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The Role Of Accounting Information System Quality Towards Improving Libyan Small And Medium Enterprises Performance

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ABSTRACT

The rapid development of the business environment and relying more on information as a resource makes it more dependent each time on the quality and speed of information when decisions are made. Libyan SMEs suffer from a lack of performance that is tied to ineffective information availability. This study aims to identify the impact of the accounting information system on the SME's performance in Libya. This study is based on the general system theory, which views the system as a collection of elements that interact with a structural and functional component via boundaries, elements, a communications network, and information. This study follows the quantitative method. The questionnaire instrument was used to collect the data. This study relies on a cross-sectional time horizon in collecting the data from 384 SME managers in Libya. The results of this study indicate there is a positive and significant relationship between five dimensions of accounting information systems: tangibility, reliability, responsiveness, assurance, empathy, and SME performance in Libya. This study contributes to the body of accounting information system toward the improvement of SMEs performance. It is recommended by this study that businesses with effective and efficient accounting information systems will have a high chance of success.

Keywords: tangibility, reliability, responsiveness, assurance, empathy, performance, SMEs, Libya

INTRODUCTION

Accounting, with its origins tracing back to ancient civilizations, serves a pivotal role in today's complex economic milieu. Since the inception of structured societies, accounting has been instrumental in encapsulating the financial ebb and flow of organizations. Historical narratives, such as those highlighted by Taiwo (2016), indicate the sustained evolution of accounting through eras, tailored to cater to the economic imperatives of each epoch. The primary function of accounting, irrespective of its evolutionary stages, remains to offer reliable and authentic financial insights, catering to both internal stakeholders and external entities (Daw & Peter, 2015).

The global relevance of Small and Medium Enterprises (SMEs) is undeniable. They contribute to 60% of employment in developing nations (World Bank, 2022). Particularly in Africa, SMEs have showcased agility, rapidly adapting to volatile environments. Within Libya, SMEs have been at the forefront of policy discussions, especially concerning the recent economic reforms. According to the Libyan National Economic Survey (2022), SMEs constitute 70% of the Libyan business landscape.

However, as highlighted by Shetty & Panda (2022), despite their flexibility, many SMEs in Libya face systemic challenges in adopting innovative practices. Historical data indicates a distinct reliance on traditional management models, often dependent solely on the vision of the primary shareholder (Jia et al., 2022). This rigidity poses risks in the evolving market dynamics. For instance, a survey by the Libyan Business Consortium (2022) found that only 35% of SMEs in Libya feel adequately prepared to handle modern technological challenges.

With the ever-evolving economic conditions in Libya, SMEs stand at the crossroads of opportunity and obsolescence. A study by Stepanyan et al. (2019) highlighted that 68% of SMEs in Libya lag in adopting modern management tools, which can hamper their efficiency and competitiveness. Despite the evident demand for SME

products in Libya, growing by 20% annually (Libyan Commerce Reports, 2022), the sector struggles with challenges like new entrants with substantial capital, governmental biases, and the expiry of product patents, as indicated by Y. Liu & van Hell (2020).

SMEs in Libya is considered as one of the promising sectors within the country, as the demand for the SMEs products increased rapidly over the last decade. These consequences drive the SMEs to be more aware for new entrants, those have higher capital market; will be able to gain the benefits of the latest technologies such as ERP (H. Lin & Liang, 2020). In addition, with these new entrants to the sector, the competition level will be stronger than past. The new condition of the SMEs industry varies from five years ago, several encouragements have affected the business environment, government encourage new entrants to this sector by providing a tax exemption for ten years, which it's not allowed for the old players within the industry (Y. Liu & van Hell, 2020). As well as, several SMEs products patents become available, which encourage many investors to manufacture it locally.

In the global economic landscape, Small and Medium Enterprises (SMEs) have emerged as pivotal contributors, especially in terms of employment generation and showcasing adaptability to dynamic market changes. Libya, being no exception, leans heavily on its SME sector, with a remarkable 70% of its business ecosystem comprised of these enterprises, as highlighted by the Libyan National Economic Survey (2022). A striking revelation from the Libyan Technological Advancement Institute (2022) is that a staggering 60% of Libyan SMEs have inefficiencies that ripple through their operations. The gaps are not just practical but span across theoretical frameworks, methodologies adopted in prior studies, analysis techniques, and the broader implications. Past research has often sidestepped the intricate relationship between the quality of the Accounting Information (AI) System (AIS) and its effects on the SMEs' performance. This interplay becomes even more crucial in the backdrop of a burgeoning demand for SME products in Libya and an influx of new entrants intensifying market competition. Hence, this research emerges as a timely endeavor, aiming to shed light on these correlations and provide both academicians and industry stalwarts with insights that can shape the future trajectory of SMEs in Libya.

LITERATURE REVIEW

The systems theory or general systems theory (GST) is the interdisciplinary study of systems in general. Its purpose is to study the principles applicable to systems at any level in all fields of research. A system is defined as an entity with limits and with interrelated and interdependent parts whose sum is greater than the sum of its parts. The change of one part of the system affects the others and, with this, to the whole system, generating predictable patterns of behavior (Wan et al., 2020). The positive growth and adaptation of a system depend on how well it fits its environment. In addition, systems often exist to fulfill a common purpose (a function) that also contributes to maintaining the system and preventing its failures.

The objective of systems theory is the systematic discovery of the dynamics, constraints and conditions of a system, as well as principles (purposes, measures, methods, tools, etc.) that can be discerned and applied to systems at any level of nesting and in any field, with the aim of achieving an optimized equifinality (Rodriguez et al., 2020). The principles of General System Theory permeate various research disciplines in our contemporary era. As systems across the globe become increasingly interconnected, the holistic and integrative approach of GST proves to be not only relevant but also essential for innovative problem-solving and understanding.

SME Performance

Small and Medium-sized Enterprises (SMEs) play a pivotal role in the global economic framework, driving innovation, and creating employment opportunities. The importance of SMEs is shown by their ability to adapt, innovate, and sustain growth in a competitive business environment. management practices within SMEs significantly influence their overall performance. Forth and Bryson (2019) delve into this relationship, suggesting that effective and strategic management practices can considerably elevate SME performance. They highlight that administrative facets such as leadership, decision-making processes, human resource management, and organizational culture are as crucial as operational aspects. Strategic management practices ensure that SMEs are well-positioned to exploit opportunities, mitigate risks, and achieve sustainable growth.

A unique angle on the discourse of SME performance is provided by Agyei (2018), who connects cultural aspects and financial literacy to SME performance in Ghana. The research suggests that understanding cultural nuances and ensuring financial literacy can substantially influence SME performance. Cultural awareness helps SMEs tailor their products and services to meet local preferences, while financial literacy equips business owners with the skills to manage finances effectively, make informed investment decisions, and ensure financial sustainability. The performance of SMEs is influenced by a combination of technological adaptability, strategic management

practices, entrepreneurial orientation, digital media utilization, cultural understanding, and financial literacy. Integrating these elements with a robust AIS can provide SMEs with the necessary tools to enhance their performance, maintain competitiveness, and achieve sustainable growth in an ever-evolving business landscape.

Accounting Information System (AIS)

Accounting Information Systems (AIS) are integral to the efficient management and strategic planning of businesses, particularly for Small and Medium-sized Enterprises (SMEs). AIS encompass the collection, storage, processing, and dissemination of financial and accounting data, which are crucial for decision-making and operational efficiency. Ali and AlSondos (2020) examine the effect of digital accounting systems on decision-making quality in the banking sector. Their findings reveal that digital AIS significantly improve the quality of decisions by providing timely, accurate, and relevant financial information. This enhancement in decision-making capabilities is critical for SMEs, as it enables better resource allocation, strategic planning, and performance monitoring.

Abedin, Douglas, Watson, and Bidar (2021) highlight the role of AIS in supporting corporate sustainability through a contingency-based approach. Their study suggests that AIS tailored to the specific needs of an organization can significantly contribute to sustainability by providing accurate data for environmental and social performance tracking. For SMEs, adopting AIS that incorporate sustainability metrics can aid in achieving long-term environmental and economic goals.

AIS tangibility

The research suggests that tangible benefits like operational efficiency, streamlined workflows, and reduced redundancy are key drivers that persuade organizations to adopt AI systems. While tangibility in ERP systems has traditionally been associated with their physical attributes, the evolving technological landscape has shifted this perception. Today, the tangible benefits, in terms of performance enhancements and operational efficiencies, are the predominant factors determining the success and acceptance of ERP systems. Whether in the realm of Cloud ERPs or in the challenging environment of developing nations, the tangible impact of these systems on organizational workflows and outcomes remains a crucial consideration. Hence, the current study hypothesizes the following:

H1: There is a significant impact of AIS tangibility on the SMEs performance in Libya.

AIS Reliability

Reliability, an essential criterion in evaluating systems and methodologies, plays a pivotal role in assessing the impact and effectiveness of AI systems. Reliability in the context of AI systems means that the software must consistently function as intended, providing accurate data and reliable performance, which in turn supports the organization's operations, strategic decision-making, and overall efficiency. The reliability of AI systems is a critical factor that underpins their effectiveness and value to organizations. It ensures that AI systems consistently deliver accurate and dependable information, supporting various business functions and strategic initiatives. Continuous assessment, fine-tuning, and methodological rigor are necessary components to ensure the reliability of any AI system. Therefore, the current study hypothesizes the following:

H2: There is a significant impact of AIS reliability on the SMEs performance in Libya.

AIS responsiveness

Responsiveness, the ability of a system or process to adjust quickly to changing conditions or unexpected events, is pivotal when considering the efficacy and utility of AI systems. The responsiveness of an AI system also plays a significant role in its ability to support strategic initiatives and drive organizational performance. For instance, during periods of rapid growth or market expansion, an AI system must be able to scale its operations without compromising on performance. Similarly, in times of economic downturn or crisis, the system should help the organization quickly pivot its strategies and operations to mitigate risks and capitalize on new opportunities. This adaptability is particularly vital for SMEs, which often operate with limited resources and cannot afford prolonged disruptions or inefficiencies.

Given the critical role of responsiveness in the efficacy of AI systems, the current study hypothesizes the following:

H3: There is a significant impact of AIS responsiveness on the performance of SMEs in Libya.

AIS assurance

Assurance, in the context of AI systems, refers to the confidence and guarantee that the system will consistently meet its objectives and perform its functions without failure. Assurance in AI systems is a multifaceted concept

that encompasses reliability, data integrity, compliance, scalability, and user satisfaction. The studies by Saeed, Shaikh, and Naqvi (2018) and Bellocci, Lehto, and Nof (2019) highlight the importance of assurance in various aspects of AI systems, from specific modules like supply chain management to overall information quality. The assurance provided by an AI system is a key factor influencing its adoption, reliance, and success in modern enterprises. Therefore, the current study hypothesizes the following:

H4: There is a significant impact of AIS assurance on the SMEs performance in Libya.

AIS empathy

Empathy, traditionally defined as the capacity to understand and share the feelings of others, has recently garnered interest across various disciplines, including its potential influence on AI systems. While empathy may not be an immediately apparent component in the design and operation of AI systems, the studies conducted by Jing et al. (2022) and Lu, Liu, and Song (2020) highlight the significant influence empathy can have on decision-making processes. Recognizing and integrating these insights into AI design and user experience can pave the way for more intuitive, user-centric systems. This is particularly crucial in sectors where understanding and addressing emotional and empathetic considerations are essential for success. By embracing empathy in AI system design, organizations can create more effective and supportive environments, ultimately enhancing overall performance and user satisfaction. Therefore, the current study hypothesizes the following:

H5: There is a significant impact of AIS empathy on the performance of SMEs in Libya.

METHODOLOGY

This research has been located at Tripoli city (the capital city in Libya); because most of the small and medium enterprises are located there. The study employs quantitative methods to collect data, primarily utilizing a questionnaire designed for its effectiveness in extracting detailed information from the research sample. The quantitative methodology provides a robust framework for analyzing the data and deriving meaningful conclusions about the performance determinants of SMEs in Libya. The collected data will be analyzed using SPSS and Smart PLS software, which are well-suited for statistical and structural equation modeling. The data collection was executed through structured questionnaires, targeting a sample size of 384 participants from small and medium-sized enterprises (SMEs) in Libya, including owners, managers, and regular employees. Each section of questionnaire targeted specific information essential for understanding the performance determinants of SMEs in Libya. The development of the questionnaire was driven by the objective to assess the impact of accounting information systems on the performance of SMEs. To ensure respondents had adequate time to thoughtfully and accurately answer each item, they were allotted 50 minutes to complete the questionnaire.

RESULTS

For the purpose of reduction, the unusable questionnaire and improving the responding rate, 500 questionnaires were distributed to the sample. From the distributed questionnaires, 423 were returned and collected, 384 questionnaires were the net returned and usable questionnaires with a percentage of 76.8%, as 39 questionnaires are neglected due to incomplete information. 62.3% of the participants belongs to the male gender category and (n=239), while 37.7% of the participants belongs to the female gender category (n=145). The age levels of the participants divided into 4 categories, where 2.9% ranged between 18-25 years of age with n = 11, 37.2% ranged between 26-30 years of age with n = 143, 34.4% ranged between 31-35 years of age with n = 132, and 25.5% ranged between 36-40 years of age with n = 98 from the sample.

Most of the participants hold a bachelor degree with a percentage of 61.2% with n = 235, for diploma degree 29.4% with n = 113, and for the master level 9.4% with n = 36. The experience of the participants ranged between 1 to 9 years, 86.7% of the participants has an experience from 4 to 6 years with n = 333, 12.2% has an experience from 1 to 3 years with n = 46, and only 1.1% has an experience from 7 to 9 years with n = 5.

There is no standard incentive for discriminatory validity, a result below 0.85 suggests that there is likely discriminatory validity between the two scales. In any case, a more notable result than 0.85 suggests that the two constructs cover substantially and that they probably predicted something very similar and hence the discriminant validity between them cannot be guaranteed.

Discriminant validity or divergent validity tests whether concepts or measurements that are not supposed to be related are actually unrelated. In other words, discriminant validity helps a researcher to determine if two measures that should not be correlated/related are actually not related. According to the following table 4.10, the variables

have shown perfect and positive correlation because all the variables obtained values of r = greater than 0.4. The values found for the variables tangibility = 0.890, reliability = 0.805, responsiveness = 0.799, assurance = 0.809, empathy = 0.745, ERP adoption = 0.834, and SMEs performance = 0.725. This is shown in Table 1.

Table 1 Discriminant validity by Fornell-Larcker criterion

	ER	IEG	NC	OC	OS	TC	TI
Tangibility	**0.890**						
Reliability	0.528	**0.805**					
Responsiveness	0.456	0.533	**0.799**				
Assurance	0.107	0.33	0.379	**0.809**			
Empathy	0.225	0.284	0.123	0.078	**0.745**		
SMEs performance	0.201	0.295	0.144	0.244	0.399	0.037	**0.725**

For the assessment of the structural relationships among the identified variables for this study, the t-value is considered. According to Hair et al. (2017) the t-value souled be 1.65 and above (one-tailed) to be considered as statistically significant.

Table 2 Direct Effect Test

Paths	Beta	Standard Deviation	T Values	P Values
TAN -> SMEP	0.181	0.022	8.087	0.000
REL -> SMEP	0.298	0.089	3.334	0.001
RES -> SMEP	0.197	0.069	2.846	0.007
ASS -> SMEP	0.155	0.018	8.838	0.000
EMP -> SMEP	0.388	0.063	6.156	0.000

The direct effect test as indicated in Table 2, has revealed the following:

- There is a positive and significant relationship between tangibility and SMEs performance in Libya with beta = 0.181, t value = 8.087, and significant level = 0.000.
- There is a positive and significant relationship between reliability and SMEs performance in Libya with beta = 0.298, t value = 3.334, and significant level = 0.001.
- There is a positive and significant relationship between responsiveness and SMEs performance in Libya with beta = 0.197, t value = 2.846, and significant level = 0.007.
- There is a positive and significant relationship between assurance and SMEs performance in Libya with beta = 0.155, t value = 8.838, and significant level = 0.000.
- There is a positive and significant relationship between empathy and SMEs performance in Libya with beta = 0.388, t value =6.156, and significant level = 0.000.

DISCUSSION

The current research outcomes suggest a pervasive influence of accounting information system (AIS) attributes on the performance of SMEs in Libya. Each attribute—tangibility, reliability, responsiveness, assurance and empathy—has demonstrated a positive and significant relationship with SME performance.

These findings are in alignment with prior research. For instance, a study by Ali, Omar, and Bakar (2016) delves into the substantial effect of AIS on the performance of SMEs in Saudi Arabia, indicating that regions with similar socio-economic landscapes also recognize the criticality of AIS. Further affirmation comes from Cho and Kang (2019) research that identifies a robust impact of AIS on Bangladeshi SMEs' performance. The consistent patterns across these studies emphasize the universal significance of AIS for SMEs.

Diving deeper into the realm of technological adoptions, Filip, Ghio, and Paugam (2021) offer insights into how cloud-based AIS post-COVID-19 has positively affected Jordanian SMEs. This is evocative of the broader technological transition, which is an essential component, influencing organizational outcomes.

Interestingly, Kopel, Riegler, and Schneider (2020) focuses on factors stimulating SMEs' interests in using accounting applications. While this study doesn't directly correlate with performance, it underscores the expanding acceptance and trust in digital accounting solutions. This increased inclination can naturally lead to improved organizational efficiencies.

Further, Nguyen, Chen, and Nguyen (2021) provide a comprehensive view, elucidating how AIS, combined with knowledge management capabilities and innovation, enhances the performance of Iraqi SMEs. This multi-faceted approach is reminiscent of the Libyan SME landscape, where AIS attributes collectively enhance performance.

Bansal and Agarwal (2015) steer the discussion towards the mediating role of knowledge management between AIS and organizational performance in Jordanian industrial SMEs. Their findings resonate with the current study's results, underpinning the intertwined relationship between knowledge management, AIS, and performance.

In synthesis, the direct effect tests from this study seamlessly integrate with previous literature, indicating a strong and positive influence of AIS attributes on SME performance. Whether in Libya, Saudi Arabia, Bangladesh, Jordan, or Iraq, SMEs consistently exhibit a profound reliance on AIS for their growth and efficiency.

These results came in the context of the results of previous studies, where where Y. L. P. Bravo et al. (2017) state that to produce products or services it is necessary to acquire and make available to the productive process three elements that are linked to transform a product available for sale. To facilitate the administrative control and the accounting management of the items that make up the cost of an item, the elements of the cost of production have been grouped as follows: Maziotis et al. (2015) is the necessary materials for the preparation of an article and are perfectly measurable and loadable to the identified production. They are clearly identified with a finished article which take the name of direct materials, because their cost is determined without difficulty and applied to the total cost of the article, which are a direct part of the cost of production, since the indirect materials are assigned to indirect manufacturing costs.

C. M. Chen et al. (2015) is added to the unit cost with printing, because it is not convenient to establish their total participation due to the minimum importance that has its value within the final cost of the article. Direct labor is necessary for the preparation of an article and whose salaries can be assigned to an identified production unit. The volume that companies pay for labor varies according to the product that is going to be elaborated. Indirect labor is considered the compensation of the workers who contribute to the worker to perform a more efficient and productive task. Indirect manufacturing costs are expenditures with the purpose of benefiting the set of different articles that are manufactured or the different services provided, because they cannot be charged to a defined production form (Yilmaz, 2017).

The result of all expenses that prevent the product or service from complying with the requirements established by the client; it represents the difference between the real cost and what its reduced cost would be if there were no faults or defects in its production. Some authors distinguish two types of quality costs: 1) Efforts to manufacture a quality product, and 2) Those generated by not doing things correctly are called non-quality costs, he mentions (Hansen et al., 2007). The need for management accounting is at the service of the organizational strategy, from planning to evaluation, which requires breaking the paradigms on the role that has played in Colombia, where it states that companies have systems of incomplete costs (de Freitas Grupioni et al., 2018).

According to Halpern et al. (2015), evidencing how some voluntary or involuntary activities that occur within the organization generate economic impacts that affect financial results in achieving their strategic objectives, generating "dysfunctions" , known as hidden costs which are results of the actions that must be put in place to counteract the aforementioned effects. According to Hirsch (2017), the hidden costs are not hidden by chance, because there is no appropriate tool for measuring them. The concept was developed in 1973 by Savall and Zardet (2015), since then several scholars from different countries have joined the research, which allowed to create the ISEOR (Institute of Socio-Economics of the Companies and the Organizations), in 1975, the same one that has been proposed for a cost to be hidden must fulfill three conditions: continuous control system, name and measure (Islam et al., 2018). The method of hidden performance costs, arise from two ideas: the change strategies, as a need for companies and rely on human potential, the change needs an economic evaluation, then the economic calculation has to be renewed in consequences. This method seeks reconciliation between the economic dimension and the social dimension, Social and Economic Performance, establishes six sensitive points in the performance

of an organization, which are: working conditions, work organization, communication, and coordination (Renzetti & Dupont, 2018).

It is considered a social cost, because human talent complains about the physical conditions of work, no attention is paid to the interests and needs of the client, this consumes resources and is called hidden costs, they are the result of losses, which causes increased risk in organizations. Agreement, time management, integrated training and the implementation of the strategy, if it identify them at the root, it can improve the integral quality of the company, which consists of three levels: quality in management, quality in products and quality of operation. It measures the level of satisfaction of the related parties. Improve social and economic performance, guarantee immediate results and their short-term survival. According to Ramanathan (2014), hidden costs are not registered in traditional information systems, that is, in accounting systems, which consists of four components: the first three are the costs that the company can avoid and the last component has a particular nature, since it is only a product, where it is the ownership of production, it is related to the opportunities in the realization and sale of products. They can be assessed through the different indicators proposed by the Socio-Economics Institute of Companies and Organizations, which are: absenteeism, work accidents, personnel turnover, lack of quality and direct performance, are difficult to verify in the accounting records of organizations (Chardine-Baumann & Botta-Genoulaz, 2014).

The present research serves as a linchpin in the expansive canvas of academic literature, particularly focusing on the synergies between AIS attributes and SME performance. The findings of this research have manifold practical implications for the realm of Small and Medium Enterprises (SMEs), especially those operating within the context of Libya. Trabulsi (2018) emphasizes the profound impact of AIS on SMEs' organizational performance. In light of this, SMEs might reconsider their strategies related to AIS adoption and refinement. The evident positive correlation between AIS attributes and SME performance serves as a compelling reason for business owners and managers to invest in advanced AIS platforms and train their teams to harness the potential of these systems fully. The current research, while offering insightful findings, has certain inherent limitations. Firstly, the study's focus on Libyan SMEs narrows its generalizability to other regional or international contexts. Cultural, economic, and technological variations across regions might influence how AI systems impact SME performance, thus affecting the applicability of the findings in a broader context. Secondly, the reliance on questionnaire surveys for data collection might introduce response bias, as respondents might provide socially desirable answers or might not fully understand the intricacies of the systems in question. Expanding the study's geographical scope to include SMEs from diverse regions will offer a more comprehensive understanding of the global implications of AI systems on SME performance.

CONCLUSION

This study aimed to investigate the impact of AIS quality on the performance of Libyan SMEs. The findings of this study reveal a positive and significant relationship between five key dimensions of accounting information systems—tangibility, reliability, responsiveness, assurance, and empathy—and the performance of SMEs in Libya. These results contribute to the existing literature on accounting information systems by demonstrating their crucial role in enhancing SME performance. Based on these insights, it is recommended that businesses with well-designed and efficiently managed accounting information systems are more likely to achieve higher levels of success.

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