Knowledge and use of accounting software: evidence from Oman

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Abstract

Purpose – The aim of this paper is to determine the influence of knowledge and use of accounting software among small and medium entrepreneurs (SMEs) in Oman.

Design/methodology/approach – This study has used qualitative approach. Further, the paper elucidated the significance of knowledge of accounting software and evaluated the relationship between knowledge and its adoption or use of accounting software among SMEs in Oman. Purposive sampling method was used to choose the target interviewees required for the survey (semi-structured interview). This method has been applied by selected accountants who work in SMEs in Oman. Based on practical experience and basic knowledge in the field of accounting, a total of six members are selected as the sample size for the study.

Findings – The findings revealed that the knowledge of accounting software has a significant effect on the use of accounting software, meaning that there is significant and positive relationship among the knowledge of generalized accounting software and the use of such generalized or customized accounting software by SMEs in Oman. In addition, this research shows the empirical evidence of knowledge of accounting software effects on the adoption or use of accounting software among SMEs in Oman.

Practical implications – The study has brought about a new discussion on the importance of information communication technology (ICT) knowledge and use or adoption of accounting software by SMEs for accounting literature. Further, this study emphasizes the usage and benefits of accounting software by accountants in various SMEs. Further, it would be useful to suggest that SMEs and such other types of organizations adopt customized or generalized accounting software that will enhance the practice among accounting professionals.

Originality/value – This paper contributes both theoretical and practical knowledge of accounting in accountants using generalized or customized accounting software and its relationship with accountant in various SMEs or such other organizations; it is an approach that is not widely discussed in the previous studies. Besides, conducting such study in the field of SMEs gives novelty in the literature between SMEs and developing economies. This has discussed the weakness of accountant in implementing accounting software in the organization.

Keywords Small and medium entrepreneurs (SMEs), Generalized accounting software, Customized accounting software, Accounting professionals

Paper type Research paper

1. Introduction

Current professional accountants use a wide range of computer applications to perform their day-to-day operational work (Do et al., 2020; Blankley et al., 2019; Boulianne, 2014). Information communication technology (ICT) has been considered as a major aspect of effective and efficient accounting system and which can leads to increase organizational performance drastically. Information communication technology (ICT) has been used to enhance organizational performance and the reliability of accounting information (Ganyam and Ivungu, 2019; Ogundana et al., 2017; Sami, 2011). Accounting information systems...
include both computer software and hardware which help in recording accounting information (Knapp, 2019; Taiwo, 2016; Wessels, 2005). Rapid movement in adoption of information technology (IT) by organizations helps to acquire and implement daily accounting operations using computerized accounting software. Most of the accounting software are user-friendly for accountants, which resulted in functioning of accounting tasks on a daily basis, in a timely manner and accurately (Xu, 2020; Fowzia and Nasrin, 2011; Musa and Abu, 2005). Most of the organizations now replaced their traditional method (manual accounting system) with computerized accounting systems (Phyu and Vongurai, 2020; Dalci and Tanis, 2004). It is encouraged that continuous effort is required to equip future accountants with necessary IT knowledge and skill as the interconnectedness among IT and accounting functional areas in an organization is invariably important (Turner et al., 2020; Lin et al., 2005; Allen, 1999). Over the years, scholars have also found some of the major difficulties faced by small and medium enterprises (SMEs) are incomplete records, lack of finance, staff inexperience, poor power supply, among others (Căpuşneanu et al., 2020; Chhabra and Pattanayak, 2014). Prior to the 21st century, most organizations preferred traditional method of recording accounting transactions, which, of course, is very time-consuming and involves too much paperwork (Kumar, 2020). Some of the records prepared by their accountants were incomplete due to not being able to reach proper decisions by the management. These and many more difficulties are encountered while using the traditional method of recording of accounting transactions, which has given birth to ICT (Turner et al., 2020; Nyathi et al., 2018). The enhanced use of accounting software has changed the accounting process, which involves transactional entry, data storage and preparation of financial statements and related information, and has an impact on the decisions of stakeholders who use financial statements for various purpose. This is also useful for internal control systems employed by the entity (Turner et al., 2020; Senft et al., 2016). The professional accountant should have sufficient knowledge of various accounting software (Mustafa, 2020) to identify and post various items in ledgers, which comes under financial statements, and to ensure fairness of financial statement. The accountant should acquire additional knowledge of accounting software and generalized enterprise resource plan (ERP) (Draijer, 2020) in order to ensure the companies accounts are recorded as per applicable accounting standards or International Financial Reporting Standards (IFRS). Accountants have now been using generalized accounting software to do all the accounting tasks instead of using the traditional ways of accounting (Kumar, 2020), such as manual recording of accounting transactions and finalization of financial statements (Turner et al., 2020). Omani students learn theoretical knowledge of basics of accounting. Therefore, there is a need to learn how to use specialized accounting software (Shaffer et al., 2020) and gain a broad understanding of the finance, accounting and commercial segments, even within an international context. Professional accountant should also have adequate practical experience to use generalized accounting software such as Tally, Peachtree and QuickBooks. IT helps overcome the challenges of an accounting profession (Rindașu, 2017). Replacing traditional accounting paper records with computer-based records brings many advantages, especially for SMEs. The advantages include increased reliable and accurate financial reports and faster access of financial data, and it ensures fairly improved generation of accounting information through financial statements (Gökten and Özdoğan, 2020; Ghasemi et al., 2011). Accounting software is a major instrument in accounting information systems (AISs), offering timely, accurate and reliable information. Undoubtedly, it is no secret that technology has evolved to the extent that no current business enterprise can operate without it (Huy and Phuc, 2020; Thottoli, 2020; Situmorang, 2020; Ramazani et al., 2012). When compared to small-scale organizations, large-scale organizations set more weightage on the development of accounting information. However, SMEs in China face many problems as a result of no implementation of accounting policies. This was one of the barriers of economic growth of China. Hence, improving the level of accounting policies and
other related information of SEMS is essential (Yu et al., 2020; Wen, 2020; Zhou, 2010). Lack of use and knowledge of accounting software leads to continued manual accounting that may be very hard for business owners, especially SMEs, to monitor financial health of their businesses. This leads SMEs not meeting their business goals (Alhatabat, 2020). As there are no specific studies that examine the knowledge and use of accounting software among SMEs in Oman, there is no clarity regarding the accounting practices that accountants follow in an ICT-enabled or accounting software environment. Thus, the objectives of this study are to examine the knowledge and use of accounting software among SMEs in Oman.

SME: Since there is no standard definition for SMEs, this research has taken on the following meanings of SMEs. The SMEs are categorized according to the number of employees employed. Organization with less than 10 employees is considered as a micro organization or enterprise. Organization with employees between 10 and 50 is considered as small organization or enterprise. An organization employing between 50 and 250 employees is considered as medium-sized organization or firms. This criterion is supported by studies of Ocampo et al. (2017) and Kapurubandara and Lawson (2006), and was used to analyze and investigate to qualify SMEs for the purpose of the current study.

2. Literature review
There are number of literature studies identified that highlighted the importance of the use of ICT or accounting software in SMEs. Baporikar (2020), Idota et al. (2020) and Ashrafi and Murtaza (2013) in their study mentioned that it has been widely accepted that SMEs generally play a crucial role in a country's economy, and their role is the key to a country's economic stability to achieve targeted gross domestic product (GDP). Hernandez (2020) and Amidu et al. (2011) opined that accounting function contributes an important role in the success or failure of any SME or modern business organization. Ibrahim et al. (2020) and Jinga et al. (2010) mentioned that AISs are helpful for recording accounting transactions, analyzing, monitoring and analyzing financial statements of any company. AISs also help to prepare documents necessary for taxation purpose and generate information that support many other organizational tasks. Bashorun et al. (2020) highlighted that prior to the emergence of personal computers, companies used only manual approaches for recording accounting transactions which result in lack of fair financial data. Araya-Leandro et al. (2020) and Azih (2018) noted that manual accounting systems consist of accounting ledgers prepared using paper, typewriters and calculators. Thottoli et al. (2019a, b, c) found in their study that ICT has a significant impact on the auditing practices. It means that there is a significant and positive relationship between the ICT and the auditing practices of accounting professionals. Another view of Tychalas and Karatza (2020) and Arcega et al. (2015) was that by using computerized accounting system, the respondents tend to complete their jobs successfully, and it also enhances their quantity and quality of work. Meanwhile, in employing the manual or traditional way of accounting system, the interviewees claimed that although they are able to complete their job accurately, launching a computerized accounting system is more convenient (Xu, 2020). Alternatively, Ibrahim et al. (2020) and Amanamah et al. (2016) have claimed that the usage of computerized accounting system by SMEs has much improved their performance. Negative effects of the usage of accounting software are increased cost, lack of education on the benefits of the usage and lack of knowledgeable personnel. Ibrahim et al. (2020) and Pulakanam and Suraweera (2010) analyzed and found that small businesses, while implementing small business accounting software, face many barriers, such as non-user-friendly and non-availability of software vendors’ support and guidance (Bakr, 2020). Ashrafi and Murtaza (2008) in their study provided that only a very a smaller number of SMEs in Oman are aware of the available accounting software and its adoption. Further, most SMEs outsource majority of their accounting services. Most of the SMEs lack internal
capabilities, are unable to bear high implementation cost of IT in business and lack information about appropriate IT solutions and implementation, which were some of the main restrictions in adopting IT. Damak-Ayadi et al. (2020), Alabdullah et al. (2019) and Rudzani and Manda (2016) identified in their study that SMEs are required to use IFRS and many of these organizations are finding it hard to adopt or incorporate IFRS for numerous reasons, including lack of available expertise. The latest updates should be incorporated in the accounting software as and when required. Bui et al. (2020) and Everaert et al. (2006) found that some SMEs are facing issues managing their accounting tasks. The reason for such issues is lack of expertise knowledge in basic accounting, lack of knowledge in generally accepted accounting principles and lack of applicable tax regulation. It is also essential that one should know the benefits of the application of rules in a given business environment. Mishina et al. (2020) and Maseko and Manyani (2011) say that because of lack in accounting knowledge, and as a consequence, there is inefficient use and entry of accounting transactions that will affect fairness of financial statements and its performance measurement. Most of the SMEs are not maintaining complete accounting records. Jimoh et al. (2020) and Amahalu et al. (2017) expressed their view that the usage of computerized accounting system has shown a marginal increase in profitability of banks compared with when banks were using manual system of accounting. Hassan (2020), Ahmed et al. (2020) and Rahman et al. (2015) emphasized that by using accounting software technology, SMEs can reduce their operating cost drastically and increase profitability marginally, thereby achieving competitive advantages. They suggested that the knowledge of Excel should be included in university accounting programs, since Excel is the most frequently utilized software / tool by majority SMEs. Anderson et al. (2020), Thottoli (2020) and Lee et al. (2018) found that the use of Excel in accounting areas such as audit, tax, advisory and corporate is considered as important by majority of small organizations. In addition, accounting / ERP software, Adobe Acrobat, PowerPoint and the FASB Codification were recognized as often employed across various accounting areas and practical knowledge levels. Andiola, Masters and Norman (2020) noted that accounting and auditing practitioners in their practicing areas require experience, analytic skills and data visualization skills. These are important, but data analytic skills are more important than data visualization skills. Ibrahim et al. (2020) and Amoako (2013) in their study found that the majority of SMEs fail to keep complete accounting records. Small business owners think that keeping accounting records are not required and gives less need or important to expose their financial position. They also suggested that training programs must be organized to alert managers to understand the importance of maintaining proper books of accounts using computer.

3. Methodology
This study explores the effect of knowledge of accounting software which leads to adoption of accounting software among SMEs in Oman. To choose the required respondents for the survey, this study has used a purposive sampling method to make ease of estimation procedure (Teddlie and Tashakkori, 2009). The sampling method is used by selecting accountants who works in SMEs in Oman. A total of six accountants in various SMEs were selected as the target respondents as sample size. The rationale for selecting the respondents was their experience and basic knowledge in accounting and accounting software and their practical knowledge and its applications within the selected SMEs in Oman. This means, the study has established a good professional experience with the interviewees to develop the quality of the interview questions and thus improve the analysis, and considered follow-up questions and explanations where required. Interviewees were able to express their views in detail and discussed numerous issues which they were assured would remain confidential. The purpose of using the interview technique in this research is to investigate whether
knowledge of accounting software has an influence on the adoption or use of accounting software in SMEs in Oman.

4. Discussion
4.1 The impact of knowledge of accounting software leads to adoption or use of accounting software among SMEs in Oman
Recent studies in the field of accounting and management (e.g., Cadez and Guilding, 2008; Jalaludin et al., 2011) are in agreement with the results of the approach analysis; in the third phase of the discussion with interviewees, the participants were requested to comment on the results regarding the effect of knowledge of accounting software on various accountants who work in SMEs in Oman. Most of the respondents (three out of six) agreed that the aspects, namely, theoretical and practical knowledge of accounting software and knowledge of using accounting software such as Tally/Quick Books/Peachtree/ERP/Generalized accounting software/Excel/ and so forth among accounting professionals of SMEs in Oman were considered as vital contributors which lead to practical use of accounting software among SMES in Oman. The respondents indicated that these determining aspects, which have been stated, have played a very serious role in determining selection and use of accounting software structure for accounting in various SMEs in Oman, thus enhancing the accounting practices. Some of the interviewees, who had sole proprietorship and partnership, based on their experience suggested adopting ERP systems in their organization for recording large and complex transactions.

Alternatively, other three of the respondents alleged and evidently claimed that there was a direct relationship between the theoretical and practical knowledge which is required to adopt software for recording accounting transactions. On this point, the interviewee respondent exemplified that “Currently we use a special notebook to record transactions. Lack of knowledge of how to use advanced software. Do not find a program that suits the level of a commercial project.” Another interviewee mentioned that they did not use any programs in their accounting because business was small. The process of recording accounting transactions requires both theoretical and practical knowledge of accounting principles and accounting software. We still have a vast majority of SMEs in Oman using only books for recording their day-to-day accounting transactions. Only a small number of SMEs in Oman know the benefits of available accounting software and ICT adoption. SMEs face lack of ICT skilled employees for adopting accounting software for recording accounting transactions. So, this is consistent with the study of Nikolić et al. (2020), Ibrahim et al. (2020) and Ashrafi and Murtaza (2013), which found that the knowledge of accounting principles and accounting software leads to the adoption of accounting software in SMEs. One prominent professional auditor had strong reservations about the “[…] customize the new international standard of accounting require us to update the ERP and sometime that is not available which require us to change the ERP.” Updating recent changes in accounting standards or IFRS in ERP software requires assistance from software vendors. This is supported by Hernandez (2020) and Ha and Ahn (2014) who pointed that factors such as competent internal ERP team, supportive top management, employees’ technical training, collaboration between interdepartment and communication, continuous improvement and continuous systems process integration/extension influence adoption of accounting software in SMEs. Another interviewee noted that, “[…] easy to generate report and track the account and analyze the data” this is supported by Birt et al. (2020) and Arcega et al. (2015) that computers provide accurate calculations and smart reports such as financial statements, cash flow statements and various budgets. Another prominent interviewee opined that “[…] do not find a program that suits the level of a commercial project.” The same has been mentioned by Birt et al. (2020) and Wadesango (2015) in their studies that majority of SMEs use single-entry accounting and...
keep those transactions in books or MS Excel. According to Damerji (2020) and Chao and Chandra (2012), the knowledge of accounting software and its adoption are critical, and owner's knowledge of IT was found to be a significant predictor of adoption of traditional IT, as well as IT strategic alignment and Internet know-how, while controlling for differences in organizational attributes (age, size, affiliation industry and strategic attention). Accordingly, the accounting profession needs strong basic principles of accounting, especially in theoretical knowledge. The main role of accountant is to provide service for entry process financial transactions and generation of financial reports. Accountants should have certain percentage of knowledge in the realm of traditional/old financial accounting practice. In addition, accounting controllers think employing an ERP system leads to modifications in the role of accountants (Chen et al., 2012). When we asked them about the theoretical and practical knowledge about accounting software, three of the interviewees (professional accountants in SMEs) conclude that the use of computerized accounting software / ERP is easy since it reduces the work of preparing financial statements, budgets, cash flow statements and so on. R1, for example, states, "Making daily invoices prepare the general budget of the ministry and assist in facilitating the financial operations of the government by identifying monthly revenues and expenses and sending them to the ministry." Another interviewee (R2) reiterated the importance of knowledge of accounting software, "Lack of knowledge of how to use advanced software are the barriers while using such accounting software." Likewise, this result is supported by Oduro (2020), Pillay (2016), who claim that lack of practical knowledge and thus unable to experience the potential benefits of latest technology and strategies to support and boost SMEs in achieving their business operational objectives is the major barrier to ICT adoption. SMEs face various issues in implementation of ICT, such as inadequate financial resources, availability of inexperienced ICT employees, insufficient knowledge and skilled/ experienced employees in the job market. A study in conducted by Moghavvemi et al. (2012) and Ruivo et al. (2012) indicated that IT notion is taken as a powerful competitive tool in the recent economy and measures ERP post-adoption benefits on SME performance. One of the interviewees expressed their concern about the use of accounting software requiring theoretical and practical knowledge of accounting standards or IFRS and accounting software in order to record day-to-day business transactions, "Accounting software is a software designed specifically to help an accountant or entrepreneur. It manages all its accounting in purchases, sales, profits, losses and other related project." This result is consistent with some of the previous studies (Turner et al., 2020; Janvrin et al., 2008; Hostrom and Hunton, 1998). Usually, the result of the semi-structured discussions with respondents was consistent with and validated the qualitative findings presented, which found that all aspects (customized accounting software) had significant impact on practices among accounting professionals in various SMEs.

5. Implications
The study reveals a number of implications. The primary finding increases the importance of ICT knowledge and use or adoption of accounting software by SMEs for accounting literature. This research would be useful to SMEs to enhance the knowledge and use of accounting software among accounting professionals, as the study findings indicated that accounting software and ERP significantly affect efficiency and effectiveness in the field of professional accounting. This provides SMEs to select the most appropriate generalized or customized accounting software package. However, it implies that when customized or generalized accounting software is properly implemented, both with theoretical and practical knowledge of accounting in SMEs, the method of recording business transactions will be improved, which, in turn, will prevent outsourcing the accounting works to third parties. Freshly graduated students must have practical knowledge acquisition about
accounting software and its usage. This suggests the best way to enrich self-confidence in work environment. Imparting knowledge of the accounting software to the employees will be reinforced so that they use computerized accounting. Thus, this improved customized accounting software or ERP in SMEs will definitely improve their proficient way of handling daily recording of business transactions, the approach of accounting practices by SMEs and consequently improve the efficiency and effectiveness of SME’s accountants that will lead to generate automated fair financial statements and other related reports such as cash flow statements and budgetary report. Also, this existing study may help assist the policymakers, especially by Ministry of Oman, tax authorities in Oman, higher educational institutions and government in particular, to set right and consider policies linked to the knowledge of basics of accounting and knowledge of use of accounting software or ERP.

6. Limitations and future research
The research is restricted to few variables that have a relationship with the operational practices of selected organizations under SMEs in Oman. There could be different causative factors for adoption of accounting software by SMEs which can be examined in further studies; there is a need for additional analysis to confirm these leads to different contexts. Besides, it is suggested for impending studies to use quantitative methods, for instance, case studies specifically on moderators, and each of the independent variables to better comprehend the adoption of accounting software by SME organizations for recording day-to-day accounting transactions. In addition, the researchers can study various other challenges that current accounting professionals in SMEs face while using accounting software. Further, this study can be extended to categorize SMEs into partnership, LLP and sole proprietorship and evaluate the effectiveness and efficiency of using accounting software or ERP with traditional method of recording accounting transactions. This accounting software or ERP should support majority of local SMEs in Oman.

7. Conclusion
According to interviews and literature review, this research identifies the variables to be analyzed, the knowledge of accounting software and use or adoption of accounting software among SMEs accountants. As per the limited knowledge of the researcher, there are no previous qualitative study that used and empirically examined the relationship between knowledge and use of accounting software among accounting professionals of SMEs in Oman. This research consequently has assessed this phenomenon and analyzed literature in an effort to determine the knowledge and use of accounting software and evaluated the relationship between the accounting practices and SMEs in Oman. Likewise, this research has made an influential contribution to the literature regarding the influence of the knowledge of accounting software and the accounting professionals among various SMEs. The results have further revealed that the knowledge of customized accounting software or ERP exerts a significant impact on the use or adoption of accounting software in current accounting practices of SMEs. Thus, there is a strong relationship between the knowledge of basic accounting (including knowledge of IFRS) and use or adoption of accounting software to record day-to-day accounting transactions.

The three main parties – SMEs, higher educational institutions (HEI) and tax authorities –strategize on encompassing the use or adoption of accounting software by accounting professional in SMEs. Initially, Ministry of Higher Education in Oman should ensure that the curriculum for graduating students includes proper theoretical as well as practical training on generalized accounting software. With this training, the students should get acquainted
with the use and knowledge of organizational customized accounting software which helps them to know automated process of applicable IFRS and Oman’s proposed implementation of VAT of 2021. The government and policymakers should strategize on encompassing the use or adoption of accounting software by accounting professional in SMEs by giving aid and regulating the selected features of accounting software, hence making SMEs more compliant to the accounting standards or IFRS and tax laws in Oman. Tax authorities should encourage SMEs to use accounting software for recording business transactions to tackle with corporate tax and VAT. Further, software consultants should also know current accounting and tax regulations issued by government to develop customized accounting software for Omani SMEs. Moreover, it is suggested for future studies to apply quantitative methods such as case studies, specifically moderators, and each of the independent variables to better understand the customized accounting software in SMEs. In addition, the researchers can study various other challenges current accounting professionals face in order to invent customized accounting software which can support recording of accounting transactions of SMEs and to generate budget reports and cash flow statements that could manage SME’s financial operations.

References

Ahmed, E.R., Alabdullah, T.T.Y., Thottoli, M.M. and Maryanti, E. (2020), “Does corporate governance predict firm profitability? An empirical study in Oman”, The International Journal of Accounting and Business Society, Vol. 28 No. 1, pp. 127-143.

Alabdullah, T.T.Y., Ahmed, E.R. and Thottoli, M.M. (2019), “Effect of board size and duality on corporate social responsibility: what has improved in corporate governance in Asia?”, Journal of Accounting Science, Vol. 3 No. 2, pp. 121-135.

Alhatabat, Z. (2020), “The impact of ERP system’s adoption on management accounting practices in the Jordanian manufacturing companies”, International Journal of Business Information Systems, Vol. 33 No. 2, pp. 267-284.

Allen, W. (1999), “The future of accounting education”, Pacific Accounting Review, Vol. 11 Nos 1-2, pp. 1-7.

Amahalu, N., Abiahu, M.F.C. and Chinyere, O. (2017), “Comparative analysis of computerized accounting system and manual accounting system of quoted Microfinance Banks (MFBs) in Nigeria”, International Journal of Academic Research in Accounting, Finance and Management Sciences, Vol. 7 No. 2, pp. 30-43.

Amanamah, R.B., Morrison, A. and Asiedu, K. (2016), “Computerized accounting systems usage by small and medium scale enterprises in Kumasi Metropolis, Ghana”, Research Journal of Finance and Accounting, Vol. 7 No. 16, pp. 16-29.

Amidu, M., Effah, J. and Achor, J. (2011), “E-accounting practices among small and medium enterprises in Ghana”, Journal of Management Policy and Practice, Vol. 12 No. 4, pp. 146-155.

Amoako, G.K. (2013), “Accounting practices of SMEs: a case study of Kumasi Metropolis in Ghana”, International Journal of Business and Management, Vol. 8 No. 24, p. 73.

Anderson, D.R., Sweeney, D.J., Williams, T.A., Cumm, J.D. and Cochran, J.J. (2020), Modern Business Statistics with Microsoft Excel, Cengage Learning, Boston, MA.

Araya-Leandro, C.E., del Carmen Caba-Pérez, M. and López-Hernández, A.M. (2020), “The process of modernization of the public accounting systems in the central American countries”, Tools, Strategies, and Practices for Modern and Accountable Public Sector Management, IGI Global, pp. 97-122.

Arcega, C.K., Datinguinoo, E., Guerra, J., Guino, C., Mayuga, H.J., Villamena, E. and Manongsong, J.L. (2015), “Computerized vs non-computerized accounting system of small and medium enterprises in Lipa City, Philippines: a comparative analysis”, Asia Pacific Journal of Academic Research in Business Administration, Vol. 1 No. 1.
Ashrafi, R. and Murtaza, M. (2008), “Use and impact of ICT on SMEs in Oman”, *Electronic Journal of Information Systems Evaluation*, Vol. 11 No. 3, pp. 125-138.

Ashrafi, R. and Murtaza, M. (2013), “ICT adoption in SME in an Arab GCC country: Oman”, *Small and Medium Enterprises: Concepts, Methodologies, Tools, and Applications*, IGI Global, pp. 792-815.

Azih, N. (2018), “Electronic accounting: an imperative tool for quality assurance in accounting education programme in the digital era”, *Nigerian Journal of Business Education (NJBJED)*, Vol. 1 No. 2, pp. 90-98.

Bakr, S.A. (2020), *The Adoption of the International Financial Reporting Standard for Small and Medium-Sized Entities (IFRS for SMEs) in the Kingdom of Saudi Arabia*, Doctoral dissertation, Royal Holloway, University of London.

Baporikar, N. (2020), “Strategy for ICT adoption in SMEs”, *Handbook of Research on Increasing the Competitiveness of SMEs*, IGI Global, pp. 244-259.

Bashorun, M.T., Omopupa, K.T. and Dahiri, G. (2020), “Cloud computing and academic libraries in Nigeria”, *Handbook of Research on Digital Devices for Inclusivity and Engagement in Libraries*, IGI Global, pp. 113-134.

Birt, J., Chalmers, K., Maloney, S., Brooks, A., Oliver, J. and Bond, D. (2020), *Accounting: Business Reporting for Decision Making*, John Wiley & Sons, Hoboken, New Jersey.

Blankley, A., Kerr, D. and Wiggins, C. (2019), “An Examination and analysis of technologies employed by accounting educators”, *The Accounting Educators’ Journal*, Vol. 28, pp. 75-98.

Boulianne, E. (2014), “Impact of accounting software utilization on students’ knowledge acquisition: an important change in accounting education”, *Journal of Accounting and Organizational Change*, Vol. 10 No. 1, pp. 22-48.

Bui, N.T., Le, O.T.T. and Nguyen, P.T.T. (2020), “Management accounting practices among vietnamese small and medium enterprises”, *Asian Economic and Financial Review*, Vol. 10 No. 1, pp. 94-115.

Cadez, S. and Guilding, C. (2008), “An exploratory investigation of an integrated contingency model of strategic management accounting”, *Accounting, Organizations and Society*, Vol. 33 Nos 7-8, pp. 836-863.

Chao, C.A. and Chandra, A. (2012), “Impact of owner’s knowledge of information technology (IT) on strategic alignment and IT adoption in US small firms”, *Journal of Small Business and Enterprise Development*, Vol. 19 No. 1, pp. 114-131.

Chen, H.J., Yan Huang, S., Chiu, A.A. and Pai, F.C. (2012), “The ERP system impact on the role of accountants”, *Industrial Management and Data Systems*, Vol. 112 No. 1, pp. 83-101.

Chhabra, K.S. and Pattanayak, J.K. (2014), “Financial accounting practices among small enterprises: issues and challenges”, *IUP Journal of Accounting Research and Audit Practices*, Vol. 13 No. 3, p. 37.

Căpușneanu, S., Topor, D.I., Constantin, D.M.O. and Marin-Pantelescu, A. (2020), “Management accounting in the digital economy: evolution and perspectives”, *Improving Business Performance through Innovation in the Digital Economy*, IGI Global, pp. 156-176.

Dalci, İ. and Tanış, V.N. (2004), “Benefits of computerized accounting information systems on the JIT production systems”, *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Vol. 13 No. 1, pp. 21-36.

Damak-Ayadi, S., Sassi, N. and Bahri, M. (2020), “Cross-country determinants of IFRS for SMEs adoption”, *Journal of Financial Reporting and Accounting*, Vol. 18 No. 1, pp. 147-168.

Damerji, H. (2020), *Technology Readiness Impact on Artificial Intelligence Technology Adoption by Accounting Students*, Doctoral Dissertation, University of La Verne.

Do, D., Nguyen, T., Ha, S., Tran, M., Nguyen, H. and Truong, D. (2020), “An analysis of underlying constructs affecting the choice of accounting as a major”, *Management Science Letters*, Vol. 10 No. 2, pp. 361-368.
Draijer, C. (2020), “Best practices of business simulation with SAP R/3”, *Journal of Information Systems Education*, Vol. 15 No. 3, p. 5.

Everaert, P., Sarens, G. and Rommel, J. (2006), “Sourcing of accounting: evidence from Belgian SMEs”, Working Paper, Ghent University, Belgium, available at: [http://www.FEB.UGent.be/fac/research/WP/Papers/wp_06_403.pdf](http://www.FEB.UGent.be/fac/research/WP/Papers/wp_06_403.pdf) from [http://proquest.umi.com/pqdweb?index=5&did=1194660571&Srch](http://proquest.umi.com/pqdweb?index=5&did=1194660571&Srch) (accessed 15 October 2008).

Fowzia, R. and Nasrin, M. (2011), “Appreciation of computerized accounting system in financial Institutions in Bangladesh”, *World Review of Business Research*, Vol. 1 No. 2, pp. 1-9.

Ganyam, A.I. and Ivungu, J.A. (2019), “Effect of accounting information system on financial performance of firms: a review of literature”, *Journal of Business and Management*, Vol. 21 No. 5, pp. 39-49.

Ghasemi, M., Shafeiepour, V., Aslani, M. and Barvayeh, E. (2011), “The impact of Information Technology (IT) on modern accounting systems”, *Procedia-Social and Behavioral Sciences*, Vol. 28, pp. 112-116.

Gökten, S. and Özdoğan, B. (2020), “The doors are opening for the new pedigree: a futuristic view for the effects of blockchain technology on accounting applications”, *Digital Business Strategies in Block Chain Ecosystems*, Springer, Cham, pp. 425-438.

Ha, Y.M. and Ahn, H.J. (2014), “Factors affecting the performance of Enterprise Resource Planning (ERP) systems in the post-implementation stage”, *Behaviour and Information Technology*, Vol. 33 No. 10, pp. 1065-1081.

Hassan, H. (2020), “Factors influencing cloud computing adoption in small medium enterprises”, *Journal of Information and Communication Technology*, Vol. 16 No. 1, pp. 21-41.

Hernandez, A.A. (2020), “Exploring the factors to green IT adoption of SMEs in the Philippines”, *Start-Ups and SMEs: Concepts, Methodologies, Tools, and Applications*, IGI Global, pp. 907-926.

Hostrom, G.L. and Hunton, J.E. (1998), “New forms of assurance services for new forms of information: the global challenge for accounting educators”, *International Journal of Accounting*, Vol. 33 No. 3, pp. 347-358.

Huy, P.Q. and Phuc, V.K. (2020), “The impact of Public Sector Scorecard adoption on the effectiveness of accounting information systems towards the sustainable performance in public sector”, *Cogent Business and Management*, Vol. 7 No. 1, 1717718, pp. 1-23.

Ibrahim, F., Ali, D.N.H. and Besar, N.S.A. (2020), “Accounting information systems (AIS) in SMEs: towards an integrated framework”, *International Journal of Asian Business and Information Management (IJABIM)*, Vol. 11 No. 2, pp. 51-67.

Idota, H., Bunno, T. and Tsuji, M. (2020), “Impact of ICT on innovation: the case of Japanese SMEs”, *Disruptive Technology: Concepts, Methodologies, Tools, and Applications*, IGI Global, pp. 1624-1651.

Jalaludin, D., Sulaiman, M. and Ahmad, N.N.N. (2011), “Understanding environmental management accounting (EMA) adoption: a new institutional sociology perspective”, *Social Responsibility Journal*.

Janvrin, D., Bierstaker, J. and Lowe, D.J. (2008), “An examination of audit information technology use and perceived importance”, *Accounting Horizons*, Vol. 22 No. 1, pp. 1-21.

Jimoh, A.T., Shittu, A.T. and Attah, J.A. (2020), “Impact of financial inclusion on performance of banks in Nigeria”, *Fountain University Osogbo Journal of Management*, Vol. 4 No. 3, pp. 84-96.

Jinga, G., Dumitru, M., Dumitrana, M. and Vulpoi, M. (2010), “Accounting systems for cost management used in the Romanian economic entities”, *Accounting and Management Information Systems/Contabilitate si Informatica de Gestione*, Vol. 9 No. 2.

Kapurubandara, M. and Lawson, R. (2006), *Barriers Adopting ICT and E-Commerce with SMEs in Developing Countries: An Exploratory Study in Sri Lanka*, 9 December, 2006, CollECTeR '06, Adelaide, available at: [http://www.collecter.org/archives/2006_December/07.pdf](http://www.collecter.org/archives/2006_December/07.pdf) (accessed 13 March 2008).
Knapp, K. (2019), *U.S. Patent No. 10,304,095*, U.S. Patent and Trademark Office, Washington, DC.

Kumar, P.N. (2020), “Technological improvement in accounting system through cloud computing”, *Our Heritage*, Vol. 68 No. 54, pp. 649-656.

Lee, L., Kerler, W. and Ivancevich, D. (2018), “Beyond Excel: software tools and the accounting curriculum”, *AIS Educator Journal*, Vol. 13 No. 1, pp. 44-61.

Lin, Z.J., Xiong, X. and Liu, M. (2005), “Knowledge base and skill development in accounting education: evidence from China”, *Journal of Accounting Education*, Vol. 23 No. 3, pp. 149-169.

Maseko, N. and Manyani, O. (2011), “Accounting practices of SMEs in Zimbabwe: an investigative study of record keeping for performance measurement (A case study of Bindura)”, *Journal of Accounting and Taxation*, Vol. 3 No. 8, pp. 158-161.

Mishina, Z.A., Kozlov, S.N., Sidorova, N.P., Makarychev, V.A., Makushev, A.E. and Ivanov, E.A. (2020), “Accounting outsourcing in small business agribusiness: ‘terms of reference’”, *IOP Conference Series: Earth and Environmental Science*, IOP Publishing, Vol. 433 No. 1, 012021.

Moghavvemi, S., Hakimian, F., Feissal, T. and Faziharudean, T.M. (2012), “Competitive advantages through IT innovation adoption by SMEs”, *Socialinek technologijos/Social Technologies*, Vol. 2 No. 1, pp. 24-39.

Musa, A. and Abu, A. (2005), “Investigating the perceived threats of computerized accounting information systems in developing countries: an empirical study on Saudi organizations”, *Journal of King Saud University-Computer and Information Sciences*, Vol. 18, pp. 1-26.

Mustafa, M.R. (2020), “The study of problems moving from the unified accounting system to the international accounting standards”, *International Journal of Multicultural and Multireligious Understanding*, Vol. 7 No. 1, pp. 101-116.

Nikolić, G., Vitenberg, V. and Karanović, B. (2020), “Adoption of sustainable accounting practices among croatian SME’s”, *KnE Social Sciences*, Vol. 4 No. 1, pp. 456-480.

Nyathi, K.A., Nyoni, T., Nyoni, M. and Bonga, W.G. (2018), “The role of accounting information in the success of small and medium enterprises (SMEs) in Zimbabwe: a case of Harare”, *Journal of Business and Management (DRJ-JBM)*, Vol. 1 No. 1, pp. 01-15.

Ocampo, L., Alarde, R.M.B., Kilongkilong, D.A. and Esmero, A. (2017), “Adoption of online marketing for service SMEs with multi-criteria decision-making approach”, *Handbook of Research on Intelligent Techniques and Modeling Applications in Marketing Analytics*, IGI Global, pp. 226-243.

Oduro, S. (2020), “Exploring the barriers to SMEs’ open innovation adoption in Ghana”, *International Journal of Innovation Science*, Vol. 12 No. 1, pp. 21-51.

Ogundana, O., Okere, W., Ayomoto, O., Adesanmi, D., Ibiddunni, S. and Ogumeyie, O. (2017), “ICT and accounting system of SMEs in Nigeria”, *Management Science Letters*, Vol. 7 No. 1, pp. 1-8.

Phyu, K.K. and Vongurai, R. (2020), “Impacts on adaptation intention towards using accounting software in terms of technology advancement at work in Myanmar”, *AU-GSB e-Journal*, Vol. 12 No. 2, pp. 98-111.

Pillay, P. (2016), *Barriers to Information and Communication Technology (ICT) Adoption and use Amongst SMEs: A Study of the South African Manufacturing Sector*, (Doctoral Dissertation).

Pulakanam, V. and Suraweera, T. (2010), “Implementing accounting software in small business in New Zealand: an exploratory investigation”, *Accountancy Business and the Public Interest*, Vol. 9 No. 64, pp. 98-124.

Rahman, M.M., Ahammed, M., Uddin, M., Rouf, M. and Uddin, M.M. (2015), “Obstacles and implementation of accounting software system in small medium enterprises (SMEs): case of south Asian perspective”, *Abdur and Uddin, Mohammad Main, Obstacles and Implementation of Accounting Software System in Small Medium Enterprises (SMEs): Case of South Asian Perspective*, (May 23, 2015), Vol. 1 No. 1, pp. 7-15.
Ramazani, M., Zanjani, M. and Vali, F. (2012), “Accounting software expectation gap based on features of accounting information systems (AISs)”, *Journal of Emerging Trends in Computing and Information Sciences*, Vol. 3 No. 11, pp. 1530-1535.

Rindașu, S.M. (2017), “Emerging information technologies in accounting and related security risks—what is the impact on the Romanian accounting profession”, *Journal of Accounting and Management Information Systems*, Vol. 16 No. 4, pp. 581-609.

Rudzani, S. and Manda, D.C. (2016), “An assessment of the challenges of adopting and implementing IFRS for SMEs in South Africa”, *Problems and Perspectives in Management*, Vol. 14 No. 2, pp. 121-221.

Ruivo, P., Oliveira, T. and Neto, M. (2012), “ERP use and value: Portuguese and Spanish SMEs”, *Industrial Management and Data Systems*, Vol. 112 No. 7, pp. 1008-1025.

Sami, M. (2011), “Quality of information as strategic factor in accounting information system (AIS) towards better organizational performance”, *JRMS/ Jurnal Riset Manajemen Sains Indonesia*, Vol. 2 No. 2, pp. 1-17.

Senft, S., Gallegos, F. and Davis, A. (2016), *Information Technology Control and Audit*, Taylor & Francis Group, New York.

Shaffer, K.J., Gaumer, C.J. and Bradley, K.P. (2020), “Artificial intelligence products reshape accounting: time to re-train”, *Development and Learning in Organizations*, Advance online publication, doi: 10.1108/DLO-10-2019-0242.

Situmorang, P.P. (2020), “The effect of system quality and information quality on the satisfaction of user enterprise resource planning-system application and product in data processing (ERP-SAP) with perceived usefulness as a variable moderating in PTPN III (persero) unit of labuhan”, *International Journal of Public Budgeting, Accounting and Finance*, Vol. 2 No. 4, pp. 1-11.

Taiwo, J.N. (2016), “Effect of ICT on accounting system and organisational performance: the application of information and communication technology on accounting information system”, *European Journal of Business and Social Sciences*, Vol. 5 No. 2, pp. 1-15.

Teddlie, C. and Tashakkori, A. (Eds) (2009), *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences*, Sage Publications.

Thottoli, M.M. (2020), “Impact of accounting software among SMEs accountants in Oman: financial markets”, *Institutions and Risks*, Vol. 4 No. 2, pp. 25-33, doi: 10.21272/fmir.4(2).25-33.2020.

Thottoli, M.M., Thomas, K.V. and Ahmed, E.R. (2019a), “Qualitative analysis on information communication technology and auditing practices of accounting professionals”, *Journal of Information and Computational Science*, Vol. 9 No. 9, pp. 529-537.

Thottoli, M.M., Thomas, K.V. and Ahmed, E.R. (2019b), “Adoption of audit software by audit firms: a qualitative study”, *Journal of Information and Computational Science*, Vol. 9 No. 9, pp. 768-776.

Thottoli, M.M., Thomas, K.V. and Ahmed, E.R. (2019c), “Examining the impact of information communication technology on auditing professionals: a quantitative study I”, *Journal of Advanced Research in Dynamical and Control Systems*, Vol. 11 No. 12, pp. 476-488.

Turner, L., Weickgenannt, A.B. and Copeland, M.K. (2020), *Accounting Information Systems: Controls and Processes*, John Wiley & Sons, Hoboken, New Jersey.

Tychalas, D. and Karatzia, H. (2020), “A scheduling algorithm for a fog computing system with bag-of-tasks jobs: simulation and performance evaluation”, *Simulation Modelling Practice and Theory*, Vol. 98, p. 101982.

Wadesango, O.V. (2015), “The importance of record keeping to the growth of Small and Medium Scale Enterprises (SMEs) in Zimbabwe”, *Corporate Ownership and Control*, Vol. 12 No. 4, pp. 744-755.

Wen, Y. (2020), “A review of researches on accounting in China brought by artificial intelligence”, *5th International Conference on Economics, Management, Law and Education (EMLE 2019)*, Atlantis Press, pp. 476-482.
Wessels, P.L. (2005), “Critical information and communication technology (ICT) skills for professional accountants”, Meditari Accountancy Research, Vol. 13 No. 1, pp. 87-103.

Xu, X. (2020), “Application research of accounting archives informatization based on big data”, Data Processing Techniques and Applications for Cyber-Physical Systems (DPTA 2019), Springer, Singapore, pp. 55-62.

Yu, X., Zheng, H., Sun, L. and Shan, Y. (2020), “An emissions accounting framework for industrial parks in China”, Journal of Cleaner Production, Vol. 244, p. 118712.

Zhou, L. (2010), “The research on issue and countermeasures of accounting information of SMEs”, International Journal of Business and Management, Vol. 5 No. 3, p. 223.

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