processes in businesses. The relationship between AIS and PCC is confirmed to be significant and positive for SMEs. This is indicated by a path coefficient(**β**) of 0.776, a sample mean of 0.773, a standard deviation **(SD)** of 0.037, a **t**-statistic of 20.687, and a **p**-value of 0.01. The relationship between AIS and SNFP is highly positive, as indicated by a path coefficient(**β**) of 0.84. The sample mean of 0.838 and standard deviation **(SD)** of 0.023 further support this strong correlation. The **t**-statistic of 36.567 and **p**-value of 0.00 confirm that AIS significantly improves satisfaction with non-financial performance. In summary, our results confirm the hypothesis that AIS has a positive impact on decision making, PCC (Planning, Controlling, and Coordinating), and SNFP (SMEs

Non-Financial Performance). This highlights the impact of AIS in enhancing several organizational outcomes. AIS is crucial for strategic planning, operational efficiency, and resource allocation in SMEs, leading to improved operational management and overall performance.

Assessment of Predictive Relevance- Q^2

The structural model assessment uses R2 values for predictive accuracy and relevance within a sample. In contrast, the predictive relevance (Q^2) measure indicates the model's ability to make accurate predictions outside of the sample data. Positive values of Q^2 suggest that the exogenous constructs have predictive relevance for the endogenous construct being studied(Al-Emran et al., 2019). (Hair et al., 2019; Tehseen et al., 2019) reported that when Q^2 was more significant than 0, the model demonstrated predictive relevance, and Values above 0, 0.25, and 0.50 indicate different levels of predictive accuracy for the PLS path model, ranging from small, medium and large.

At last, we assessed the model's predictive relevance by utilising the Stone Geisser (Q^2) method (Geisser, 1974; Stone, 1974) through PLS predict technique in SMART PLS 4.0 software. In this investigation, we found that Q^2 had a value of Decision-making 0669, 0.602 (PCC), and 0.707 (SNFP), as shown in Table 6.20, all of which are greater than zero. The values of Q^2 come up within the range of 0.5 to 0.6, indicating a significant level of predictive relevance. Thus, this current research has validated the predictive significance.

Table 6.20-Predictive relevance within the sample

Measures Name	**Q^2predict**
Decision Making	0.669
PCC	0.602
SNFP	0.707

Source- Predictive relevance with in sample calculated through PLS-predict SMART-PLS 4

CV-PAT

It is a cross-validated predictive ability test that is created to perform a pairwise comparison between two theoretically derived models to assess their predictive capabilities for all the dependent latent variables at once. CVPAT was first introduced by (Liengaard et al., 2021) for the purpose of comparing prediction-oriented models in PLS-SEM. (P. N. Sharma et al., 2023) expanded the use of the CVPAT to assess the prediction capabilities of the model. The test compares a model's predictive accuracy with naïve indicator averages and a linear model benchmark using an inferential test(Cheah et al., 2024).

The CVPAT evaluates if PLS-SEM's average loss is significantly lower than benchmarks, ensuring a difference below zero (p-value < 0.05) to support the model's higher predictive capabilities. We tested the CVPAT method in this study, and the results are shown in table 6.21 and 6.22**.** In Table 6.21, which displays the CVPAT results report, the PLS-SEM model exhibits significantly better results compared to the Indicator Average model, as evidenced by the statistically significant t value and the negative average loss difference. This implies that the PLS-SEM model exhibits a far better data fit than the basic indicator average (IA). In comparison to Table 6.22, the PLS-SEM model demonstrates superior performance compared to the Linear Model (LM). Despite a positive average loss difference, the t & p-value indicates that the difference is statistically significant, suggesting that the PLS-SEM model offers superior predictive accuracy compared to the Linear Model. In conclusion, the comparisons clearly demonstrate that the PLS-SEM model outperforms both the Indicator Average (IA) and Linear Model (LM) benchmarks in terms of predictive accuracy. This is evident from the significant t values and p values, as shown in table 6.21 and 6.22.

Table 6.21- CVPAT results of indicator average (IA) of PLS predict/CVPAT

	PLS loss	IA loss	Average loss difference	t value	p-value
Decision Making	0.433	1.006	-0.573	5.551	0
PCC	0.716	1.196	-0.48	5.268	0
SNFP	0.513	0.976	-0.463	5.868	0
Overall	0.614	1.102	-0.489	5.587	0

Source- CV-PAT LV SUMMARY-PLS SEM VS, Indicator Average (IA) using SMART-PLS 4

Table 6.22- CVPAT results of linear Model (LM) of PLS predict/CVPAT

	PLS loss	LM loss	Average loss difference	t value	p-value
Decision Making	0.433	0.424	0.009	4.5	0.02
PCC	0.716	0.713	0.002	4	0.01
SNFP	0.513	0.483	0.029	4.511	0
Overall	0.614	0.604	0.01	4.061	0

Source- CV-PAT LV SUMMARY-PLS SEM VS, Linear Model (LM) using SMART- PLS 4

Model fitness (SRMR)

Smart PLS 4 offers measures to evaluate model goodness-of-fit, including the Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), unweighted least squares discrepancy (d_ULS), and geodesic discrepancy (d_G)(Cheah et al., 2024). These metrics measure the difference between observed and model-implied correlation matrices, with values less than 0.08 indicating a good fit. To evaluate these measures, researchers need to run a bootstrapping procedure and check if more than 5% of bootstrap samples have higher discrepancy values than the original model.

Table 6.23- Model Fit of Model

	Saturated model	Estimated model
SRMR	0.065	0.065
d_ULS	0.729	0.729
d_G	0.265	0.265
Chi-square	618.953	618.953
NFI	0.812	0.812

Source- Computed through PLS- Algorithm of SMART -PLS 4

In addition, the study also includes the model fit test. The results of the test show in table 6.23 that the Standardized Root Mean Square (SRMR) value is 0.065, which is below the threshold of 0.10 or 0.08(Hair et al., 2013). This illustrates that the model is a good fit. The SRMR values should be equal to or less than 0.08 in order to evaluate the model's approximate fit (Henseler et al., 2015b).

Conclusion

This study examines the impact of Accounting Information Systems (AIS) on decision-making, non-financial performance, and planning, controlling, and coordinating activities. The results show a strong positive correlation between AIS and decision-making processes, indicating that AIS significantly improves these processes. The relationship between AIS and planning, controlling, and coordinating (PCC) is also significant and positive for SMEs, with a path coefficient of 0.817. The relationship between AIS and satisfaction with non-financial performance is highly positive, with a path coefficient of 0.84. The study also assesses the model's predictive relevance using the Stone Geisser (Q2) method, which found that the model had values greater than zero for decision-making, planning, controlling, and coordinating. The CVPAT method showed that the PLS-SEM model outperforms both the Indicator Average (IA) and Linear Model (LM) benchmarks in terms of predictive accuracy. The study also includes a model fit test, with a Standardized Root Mean Square

(SRMR) value of 0.065, which is below the threshold of 0.10 or 0.08, indicating a good fit.

In conclusion, the study confirms the hypothesis that AIS has a positive impact on decision-making, planning, controlling, and coordinating activities, leading to improved operational management and non-financial performance in SMEs.

CHAPTER-7

CHALLENGES IN IMPLEMENTATION OF ACCOUNTING INFORMATION SYSTEMS IN SMALL AND MEDIUM ENTERPRISES

7.1 Introduction

This chapter explores the challenges in the implementation of AIS in SMEs. While AIS is increasingly recognized for Its potential to improve business efficiency, decision-making, and overall performance, SMEs often face obstacles that hinder successful Implementation. Despite the recognized benefits of AIS, the implementation process is fraught with challenges that are particularly pronounced in the context of SMEs. The research identifies significant barriers that hinder the successful implementation of AIS, thereby highlighting a critical area for further exploration. As the accounting profession continues to evolve, especially in developing countries, addressing these implementation challenges is essential for leveraging the full potential of AIS. This study not only sheds light on the current state of AIS implementation in SMEs but also aims to contribute valuable insights that could inform future strategies for improving the Implementation.

When Small and Medium Enterprises (SMEs) attempt to integrate Accounting Information Systems (AIS) into their business operations, they must address several key challenges. Through an extensive review of the literature, three main constructs have been identified as the primary challenges faced by business organizations in this context. To analyse these factors within the scope of this study, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) will be applied, providing a robust framework for understanding the impact of these challenges on AIS implementation.

This chapter provides a comprehensive analysis of the data using three main sections. The first section presents the results of the Kaiser-Meyer-Olkin (KMO) test and Bartlett’s Test of Sphericity, which assess the data's adequacy for factor analysis. These tests determine the suitability of the

constructs for further analysis by evaluating sampling adequacy and correlation among variables. The second section focuses on the application of Factor Analysis, divided into Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The EFA process involves identifying common factors and identifying the underlying structure of the data using the principal component analysis (PCA) method and the varimax rotation method. The Confirmatory Factor Analysis (CFA) is performed using the AMOS software to validate the factor structure identified in the EFA by examining the model's fit with the observed data. Key model fit indices, such as chi-square, degrees of freedom, and probability values, are used to assess the model's validity and reliability. The third section addresses reliability statistics, such as Cronbach's alpha, to evaluate the internal consistency of the factors and ensure their appropriateness for further analysis and interpretation.

7.2 Operational Definition

Table 7.1 Operational Definitions of Variables used in the study

Lower Order Construct	Operational Definition	Sources
Lack of Efficiency-**LOE**	**Lack of efficiency** refers to the difficulties faced by users in implementing and operating accounting information systems in business organizations. These issues can lead to delays in reporting and inaccuracies in financial data. The complexity of the software interface, especially for inexperienced users, can also hinder accurate data entry and reporting.	(Almalki et al., 2017; Aziz et al., 2022; Kiwango & Omar, 2021; Oyewo et al., 2023; Rahman et al., 2015)
Insufficient Accounting Skills-**IAS**	**Inadequate accounting skills** among personnel in the use of the AIS may result in misleading financial analyses,	

	incorrect reporting, and impaired decision-making. The deficiency in skills may lead to errors in data entry and misinterpretation of financial information, consequently impacting the reliability of financial reports and the quality of decisions derived from this information.	
Inadequate Training-**INT**	**Inadequate training** within an organization severely hinders the effective utilization of the AIS. The lack of comprehensive training programs results in a workforce that lacks the necessary skills and knowledge, leading to increased errors, reduced accuracy in financial reporting, and inefficiencies in accounting processes. Consequently, this undermines the organization's decision-making capabilities, internal controls, and overall performance,	

Source- Operational Definitions of Variables from literature review of existing studies

7.3 Content and Face Validity of Research instrument

Content validity furnishes evidence regarding the extent to which the items of an evaluation tool are pertinent and representative of the intended latent construct for the specific purpose of assessment(Almanasreh et al., 2019). Lawshe's approach(Aithal & Aithal, 2020; Kailay, 2023; Lawshe, 1975; N. Patel & Desai, 2020; Taherdoost, 2016), known as the Content Validity Ratio (CVR), is a method used to evaluate the validity of content in this study, involving a group of experts assessing the relevance of each item in an instrument. In this study, the questionnaire was evaluated by a panel of 10 experts, both academics and industry professionals. According to (Almanasreh et al., 2019; Karimian & Masoudi, 2024), CVR values of

more than 0.62 statements were accepted for this study, and the content validity index (CVI) is calculated for the complete instrument after recognising items for inclusion. CVI is the average of the retained items' CVR values(Gilbert & Prion, 2016). According to (Karimian & Masoudi, 2024; N. Patel & Desai, 2020), a CVI above 0.80 is considered favourable. In our study, the CVI is 0.81, which meets this threshold. It ensures the validity of the content of the questionnaire.

7.4 Factor Analysis

Factor analysis is a statistical method used to explore the challenges SMEs face in the implementation of AIS. Factor analysis is a crucial statistical method used in research to simplify complex data sets by identifying and eliminating redundant variables(Williams et al., 2010a). This process involves grouping related variables to uncover latent structures driving observed correlations. Two primary techniques are Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), each serving distinct purposes in the research process(Shrestha, 2021). EFA is used during the initial stages of research to discover the underlying structure of variables without preconceived notions about the number or nature of the factors(Iskamto et al., 2020). It aims to explore how variables group together and identify latent constructs that account for observed correlation patterns. This technique is particularly valuable when researchers seek to understand the dimensionality of the data and identify significant factors. CFA is used to test and validate the factor structure identified through EFA or based on theoretical models. It involves specifying a pre-determined model of factor structure and evaluating its fit with empirical data(Ul Hadia et al., 2016). This method assesses whether the data supports the hypothesized relationships between latent factors and their observed indicators. Both EFA and CFA provide a comprehensive approach to factor analysis, enhancing the reliability and validity of research findings and providing a deeper understanding of the underlying constructs and their relationships within the data set.

Exploratory Factor Analysis (EFA) is a statistical method used to identify latent factors in large samples. It is more exploratory than Confirmatory

Factor Analysis (CFA), which focuses on confirming the fit of a model to the data using statistical methods like Structural Equation Modelling (SEM) or a Measurement Model. EFA helps determine the factor structure or model, explaining the maximum variance, while CFA validates the number of factors and analyses which items load onto each factor(Marsh et al., 2014). In this study, EFA was applied to identify factors, followed by CFA validation. The factor analysis was conducted using the principal component extraction method with varimax rotation.

7.4.1 Kaiser's Measure of Sampling Adequacy and Bartlett's test of sphericity

The KMO test is a statistical method used to evaluate the suitability of data for factor analysis. It measures the sufficiency of each construct in the model and the whole model(Nguyen Thi Phuong Thao, 2022). A KMO value between 0.8 to 1.0 indicates adequate sampling, 0.7 to 0.79 indicates mediocre sampling and a value below 0.6 indicates inadequate sampling and requires serious action. Bartlett's test of sphericity assesses the substantial correlation among variables, with a highly significant result typically ($p < 0.001$) indicating a significant correlation. A value below 0.05 indicates the factor analysis is relevant for the dataset. Table (40) shows a KMO value of more than 0.5, and Barlett's test indicates a significant correlation with a value below 0.05, indicating adequate data for factor analysis. Thus, the KMO measure and Bartlett's Test of Sphericity play vital roles in validating the appropriateness of data for factor analysis. Their ability to assess sample size adequacy and the significance of correlations among variables is essential for researchers seeking reliable and interpretable results. Favourable outcomes from both tests are critical for the success of factor analysis projects, underscoring their importance in the research process.

Table 7.2-Kaiser–Meyer–Olkin (KMO) and Barlette test of Variables

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.781
Bartlett's Test of Sphericity	Approx. Chi-Square	4267.692
	df	105
	Sig.	.000

Source- Computed with SPSS 27

7.4.2 Exploratory Factor Analysis:

Exploratory Factor Analysis (EFA) is a statistical technique used to identify and understand the underlying relationships among observed variables. It is particularly useful in early research stages when researchers lack a specific hypothesis about the data's structure. EFA helps uncover latent constructs that influence observed variables, making it a vital tool in fields such as psychology, education, and social sciences(Reio & Shuck, 2015). The primary purpose of EFA is to reduce the dimensionality of data by identifying a smaller number of factors that can explain observed correlations among variables. This simplification allows researchers to focus on the most significant underlying constructs, facilitating easier interpretation and analysis(Reio & Shuck, 2015). Key objectives of EFA include identifying unobservable factors that influence observed data, data reduction, and instrument development. The process of conducting EFA involves data collection through surveys or experiments assessing the sample's suitability using tests like the Kaiser-Meyer-Olkin (KMO) measure and Bartlett’s Test of Sphericity(Marsh et al., 2014). Factor extraction is performed using methods like Principal Component Analysis (PCA) or Principal Axis Factoring (PAF), determining the number of factors, applying rotation methods to achieve a simpler and more

interpretable factor structure, interpreting results, computing factor scores, and reporting findings.

EFA is widely used in various fields, including psychology for developing and validating psychological assessments and scales measuring latent constructs, education for refining instruments measuring constructs like student engagement or learning outcomes, and market research for identifying consumer preferences and behaviours(Govindasamy et al., 2024; Omura et al., 2022). Thus, EFA is a powerful technique for identifying latent constructs and reducing dimensionality, making it an essential tool for researchers aiming to validate and refine their measurement approaches.

7.4.3 EFA Extraction

Factor extraction is a fundamental step in Exploratory Factor Analysis that allows researchers to identify and interpret the underlying structure of their data. Through the selection of an appropriate extraction method and carefully determining the number of factors to retain, researchers can effectively uncover latent constructs and simplify complex datasets(Kline, 2013). This process not only aids in data interpretation but also enhances the reliability of subsequent analyses, such as Confirmatory Factor Analysis (CFA) or further statistical modelling. Exploratory factor analysis (EFA) consolidates variables that have high factor loadings into distinct latent factors. Factor loadings represent the correlation coefficient between individual variables and their corresponding common factors (Loewen & Gonulal, 2015; Reio & Shuck, 2015).

The analysis was performed using the principal component factor analysis extraction method. Principal Component Analysis (PCA) is a statistical method used for data reduction, transforming original variables into uncorrelated principal components that capture maximum variance. It includes both common and unique variance, potentially inflating factor loadings(Widaman & Helm, 2023). Table 7.3 presents the total variance derived from the factor analysis, including the components, initial eigenvalues, extraction suns of squared loadings, and rotated sums of squared loadings. The percentage of variance column indicates the

proportion of the total variance explained by each component expressed as a percentage. The Cumulative % column shows the cumulative percentage of variance explained by the first n components(Mvududu & Sink, 2013). The Cumulative % column effectively illustrates the total variance explained by the factors/components as they are added sequentially, providing a clear understanding of the contribution of each factor to the overall variance in the data.

For instance, the cumulative percentage for the second component is the sum of the percentages of variance accounted for by both the first and second components (Abdi & Williams, 2010; Kline, 2013). In table 7.3, three latent factors were extracted, which showed a total variance of 69.246%. The latent factors with eigen value greater than 1 were extracted through exploratory factor analysis. The exploratory factor analysis successfully identified significant latent factors that account for approximately 69.25% of the total variance in the dataset. Adhering to the criterion of retaining factors with eigenvalues greater than 1, the analysis ensured that only those factors with substantial explanatory power were considered(Gaskin & Happell, 2014; Williams et al., 2010b). This methodological rigor enhances the reliability and interpretability of the findings, enabling researchers to derive meaningful insights into the underlying constructs influencing the observed variables.

Table 7.3- EFA factors extracted

Total Variance Explained									
Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	4.276	28.509	28.509	4.276	28.509	28.509	4.052	27.012	27.012
2	3.413	22.756	51.265	3.413	22.756	51.265	3.605	24.034	51.046
3	2.697	17.981	69.246	2.697	17.981	69.246	2.730	18.199	69.246

4	.869	5.790	75.036						
5	.599	3.995	79.031						
6	.558	3.723	82.754						
7	.540	3.598	86.352						
8	.425	2.833	89.185						
9	.370	2.465	91.651						
10	.336	2.242	93.892						
11	.305	2.033	95.925						
12	.213	1.422	97.347						
13	.204	1.357	98.704						
14	.130	.869	99.573						
15	.064	.427	100.000						
Extraction Method: Principal Component Analysis.									

Source-Computed through SPSS 27

Exploratory Factor Analysis (EFA) uses factor loadings from the rotated component matrix to interpret relationships between observed variables and identified factors(Gaskin & Happell, 2014). The rotated component matrix is a table that shows the factor loadings of each variable on the extracted factors after rotation. It is crucial in EFA as it maximizes high loadings and minimizes low loadings, allowing researchers to categorize and label factors based on the items that load highly on them. The rotated component matrix was utilized to categorize the items. Researchers identify three significant factors and apply a 0.50 threshold to ensure only relevant items are associated with each construct. Items with less than 0.50 are omitted, improving the clarity and interpretability of results(Abdi & Williams, 2010; Williams et al., 2010b). Based on the factor analysis results, the variables were grouped into three dimensions. The table presents the three extracted latent factors along with

their respective factor loadings after the rotation of the correlation matrix. Each extracted common factor was labeled to reflect its shared and potential characteristics for easier comprehension.

Table 7.4- Component matrix table of extracted factors

Component Matrix[a]			
	Component		
	1	2	3
LOE1			.799
LOE2			.753
LOE3			.829
LOE4			.827
IAS1	.746		
IAS2	.756		
IAS3	.736		
IAS4	.650		
IAS5	.739		
IAS6	.756		
INT1		.758	
INT2		.717	
INT3		.761	
INT4		.637	
INT5		.756	
Extraction Method: Principal Component Analysis.			
a. 3 components extracted.			

Source- Obtained from SPSS 27

7.4.4 Explanation of Factors

Factor-1 (LOE) Lack of Efficiency: Factor 1 accounted for a total of 28.50 % of the total variance, as shown in table 7.3 with four items i.e. Incorrect data entry by the user can cause a misrepresentation (LOE1), Lack of Understanding about AIS may lead to erroneous financial data (LOE2), The individual found it challenging to execute manual accounting tasks in accounting software (LOE3), Untrained staff cannot use the input interface to easily record data (LOE4). All these items indicate that if users of information system are inefficient, it is a challenge in the implementation of AIS, hence stated as "Lack of efficiency".

Factor-2 (IAS) Insufficient accounting skills: Factor 2 accounted for a total 22.75% of the total variance as shown in table 7.3 with six items i.e., Users with poor accounting knowledge may struggle to understand and utilize AIS (IAS1), not having appropriate knowledge of accounting principles and practices (IAS2), insufficient time for employees to learn and adapt to new systems(IAS3), Inadequate accounting skills can lead to errors in data entry and misallocation of financial information(IAS4), New users of AIS may inadvertently produce inaccurate financial reports(IAS5), Inaccurate data entry poses a significant risk of financial data loss(IAS6). All these items illustrate that if users do not have appropriate accounting skills and knowledge, it would be a challenge to successfully implement AIS. Hence, it is named "Insufficient accounting skills".

Factor-3 (INT) Inadequate Training: Factor 3 accounted for a total of 17.98% of the total variance as shown in table 7.3 with five items i.e. Insufficient software training and assistance hinder staff use of accounting software (INT1), On-the-job training of AIS might be costly (INT2), Insufficient training can negatively impact employee performance and satisfaction(INT3), Insufficient training can undermine compromise the quality of accounting information and internal controls(INT4), Effective installation of accounting software involves employee training(INT5). All these items indicate that

insufficient training about system usage poses challenges to the implementation of AIS, hence referred to as "inadequate training."

7.5 Reliability of Instruments

The reliability of the internal consistency of the designed instrument is assessed using Cronbach's alpha. This method is employed to assess the reliability and consistency of items within a scale. To accomplish objectives one and two, it is essential to first assess scale validity and ensure that all items are measuring the same construct. This also outlines an individual's responses to all questions. The value may be negative or positive, indicating whether an individual's response is in a positive or negative direction. Cronbach's Alpha is generally considered acceptable when it exceeds 0.7(Taber, 2018). A total number of three factors and their estimated Cronbach alpha values are Lack of efficiency (LOE) estimated Cronbach's Alpha (.890), Insufficient accounting skills (IAS) estimated Cronbach's Alpha (.878), and Inadequate training (INT) estimated Cronbach's Alpha (.836).

7.6 Confirmatory Factor analysis

The study used Exploratory Factor Analysis (EFA) to identify the relationships between variables. Confirmatory Factor Analysis (CFA) is then used to validate the factors identified through EFA. CFA is crucial for validating the measurement scale and confirming the construct's validity(Widaman & Helm, 2023). It assesses both structural or factorial validity and the interrelationships between constructs and their sub-constructs, facilitating the estimation of scale reliability(Kline, 2013). The study also tested the model fit using Amos software version 26.0 Graphics, evaluating the structural model related to the challenges of AIS implementation. The model fit evaluates the alignment of the proposed structural model with the collected data. AMOS (Analysis of Moment Structures) is a crucial tool in Confirmatory Factor Analysis (CFA) due to its specialized capabilities in structural equation modelling (SEM)(Shek & Yu, 2014). It offers a user-friendly interface, allowing researchers to visually construct their models, simplifying the process of specifying relationships between

observed and latent variables. AMOS is designed for CFA, allowing researchers to specify a measurement model based on theoretical foundations or prior exploratory analysis. It can handle complex calculations for estimating factor loadings, variances, and covariances, which is essential for validating the measurement model. After running CFA in AMOS, researchers can evaluate model fit using indices like Chi-square, RMSEA, and CFI. AMOS integrates seamlessly with SPSS, allowing for efficient data management and analysis. This makes it an invaluable resource in various research fields, including psychology, education, and market research(Gunduz et al., 2024). Through the application of Confirmatory Factor Analysis (CFA) using AMOS, we identified three distinct factors in our analysis. Confirmatory Factor Analysis (CFA) provides clear and systematic instructions. This represents a particular application of Structural Equation Modelling (SEM).

This analysis uses Structural Equation Modelling (SEM) within Confirmatory Factor Analysis (CFA) to validate a measurement model. The evaluation of individual parameters is crucial for assessing the overall model fit. Three essential criteria guide the interpretation of results and validation of the proposed model structure(Orcan, 2018; Sarmento & Costa, 2019). First, the correct sign and appropriate magnitude of parameter estimates must be assessed. Incorrect signs or inappropriate magnitudes may indicate potential issues in the model specification or a lack of sufficient information in the input matrix. Second, standard errors associated with parameter estimates must be within a reasonable range. Large or small standard errors may indicate model stability issues, while small ones may indicate overfitting or artificially inflated results. Monitoring standard errors is essential to ensure the reliability of parameter estimates and the robustness of the model. Lastly, the statistical significance of parameter estimates is critical in confirming the validity of hypothesized relationships. Statistical significance indicates meaningful associations in the data, and a parameter estimate is considered significant if its p-value is less

than a predefined threshold (often 0.05). The ‘p’ value is significant at the 1% level(Mia et al., 2019; Shek & Yu, 2014).

Four items load onto the factor of lack of efficiency, Six items onto the factor of Insufficient accounting skills, and five items onto inadequate training. The table displays the estimates, critical ratios, standard errors, and probabilities. The critical ratio (C.R.), calculated as the ratio of the estimate to the standard error (S.E.), is considered relevant if it exceeds 1.96. The probability level should be below 0.05. In the table, all the values of S.E. and C.R. were acceptable according to the threshold limits(Gallagher et al., 2008; Prakash et al., 2011). The table shows the correlation between three factors, i.e., factor 1 (Lack of efficiency), factor 2 (Insufficient accounting skills), and factor 3 (Inadequate training), with the interconnection with each other. The table shows the variances and squared multiple correlations for each variable, respectively. The table displays the variable coding after assigning the items to their respective factors: Lack of efficiency (LOE), Insufficient accounting skills (IAS), and inadequate training (INT).

The results of the Confirmatory Factor Analysis (CFA) conducted in this study elucidate significant relationships between latent constructs and their corresponding observed variables. The latent factor LOE (Lack of Efficiency) exhibits significant loadings on its indicators, with values of 1.061 for LOE1, 1.014 for LOE3, and 1.050 for LOE2. The high factor loadings indicate a strong association between these indicators and the latent factor, thereby confirming the validity of LOE as a construct. The standard errors (S.E.) for these estimates are relatively small, suggesting precision in the estimates and a strong model fit. The factor loadings for the latent construct IAS (Insufficient Accounting Skills) are significant, with values of 1.107 for IAS5 and 1.033 for IAS4, demonstrating a strong relationship between the latent factor and the observed variables. The loadings for INT (Inadequate training), specifically 1.041 for INT4 and 1.325 for INT1 demonstrate statistical significance, underscoring the relevance of these variables in

representing the integration construct. The covariance analysis reveals strong and statistically significant relationships between the latent factors of Lack of Efficiency (LOE), Implementation of Accounting Systems (IAS), and Integration (INT). The results show a robust positive association between LOE and IAS, with a covariance estimate of 0.790 ($p < 0.001$), indicating that inefficiencies are closely related to challenges in the implementation of accounting systems. Similarly, LOE and INT are significantly linked, with a covariance estimate of 0.762 ($p < 0.001$), suggesting that inefficiency negatively impacts system integration. Additionally, the relationship between IAS and INT is strong, with a covariance estimate of 0.737 ($p < 0.001$), highlighting that improvements in the implementation of accounting systems are associated with better system integration. The fit indices, indicated by substantial critical ratios (C.R.), demonstrate that the model aligns effectively with the data. The results affirm the reliability and validity of the measurement model, indicating that the constructs LOE, IAS, and INT are effectively represented by their observed variables, and the relationships among them are statistically robust. The findings are essential for comprehending the underlying factors and their influence on the overall model.

Table 7.5 Co-Variances

			Estimate	S.E.	C.R.	P
LOE	**<-->**	**IAS**	.790	.075	10.472	***
LOE	**<-->**	**INT**	.762	.074	10.239	***
IAS	**<-->**	**INT**	.737	.075	9.807	***

Table 7.6 Regression Weights

			Estimate	S.E.	C.R.	P
LOE4	**<---**	**LOE**	1.000			
LOE3	**<---**	**LOE**	1.014	.059	17.052	***
LOE2	**<---**	**LOE**	1.050	.069	13.730	***
LOE1	**<---**	**LOE**	1.061	.072	14.829	***
IAS6	**<---**	**IAS**	1.000			
IAS5	**<---**	**IAS**	1.107	.074	14.935	***
IAS4	**<---**	**IAS**	1.033	.067	15.462	***
IAS3	**<---**	**IAS**	1.141	.072	15.904	***
IAS2	**<---**	**IAS**	1.086	.070	15.470	***
IAS1	**<---**	**IAS**	1.220	.101	12.070	***
INT5	**<---**	**INT**	1.000			
INT4	**<---**	**INT**	1.041	.073	14.330	***
INT3	**<---**	**INT**	.918	.066	13.823	***
INT2	**<---**	**INT**	.916	.064	14.272	***
INT1	**<---**	**INT**	1.325	.102	12.952	***

	Estimate	S.E.	C.R.	P
LOE	.839	.090	9.288	***
IAS	.779	.096	8.142	***
INT	.755	.096	7.893	***
e1	.529	.044	11.965	***
e2	.585	.048	12.192	***
e3	1.545	.106	14.541	***
e4	1.052	.079	13.252	***
e5	.791	.058	13.528	***
e6	.704	.054	13.132	***
e7	.514	.040	12.847	***
e8	.534	.043	12.538	***
e9	.566	.044	12.842	***
e10	1.950	.140	13.935	***
e11	.818	.062	13.305	***
e12	.636	.050	12.775	***
e13	.585	.045	13.067	***
e14	.502	.039	12.812	***
e15	1.596	.119	13.434	***

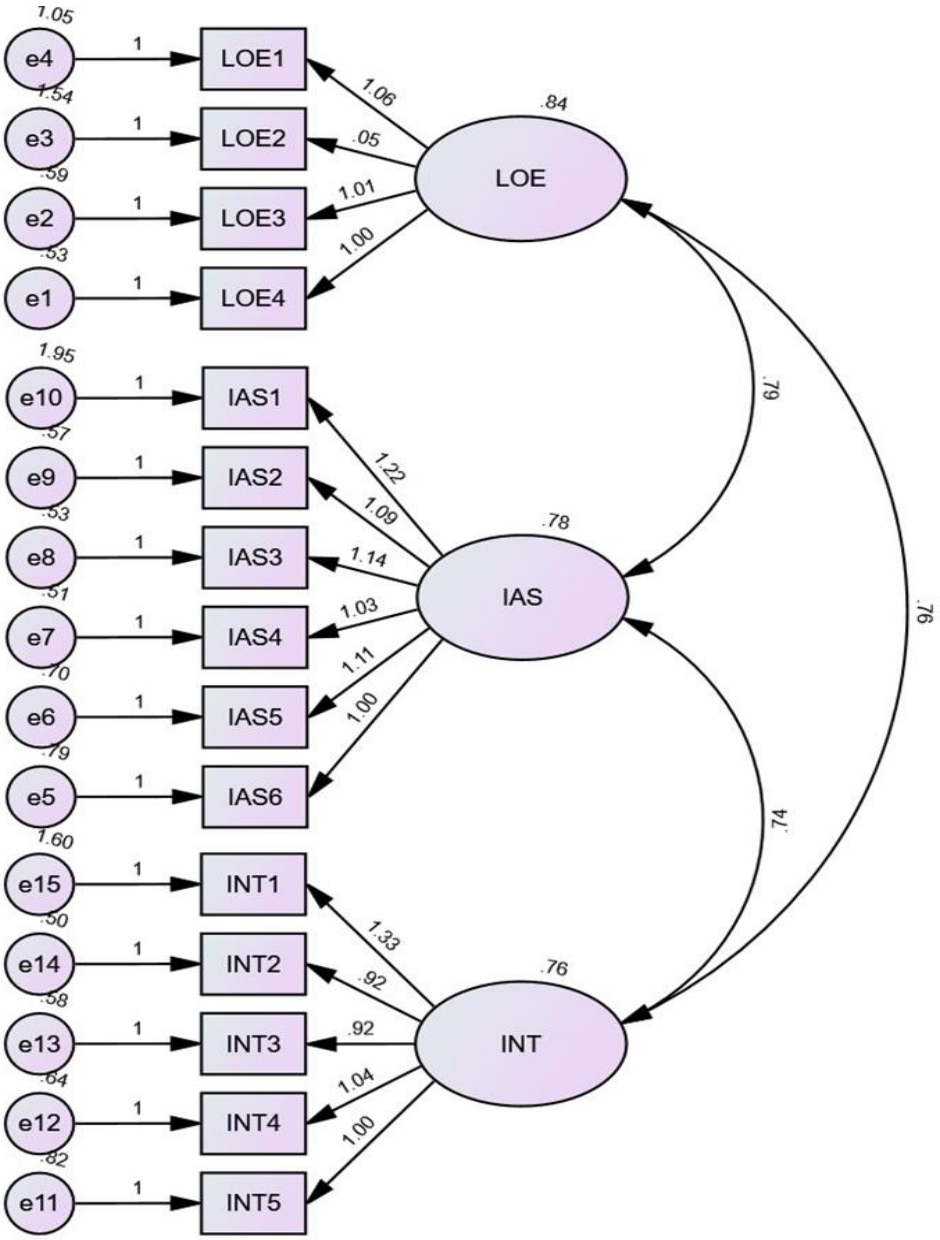


Figure 7.1 -Output of confirmatory factor analysis model using AMOS 26 Graphics

The Confirmatory Factor Analysis (CFA) model in AMOS is evaluated using various indices like Chi-square, Goodness of Fit Index, Adjusted Goodness of Fit Index, Normal Fit Index, Tucker Lewis Index, Comparative Fit Index, Root Mean Square Residual, and Root Mean Square Error of Approximation(Sathyanarayana & Mohanasundaram, 2024; Shek & Yu, 2014). A satisfactory model fit is indicated by CFI, TLI, and NFI values of 0.90 or higher, with values near 1 indicating excellent fit. A reasonable fit is indicated by a value below 0.08.

The Confirmatory Factor Analysis (CFA) model in this study has a robust and acceptable fit to the data, as evidenced by several key fit indices. The Chi-square value is 250.369 with 87 degrees of freedom, indicating a good model fit. The Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI) values are above the commonly accepted threshold of 0.90, confirming the model's adequate representation of the data. The Root Mean Square Error of Approximation (RMSEA) value is within the recommended range of 0.05 to 0.08. The Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) values are above the accepted range of 0.90, indicating a very good fit for the data. The Bentler-Bonett Normed Fit Index (NFI) scored 0.930, and Bollen's Incremental Fit Index (IFI) reached 0.953. These fit indices collectively confirm that the CFA model adequately captures the underlying structure of the data, exhibiting strong convergent validity. The chi-square statistic is significant at the p <.001 level, confirming the model's suitability for the constructs under investigation. The results of the Confirmatory Factor Analysis, as shown in Table 7.7, indicate that all these values fall within acceptable limits, suggesting that the model fits the data well.

Table 7.7 Threshold values of indicators in AMOS 26

Indicators	Values	Threshold Value
Chi-Square Value	250.369	-
DF	87	-
P Value	0.00	<0.05 (M. Sahoo, 2019)
Chi-square value/DF	2.87	<5.00 (M. Sahoo, 2019; J. Sharma et al., 2024)
GFI	0.929	>0.90 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)

AGFI	0.902	>0.90 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)
NFI	0.930	>0.90 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)
TLI	0.943	>0.90 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)
CFI	0.953	>0.90 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)
RMR	0.065	<0.08 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)
RMSEA	0.067	<0.08 (Abdulrazaq & Ahmad, 2024; Ahmad & Zabri, 2016a; Koç & Yavuz, 2022; M. Sahoo, 2019)

7.7 Discussion

The implementation of Accounting Information Systems is essential for the effective functioning of every business organization, as accounting information serves as the language of business. These systems provide both financial and non-financial data essential for decision-making. However, during the implementation of AIS, organizations often face various challenges that hinder their successful integration. Addressing these challenges is critical to ensuring the efficient functioning of these systems. This study undertakes an extensive review of the literature to identify the key challenges associated with the implementation of AIS. Through this review, the most commonly identified obstacles include lack of efficiency, insufficient accounting skills,

and inadequate training. In this objective, we investigate the challenges encountered by small and medium-sized enterprises (SMEs) during AIS implementation. To investigate these challenges further, we first applied Exploratory Factor Analysis (EFA) to assess whether the extracted variables load onto similar factors in the context of the present study. The EFA results, conducted using SPSS, indicated that all items loaded successfully onto their respective factors, and the measured values met the established threshold criteria. Subsequently, we performed Confirmatory Factor Analysis (CFA) using AMOS to validate and confirm the factor structure identified in the EFA. The CFA evaluated key fit indices such as chi-square, p-value, Normed Fit Index (NFI), Goodness-of-Fit Index (GFI), and Tucker-Lewis Index (TLI), all of which supported the validity of the model.

Based on the findings and results of the analysis, it can be concluded that the obstacles that SMEs encounter when attempting to implement Accounting Information Systems include a lack of efficiency, insufficient accounting skills, and appropriate training. It is possible that the Accounting Information System will not be able to produce the outcomes that were anticipated for which it was adopted if the users of the system are not proficient in using it because they do not have the appropriate knowledge of accounting principles and practices, and if their organizations do not provide sufficient training. The effectiveness of the system is severely hindered by these characteristics, which in turn limits its capacity to accomplish the objectives of the company. (Almalki et al., 2017; Aziz et al., 2022; Shaikh et al., 2021) Identifies the significant challenges encountered by Malaysian SMEs in the adoption of accounting software systems, with a particular focus on the detrimental effects of insufficient accounting skills and inadequate training. The findings indicate that improving training programs for personnel in accounting and finance departments is essential for enhancing the implementation process. Investing in the development of accounting skills and knowledge enables SMEs to effectively utilize accounting software systems for measuring business outcomes and enhancing efficiency. These findings align with studies (Arjang et al., 2024; Hossain & Rahman, 2019; Ratnawati, 2023; Serhan, 2020). The successful implementation of information systems in business organizations is

significantly hindered by inadequate training and a lack of accounting skills among employees. Studies across various industries and regions consistently highlight these issues as critical barriers that compromise the effectiveness of accounting information systems. Addressing these challenges through improved training programs and skill development initiatives is essential for enhancing system utilization and overall business performance.

CHAPTER -8

FINDINGS, CONCLUSION AND LIMITATIONS

8.1 Introduction

The main aim of this study is to analyse the factors influencing the adoption of Accounting Information Systems and evaluate their impact on the performance of SMEs. The study examines the impact of AIS on key managerial functions such as decision-making, planning, controlling, and coordinating activities while also assessing its impact on the non-financial performance of SMEs. Furthermore, the study evaluates a full model, highlighting the positive impacts of AIS in improving business operations. It also identifies the challenges that SMEs face during the implementation phase.

The data analysis conducted in Chapters 4, 5, 6, and 7 concentrated on consolidation and compilation of the results. This chapter summarizes the findings based on the identified results and presents the conclusions. This chapter additionally addresses the limitations of the study.

The research utilized a combination of primary and secondary sources. This study has been conducted using a well-designed instrument to obtain useful results and perform a comprehensive analysis. A structured questionnaire was utilized to collect primary data from respondents.

The study has been conducted for the purpose of accomplishing the following objectives: -

- To Analyse the factors that led to adoption of Accounting Information System (AIS) in selected SMEs.
- To Determine the impact of Accounting Information System (AIS) on the decision-making of SMEs.
- To Analyse the influence of Accounting Information System (AIS) on planning, controlling, coordinating activities of selected SMEs.
- To Explore the challenges in implementation of Accounting Information System (AIS) with respect to SMEs.

A sample of 424 respondents, comprising SME owners, managers, and accountants, were selected to achieve the study's research objectives. The

instrument comprises seventy-two statements. The authenticity of the questionnaire was verified through assessments of reliability and internal consistency. All scales and subscales demonstrated internal consistency, as indicated by the results from Cronbach's Alpha. The developed questionnaire has undergone additional testing for reliability and validity via Content Validity Ratio (CVR) and pilot testing. To enhance the response rate, the majority of questionnaires were completed using a hybrid approach, utilizing contact numbers of respondents obtained from the respective District Industries Centres (DIC) of each selected district. A limited number of questionnaires were filled by respondents in hard copy, with assurances that their responses would remain anonymous and that the information would not be disclosed to any third parties.

The conclusion of the research is organized into several sub-sections according to the specified objectives as follows:

8.2 Factors that led to the adoption of Accounting Information System (AIS) in selected SMEs

The first objective of this study is to analyse the factors that contribute to the adoption of AIS in SMEs. To address this objective, a comprehensive literature review was conducted to identify the key factors influencing the adoption of information systems, as highlighted in previous studies. The Technology Acceptance Model (TAM) emerged as the most commonly utilized framework for understanding technology adoption, particularly through its two key variables: perceived ease of use (PEOU) and perceived usefulness (PU). Perceived usefulness (PU) refers to the belief that technology can enhance an organization's performance, while perceived usefulness is an individual's subjective assessment of its functional benefits, and perceived ease of use is the belief that using an accounting information system requires minimal effort. These variables are highly relevant to the current study, as they align with the factors driving AIS adoption in SMEs. A structured questionnaire was developed based on insights from existing literature. The data was collected from respondents and analysed using descriptive statistics with SPSS version 27 to evaluate

the influence of perceived ease of use and perceived usefulness on AIS adoption.

The survey study involving 424 participants reveals a strong positive perception of the Accounting Information System (AIS) in terms of perceived usefulness (PU) and perceived ease of use (PEOU). The average scores for PU range from 4.11 to 4.32, with specific means of 4.11 (SD = 0.926) for genuine information, 4.25 (SD = 0.837) for task efficiency, 4.32 (SD = 0.751) for work autonomy, and 4.31 (SD = 0.785) for work quality. For PEOU, mean values range from 4.11 to 4.25, with scores of 4.25 (SD = 0.851) for skill acquisition, 4.18 (SD = 0.839) for data management, 4.14 (SD = 0.899) for user-friendliness, and an overall mean of 4.11 (SD = 0.945) for ease of use. The consistently high average scores and low standard deviations indicate a robust agreement among participants regarding the AIS's utility and ease of use.

The chapter highlights the significance of perceived usefulness and perceived ease of use as key determinants in the adoption of accounting information systems within the SMEs sector, emphasizing the relevance of the Technology Acceptance Model. These factors have been extensively studied as key drivers of technology adoption. The study adopts a straightforward and clear approach, reducing the complexity of the analysis and enhancing the interpretability of the findings. Preliminary analyses were conducted to ensure the validity and reliability of the study instrument, which was valid and reliable with a high level of internal consistency among the items. The demographic profile of the respondents, including factors such as gender, age group, education qualification, industry experience, and their respective designations, was thoroughly examined. The analysis of the organization profile of SMEs included a detailed examination based on size, type, location, and activities. Furthermore, the study also inquired about the accounting software currently used within the industry. The data was then investigated using SPSS descriptive statistics. The survey results showed a generally positive perception of the Accounting Information System among users, with high mean scores across both perceived usefulness and perceived ease of use

constructs. High percentages of respondents agreed or strongly agreed with these statements of PU and PEOU, indicating that the AIS is both useful and easy to use, which are significant factors for successful technology adoption. The positive feedback on perceived usefulness and perceived ease of use aligns with the Technology Acceptance Model, indicating that these constructs significantly influence users' acceptance and satisfaction with the AIS. The positive feedback on perceived usefulness and perceived ease of use aligns with the Technology Acceptance Model, indicating that these constructs significantly influence users' acceptance and satisfaction with the AIS (Fitrios, 2016; Magboul et al., 2024; Mohammed & Braim, 2022; Qader et al., 2022; Shankar & Kumari, 2019; Wicaksono et al., 2023). These studies emphasize on the important role of perceived usefulness and ease of use in the adoption and effective utilization of accounting information systems across various contexts. The findings consistently indicate that when users recognize the benefits of AIS and find them user-friendly, their likelihood of acceptance and effective use increases significantly. This emphasizes the necessity for designers and executors of information systems to prioritize these factors to enhance user adoption and ensure successful integration within organizations.

The study highlights the crucial roles of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) as key factors affecting the adoption of Accounting Information Systems (AIS) in Small and Medium Enterprises (SMEs). The results support the Technology Acceptance Model (TAM), indicating that small and medium-sized enterprises are more likely to adopt accounting information systems when they view these systems as user-friendly and advantageous for their operational efficiency. The considerable influence of PEOU underscores the importance of user-friendly systems that demand little training, thus minimising resistance to the adoption of technology. At the same time, the significant impact of PU highlights the acknowledgment by SMEs of AIS as an essential resource for boosting organisational performance by fostering greater efficiency and enabling informed decision-making. The Higher average scores for both factors strengthen their importance within the realm of SMEs, especially

those facing limitations in resources and technical expertise. As a result, enhancing user-friendly and beneficial AIS features presents a strategic method to encourage wider adoption among SMEs, consistent with current literature on technology acceptance and diffusion within organisational environments.

8.3 Impact of Accounting Information System on Decision making of SMEs

Effective decision-making is essential for the successful management of both financial and non-financial aspects within an organization. It is an important aspect of organizational management, involving both internal and external stakeholders who rely on accurate and timely information. The Accounting Information System plays a vital role in this process by collecting and processing financial data, transforming it into relevant information that aids in making informed decisions(Baraka, 2023; Qatawneh, 2021; Yusuf, 2018). AIS contributes to the organization's success and effective functioning by enabling managers and external parties to make rational judgments by providing essential financial insights.

The second objective of the study was to determine the impact of AIS on the decision-making of SMEs, after conducting a thorough analysis of the existing literature. Information quality, service quality, and system quality (IQ, SEQ, SYQ) were identified as the three dimensions of AIS. These dimensions were derived from the Delone Mclean model of information systems(Delone & Mclean, 2003; Paula Monteiro et al., 2022; Saad, 2023). The dimensions of decision-making also identified, which include basic strategic decision(BSD), manufacturing decision)(MD), human resource management decision(HRMD), and marketing decision(MKD) as suggested by(Bukunmi et al., 2018; Ullah et al., 2014). This research commenced with the formulation of a hypothesis and the identification of latent components related to Accounting Information Systems (AIS) and Decision-Making (DEM). A comprehensive operational definition for each latent construct was developed and grounded in relevant literature. The study further explored the interrelationships among the latent

variables of AIS and DEM. Prior to assessing the associations between these variables, the research evaluated the content and face validity of the measurement instrument, conducted the KMO-Bartlett test of sphericity, and analysed common method variance. The findings from these analyses demonstrated strong validity and reliability of the instrument, alongside a high level of internal consistency among the items. Additionally, the KMO-Bartlett test affirmed the appropriateness of the data for factor analysis, thereby reinforcing the robustness of our research methodology.

The study used structural equation modelling (SEM) utilizing SMART-PLS4 as a statistical methodology for data analysis. The initial phase involved the assessment of the measurement model, focusing on the validation of lower-order constructs (LOCs) related to Accounting Information Systems (AIS) and Decision-Making (DEM) through the PLS algorithm. Reliability statistics were computed, including factor loadings, Cronbach's alpha, and composite reliability. The validity of the constructs was subsequently examined through convergent validity (Average Variance Extracted, AVE) and discriminant validity (Heterotrait-Monotrait ratio, HTMT), alongside an evaluation of collinearity issues via Variance Inflation Factor (VIF) values. LOCs were transformed into higher-order constructs (HOCs) for AIS and DEM upon meeting established threshold criteria, followed by an analysis of the coefficient of determination (R^2) to assess the influence of the AIS independent variable on the DEM dependent variable. The predictive relevance by utilising Q square and CVPAT as shown in Tables no 5.10 and 5.11

The study highlighted the significant role of Accounting Information Systems in influencing the decision-making processes of Small and Medium Enterprises. With an R^2 value of 0.667, it indicates that AIS accounts for 66.7% of the variability in decision-making, demonstrating a moderate to substantial explanatory power. This suggests that enhancing AIS can lead to improved decision-making outcomes for SMEs, emphasizing the importance of integrating effective accounting systems in organizational strategies.

Once all the requirements were met from the measurement model, we proceeded to test the hypothesis of the study using the bootstrapping approach of SMART-PLS 4 through P values. It validated path coefficients for statistical significance. The analysis revealed a positive impact of accounting information systems (AIS) on decision-making (DEM) and a significant relationship between LOCs (IQ, HRMD, MD, MKD, SEQ, SYQ, and MKD). The path coefficient for Ha3 was below 0.05 (AIS→DEM) - (β=0.817, SD=0.029, t=28.541, $p<0.05$), indicating that AIS has a significant effect on SMEs' decision-making process. Additionally, significant path coefficients were observed between latent constructs (LOCs) of AIS (HOC) and DEM (HOC). The results suggest that AIS has a significant impact on SMEs' decision-making processes. The study concludes that AIS has a significant impact on SMEs' decision-making processes. These findings align with (Al-Okaily et al., 2022; Lutfi et al., 2022; Monteiro et al., 2021; Saad, 2023) and (Ateeq et al., 2024; Hattami et al., 2021; Ullah et al., 2014).

This study supports the significant impact of Accounting Information Systems (AIS) on decision-making processes in small and medium enterprises (SMEs). AIS provides timely and accurate financial data, enabling effective tracking of expenses, revenues, and profits. It also strengthens internal controls and ensures compliance with regulatory requirements, fostering transparency and accountability in financial reporting. AIS streamlines accounting processes, reduces errors or fraud, and centralizes financial information within a unified database, leading to more informed, data-driven decision-making. Its real-time updates on the business's financial health also enhance decision-making by enabling swift responses to dynamic market conditions. The system's efficiency, accuracy, and automation save time and resources, allowing management to focus on strategic initiatives driving business growth and competitiveness. The quantitative analysis supports the hypothesis that AIS positively influences decision-making within SMEs, with a statistically significant path coefficient for Ha3 (AIS → Decision-Making), indicating a strong and positive relationship between AIS implementation and improved decision-

making outcomes. These findings emphasize the importance of AIS adoption in enhancing decision-making capabilities in SMEs as businesses navigate an increasingly complex and competitive environment.

The following points summarize the conclusions drawn from the study's second objective findings.

- AIS is required for SMEs as it enhances decision-making that is aligned with their objectives and growth strategies. It aids in determining the structure of geographic and business units while offering a well-organized archive and storage system for efficient information management. This comprehensive support enables SMEs to make informed strategic decisions effectively.
- AIS has significance in manufacturing decisions by aiding in the selection and configuration of production equipment and maintenance policies. It also helps determine the manufacturing infrastructure, including the size, capacity, and location of production resources. Additionally, AIS supports production planning and control, as well as managing production orders and material control systems effectively.
- AIS significantly enhances human resource management decisions by streamlining recruitment, selection, and hiring processes. It also plays a crucial role in making informed choices about promotions, transfers, and retrenchments. Additionally, AIS supports training and development initiatives, fostering employee skill enhancement and career growth.
- AIS plays a crucial role in shaping marketing decisions by informing promotional policies and advertising strategies. It also aids in determining sales commissions and is vital for conducting marketing research, especially for new product development. Overall, AIS enhances the effectiveness of various marketing efforts.

This study demonstrates that AIS plays a significant part in improving decision-making processes across a wide range of business tasks related to decision-making in small and medium-sized enterprises (SMEs). The study examines the impact of Accounting Information Systems (AIS) on decision-making processes in Small and Medium-sized Enterprises (SMEs). It focuses on four key types of decisions: basic strategic decisions, human resource management decisions, marketing decisions, and manufacturing decisions. The study found that Information Quality, which refers to the accuracy, relevance, and timeliness of AIS data, significantly enhances decision-making capabilities. Accurate and timely data enable managers to develop strategies that align with organizational goals and adapt to dynamic market conditions. System Quality, which includes reliability, ease of use, and technical performance, significantly impacts operational decisions, particularly in human resource management and manufacturing. A well-functioning system ensures efficient execution of critical processes, supporting precise and timely decisions. Service Quality, which refers to the support and responsiveness provided by AIS vendors or internal IT teams, is another significant factor influencing decision-making. High levels of service quality facilitate effective use of the system, particularly in marketing-related decisions. The study concludes that AIS positively impacts SMEs' decision-making processes by providing reliable, timely, and actionable insights, contributing to operational efficiency and competitiveness in the market.

8.4 Influence of Accounting Information System on Planning, Controlling, Coordinating activities and performance of selected SMEs

This chapter focuses on assessing how AIS impacts planning, controlling, coordinating activities, and overall organizational performance in small and medium enterprises. This chapter is divided into two parts. The first part analyses the impact of Accounting Information Systems (AIS) on planning, controlling, and coordinating activities. The second part evaluates the effect of AIS on the performance of SMEs. For both sections, a comprehensive literature review was conducted to define the constructs of planning, controlling, and coordinating activities and to

extend existing research on organizational performance. Organizational performance is categorized into financial and non-financial performance. This study focuses on non-financial performance, as it remains relatively unexplored in the context of AIS. Financial performance is assessed using six indicators, namely: 1) return on investment, 2) return on assets, 3) return on credit, 4) average profitability, 5) profit growth, and 6) customer growth. The assessment of non-financial performance is based on five criteria: (1) satisfaction with the customer, (2) quality improvement, (3) regular management, (4) responsiveness, and (5) productivity.

The majority of the current literature primarily examines the measurement of the impact on the financial performance of business organizations. However, there is a scarcity of literature that specifically addresses the impact on non-financial performance. Therefore, in this study, we aim to assess the impact of AIS on the non-financial performance of SMEs.

8.4.1-Influence of AIS on Planning, Controlling, and Coordinating Activities of SMEs

After conducting a thorough analysis of the existing literature, information quality, service quality, and system quality (IQ, SEQ, SYQ) were identified as the three dimensions of AIS. These dimensions were derived from the Delone Mclean model of information systems (Delone & Mclean, 2003; Paula Monteiro et al., 2022; Saad, 2023). PCC includes the items related to Planning, controlling, and coordinating activities as suggested by (Al-Hattami et al., 2022a; Al-Hattami & Kabra, 2024; Jawabreh & Alrabei, 2012). This research assesses the effect of AIS on PCC, as indicated by previous studies. Based on a comprehensive literature review, we formulated Hypothesis (Ha4), asserting that "AIS positively and significantly influences the planning, controlling, and coordinating activities of SMEs."

The research began with the formulation of a hypothesis and identification of latent components for Accounting Information Systems (AIS), Planning, Controlling, and Coordinating (PCC) activities, and non-financial performance. A comprehensive operational definition for each

latent construct was developed and grounded in relevant literature. The third objective analysed the influence of AIS on PCC. Prior to assessing these associations, the validity of the study instrument was evaluated, including content and face validity, the KMO-Bartlett test of sphericity, and common method variance analysis. Results showed strong validity, reliability, and internal consistency of the instrument, confirming the data's suitability for factor analysis and supporting the research methodology's robustness.

Structural equation modelling (SEM) was utilized for data analysis with SMART-PLS4, starting with the assessment of the measurement model. This involved validating lower-order constructs (LOCs) of AIS and PCC using the PLS algorithm, which provided reliability statistics, including factor loadings, Cronbach's alpha, and composite reliability. The study then evaluated construct validity through convergent (AVE) and discriminant (HTMT) validity measures, and checked for collinearity issues via VIF values. LOCs were converted to higher-order constructs (HOC) when they met threshold criteria.

The impact of the AIS independent variable on the PCC dependent variable was assessed using the coefficient of determination (R^2). Figure 2 demonstrates the relationship considered with accounting information system (AIS), which explains 60.2% of the variability in (PCC) of SMEs. Finally, hypothesis testing was conducted using the bootstrapping method in SMART-PLS 4. This research employed the bootstrapping technique in combination with SmartPLS4 to validate the path coefficients for statistical significance. In particular, bootstrapping was utilised to generate t-values for each path coefficient. Additionally, p-values were calculated for the hypotheses, as detailed in Table 12. The analysis of the relationship between accounting information systems (AIS) and planning, controlling and coordinating activities (PCC) found a positive impact on the dependent variable, PCC. The relationship was determined to be statistically significant at the 0.05 level, with a beta value (β) of 0.813, a mean(μ) of 0.815, a standard deviation (σ) of 0.019, a t-value of 43.588, and a p-value of less than 0.05. Therefore, Ha3 was accepted.

Using the bootstrapping method with the help of SMART PLS-4, we determined that the path coefficient for Ha3 is below 0.05. This indicates that AIS has a significant statistical effect on the planning, controlling and coordinating activities of SMEs. These findings align with (Al-Hattami et al., 2022b; Al-Hattami & Kabra, 2022; Jawabreh & Alrabei, 2012; Nicolaou, 2000). The integration of Accounting Information Systems (AIS) has a significant impact on the planning, controlling, and coordinating activities of Small and Medium Enterprises (SMEs).

The following points summarize the conclusions drawn from the study's Third objective findings.

- AIS is crucial for strategic planning in management, providing a solid foundation for investment operations and organizational objectives. It enhances planning precision and offers financial information with predictive capabilities for strategic planning within organizations. Therefore, AIS is essential for optimizing planning functions.
- AIS improves organizational control by calculating average costs for raw materials, identifying deviations, providing detailed cost information, aiding in ratio preparation, enabling cost comparison, supporting oversight of planned activities, and generating operational performance reports. These tools enable management to make informed decisions, take corrective actions, and enhance overall control within the organization.
- AIS is a vital tool for enhancing organizational coordination, facilitating budget evaluations, ensuring supplier efficiency, and promoting seamless functions. It also enhances internal meetings and discussions, contributing to operational effectiveness by fostering better inter-departmental and functional coordination.

The study's findings highlight the pivotal role of Accounting Information Systems (AIS) in enhancing the planning, controlling, and coordinating activities within SMEs. AIS provides a structured, data-driven framework that significantly improves the efficiency and effectiveness of these managerial functions. Firstly, AIS enhances planning processes by delivering accurate and

timely financial and operational data, which facilitates budgeting, forecasting, and scenario analysis. This capability allows SMEs to anticipate market trends, allocate resources judiciously, and establish realistic objectives, thereby fostering organizational preparedness and adaptability.

Secondly, AIS strengthens control mechanisms by enabling systematic monitoring of performance metrics. It offers real-time insights into key performance indicators (KPIs), allowing managers to promptly identify and address deviations from planned objectives. Furthermore, the automation of processes through AIS reduces human error and ensures compliance with regulatory standards, thereby maintaining operational integrity.

Thirdly, the integration of AIS promotes effective coordination among various departments within SMEs. By centralizing data and enhancing communication, AIS ensures that stakeholders have access to consistent and current information, which minimizes redundancy and fosters collaboration. For instance, AIS can synchronize production schedules with sales forecasts and inventory management, thereby aligning efforts towards common organizational goals. Moreover, AIS empowers SMEs to adopt a data-driven approach in their managerial activities. The provision of detailed reports and predictive analytics enables informed decision-making that aligns with organizational objectives and market demands.

AIS serves as a strategic asset that enhances the planning, controlling, and coordinating functions within SMEs. By streamlining processes and improving organizational agility, AIS not only drives operational excellence but also equips SMEs to navigate dynamic business environments effectively; these findings highlight the critical importance of adopting AIS to support core managerial functions in SMEs.

8.4.2 Impact of AIS on organizational Performance of SMEs

We also analysed the impact of AIS on organizational performance of SMEs. As per existing literature, Organizational performance of business organizations can be categorized as financial performance and non-financial performance. This present research investigated the impact of the non-financial performance of SMEs (SNFP). Similarly to the

previous analysis, this study used structural equation modelling (SEM-PLS) to analyze data using SMART-PLS 4. The initial step involved assessing the measurement model, validating lower-order constructs of AIS and SNFP, and computing reliability statistics. The study then assessed construct validity, collinearity issues, and the impact of the AIS-independent variable on the SNFP-dependent variable. Predictive relevance was evaluated using Q square and CVPAT. The hypothesis was tested using the bootstrapping approach of SMART-PLS 4.

AIS has a positive statistically significant impact on Organizational performance of SMEs was made to assess the impact of AIS on SMEs non- financial performance. The findings have shown that an AIS has a statistically significant association with the variable SNFP, as shown in Table 12. We analysed the results using bootstrapping, we obtained the path coefficient results, which showed that the p-value was less than 0.05. The findings have evidently proven that AIS has a statistically significant relationship with SNFP. It indicates that accounting information systems have a considerable impact on the non-financial performance of small and medium-sized enterprises (SMEs**)**. These findings align with (Ahmad & Zabri, 2016b; Hattami et al., 2021; Paula Monteiro et al., 2022; Sunarta & Astuti, 2023).

Accounting Information Systems (AIS) significantly improve SMEs' non-financial performance. These include customer satisfaction, quality improvement, regular management, responsiveness, and productivity. AIS supports these areas through long-term best practices, enhancing decision-making, driving quality improvements, and boosting workplace productivity(Al-Matari et al., 2022; Kocsis, 2019). The ability to access real-time data not only supports routine management tasks but also fosters a culture of continuous improvement and agility in responding to market dynamics. Ultimately, the integration of AIS into SME operations is essential for achieving sustained growth and long-term success in a competitive business landscape. This ultimately contributes to overall operational efficiency and effectiveness, positively influencing the company's success and growth. Accounting Information Systems

significantly contribute to the non-financial performance of SMEs by providing essential information that supports various operational areas.

Key areas impacted by AIS include:

- AIS plays a significant role in improving SMEs' customer satisfaction by enabling them to collect and analyse valuable transaction data and feedback. This enhanced understanding of customer preferences ultimately leads to better service delivery and increased customer loyalty.
- AIS helps businesses enhance their product and service quality by providing valuable data on quality metrics and production processes. This support enables companies to identify areas for improvement and foster a culture of continuous quality enhancement.
- AIS provides managers with crucial real-time insights that enhance resource allocation and performance monitoring. This capability is vital for maintaining efficient daily operations and effective budget management.
- AIS significantly boosts the agility and responsiveness of SMEs by facilitating the monitoring of market trends and suppliers' information. This enhanced capability allows businesses to quickly adapt to both demand fluctuations and operational challenges.

The study reveals that the implementation of Accounting Information Systems (AIS) significantly improves the non-financial performance of Small and Medium Enterprises (SMEs). The system enhances customer satisfaction by facilitating efficient tracking and management of customer data, fostering trust and loyalty. It also aids in quality management by providing advanced monitoring and analytical tools to identify inefficiencies in operations. AIS ensures consistency in managerial practices by providing a structured approach to managing both financial and non-financial data, facilitating informed decision-making and resource allocation. It also increases SMEs' responsiveness to environmental changes by providing real-time data access and analytics, enabling swift adaptation to market dynamics, regulatory requirements, and stakeholder demands. Moreover, AIS significantly enhances productivity by

automating routine tasks, allowing employees to focus on strategic activities. The study emphasizes the importance of SMEs prioritizing the adoption and effective utilization of AIS as a strategic tool for achieving superior performance across non-financial dimensions. It also highlights the potential of AIS as a transformative enabler for SMEs, aligning their operational capabilities with broader organizational objectives in an increasingly competitive business environment. AIS boosts productivity by automating routine tasks and reducing manual data entry, allowing employees to focus on core business activities. The study emphasizes the importance of SMEs fully adopting AIS, as it provides a foundation for achieving excellence in operational and strategic domains beyond financial performance.

8.5 Challenges in the implementation of the Accounting Information System (AIS) with respect to SMEs.

This chapter examines the difficulties associated with the implementation of Accounting Information Systems in Small and Medium Enterprises. Although AIS is acknowledged for its capacity to enhance business efficiency, decision-making, and overall performance, SMEs encounter various obstacles that impede successful implementation. The research delineates significant barriers that obstruct the effective implementation of AIS, highlighting a vital area for further investigation. As the accounting profession evolves, particularly in developing nations, it is imperative to address these implementation challenges to fully harness the advantages of AIS.

Through a comprehensive literature review, we have identified three primary constructs that encapsulate these challenges. To investigate these factors, the study employed Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), thereby establishing a rigorous analytical framework to assess the implications of these challenges on the implementation of AIS within SMEs. This chapter presents a thorough analysis of data using three main sections. The first section presents the results of the KMO test and Bartlett's Test of Sphericity, assessing the data's suitability for factor analysis. The

second section focuses on the application of Factor Analysis, divided into Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The EFA process identifies common factors and data structure, while the CFA validates the model's fit with the observed data using key fit indices. The third section evaluates the internal consistency of the factors for further analysis and interpretation.

The following are the results of the steps outlined above.

- The KMO measure and Bartlett's Test of Sphericity are crucial tools for determining the suitability of data for factor analysis. A KMO value above 0.6, combined with a significant Bartlett's test result ($p < 0.05$), confirms that the data is adequate for conducting factor analysis(Hadi et al., 2016; Na-Nan & Saribut, 2020). Both values meet the threshold criterion as given in table 7.2. This validation is essential for researchers to ensure that their findings are reliable and interpretable, ultimately leading to more robust conclusions in their studies.
- The exploratory factor analysis identified three significant factors, accounting for 69.25% of the total variance in the dataset. The analysis used a 0.50 threshold to ensure relevant items were associated with each construct. Factor 1 (LOE) accounted for 28.50% of the variance, while Factor 2 (IAS) and Factor 3 (INT) accounted for 22.75% and 17.98%, respectively. The analysis improved the clarity and interpretability of results by omitting items with less than 0.50. These findings highlight the importance of addressing specific factors for further investigation, suggesting that confirmatory factor analysis is necessary to validate those factors.
- We also assessed the reliability of these factors, which demonstrates internal consistency. The designed instrument demonstrates strong internal consistency, as indicated by Cronbach's alpha values for the three assessed factors: Lack of Efficiency (LOE), Insufficient Accounting Skills (IAS), and Inadequate Training (INT), all of which exceed the acceptable threshold of 0.7. This suggests that the instrument is reliable for measuring these constructs.

- The study used Exploratory Factor Analysis (EFA) to identify the relationships between variables. Confirmatory Factor Analysis (CFA) is then used to validate the factors identified through EFA Confirmatory Factor Analysis (CFA) reveals strong relationships between latent constructs and their observed variables. The latent factor Lack of Efficiency (LOE) shows significant loadings of 1.061, 1.014, and 1.050 for its indicators, confirming its validity. The Insufficient Accounting Skills (IAS) construct has loadings of 1.107 and 1.033, indicating a robust association. Additionally, the Inadequate Training (INT) construct demonstrates significant loadings of 1.041 and 1.325. Overall, these findings suggest a strong model fit and precision in the estimates, with all factor loadings exceeding 1.0, highlighting the relevance of these constructs in the study.
- The analysis of covariance estimates reveals strong positive relationships among the latent factors of Lack of Efficiency (LOE), Implementation of Accounting Systems (IAS), and Integration (INT). The covariance values are as follows:

  - Covariance between LOE and IAS: 0.790 (S.E. = 0.075, C.R. = 10.472, $p < 0.001$)

  - Covariance between LOE and INT: 0.762 (S.E. = 0.074, C.R. = 10.239, $p < 0.001$)

  - Covariance between IAS and INT: 0.737 (S.E. = 0.075, C.R. = 9.807, $p < 0.001$)

  All covariance relationships are strong (LOE ↔ IAS: 0.790, LOE ↔ INT: 0.762, IAS ↔ INT: 0.737), positive, and statistically significant ($p < 0.001$).

- The Confirmatory Factor Analysis (CFA) model in AMOS is evaluated using various indices, including Chi-square, Goodness of Fit Index, Adjusted Goodness of Fit Index, Normal Fit Index, Tucker Lewis Index, Comparative Fit Index, Root Mean Square Residual, and Root Mean Square Error of Approximation. The model has a robust and acceptable fit to the data, with values above the accepted threshold of 0.90, indicating a good representation of the data. The chi-square

statistic is significant at the p <.001 level, confirming its suitability for the investigated constructs.

Based on the findings and results of the analysis, it can be concluded that the obstacles that SMEs encounter when attempting to implement Accounting Information Systems include a lack of efficiency, insufficient accounting skills, and appropriate training. It is possible that the Accounting Information System will not be able to produce the outcomes that were anticipated for which it was adopted if the users of the system are not proficient in using it, because they do not have the appropriate knowledge of accounting principles and practices, and if their organizations do not provide sufficient training. The effectiveness of the system is severely hindered by these characteristics, which in turn limits its capacity to accomplish the objectives of the company.

The study highlights the critical challenges that hinder the successful implementation of Accounting Information Systems (AIS) within Small and Medium Enterprises (SMEs). These include a lack of operational efficiency, inadequate training, and inadequate accounting skills. Inefficient processes, such as manual systems, unstructured workflows, and limited technology integration, create bottlenecks in data management and hinder the smooth transition to automated AIS platforms. Inadequate training and capacity building are also significant issues, as employees often lack sufficient exposure to the technical and operational aspects of AIS, impairing their ability to navigate and utilize these systems effectively. Many SMEs do not allocate adequate resources or time for structured training programs, leading to resistance to change and limited adoption of AIS functionalities.

Another key challenge is the lack of adequate accounting knowledge and skills among SME personnel. Many employ individuals with limited expertise in financial management and accounting principles, which hinders the effective interpretation and application of financial data generated by AIS systems. The interrelation of these challenges creates a cycle of underperformance, where SMEs are unable to fully realize the potential benefits of AIS. To mitigate these challenges, SMEs must focus on enhancing organizational efficiency through process re-engineering and integration, prioritizing comprehensive training programs tailored to employees' needs, and addressing the deficiency

in accounting skills through targeted educational initiatives and professional development programs. By tackling these challenges, SMEs can create an enabling environment for AIS implementation, driving improvements in operational performance, decision-making, and managerial functions.

8.6 Limitations of the Study

During the research, the researcher encountered various limitations, which led to gaps and the need for future research. These limitations serve as a basis for knowledge addition and future research. Limitations of the study are outlined below:

- While this study provides valuable insights into the dynamics of Small and Medium Enterprises (SMEs) within the Punjab state, its regional specificity poses significant limitations regarding the generalizability of its findings. The unique economic conditions, business environments, and technological adoption rates prevalent in Punjab may not reflect those in other regions or countries, thereby constraining the applicability of the conclusions drawn. To enhance the external validity of future research, it is imperative to broaden the scope to encompass SMEs from a variety of geographic locations, which would allow for a more comprehensive understanding of the challenges and perceptions surrounding technological systems across diverse contexts.
- The study's findings are limited to SMEs in the manufacturing and service sector, excluding micro-enterprises, which play a significant role in employment generation, particularly in rural areas. Micro enterprises, defined as those investing up to ₹1 crore in plant and machinery, are not considered in the analysis, potentially limiting the study's applicability to a broader range of businesses within the SME sector.
- This study is confined to the Small and Medium Enterprises sector, with no inclusion of other sectors where Accounting Information Systems are also widely applicable, such as the banking and healthcare sectors, education, retail, and government sectors. Consequently, the insights derived from this research may not be relevant to these sectors due to differing AIS usage and requirements. Future research endeavours should aim to expand the scope of the investigation to encompass a wider range of

industries, thereby enhancing the generalizability and applicability of the results obtained.

- Although this study offers important insights into the factors influencing the adoption of Accounting Information Systems and the challenges faced by SMEs, it is limited in scope. There may be some other relevant factors and challenges which are responsible. Future research should aim to explore a wider range of influences and obstacles to provide a more thorough understanding of AIS implementation in small and medium-sized enterprises.
- The study's reliance on quantitative analysis presents a notable limitation, as it excludes qualitative methodologies that could enrich the findings. While quantitative data offers robust statistical insights and facilitates generalizability, it falls short in addressing the nuanced qualitative dimensions such as personal experiences.
- This study also has limitations, including its time-based data collection, which may not account for long-term trends in AIS adoption and SME performance, and its focus on the organized SME sector, which may not be representative of the entire country due to variations in work environments and industry contexts. Future research should include a longitudinal study for a more comprehensive understanding of AIS adoption and its impact.
- Researchers faced challenges in collecting data from the SME sector due to strict security measures. SMEs owners, managers, and accounting staff’s busy schedules and access to detailed information from SMEs limited the researcher's ability to gather comprehensive data. Issues like varying understanding, educational background, and potential reluctance among participants affected the response rate and data completeness.

CHAPTER -9

RESEARCH IMPLICATIONS AND FUTURE SCOPE OF RESEARCH

This chapter discusses the research implications, which include both theoretical and practical aspects. The theoretical implications involve the study's contribution to existing knowledge, offering new insights and perspectives. Practical implications guide practitioners, organizations, policymakers, and industry professionals in using the findings to improve practices, decision-making, and strategies. Future research directions suggest areas for further study based on gaps in existing literature and emerging trends in current research. Recommendations are derived from the practical implications and involve specific, actionable steps to achieve desired outcomes. These elements form the foundation for understanding the broader impact of research, guiding future scholarly inquiry and practical application.

This study explores the role of Accounting Information Systems (AIS) in small and medium-sized enterprises (SMEs) and its impact on decision-making, planning, and non-financial performance. It provides new insights into factors influencing AIS adoption and its broader effects on organizational processes. The study also offers practical insights for SMEs, policymakers, and industry practitioners, identifying challenges and barriers in implementing AIS and offering solutions to overcome them. It emphasizes the importance of addressing training gaps, IT infrastructure, and financial support. Future research directions include exploring the long-term impact of AIS on SME growth, its role in different industrial sectors, and the relationship between AIS and digital transformation. Recommendations include improving AIS training, providing financial incentives for technology adoption, and fostering collaboration between SMEs and policymakers.

9.1 Research Implications

Research implications are the broader implications of a study's findings, highlighting their contribution to theoretical knowledge and practical

applications. They can be theoretical, which refers to how the research challenges existing theories, frameworks, or models, offering new perspectives or concepts. On the other hand, practical implications focus on how the research can be applied in real-world situations, providing actionable insights that can inform decision-making, policies, or professional practices. These implications can help address specific challenges individuals, organizations, industries, or policymakers face, improve processes or practices, and inform policy or decision-making. Both types of implications are crucial for demonstrating the relevance and impact of research.

9.1.1 Theoretical Implications

Accounting Information Systems are becoming increasingly essential for small and medium-sized enterprises to enhance decision-making, improve operational efficiency, and remain competitive in today's dynamic business environment. Research (A Ali & AlSondos, 2020; Budiarto et al., 2018; Ismail, 2009; Nadaf & Navi, 2021) indicates that organizations adopting AIS tend to achieve better financial and non-financial performance compared to those relying on traditional accounting methods. However, despite the potential benefits, the studies to analyse the impact of AIS among SMEs, particularly in India, remain limited. As per the Punjab Economic Survey 2022-23, Punjab State is actively fostering the growth of the SME sector through a comprehensive approach that includes industrial development, infrastructure enhancement, improved ease of doing business, financial and skill development support, and targeted initiatives for rural and backward areas. Accounting Information Systems can serve as a vital asset for the growth and development of SMEs in Punjab. However, there was a dearth of research that investigated the influence of AIS on small and medium-sized enterprises in Punjab. The study addressed the significant gaps in the understanding of the adoption and effectiveness of accounting information systems by small and medium enterprises (SMEs) in Punjab. The primary aim of this study was to examine the factors that affect the adoption of AIS in specific SMEs. The study employed the variables of a

widely recognised model for technology adoption, i.e., the Technology Acceptance Model. We analysed the particularly perceived ease of use and perceived usefulness in the context of AIS adoption. The study's findings can be expanded to explore how perceived ease of use and usefulness influence technology acceptance, extending the theoretical discourse beyond the SME sector by the researchers and academicians. The impact of AIS on decision-making processes within SMEs was also assessed, emphasizing its role in improving the quality and speed of decisions by providing accurate, real-time financial and non-financial information. This study investigated the impact of AIS on the planning, controlling, and coordinating functions within SMEs, highlighting the impact of AIS implementation on enhancing strategic planning, interdepartmental coordination, and control systems. The study also examined the obstacles encountered by SMEs in the implementation of AIS, such as lack of efficiency, insufficient accounting skills, and inadequate training. By addressing these objectives, the study boosted the understanding of how AIS implementation affects organizational performance, specifically focusing on non-financial performance in SMEs, particularly within the developing context of Punjab, India. The insights gained from the relationship between Accounting Information Systems (AIS) and non-financial performance metrics present a significant opportunity for academicians to advance theoretical models. Researchers can expand the existing body of knowledge surrounding AIS by incorporating elements such as quality improvement, productivity, and responsiveness. This provides both theoretical and practical insights that may boost the efficiency and effectiveness of AIS in SMEs, leading to enhanced overall performance.

9.1.2 Practical Implications

Practical implications are the practical applications and outcomes of research findings, highlighting how they can inform practices, decision-making, and problem-solving in specific industries. They demonstrate the relevance of theoretical insights to real-world scenarios, providing actionable recommendations for professionals, policymakers, or

businesses. These implications bridge the gap between theory and practice, ensuring research contributes meaningfully to societal, organizational, or technological advancements. The practical implications are highlighted as follows:

Implications for SME's Management

Based on the findings of this study, several key implications and actionable suggestions have been identified for the effective management of SMEs. These suggestions focus on improving organizational performance through the adoption and implementation of Accounting Information Systems (AIS), while also addressing the challenges encountered in their implementation.

- It is of the utmost importance for small and medium-sized businesses (SMEs) to see Accounting Information Systems (AIS) as strategic assets rather than merely administrative tools. The management of small and medium-sized enterprises (SMEs) can greatly improve their decision-making capabilities by properly using AIS, which in turn supports better operational efficiency and competitive advantage.
- SMEs should prioritize the selection and implementation of AIS, which provides accurate, timely, and relevant data to support managerial decisions, ensuring effective decision-making.
- Management should invest in staff training in order to maximize the benefits of the AIS and address implementation challenges. This is because including users in the development of the system can result in increased levels of satisfaction, system efficacy, and decision-making processes, which eventually leads to an improvement in the overall efficiency of the system.
- Managers must ensure that their AIS integrates both financial and non-financial data to facilitate comprehensive performance evaluations and strategic planning, thereby enabling SMEs to respond effectively to market changes.
- The findings of the study demonstrate that AIS enhances interdepartmental coordination, strategic planning, and control systems in SMEs. Managers can employ AIS to enhance operations, improve

resource allocation, and achieve greater control over financial and operational processes, thereby resulting in improved organizational performance.

- The research emphasizes the important function of AIS in improving non-financial performance indicators such as customer satisfaction, productivity, and quality enhancement. Utilizing AIS enables managers of small and medium-sized enterprises to efficiently track and improve these essential metrics. This approach promotes comprehensive performance management, which is essential for long-term growth and competitiveness.

Implications for Policymakers

Based on the findings of this study, several important implications and actionable recommendations have been identified for policymakers to support the growth and development of SMEs. Policymakers can use these insights to design targeted policies, create a conducive regulatory environment, and provide necessary resources to promote digital transformation and organizational efficiency within the SME sector.

- The introduction of financial incentives, such as tax breaks or subsidies, is a strategic policy recommendation that could significantly enhance the adoption of advanced Accounting Information Systems among small and medium enterprises. By addressing the financial constraints that often hinder these businesses from implementing new technologies, such incentives would not only promote modernization of accounting practices but also improve operational efficiency, decision-making, and market competitiveness. Ultimately, this approach would facilitate the broader digital transformation of the SME sector, fostering innovation and growth in an increasingly technology-driven economy.
- Policymakers should develop and implement training programs for SME owners and employees on Accounting Information Systems (AIS). These programs will equip the workforce with the necessary

skills to effectively use AIS, improving business performance. Enhancing digital literacy and accounting competencies within SMEs will lead to better decision-making, efficiency, and competitiveness. Government-sponsored training efforts are crucial for successful integration. Therefore, government-sponsored training efforts are vital in bridging existing skill gaps and facilitating the successful integration of AIS across the SME sector.

- Policymakers should foster collaboration between SMEs and technology providers to develop tailored Accounting Information Systems (AIS) solutions. This would help SMEs access cost-effective, user-friendly, and scalable solutions, enhancing their adoption and integration. Fostering such partnerships would create a synergistic environment, benefiting both SMEs and the business ecosystem, ultimately leading to technological advancements.
- The study highlights the important role of Accounting Information Systems in enhancing decision-making and operational efficiency within SMEs, which is in alignment with the objectives of the Digital India initiative. By supporting for the adoption of digital technologies, the research not only promotes the vision of a digitally empowered society but also facilitates inclusive growth and economic development. The findings suggest that embracing AIS can significantly contribute to increased electronic transactions and improved governance, thereby supporting India's transition into a knowledge economy. Ultimately, this research serves as a vital catalyst for encouraging digital adoption and innovation among small businesses, furthering the goals of the Digital India mission.

Implications for Investors and Potential Investors

Based on the findings of this study, several important implications and actionable recommendations have been identified for investors and potential investors to strategically support the growth and success of SMEs. Investors can leverage these findings to identify SMEs with

strong potential for digital transformation and organizational improvement.

- This study highlights the positive impact of AIS implementation on SME performance, indicating a strong investment opportunity in digital transformation-embracing SMEs. AIS adoption is seen as more reliable and transparent, as it provides increased accuracy in financial reporting and operational oversight.
- Investing in SMEs that have effectively implemented robust Accounting Information Systems (AIS) is a strategic approach for investors. These companies are likely to exhibit superior management efficiency, improved cost control, and enhanced decision-making capabilities, ultimately leading to reduced investment risks and increased long-term returns. Therefore, prioritizing SMEs with strong technological infrastructure can be beneficial for investors looking to optimize their investment strategies.
- Aligning with government initiatives such as Digital India presents significant advantages for SMEs, offering access to resources and incentives that can enhance their growth. Additionally, the insights from the study on the operational effectiveness of SMEs utilizing AIS equip investors with the necessary information to identify promising investment opportunities. By considering these factors, investors can make well-informed decisions that align with their objectives and risk profiles, ultimately fostering a more strategic approach to investment in the SME sector.

Implications for Technology Providers

Based on the findings of this study, several important implications and actionable recommendations have been identified for technology providers to strategically support the growth and success of SMEs. Technology providers have a significant opportunity to collaborate with SMEs by offering tailored AIS solutions that cater to their unique needs and resource constraints.

- Technology suppliers must prioritize the creation of user-friendly and customized AIS systems specifically designed to address the distinct issues faced by SMEs. The cost-effectiveness of their AIS solutions should be the primary focus of technology providers that target SMEs. By emphasizing cost-effectiveness and delivering real-time data analytics, suppliers can improve adoption rates and more effectively address the varied requirements of small and medium-sized organizations.
- Technology providers play a major role in the digital transformation of the SME sector by investing in support services, including comprehensive training and ongoing technical assistance. By addressing challenges such as insufficient accounting skills and inefficiencies, they can better align their product offerings with the specific needs of SMEs, thereby establishing themselves as essential partners in the digital transformation of the SME sector.
- Technology providers must prioritize the integration of strong data security features and compliance facilitation within their AIS solutions. Ultimately, this will enhance trust among SMEs regarding the protection of sensitive information and ensure adherence to regulatory standards, ultimately supporting the operational integrity and legal compliance of these businesses.

Implications for Financial Institutions

Based on the findings of this study, several important implications and actionable recommendations have been identified for financial institutions to strategically support the growth and success of SMEs. Financial institutions can facilitate AIS adoption and digital transformation by providing customized financial solutions, including flexible financing options such as low-interest loans, grants, and technology-specific credit facilities.

- The study highlights that the implementation of Accounting Information Systems (AIS) offers significant benefits for SMEs, particularly in providing reliable, transparent, and authentic accounting

information. Because AIS enhances financial reporting, risk management, and reporting capabilities, financial institutions can confidently offer preferential loan terms or financial incentives to SMEs adopting these systems. This improved quality of financial data allows banks to refine their risk assessment frameworks, enabling them to make more informed decisions regarding credit assessments and loan approvals for SMEs.

- Financial institutions are encouraged to invest in partnerships with technology providers to enhance their offerings through AIS solutions. They can support SMEs in their digital transformation journeys by providing incentives for AIS adoption, such as low-interest loans and training programs; these institutions can foster growth and financial inclusion within the SME sector. Collaborating with tech firms to create integrated financial solutions will benefit SMEs and contribute to overall stability and economic development.

9.2 Recommendations

- The accounting information system (AIS) should be managed by qualified officers who understand each other's roles and responsibilities. It should follow systematic information collection, processing, and dissemination procedures to ensure accuracy and consistency in selected industries, avoiding unnecessary data collection and processing.
- Academic institutions and SMEs should collaborate and offer training programs for operators lacking accounting technical knowledge and provide SME-specific guidelines for capturing accounting practices, thereby enhancing their understanding and proficiency in the field.
- The design and operation of accounting information systems should integrate organizational needs. AIS must deliver timely and accurate information to support decision-making processes. Furthermore, effective system design requires collaboration between management and information specialists, ensuring that the needs of managerial functions are understood and addressed, ultimately leading to the development of efficient and effective accounting information systems.

- SMEs management should prioritize user-friendly AIS solutions, focusing on intuitive and adaptable systems that enhance employee adoption and impact decision-making and business processes, thereby increasing the organization's overall success.
- AIS should be integrated into Small and Medium Enterprises. SMEs can significantly enhance their operational effectiveness and decision-making capabilities by leveraging Accounting Information Systems beyond traditional accounting functions. By integrating AIS into strategic planning, resource allocation, and coordination processes, SMEs can access accurate, real-time data that supports informed decision-making, optimizes resource use and strengthens internal controls. This strategic application of AIS ultimately leads to improved performance and competitiveness in the market.
- SMEs should utilize AIS to track non-financial performance metrics like customer satisfaction, productivity, and quality improvement, providing a comprehensive view of their performance for informed business decisions. This will offer a comprehensive perspective on the organization's performance, allowing managers to make informed business decisions.
- SMEs should collaborate with policymakers and financial institutions to leverage financial incentives, training programs, and regulatory support for AIS adoption, overcoming operational and financial barriers.
- The Government of Punjab must take proactive steps to enhance the effectiveness of national initiatives like 'Digital India' for the benefit of Small and Medium Enterprises (SMEs) with the collaboration of tech providers. The government's proactive approach to fostering development and innovation in the digital economy will be instrumental in increasing the participation of SMEs.This strategic approach will not only empower these enterprises but also strengthen their role as vital contributors to economic growth at both the state and national levels.

9.3 Future Scope of Research

Accounting Information Systems are vital for the success of small and medium-sized enterprises by significantly enhancing their operational efficiency and performance by providing authentic financial and non-financial information. This research highlights that effective AIS can lead to informed decision -making improved budgeting, cash management, and reporting. Additionally, the implementation of AIS contributes to higher audit quality by ensuring the accuracy and reliability of financial information. The integration of well-designed AIS is essential for the sustainable growth and competitiveness of SMEs.

The current study investigates the influence of Accounting Information Systems (AIS) on managerial functions such as decision-making, planning, controlling, and coordinating within small and medium-sized enterprises (SMEs) in Punjab. It identifies the challenges SMEs encounter during the implementation of AIS and evaluates its impact on non-financial performance. The research suggests that future studies should broaden their geographic scope to encompass SMEs from various regions, thereby enriching the understanding of the challenges, perceptions, and advantages linked to AIS adoption in diverse contexts. While this study primarily addresses the non-financial performance of selected SMEs, subsequent research should consider the implications of AIS on a wider range of organizational performance metrics, including marketing and management effectiveness, across different sectors such as banking, healthcare, and insurance. Furthermore, longitudinal studies are recommended to assess the long-term effects of AIS on SME performance, particularly concerning non-financial outcomes, to gain insights into how AIS fosters sustained growth and operational efficiency. Expanding the research to include a broader spectrum of industries would enhance the generalizability and applicability of the findings, offering valuable contributions to both academic literature and practical implementation strategies. Future research on the integration of emerging technologies like blockchain and cloud computing into Accounting Information Systems for small and medium-sized enterprises holds

significant potential. Blockchain technology enhances financial data security, transparency, and reliability, while cloud-based AIS offers flexibility, scalability, and cost-effectiveness.

While the current study has effectively identified key variables for analysis, it highlights the potential for further exploration of additional factors that could enrich the understanding of the research context. Future investigations should consider incorporating organizational demographic variables as moderators and comparative analyses between different business scales and regional contexts. Such approaches may yield significant insights into the adoption and effectiveness of Accounting Information Systems (AIS) across diverse settings. Moreover, including mediating variables and a dual focus on financial and non-financial performance indicators could enhance the comprehensiveness of evaluations regarding AIS implementation and its impact on small and medium enterprises. This multifaceted approach will deepen the academic literature and provide practical implications that can be adapted across various organizational environments.

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ANNEXURE -1

Research Questionnaire

PU	**Perceived usefulness** (Davis, 1989b; Meiryani et al., 2021; Tubaishat, 2018)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
PU1	AIS provides authentic information.					
PU2	AIS in my job would enable me to accomplish tasks more quickly.					
PU3	AIS gives me greater control over my work.					
PU4	AIS improves the quality of work I do.					
PEOU	**Perceived Ease of Use** (Davis, 1989b; Meiryani et al., 2021; Tubaishat, 2018)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
PEOU1	Learning to operate AIS would be easy and understandable for me.					
PEOU2	I would find AIS to be flexible to handle the large amount of data.					
PEOU3	The AIS is user-friendly and provides effective guidance for task execution.					

PEOU4	Overall, I find the "AIS" easy to use.					
IQ	**Information Quality** (Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
IQ1	The information provided by the AIS is relevant and reliable.					
IQ2	The information of the AIS is presented in a useful format.					
IQ3	The information provided by the AIS is up–to–date.					
IQ4	AIS provides me with comprehensive information to complete my tasks.					
SEQ	**Service quality Quality** (Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SEQ1	The staff of technical support provides satisfactory support to all users of the AIS.					

SEQ2	AIS ensures precise processing of all data related to SMEs' activities.					
SEQ3	AIS provides reports that reflect the results of the SME's activities carried out during a specified period as required.					
SYQ	**System quality Quality** (Delone & Mclean, 2003; Kareem et al., 2021; Paula Monteiro et al., 2022)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SYQ1	An AIS is friendly to the users.					
SYQ2	AIS provides all the information at the appropriate time.					
SYQ3	The operational speed of the AIS is satisfactory.					
SYQ4	The AIS secures data against unauthorized alteration.					
SYQ5	The AIS is regularly examined and maintained by IT unit staff.					

BSD	**Basic strategic decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
BSD1	AIS contributes to decision-making for SMEs' objectives.					
BSD2	The AIS aids SMEs' growth strategy decisions.					
BSD3	The AIS supports geographic and business unit composition decisions.					
BSD4	AIS provides a library and archive for all files, programs, and data which can be stored in separate folders.					
MD	**Manufacturing Decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
MD1	AIS helps to make production equipment decisions (Technology selection, equipment configuration, and maintenance policies).					

MD2	AIS is utilized in making decisions related to infrastructure (including factors such as the size, capacity, location, and focus of Manufacturing resources).					
MD3	AIS facilitate Production planning and control decision (Production and order, material control systems).					
HRMD	**Human resource management Decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
HRMD1	AIS is helpful in Human resources policies related decisions (Acquisition, Recruitment i.e., internal and external), Selection and hiring decisions).					
HRMD2	AIS is useful in Promotion, Transfer, and Retrenchment related decisions.					

HRMD3	AIS is helpful in Training and development-related decisions.					
MKD	**Marketing Decisions** (Paula Monteiro et al., 2022; Shuhidan et al., 2015; Ullah et al., 2014)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
MKD1	AIS is utilized in Promotional Policies (Advertising & others) related decisions.					
MKD2	AIS is useful in Market segmentation-related decisions.					
MKD3	AIS is helpful in Sales Commission-related decisions.					
MKD4	AIS is utilized in Marketing Research (new product development) related decisions.					
SNFP	**SMEs' non-financial performance**(Budiarto & Prabowo, 2019; Saad, 2023)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
SNFP1	The company's decisions led to significant advantages in					

	terms of operations, management, and performance.					
SNFP2	The consideration of long-term best practices in future decisions regarding operations has a substantial impact on enhancing performance.					
SNFP3	The decisions taken have contributed to maximizing operational efficiency and effectiveness.					
SNFP4	The decisions made in the company determine its success.					
SNFP5	Company's decisions enhanced productivity at work.					
SNFP6	The decisions made in a company have increased its employee and customer retention rates.					
SNFP7	The decisions made with AIS in SMEs help to improves its operational performance.					
SNFP8	AIS enhances the efficiency and quality of decision-making processes.					

PCC	**Planning, Controlling, and coordination activities**(Al-Hattami et al., 2022a; Al-Hattami & Kabra, 2022; Melin & Axelsson, 2005)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
PCC1	AIS has great significance from the management perspective in improving the level of strategic plans.					
PCC2	AIS provides a basis for planning investment operations by the management.					
PCC3	The plans and objectives of the company are processed based on information provided by the AIS.					
PCC4	The reliance of management in the firm on AIS aids in improving Planning process effectiveness.					
PCC5	AIS of the firm gives financial information with predictive capabilities, which aids management in making plans.					

PCC6	AIS helps us calculate the average cost of raw materials that are taken out of warehouses.					
PCC7	AIS helps management find and analyse deviations by providing cost information.					
PCC8	AIS provides information on the cost elements needed for the preparation of ratios that contribute to control.					
PCC9	AIS helps compare options and choose the best one (with less cost and higher benefit).					
PCC10	AIS assists the firm's management in controlling the implementation of planned activities.					
PCC11	AIS provides reports to management about operational performance, allowing management to take corrective actions and make decisions.					
PCC12	AIS provides a good evaluation of the annual budget through					

	coordination between different departments of the company.					
PCC13	AIS ensures the effectiveness of your suppliers in handling your orders related to your job.					
PCC14	AIS ensures good coordination among various functions within the company.					
PCC15	AIS generated information ensures high efficiency in internal meetings and discussions.					
LOE	**lack of efficiency**(Aziz et al., 2022; Shaikh et al., 2021)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
LOE1	Incorrect data entry by the user can cause a misrepresentation of financial reporting by AIS.					
LOE2	Lack of Understanding about AIS may lead to erroneous financial data.					
LOE3	The individual found it challenging to execute manual accounting tasks in accounting software					

	(ledgers, income statements, and balance sheets).					
LOE4	Untrained staff cannot use the input interface to easily record data.					
IAS	**Insufficient accounting skills**(Aziz et al., 2022; Shaikh et al., 2021)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
IAS1	Users with poor accounting knowledge may struggle to understand and utilize AIS.					
IAS2	Inadequate training in accounting principles and practices can contribute to the challenge of implementing AIS.					
IAS3	Lack of time for employees to learn and adapt to new systems can lead to errors, inefficiencies, and difficulties in interpreting and analysing AIS data.					
IAS4	Due to a lack of proper accounting skills, a user may enter data into incorrect accounts or statements.					

IAS5	Users or staff who are new to AIS might unintentionally create financial reports that aren't completely accurate.					
IAS6	Inaccurate data entry could potentially cause financial data loss.					
INT	**Inadequate training**(Aziz et al., 2022; Shaikh et al., 2021)	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
INT1	The lack of software training and guidance makes difficult for staff to use accounting software.					
INT2	On-the-job training of AIS might be costly.					
INT3	Insufficient training can lead to employees struggling with the AIS, causing frustration, errors, decreased job satisfaction, and work performance					
INT4	Insufficient training could potentially impact the effectiveness of AIS, leading to a decrease in the quality of					

	accounting information and internal control.					
INT5	The successful implementation of an accounting software system requires proper employee training and top management support.					

Demographic Profile (Please tick the appropriate option)

1. **Name-**
2. **Gender-**
   - □-Male
   - □-Female
3. **What is your age group?**
   - □-Under 30
   - □-31-40
   - □-41-50
   - □-Over 50
4. **What formal qualification/training/education do you have?**
   - □-Senior secondary
   - □-Bachelor degree
   - □-Master degree
   - □- Professional Degree
   - □- Other (specify) _____
5. **How many years of experience do you have in SMEs?**
   - □-Up to 5 years
   - □-5 to 10 years
   - □-10 to 15 years
   - □-15 to 20 years
   - □-Over 20 years

6. **Size of Enterprise:** □ Small □ Medium

Type of Enterprise	Investment in Plant and Machinery/Equipment	Annual Turnover/Sales
Small Enterprise	1-10 crore rupees	5- 50 crore rupees
Medium Enterprise	10-50 crore rupees	50- 250 crore rupees

7. **Name of Enterprise-**
8. **In which type of Small and Medium-sized Enterprise (SME) are you currently employed?**

   □-Manufacturing

   □-Service

9. **Type of Industry-**
10. **District Name—**
11. **What is your current organizational position in this SMEs?**

    □- Owner

    □- Manager

    □- Accountant

    □- Other (specify)--

12. **What accounting software do you currently use in your SME for your accounting information system?**

    □- TALLY ERP

    □- Zoho Books

    □- BUSY

    □- Other (specify)-

ANNEXTURE 2-

Research Publications

Sr. No.	Article Title	Article Title	Authors	Status	Indexation	Name of the Journals	Scimago Rank
1.	Research Paper	An Exploratory Bibliometric Analysis of Accounting Information System Research Using Biblioshiny and Vos Viewer: Evidence from Past Three Decades of Scopus Database (1992-2022)	Priyanka Koundal, Dr. Minie Bhalla, Dr. Shaiku Shahida Saheb	Published	Scopus	International Journal of Business Information System (IJBIS)	Q3
2.	Research Paper	Non-Financial Information as a Mediator in the Link Between Accounting Information Systems and Decision-Making Outcomes in SMEs: A Structural Equation	Priyanka Koundal, Dr. Minie Bhalla, Dr. Manpreet Kailay	Accepted	Scopus	International Journal of Business and system research	Q4

		Modelling Study					
2.	Book Chapter	Streamlining Operations: The Implementation of Accounting Information Systems in SMEs	Priyanka Koundal, Dr. Minie Bhalla, Amandeep Kaur & Dr. Veer P. Gangwar	Published	Edited Book	RECENT ADVANCES IN ACADEMIC RESEARCH AND DEVELOPMENT	-
3.	Book Chapter	Exploring the Relationship between Accounting Information Systems and Sustainable Finance: A Literature Review	Priyanka Koundal , Bandna, Dr. Minie Bhalla	Published	Edited Book- Himalaya Publishing House	Sustainability Finance	-
4.	Book Chapter	Examining the Transition to Sustainable Finance and Investment: Consequences, Challenges, and Outlook	Bandna, Ilias Hussain, Priyanka Koundal, Dr. Minie Bhalla	Published	Edited Book- Himalaya Publishing House	Sustainability Finance	-
5.	Book Chapter	Principles and Frameworks for Sustainable Finance: A	Bandna, Priyanka Koundal, Ilias	Accepted	Wiley-Scrivener Publishing	Financial Innovation for Global Sustainabilit	-

		Pathway to Global Sustainability	Hussain, Dr. Mushtaq Ahmad Shah, and Dr. Minie Bhalla			y: Integrating FinTech, Green Finance, and Inclusive Growth	
6.	Book Chapter	The Role of AIS in Enhancing Small Business Agility and Sustainability in Industry 5.0	Priyanka Koundal, Dr. Minie Bhalla, Bandna	Publis hed	IGI-Global Publishers	The Future of Small Business in Industry 5.0	
7.	Book Chapter	The Ethical Ledger: A Review of Literature on the Alignment of Accounting Ethics and Blockchain Technology	Priyanka Koundal, Dr. Minie Bhalla, Dr. Manpreet Kailay	Accept ed	CRC Group-Taylor and Francis Publishers	Digital Strategies, Law and Governance: Navigating the Technology Landscape	