OPERATIONAL EFFICIENCY AND THE ADOPTION OF ACCOUNTING INFORMATION SYSTEM (AIS): A COMPREHENSIVE REVIEW OF THE BANKING SECTORS

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ABSTRACT

Today, companies operate in a highly competitive and changing global business world, needing an information system that offers fast answers to the complex business problem. Many businesses have adopted the accounting information system extensively to simplify and to optimize their business processes. The key aim of many companies to implement this method is to increase their operating performance and enhance profitability. After examining more than 500 papers, we focused on integrating the results of more than 155 studies. While some researchers have found no direct link between the accounting information system and operational efficiency, others have done so. It has been confirmed in this regard that the implementation of a proper Accounting Information System is a competitive advantage. Indeed, causal links between the accounting information system and operational efficiency have been established. This research aims to review the literature relating to these connections. The findings of the current study are presented and further fields of research are also addressed.

Key words: Accounting information system and operational efficiency


http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=6
1. INTRODUCTION

Earlier, business organizations were working toward profit and survival only, but the business organization's objectives have recently gone beyond profit making to gain competitive advantages, sustainability, the surviving turbulence environment, customer satisfaction and effective decision-making. For other purposes, managers require a sophisticated information system and software to provide them with sufficient and critical business information (Adenike & Michael, 2016; Ali, Bakar and Omar, 2016; Ali, Omar, & Bakar 2016; Ali, 2019). Quality of information is a priceless asset for organization to possess as its assist in carrying out business plans and changes. These business changes usually support the management executive in decision makings (Abu-AlSondos, & Salameh, 2020; Ali, 2019).

Information systems are planned and implemented in general to increase the organizational effect. The rapid changes in the technology and the dynamic nature of the business environment have transformed business activity on the technical level and the strategic level of the company, as well as increasing demand from customers (Shagari, Abdullah & Saat, 2017).

Considering the link between AIS and Operational Efficiency in commercial Banking, Siyanbola Tunji & Trimisiu, (2012) reported that: AIS is a managerial decision making aid. The study explored the need for specific information system that is capable of handling accounting-related information, most especially with the recent experience of growing organisational data. AIS’s effectiveness in wide spread of information needed by different users of the organisation, influence in decision making, and aiding organisation administrative coordination were cited as the prominent roles of AIS in the organisation. It is thus concluded that: effective decision making is key to operational efficiency. This essentially linked AIS to operational efficiency.

As pointed out by Hamdan, (2012); Ali, Omar, & Bakar, (2016), the adoption of AIS by commercial banks has been suggested as one of the factors responsible for quality service delivery and by extension, customers’ satisfaction. This is the background that argued that customers’ satisfaction will always be affecting financial prospect of the commercial banks. The information system-powered banking services mechanism has contributed to risk-free banking service transaction, thus stabilize banking operations. The positive effect of AIS on operational efficiency of the banking services will achieve quality service delivery, and this will eventually lead of financial sustainability/profitability of the banking sector.

In addition, AIS is supposed to not only enhance the productivity and efficiency of the business processes, but also provide accurate, real-time data on demand, promote global know-how and new reporting tools, and also integrate and collaborate among risk areas and corporate activities (Bruno et al., 2015; Shagari, Abdullah & Saat, 2017). Given the nature of IS today, the AIS is rarely distinct from the IS (Gelinas, Dull, & Wheeler, 2012). Ali, Bakar, & Omar (2016) shared the view that the IS and AIS convergence affects the quality and quantity of knowledge required to support decision taking. The connection between these two elements on an operational level affects not only the system's technical aspects, but also its overall impact on corporate accountability processes (Abu-AlSondos, & Salameh, 2020). Accounting information systems therefore play an important role in creating value for the banks (Ali, Omar, & Bakar, 2016). The study therefore explores the effect of AISs on operating performance and the relationship between AIS adoption and operational efficiency in the banking sectors.

2. PROBLEM STATEMENT

Operational efficiency is extremely important in financial institutions, just as other corporate organisations. Operational efficiency is primarily to ensure that transaction costs of the corporate organisation are kept low. Because when these transaction costs are high, the
volatility of the market prices will become high, thus enable only few financial transaction to be taking place (Moles, Parrino, & Kidwell, 2011; Ali, Bakar and Omar, 2016; Ali, Omar, & Bakar 2016; Ali, 2019).

Parrino & Kidwell, (2009) observed that: the overall efficiency of any financial institution rely on the achieved operational efficiency. On other hand, the diverse usage of AIS has suggested its possible influence of organisational operational efficiency. From the findings of (Alzoubi, 2012; Hamdan, 2012) and (El-Qirem, 2013), AIS when employed by organisations enhance information efficiency, therefore positively support operational efficiency. Therefore, AIS arguably support operational efficiency and financial sustainability. However, the banks are yet to fully utilize the e-technologies, and explore its inherent advantages.

Generally, the present state of e-technologies adoption among banks is yet to be optimally utilized. Though the trend is improving, but much works are still needed to be done to ensure that the banking sector fully utilize the potentials of e-technologies in view of improving their financial monitoring, strategic planning, decision making, service delivery among others (El-Qirem, 2013). Specifically, from Hamdan, (2012) account, the commercial banks in Jordan that have adopted and have been using AIS are yet to understand the applicable capacity and diverse usefulness of the tool. On this account, AIS usage among the commercial banks is under-utilized. The Islamic banks are also found in this situation of AIS under-utilization (AL-Refaee, 2012; Abdelhak & Dalel, 2012). The need for AIS adoption for enhancing operational efficiency among the commercial banks is yet to be directly explored in view of investigating its effect on these listed organisational constructs.

In the light of the above, studies Ali, Bakar, & Omar,2016; Ali, Omar, & Bakar, 2016; Wedyan, et al., 2012; Al-Dalabeeh & Al-Zeaud, 2012; Miani & Daradkah, 2008 that have been conducted on the AIS adoption and usage among both conventional and Islamic banks in Jordan and even globally still have much to be investigated. From the extant literature review—as theoretical limitation from past studies—no study has investigated: the influence of firm size in the interaction effect of AIS adoption on operational efficiency. The above underscored the practical and theoretical problems that provoked this study.

Against this backdrop, this study centres on measuring the effect of AIS adoption on OE. Lastly, policies and strategies that are influential to the overall growth of the commercials and Islamic banking sector are suggested through the findings on the selected constructs.

### 3. RESEARCH OBJECTIVE

The objectives of the study are:

- Identifying the relationship of the accounting information systems and the operational efficiency in banking sectors.
- To recommend for policy consideration.

### 4. RESEARCH SCOPE

This study is conducted on commercial banks, having conventional and Islamic banks as its sampling frame. The AIS under study is a group of information technologies or tools used specifically for the banks’ management accounting practices.

### 5. SIGNIFICANCE OF THE STUDY

This study, to the researcher’s best knowledge is the first to empirically investigate the relationship between the elicited organisational constructs: operational efficiency, in the context of financial sectors. With this, this study serves as a strong base for scholarly
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investigation into the research paradigm of AIS adoption and its effect on organizational activities and constructs.

Also, as an answer to the clarion call on the need for studies on AIS generally due to its teething stage, this study adds to the bank of literature discussing AIS and its organizational significances. It specifically contributes to the empirical studies on the effect of the adoption of AIS in organisations generally, and on financial sectors specifically.

6. EFFECT OF ACCOUNTING INFORMATION SYSTEMS (AIS) ON OPERATIONAL EFFICIENCY

It is noteworthy that: few studies have examined the effect of AIS on operational efficiency. However, because of the importance of operational efficiency on organisational growth generally, many studies have examined and investigated the relationship between operational efficiency and other associated variables. And in some instances, the impact of such variables on operational efficiency are also investigated. Examples of variables that their relationship have been studied in association with operational efficiency are: environmental investment (Kuo, Huang, & Wu, 2010; Liu, 2013), gender and organisational population density (Nanayakkara & Mia, 2012), financial efficiency (Kanghwa, 2010; Ali, Bakar and Omar, 2016; Ali, Omar, & Bakar 2016; Ali, 2019), customer engagement and service quality (Barth, 2007; Duncan & Elliott, 2004), entrepreneurship soft skill acquisition programs (Alarape, 2007), human factors (Harris, 2006), risk management (Alam, 2013; Said, 2013), technical efficiency (Huang, Lee, & Lee, 2012), financial performance (Al-Shammar & Salimi, 1998; Duncan & Elliott, 2004; Hartley & Medlock, 2013; McLean, 2006; Wu, Chen, & Shiu, 2007; Ali, Bakar and Omar, 2016; Ali, Omar, & Bakar, 2016; Ali, 2019), overall profitability (Koli & Rawat, 2011) (Rozzani & Rahmat, 2013) (Sufian, 2007), firm size (Saranga & Phani, 2019) (Miani & Daradkah, 2009), and service performance and financial strength (Min & Joo, 2006).


From the study of the relationship between environmental investment and operational efficiency, (Kuo, et al., 2010) using Data Envelopment Analysis (DEA) explored a four-step analysis in view of examining inter-industry differences. The main purpose of the Kuo et al.’s study is to identify if there is a relationship between business operational efficiency and environment responsibility. The result showed that: there is a positive correlation and significance between operational efficiency and environmental responsibilities. In this study, firm’s environmental conservation cost, net income and economic benefit of the environmental conservation are the measuring parameters for the environmental responsibility.

In the same vein, Liu, (2013) compared the relationship between environmental technical efficiency and operational efficiency among 29 semi-conductors firms in Taiwan using a three-stage DEA and Artificial Neural Network (ANN). The estimated result from Liu’s study pointed that environmental factor is a significant variable to operational efficiency – irrespective of the whether DEA or ANN is used.

Ali, Bakar and Omar, (2016) investigated the effect of Accounting Information System (AIS) success factors on organizational performance. Four types of AIS success factors namely service quality, information quality, data quality and system quality have been used in
this study as the determinants performance. The findings revealed that service quality, information quality and system quality are the significant AIS success factors for increasing operational performance. It can be inferred from this study that organizations involved in banking sectors can increase their performance by adopting and implementing AIS success factors. And while the adopting of AIS not fully utilize do not help firms with a highly organization performance.

Similarly Ali, Omar, & Bakar (2016) examined the impact of Accounting Information System (AIS) on organizational performance and the moderating effect of organizational culture in the relationship between AIS success factors and organizational performance. Four types of AIS success factors namely service quality; information quality, data quality and system quality have been used in this study as the determinants performance. The findings revealed that service quality, information quality and system quality are the significant AIS success factors for increasing organizational performance. This study also evidenced that organizational culture helps increase performance by interacting with information quality, data quality and system quality. It can be inferred from this study that organizations involved in banking sectors can increase their performance by adopting and implementing AIS success factors along with practicing favourable organizational culture. Therefore, firms should cultivate a favourable environment so that employees feel happy which motivates them to work more devotedly with the organizations.

In another study, Nanayakkara & Mia, (2012) investigated the relationship between gender and population density with operational efficiency. This study conducted on the role microfinancing institutions in poverty alleviation used the institutions’ clients i.e. borrowers, as the unit of analysis and thus reported that: gender is a factor in the operational efficiency of the borrower – as male are observed to be more operationally efficient that the females. Also, the larger the population of the active borrowers, the higher the organizational performance. Although, the operational efficiency studied by Nanayakkara & Mia was on individual client of the microfinancing institution –not on the institution as a unit of analysis – the study confirmed that wide operationalization of operational efficiency; as individual or as institution.

Kanghwa (2010) studied the conceptual relationship between operational efficiency and financial efficiency in a competitive market structure. Using DEA as the quantitative analysis tool for the measurement of the efficiency frontier, and a model designed with both DEA and Causal Loop Diagram (CLD), the operational idea for a typical business management firm was proposed. The study found that: the impact of operational performance on financial performance is stronger than that of operational performance on market performance. In short, a strong correlation and significant relationship is reported between operational performance and financial performance.

Customer engagement and service quality are also reported to be related with operational efficiency (Barth, 2007; Duncan & Elliott, 2004). In Barth’s (2007) study conducted on the operational efficiency of wine retail stores, the study showed that: features like tasting rooms, lecture theatres and kitchens found in retail stores will be used in engaging the customers more, and this cause better retail efficiency more than the old styled stores. Also with data envelopment analysis, retail efficiency which is the conceptualized form of operational efficiency for wine retail stores is reported to be influenced by customer engagement. This customer engagement is also defined as service quality of the wine store. In the same vein: studying the operational efficiency’s relationship with customer service quality/engagement, (Duncan & Elliott, 2004) reported there is a correlation between them. In this empirical study conducted among Australian financial institutions, Duncan and Elliott (2004) took a cross-sectional representation of Australian banks and credit unions and tested for a relationship
operational efficiency and service quality, the study found that: operational efficiency is positively correlated with customer service quality.

Other studies: (Alarape, 2007) studied the impact of entrepreneurship programs on the operational efficiency and growth of small businesses. The study hypothesised that: owners and managers of small businesses that participate in entrepreneurship programs will ensure operational efficiency of their businesses, and subsequently results in the business growth. Alarape’s study took a cross sectional analysis of the impact of the small businesses’ owners’ and managers’ exposure on their operational performance. Using data collected from both primary and secondary sources with both descriptive and inferential statistics giving an error degree of 0.05, the result showed that: the owners and managers of small businesses who have participated in entrepreneurship programs exercised superior and qualitative managerial practice. Therefore, a higher gross margin is recorded for them compared to those small businesses with managers of no previous entrepreneurship training. Impliedly, entrepreneurship training is positively correlated to operational efficiency.

Training business owners and managers in view of achieving operational efficiency is further captured by (Harris, 2006). Harris, (2006) posited that human factor influences operational efficiency. In a study on how the airline operational efficiency can be improved through the introduction of a socio-technical systems, the four case studies employed to illustrate the benefits and dis-benefits of socio-technical systems acknowledged the significance of human factors in industries operational efficiency. Although, Harris, (2006) claim was not solely on the significance of experienced and well-trained managers like Alarape, (2007), the study opined that the generality of the personnel employed for operations in the industry must be well qualified for the job assigned. The two studies Harris, 2006; Alarape, 2007 however agreed that operational efficiency is influenced by the quality of the personnel –managerial or operational.

Operational efficiency’s relationship with risk management Said, 2013; Alam, 2013, both conducted their studies among selected islamic banks. Said, (2013) used a three-stage analysis: first stage used DEA as the nonparametric technique to measure the efficiency of the selected banks, the second stage used financial ration to measure credit, operational and liquidity risks, and the third stage employed Pearson Correlation Coefficients to examine the correlation between the measured risk value to operational efficiency. The findings of the study showed that: credit risk and operational risk are negatively correlated to operational efficiency, while liquidity risk –one of the measured dimensions of risk – has insignificant correlation with operational efficiency. Alam, (2013), though on the relationship between risk regulation and operational efficiency is positively correlated with technical and operational efficiency. Alam’s study examined the effect of bank regulation and supervisory monitoring exercise on th enhancement of the technical efficiency.

Using DEA to calculate the technical and operational efficiency and Seemingly Unrelated Regression (SUR) for banks’ supervision on risk and efficiency, the result showed that: the more strict the monitoring of the banking operation is enforced, the higher the technical operational efficiency of the Islamic banks. Summarily, risk ratio is negatively correlated with operational efficiency, while risk regulation and monitoring positively impact operational efficiency.

(Al-Shammari & Salimi, 1998) modelled the operational efficiency of banks in Jordan using DEA with financial ratio as its variables. The results of the study revealed that: composite reference set and shadow prices are major determinants of banks’ performance. Also, Wu, et al., (2007) empirically examined the impact of bank characteristics on operational efficiency of a section of selected commercial banks in China. From the sample of fourteen (14) studied banks in the Chinese transitional economy, the result reported that: higher level of monetization translate to better ROA performance for banks. (Min & Joo, 2006) in their own study conceptualized financial performance as service performance and financial strength. Min and Joo’s study proposing DEA as a useful method of measuring operational efficiency reported that operational efficiency of third party logistic providers – especially in a competitive market – is positively correlated to service performance and financial strength.

On another hand, Huang, et al., (2012) studied the relationship between technical efficiency and financial performance in casino entertainment industries of Atlantic companies and reported that: managerial inefficiency results in operational weakness, and subsequently bankruptcy. Technical efficiency is conceptualized as operational efficiency, and the result suggested a positive relationship with financial performance. Hartley & Medlock, (2013) from their study suggested that operational efficiency is not dependent on the ownership nature of the companies.

A study using DEA, Associated Malquist Measure of Annual Productivity changes and Stochastic Frontier Analysis (SFA) on national oil companies (NOCs), partially privatized NOCs (pNOCs) and shareholders’ owned oil companies reported a similar report that operational efficiency is not related with company’s ownership structure.

Considering the relationship between firm size and operational efficiency, a study on Indian pharmaceutical industries Saranga & Phani, (2009) indicated that: family-controlled firms are more operationally efficient than the multinational pharmaceutical industries. It is reported that firm size in negatively correlated with operational efficiency, i.e. the smaller the firm size, the better the operational delivery of the company. Though, other factors like: foreign direct investment and relaxation of import restrictions are part of the interplay, a DEA and Regression analysis as a parametric model showed that: all these factors (firm size, direct investment and relaxation of import restrictions) contributed to the internal operational efficiency of the selected Indian pharmaceutical firms.

In the same vein, Miani & Daradkah, (2009) considering the period of 2000-2006 examined the relationship between firm structure and its size with the performance among Islamic banking in Jordan. The study reported that: the limited size of the Islamic banks in the country does not affect their growth in the financial market—a factor related to its operational efficiency.

The above presented review from extant literatures highlights the inter-relationship of other variables with operational efficiency. There are cases of studies whereby operational efficiency is studied in relationship with its antecedents (customer engagement, firm size, organisational density, entrepreneurial skills among others). There are also instances where operational efficiency is investigated as an antecedent to other variables like: financial performance, technical efficiency and overall profitability. This is to essentially emphasise the possible interplay involving operational efficiency amidst other variables in organisational studies, and stress the need for studies involving operational efficiency and AIS adoption because available studies in this domain are extremely few.

Amongst the said few studies that investigated the impact of AIS on operational efficiency: Soudani, (2012) in his work on the purposes of AIS for an effective organisational performance noted that: AIS should not be regarded as a single information system for
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organisational data processing, but rather a whole related components working collectively to achieve information collection, storage and dissemination for effective planning, control and decision making. The Soudani’s study on seventy-four (74) firms selected from Dubai Financial Market (DFM) showed that: though AIS is a useful for general organisational performance, no relationship between AIS and performance management is recorded. In similar trend, Hamdan, (2012) investigated the impact if AIS on development life cycle, in conjunction with the critical success factors. Using balanced scorecard for the evaluation of AIS effectiveness with reliability, tangibility, empathy and responsiveness as the measuring metrics, AIS is reported to be effective essentially for decision making. It is further pointed out that: evaluating AIS suitability for decision making should be done using usage measure and satisfaction as the dimensions.

Daoud & Triki, (2013) examined the influence of AIS on firm performance in an ERP environment. The study also investigated the effect of the involvement of top management and external expertise on AIS directly, examined the interaction effect of the competency of the accounting staff on AIS, and tested its impact on firm performance improvement. Daoud and Triki used Partial Least Square (PLS) as the statistical tool to analyse data collected from 102 Tunisian firms that have adopted ERP systems, and AIS specifically. The result of the study indicated that: the involvement of top management and external expertise have impact on AIS, with the series of accounting techniques –after ERP adoption – influencing firm performance. Also, the interaction effect of accounting staff competency is of positive impact on the firm performance improvement.

In the same vein, Alzoubi, (2012) in identifying the effectiveness of the AIS used as Enterprise Resource Planning (ERP) systems and its adoption among companies was the objective of the study. Also studied was AIS relationship with the quality of accounting outputs (information) and the internal control. This study gathered its data from a sample of accountants and financial managers who works at such companies. Using means, frequencies and t test for the hypotheses, the results showed that the integration of accounting information system within the ERP system improves the quality of accounting outputs and the internal control in the companies. However, the study suggested that: more studies should be conducted to expand accounting literatures on this scope, however recommended that companies should adopt ERP systems because it will improve their performance. Afolabi, (2012) studied the impact of Accounting Information Technology on some selected firms in Ibadan, Lagos, Abuja, Enugu and Kaduna, Nigeria.

This study in its evaluation through survey and data collected from the top management, staff and customers of private and public quoted firm, and analysis using simple percentage and chi-square revealed that: accounting information technology does not have a significant impact on the selected business organizations in Nigeria. It is thus recommended that firms should be encouraged to offer internet services - as boost for the accounting information technology infrastructure - to their existing and potential customers.

Edison, et al., (2012) in his own study investigated the factors that influence the adoption of AIS among SMEs. With a survey method and descriptive analysis providing an accurate description of the problem model, a sample size of 72 SMEs were selected using stratified random sampling, and both questionaires and interviews as the instruments of data collection. Edison’s findings showed that factors that strongly influence the non adoption of AISs among the SMEs are: unfavourable cost benefit analysis, lack of government support, AIS’s complexity and financial constraints.

Ignorance of AIS’s benefits and organisational reluctance are found to be weak predictors of the non-adoption of AISs by the SMEs. Also noted is that: adoption of AIS is not related to the size of the company. Prihatni, et al., (2012) also studied the factors
responsible for constraints in the usage of AISs. Prihatni’s study as a descriptive qualitative study utilized interview and observation guides as data collection modes and was with a focus on the comprehension and application of AIS among Indonesia-based SMEs. The study reported that: SMEs have comprehended the value and intricacies involved in AIS’s adoption and usage, but its application has not been optimally utilized. Another phase of the findings reported by Prihatni found that: the level of the employees’ education does not affect the applicative financial reporting process, and the employees’ abilities determine the applicability of the financial reporting process. The study also found – as against Edison, et al., (2012) that company size influences the performance ability of the AIS. Finally, Prihatni, et al., (2012) supported the claim that top management involvement influence the success of AIS adoption in the organisations.

Wongsim & Gao, (2011) explored the essence of information quality (IQ) in the adoption of AIS. Gao’s study investigated IQ issues and AIS adoption employing 44 respondents from 10 manufacturing firms in Thailand. The research findings revealed that: IQ dimensions assist all the processes involved in decision making. The study gave an empirical evidence that IQ of AIS adoption has effect on the decision making processes of the investigated industries. Therefore, the IQ dimension are suggested for due consideration in AIS adoption so as to improve the AIS effectiveness.

Ali, (2019) examined the information quality in AIS and its effects on organizational performance typically operational performance among conventional and Islamic banks in Jordan. Findings clearly showed that quality of information is the key for business growth as it indicates a positive effect on organizational performance. Further result shows that organizational culture improves and increases business performance when combined with information quality. For this reason, conventional and Islamic banks in Jordan should have well-developed AIS as it assists organizations to attain higher performance. There is need for more development in management skills to fully exploit the AIS in order to realize a greater organizational performance. In other words, full implementation of AIS should be given more priority by the management of these conventional and Islamic banks.

Siyanbola Tunji & Trimisiu, (2012) centred on the examination of AIS as a decision support system. The survey research design that employed data collection from a sample of fifty (50) workers from a manufacturing company studied the effect of AIS on managerial decision making process. The study using a t-test statistical tool with 5% significant level reported that: there is a significant relationship between AIS, a significant relationship between time as a factor and AIS, and that: AIS influences company’s performance. It was thus suggested that: companies should employ professional accountants, and also make provision for valuable information and accurate accounts’ record keeping.

Asides (Edison, et al., 2012) (Wongsim & Gao, 2011) and (Prihatni, et al., 2012) which works are on the adoption of AIS in industries and companies -with investigation of its associated variables, others are on the influence of AIS adoption of some cited organizational constructs. (Soudani, 2012) was on the purpose of AIS for effective organizational performance in Tunisian firms, and (Hamdan, 2012) investigated the impact of AIS on manufacturing firms’ development lifecycle, citing their critical success factors. (Daoud & Triki, 2013) and (Alzoubi, 2012) studied the influence of AIS on firm performance in an ERP environment, and (Afolabi, 2012) studied AIS impact on firms. Abu-AlSondos, Pangil, & Othman, S. (2012). Confirmed that there is requirement for knowledge management System.

From the review of the studies that investigated the influence/impact of AIS on organisational performance, the construct defined as firm performance is explicitly used without a distinct definition of operational efficiency. It should be noted that: organisational/firm performance is bi-directional, i.e. could be positive or negative. Whereas,
Operational efficiency is explicitly positive. This shows that: none of these studies distinctively studied operational efficiency as an organizational construct. Also, the study of the impact of AIS have been on manufacturing firms, and none also in banking industry globally, and specifically in medl east. These underscore the limitations in the previous studies to be addressed by this study.

7. THE LITERATURE’S GAPS

From the extensive literature provided above, the study is obliged to extend the body of knowledge for identifying gaps in these previous studies in view of being the attention of this study. As previously stated, there are still few literatures and few studies conducted with focus on AIS – being an emerging field with still limited exploration. Therefore, this study primarily extends the volume of AIS-related literature. In addition to this, the explicit theoretical, practical, and methodological gaps to be attended to by this study are stated below:

7.1. Theoretical Gap

From the review presented, it is observed from the AIS-related studies that Soudani, 2012; Daoud & Triki, 2013; Afolabi, 2012) worked on the influence/impact of AIS on operational performance. Others, either worked on the evaluation of the effectiveness of AIS Hamdan, 2012; Alzoubi, 2012), appropriateness of AIS as a decision support system Siyanbola Tunji & Trimisiu, (2012), or factors that influence the adoption of AIS Edison, et al., 2012 ; Prihatni, et al., 2012; Wongsim & Gao, 2011 . Soudani, (2012) only submitted that AIS is useful for organizational activities. However, no relationship was found AIS usage and organisational performance. This is supported by Afolabi, (2012) with findings that AIS has no significant impact on the operational efficiency of the selected firms in Nigeria. On the other hand, Daoud & Triki, (2013) reported that AIS positively influences firm performance, although staff competency was an included variable in their research model. With the record of inconsistent findings on the influence of AIS on operational efficiency, there is a necessity – going by Alzoubi,( 2012) recommendation– for further studies to be engaged in ascertaining the effect of AIS on operational efficiency.

Furthermore, Saranga & Phani, (2009) reported that firm size is negatively correlated with operational efficiency, while Miani & Daradkah, (2009) posited that the limited size of Islamic banks does not affect their growth and operational efficiency. Therefore, as a theoretical extension, this study argues the need for the inclusion of firm size as a moderator in the interaction effect of AIS adoption and operational efficiency.

7.2. Practical Gap

Practically, there is much to be done in the study of the effect of AIS adoption among Islamic and conventional banks globally. From the review presented, no study has investigated the effect of AIS adoption on financial sustainability, operational efficiency and risk measurement among Islamic and conventional banks, in view of a comparative study.

Majority of the studies that investigated the influence of AIS on operational efficiency were on firms selected on the basis of their quotation on financial market of the country under study. The heterogeneous nature of the operations of these firms is a factor that could be responsible to the recorded inconsistent findings. Wedyan, et al., (2012) is the only account from that attempted to study AIS impact on banks, but with concentration on the bank managers’ performance, not the operational performance of the banks. Also, Al- Dalabeeh & Al- Zeaud, (2012) only studied the AIS assistance in public shareholding measurement and cost thrifting among Jordan lending houses.
From Miani & Daradkah, (2008) account, banking historical background requires more studies and investigation that will continue to position the banking quality as a leading figure. The need for an extended investigation about the effect and role of AIS on operational efficiency, financial sustainability and risk measurement is a good step in this needed direction.

7.3. Methodological Gap

The presented review showed that many of the studies employed econometric approach like Du Point analysis, Logit analysis, DEA among others. The few other ones that employed statistical methods used majorly descriptive statistics, and regression analysis, with no one fully employing the sophistication of Structural Equation Modelling (SEM) in the study of the inter-relating variables on banks’ operational efficiency, financial sustainability and risk measurement. This is a significant methodological gap observed by this study. In this regard, Partial Least Square (PLS-SEM) as a methodological method is suggested to fully study the structure of the model’s interacting variables.

8. RESEARCH MODEL

From the explanation given above and the highlight on the theoretical gaps to be attended to by this study, the figure 1 below represents the proposed conceptual research model for further studies. Future research could examine the following research model.

![Figure 1 Research Model](image)

9. DISCUSSION AND CONCLUSION

The objective of this study is to examine the effect of Accounting Information System on Operational Efficiency based on secondary data, in which it has been noted that the system is of great importance and value to businesses and organizations. Therefore, the researchers recommend that companies use AIS to advance their businesses in business management and that companies or companies which already implement these systems should, however, train their entire workforce to effectively use the system mostly the computer-release system, if companies can adjust their computerized internal co-technics. When the controls are properly used, operating efficiency and efficiency will improve reliability of financial information. For all efficient decision-making processes, adequate accounting information is required, and adequate information can be given if accounting information systems are managed efficiently and then efficient accounting information systems are used to ensure correct, accurate and true planning and controlling information for the business organization at all levels of management.
Due to its external validity, it can be concluded that implementation of the AIS remains an interesting topic to study, particularly in developing countries. Several results in previous studies show that search gaps tend to be of concern or to be addressed in the future. Very few studies investigate the impact of AIS on operational efficiency, and therefore our recommendation to further research on the relationship between operational efficiency and accounting information system. In addition, future work may investigate the direct correlation between AIS and non-financial performance alignment. Researchers are able to examine the company size to determine the direct or moderating effect between the non-financial performance factors affecting the AIS implementation. The association between AIS alignment and non-financial success for future research is therefore still freely debated.

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