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Accounting Information System (AIS) Competency for Record-keeping of SMEs Agribusinesses

*Alya As'saadah Roshali[1], Noor Fadzlina Mohd Fadhil[1], Rosli Mohamad[2]
[1]Faculty of Business and Management, Universiti Sultan Zainal Abidin, Kuala Nerus, Terengganu, Malaysia
[2]UUM College of Business, Universiti Utara Malaysia, Sintok, Kedah, Malaysia
Email: *sl4611@putra.unisza.edu.my
Corresponding Author: Alya As'saadah Roshali

Abstract: This paper explores the Accounting Information Systems (AIS) competencies for record-keeping in SMEs' agribusiness by looking at the literature review with competencies and SME studies. Previous studies on AIS competencies are still limited, even though they are crucial for effective record-keeping and business performance. This paper aims to propose an AIS competencies model for effective record-keeping management in SME agribusinesses in Malaysia. This paper reviews the literature about competencies and record-keeping management in SMEs for the development of the AIS competency model. In addition, underpinned by Resource-Based View (RBV) theory, this paper examines the competencies that are seen as a collection of unique resources for an organization. The proposed model sheds some light on the potential of AIS competencies as a part of an organization's intangible resources, which could contribute to effective record-keeping management, lead to better business performance. The model identifies key competencies required for effective AIS record-keeping in the agriculture sector. The scope of this research is narrowed to competencies and record-keeping management. This paper has some useful implications for theory and practice. Regarding the potential implications for theory, the study will expand on the existing literature on how AIS competencies actually could contribute to effective record-keeping, particularly in the agriculture sector. Finally, this research provides a model that could be further expanded into an advanced understanding of a concept or phenomenon specifically on AIS competencies and record-keeping management in agribusiness, thus helping agribusiness entrepreneurs to consider improving their record-keeping practices.

Keywords: *Accounting Information System, Information Systems, Record-keeping Management, Competency, Agriculture*

1. Introduction

The Malaysian government is driving transformation in agriculture through initiatives like GROWMatch and AgTech, encouraging farmers to adopt modern technology for better management (KPKM, 2023). Recognizing the importance of skills in agriculture, the government has also launched the National Agricultural Skills Training Program (PLKPK), aiming to develop professional expertise in the agricultural sector and boost competitiveness among Agri-entrepreneurs (KPKM, 2024). These incentives align with the National Agrofood Policy 2021-2030 (NAP 2.0), which aims to strengthen the country's food security and bolster the national economy. However, record-keeping in agriculture remains a challenge, with many farmers still relying on manual methods, leading to financial mismanagement and difficulty in tracking costs (Basir et al., 2024). One of the biggest problems in maintaining record-keeping in the agriculture sector is poor knowledge of recordkeeping (Basir et al., 2024; Sah & Jirli, 2023; Manteaw et al., 2021; Yadeta et al., 2020). Most of the farmers do not know how to record farming data. This is because there is no formal training in record-keeping (Manteaw et al., 2021), which leads them to lack proper understanding regarding the record-keeping methods (Yadeta et al., 2020) and data redundancy and inaccuracy (Basir et al., 2024). The adoption of an Accounting Information System (AIS) can improve accuracy and decision making, but effectiveness depends on user competency (Yadeta et al., 2020). Previous studies on AIS competencies are still limited, even though they are the crucial elements for effective record-keeping and business performance (Musah and Ibrahim, 2014). AIS competency includes technology skills, technical literacy and numeracy, and accounting knowledge, yet many farmers lack these competencies due to factors like limited education, technology exposure, and government support (Basir et al., 2024; Bolaji, 2023). Without adequate competency, AIS cannot be fully optimized and limiting its potential to enhance financial transparency and efficiency in the agricultural sector. Thus, this research proposes an AIS competencies model for proper record-keeping management of SMEs' agribusinesses in Malaysia.

2. Literature Review

Accounting Information System (AIS) in Agribusinesses

Agriculture is defined as the science and practice of farming (Oxford English Dictionary, 1971). It encompasses various sectors, including crop cultivation, livestock farming, aquaculture, and agroforestry, all of which contribute to food production and economic growth (Harris & Dorian, 2014). Despite its importance, the sector has seen a decline in recent years, contributing 8.9% to Malaysia's Gross Domestic Product (GDP) in 2022 (Siddharta, 2024). With the increasing role of technology in agriculture, the integration of accounting software and data analytics is becoming essential for improving efficiency and competitiveness in the sector (Basir et al., 2024). The technologies, including Accounting Information Systems (AIS), help address key challenges such as seasonal income fluctuations, production costs, and the valuation of biological assets (Mustafa & Mahussin, 2018). The government's modernization efforts, aimed at enhancing productivity and food security, further highlight the need for accurate financial and record-keeping management to facilitate access to subsidies, grants, and loans by ensuring financial records comply with the standards set by financial institutions and government agencies (Rafiq & Rahim, 2024; Mohd Shafiai & Moi, 2015). Thus, accounting is not merely about financial tracking but serves as a strategic tool for Malaysia's sustainable growth and resilience.

Definition of Record-keeping Management

The definition of record-keeping has been the subject of extensive research and debate among scholars and professionals. Various interpretations and perspectives on what constitutes record-keeping have emerged, reflecting the diverse needs and contexts of different sectors. Overall, in this study, record-keeping can be defined as the systematic creation of records by managing the coordination of internal and external sorting, and maintaining and classifying records to retrieve the value record efficiently. This definition is supported by (Walters, 1995) who asserts that record keeping and management include using systems to keep records, setting up controls for those records, and using automated management tools for efficient and secure information handling. Maintaining business records encompasses more than merely documenting daily transactions, such as receipts and payments. It also involves tracking a comprehensive range of financial data, including assets and liabilities, maintaining detailed records of the number of employees, and monitoring various performance indicators to provide a holistic view of the business's financial health and operational efficiency (Musah & Ibrahim, 2014), which are fundamental to effective record-keeping.

The Differences Between Record-keeping Management and Bookkeeping Management

As discussed, record-keeping management is defined as the systematic creation of records by managing the coordination of internal and external sorting, and maintaining and classifying records to retrieve the value record efficiently. There is often confusion between bookkeeping and record-keeping, though they are distinct practices. The differences between record-keeping and bookkeeping can be further clarified based on the general characteristics of definition, scope, and objective (refer to Table 1).

Table 1: The Differences of Record-keeping Management and Bookkeeping Management

	Record-keeping Management	Bookkeeping Management
Definition	Systematic recording of all documents that are relevant to the business operations (Bearman, 1993; Guercio, 2002)	Systematic recording of financial transactions of a business (Bragg, 2011)
Scope	Focuses on all types of records, including financial and non-financial (Bearman, 1993).	Focuses specifically on financial records (Bragg, 2011).
Objective	To accurately record and maintain to support the organization's decision-making and database (Bearman, 1993).	To provide an accurate financial record of an organization's transactions; to support financial reporting processes (Bragg, 2011).

In a nutshell, bookkeeping is indeed a subset of record-keeping. Both of them are related but not identical, and they are not necessarily substitutes for one another. In this research, we place a greater emphasis on record-keeping management because it encompasses a broader range of functions and plays a crucial role in the efficient operation of SMEs. Unlike bookkeeping, which focuses specifically on financial transactions, record-

keeping management includes a variety of records such as operational, administrative, and regulatory documents. This comprehensive approach to managing records supports various aspects of SME operations, from compliance and decision-making to overall organizational efficiency.

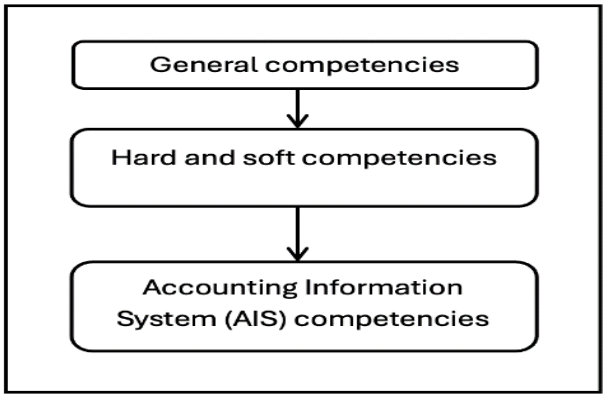
Figure 1: Differentiation of Record-keeping Management and Bookkeeping Management



AIS Competency in Agribusinesses

Competency is not a new concept in the realm of research. It has been extensively applied in the business world as well as in various other fields such as healthcare (Cahn, 2024), education (Abbasi, 2013), engineering (Lee et al., 2010), and beyond. The widespread use of competency is attributed to its effectiveness in helping organizations grow by fully leveraging the company's potential. Numerous studies have been conducted by researchers to analyze and define the concept of competency, however, the specific understanding of AIS competencies is yet to be explored. In this research perspective, we found that the AIS competencies concept started from a very general definition, then these competencies are categorized into soft and hard elements, and finally lead to AIS competencies as shown in Figure 2.

Figure 2: Type of Competency



Based on previous authors' work and perspectives, this paper gains the definition of competency, generally refers to a multifaceted concept that encompasses the skills, knowledge, behaviors and experience necessary for individuals to perform tasks effectively in specific roles or contexts (Jackson & Chapman, 2012; Albino, 2018; Kolibáčová, 2014). There is an opinion stating that competency is divided into two types, which are hard competency and soft competency (Kolibáčová, 2014). Hard competency also refers to technical competency related to professional competency determined by the company (Kolibáčová, 2014; Albino, 2018). Whereas soft competency is also known as behavior competency, it refers to personal features of an employee, his or her behavior, necessary for a good job performance, and can be either professional, social, or conceptual (Kolibáčová, 2014; Albino, 2018).

The Importance of AIS Competency

Accounting Information System (AIS) competency is a critical enabler for realizing its full benefits. Without adequate skills and understanding, SMEs may fail to leverage AIS to enhance financial management and operational efficiency, regardless of the system's capabilities. Thus, numerous advantages of AIS that significantly enhance both financial management and the overall operational efficiency of SMEs (Ditkaew et al., 2020). These benefits are crucial for businesses of all sizes as they support informed decision making, ensure regulatory compliance, and aid strategic planning (Sabri et al., 2022; Fuadah & Setyawati, 2020). One of the most important benefits is improved financial accuracy. The improvement in financial accuracy is not solely due to the system itself but rather depends on the competency of users in managing and interpreting financial data within the AIS system (Sabri et al., 2022; Kimani, 2024). Reliable and accurate financial data is critical for generating trustworthy financial statements, enabling stakeholders such as management, investors, and regulators to make sound decisions (Ditkaew et al., 2020). AIS competency also enhances decision-making capabilities. By providing real-time financial information, AIS enables managers to monitor organizational performance and respond promptly to financial changes (Ditkaew et al., 2020). This real-time insight is essential for identifying trends, forecasting performance, and making strategic adjustments to improve profitability (Jarah & Al Jarrah, 2019). Moreover, AIS contributes to cost reduction. The automation of tasks and reduction in manual errors are maximized when employees demonstrate proficiency and certainty in using the AIS tools available to them (Ditkaew et al., 2020; Hla & Teru, 2015). Bataineh (2024) highlighted that businesses are more likely to adopt AIS when the system aligns well with their existing workflows and IT infrastructure. Improved accuracy and efficiency also support better budgeting, cost control, and resource allocation, leading to long-term financial savings (Jarah & Al Jarrah, 2019). AIS competency further strengthens internal control and security. Internal control embedded in AIS can only function optimally if the staff are well-trained and competent in configuring and monitoring access permissions and audit trails (Ditkaew et al., 2020; Almasria et al., 2021). Such controls are crucial in preventing fraud and enhancing audit readiness. Finally, AIS supports better financial transparency and reporting. With accurate, up-to-date information, organizations can produce clear financial reports that are easily understood by stakeholders. This transparency builds trust with investors and customers and supports ethical and accountable business practices (Hla & Teru, 2015; Sabri et al., 2022; Latifah et al., 2021). The presence of an AIS alone does not guarantee improved outcomes. It is the competency in AIS of individuals and organizations in utilizing, managing, and interpreting the system's outputs that determines its true value and impact on performance.

Resource-Based View (RBV)

The Resource-Based View (RBV) is employed in this conceptual paper to understand the origins of competency as one of the resources in an organization. RBV is a strategic management theory that offers a unique perspective on how firms achieve and sustain competitive advantage by focusing on their internal resources and capabilities rather than external market conditions (Barney 1991; Grant 1991; Penrose 1959; Wernerfelt 1984). Developed in the late 20th century, the RBV marked a significant shift from traditional strategic models that primarily emphasized external factors like industry structure and competitive positioning (Connor, 2002).

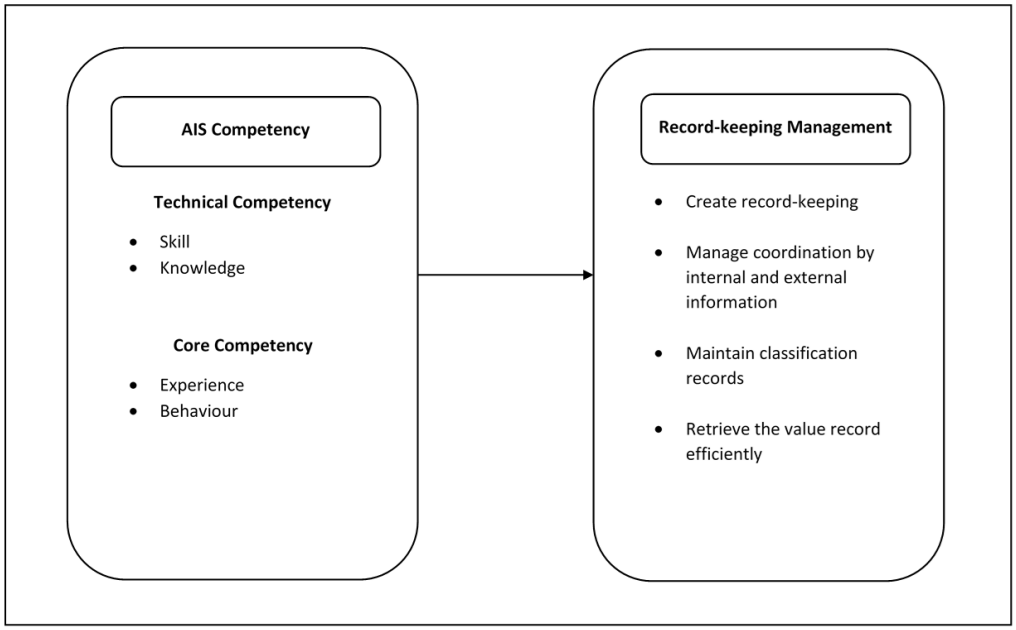
According to the RBV, an organization is seen as a collection of unique resources and capabilities that are pivotal in determining its success and competitive standing (Collis, 1994). These resources can be classified into two main categories: tangible and intangible assets (Sanchez et. al, 1996). Tangible assets include physical and financial resources such as machinery, production facilities, raw materials, inventory, and financial capital (Hall, 1997; Itami and Roehl; Srivastava et.al, 1998). These resources are often easier to measure and quantify (Fahy, 2000), and they form the backbone of a company's operational capabilities (Connor, 2002). For example, a manufacturing company might leverage state-of-the-art production equipment and efficient supply chain processes to maintain a cost advantage over competitors. On the other hand, intangible assets are non-physical resources that often provide a more sustainable competitive advantage due to their unique and difficult-to-replicate nature (Hall, 1997; Itami and Roehl; Srivastava et al, 1998). Intangible assets include intellectual property such as patents and trademarks, brand reputation, organizational culture, employee skills and expertise, customer relationships, and technological know-how (Wade and Hulland, 2004). For instance, a company with a strong brand reputation can command higher prices and achieve customer loyalty, leading to sustained profitability. Similarly, a firm with a culture of innovation may consistently develop new products and services that keep it ahead of competitors. Intangible assets often embody the unique qualities that differentiate a firm from its competitors and can be more challenging for competitors to imitate or acquire

(Connor, 2002). Hence, in this research, the aim of developing AIS competencies is included under intangible assets.

This research is conceptual, where it employs a desk research interpretive research methodology to capture the use of competency of AIS in SMEs. This study investigates the AIS competency in SMEs in agriculture. The researcher reviewed the relevant literature and background information regarding AIS practices. Next, the researcher expands on readings on record-keeping management. The findings from the literature review are used to understand the AIS competencies that could assist in better record-keeping management in SMEs in agriculture. The review findings are then used to develop the conceptual model in Figure 3.

3. Findings

Figure 3: Conceptual Framework



Discussion

Drawing upon the Resource-Based View (RBV) theory, the concept model developed posits that SMEs' internal resources, such as AIS competencies, play a significant role in shaping their record-keeping practices. The key elements of AIS competencies in the proposed model consist of technical competency, which includes skills and knowledge, and core competency, which encompasses experience and behavior. These competencies are essential for effective record-keeping management, which involves creating records, coordinating data, maintaining proper classifications, and retrieving valuable records. The model suggests that SMEs with strong AIS competencies are better at managing tasks, leading to more efficient and accurate record-keeping. Better record-keeping management could enhance the business's financial transparency and overall performance. In summary, this conceptual model fosters strong AIS competencies, which assist SMEs in improving their record-keeping management, resulting in enhanced operational efficiency and long-term success.

4. Conclusion and Recommendations

This research develops the AIS competency model based on the RBV theory. The model identifies key competencies required for effective AIS record-keeping in the agriculture sector. This research will have useful implications for theory and practice. Regarding the potential implications for theory, the study will expand the existing literature in two main ways. First, this study will provide new empirical evidence on how AIS competencies could contribute to effective record-keeping, particularly in the agriculture sector. Second, this study expands the literature by examining the extent of AIS use from the competencies angle. Finally, this

research provides a model that could be further expanded into an advanced understanding of a concept or phenomenon, specifically on AIS competencies and record-keeping management in agribusiness, thus helping agribusiness entrepreneurs to consider improving their record-keeping practices.

Future Direction and Limitations

The scope of this paper encompasses an understanding of record-keeping practices within the agribusiness SMEs sector and also involves a wide-ranging examination of AIS competencies that are necessary for record-keeping management within the context of agribusiness SMEs in Malaysia. It is important to note that this research will not extend to the design or implementation of specific AIS software or hardware but will instead center on the competencies essential for maximizing the utilization of AIS for record-keeping and management purposes within the agribusiness SME sector. This study is currently ongoing, and the next plan is to perform in-depth interviews, thus preparing for a full empirical study in the future.

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