Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2021.vol8.no2.0833

Cloud-Based Accounting Adoption in Jordanian Financial Sector

Abdel Rahman ELDALABEEH[1], Mohannad Obeid AL-SHBAIL[2], Mohammad Zayed ALMUIET[3], Mohammad BANY BAKER[4], Dheifallah E'LEIMAT[5]

Received: November 05, 2020 Revised: January 05, 2021 Accepted: January 15, 2021

Abstract

Cloud accounting represents a new area of accounting information systems. Past research has often focused on accounting information systems and its antecedents, rather than factors that adopt cloud accounting system. The purpose of this paper is to explain the factors that influence the adoption of cloud accounting in the financial sectors. This paper applied the technology acceptance model (TAM), technology-organization-environment, and the De Lone and Mc Lean model, coupled with proposed factors relevant to cloud accounting. The proposed model was empirically evaluated using survey data from 187 managers (financial managers, IT department managers, audit managers, heads of accounting departments, and head of internal control departments) in Jordanian bank branches. Based on the SEM results, top management support, organizational competency, service quality, system quality, perceived usefulness, and perceived ease of use had a positive relationship with the intention of using cloud accounting. Cloud accounting adoption positively affected cloud accounting usage. This paper contributes to a theoretical understanding of factors that activate the adoption of cloud accounting. For financial firms in general the results enable them to better develop cloud accounting framework. The paper verifies the factors that affect the adoption of cloud accounting and the proposed cloud accounting model.

Keywords: Cloud Accounting, TAM Model, TOE Model, De Lone and Mc Lean Model, Jordan

JEL Classification Code: M15, M41, O33

1. Introduction

Modern firms' success is dependent on their investment ability in new technologies, among other factors that bring about their exploitation of commercial opportunities and their adaptation of their business processes. Accounting literature states that accounting change determinants can be divided into three primary categories which are, increasing globalization, enhanced IT, and enhanced production techniques (Cleary, 2016). Accounting refers to the language and science of business performance measurement, and it has been adapting to the economic context throughout the years. The introduction of accounting software has led to a considerably enhanced accounting practice. Owing to the significant information volume and the required processing time, accounting software has become a must as an accountant tool for faster and efficient job completion (Turner & Weickgenannt, 2020; El-dalabeeh, 2019). Despite the inception of accounting software in a few decades, its potential has increased over the years, and a resulting outcome is a sophisticated tool.

In relation to technological developments, companies' accounting departments have become susceptible to the influence of business digitization, the intense potential of the internet, big data implications, and the increasing data mining importance (Laudien & Pesch, 2019). In this realm, cloud computing was introduced, and it paved the way for creating new business models. Cloud computing is indubitably influential, and it has been predicted to be the platform upon which future changes in the economic

[1]First Author. Associate Professor, Accounting Department, Faculty of Economics and Administrative Sciences, Al al-Bayt University, Jordan. Email: dalabih@aabu.edu.jo
[2]Corresponding Author. Assistant Professor, Accounting Department, Faculty of Economics and Administrative Sciences, Al al-Bayt University, Jordan [Postal Address: P. O. BOX 130040, Mafraq 25113, Jordan] Email: mohannadobeid87@aabu.edu.jo
[3]Assistant Professor, Queen Noor Aviation Technical College, Cyber Security Department, Jordan, Jordan. Email: malmuiet@qnac.edu.jo
[4]Researcher, Center for Artificial Intelligence Technology, Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, Bangi, Malaysia. Email: mohammad_banibakr@yahoo.com
[5]Director of Financial Affairs, Al al-Bayt University, Jordan. Email: difallah1976@gmail.com

field are based (Ferri, Spano, & Tomo, 2019; Fu, Zhang, & Lyu, 2019). Cloud computing impacts the provision of the services so that such services can only be accessed remotely and on request. In other words, cloud computing enables enhanced flexibility of business, which is the primary determinant of its adoption, which provides highly efficient big-data analysis, and as such, it affects the entire economic actors (Attaran & Woods, 2019; Yoo & Kim, 2019; Choi, Kim, & Kim, 2019).

Cloud solutions also enable an increasing pace of change that has permeated the domain and field of accounting. As predicted, cloud service providers have developed cloud-based accounting applications that provide innumerable benefits. In the current times, accounting in the cloud is a contemporary business realm driven by its technology (Asatiani, Apte, Penttinen, Rönkkö, & Saarinen, 2019). Cloud accounting software, or online accounting, functions as an accounting application integrated into users' computers, performing on servers that offer online services, and users can access that via web browsers. Therefore, accountants or business owners are enabled to link to their financial affairs from any location using the Internet.

It is pertinent for the accounting field to have an insight into the forces at hand in reforming their supported organizations' future. It is also vital for accountants to evaluate the effects of the changes objectively in light of their association with the accounting system aspects, including staff, processes, and standards (Deegan, 2017). Future change impact encompasses the entire accounting aspects, beginning with the accounting staff role to the financial reporting standards content and the future accountant's reformation.

Theories underpin this work to present the paradigm of cloud accounting and focus on the relevant adopted IT (cloud computing). This study primarily investigates cloud accounting as a novel approach to business and presents numerous aspects of the innovative paradigm. Owing to the relative newness of the concept, present academic literature lacks information on the topic. Still, in a way, it can be stated that the business realm is one that supports cloud-based accounting solutions. As such, a considerable portion of articles dedicated to cloud accounting in literature is mostly in the form of surveys, market studies, and technical reports.

2. Theoretical Background

In establishing computing infrastructure and platforms in the organization's premises, traditional computing often incurs a high capital expense. However, with the changes in computing traditions, organizations no longer need to invest in IT systems internally (Njenga, Garg, Bhardwaj, Prakash, & Bawa, 2019). In cloud computing, several advantages can be reaped compared to traditional IT, and among these are expedient data transactions, elasticity, resource-sharing, pay-per-use, flexibility, easy configuration, low cost of IT deployment, and the requirement for data centers, as well as the enhanced performance of IT and technologies (Novais, Maqueira, & Ortiz-Bas, 2019).

More importantly, cloud computing was described by Hsu and Lin (2016) as applications delivered in the form of service using the internet and computers (hardware and software) through data centers meeting access demand. Such applications are offered in three primary forms, namely applications like Software as a Service (SaaS), platforms like Platform as a Service (PaaS), and hardware Infrastructure as a Service (IaaS) (Kim, 2018; Kyriakou & Loukis, 2019). More specifically, Saas establishes access to web-based software via browser even without installing and maintaining software. Providers of such service market productivity applications like office software and programs (CRM, ERP) based on subscription, with top SaaS solutions being Google Docs and Salesforce (Hsu & Lin, 2016). Moreover, PaaS developers offer software solutions on a cloud platform, which generally encapsulates operating systems, programming language execution environment, database, and web servers, with early market leaders being Google's App Engine, Microsoft's Azure, and Amazon Web Services (Pflanzner & Kertesz, 2016; Salem & Hwang, 2016). Lastly, IaaS provides access to infrastructure resources like virtual computers, storage devices, servers, and data center space to support and run enterprises' operations. Current firms may require extensive data computing and storage, which cloud service providers can satisfy (Labati, Genovese, Piuri, Scotti, & Vishwakarma, 2020) with all three cloud layers. Partitioning hardware and providing versatile and measurable computing platforms are made possible through virtualization technologies, allowing users' various needs to be met (Hsu & Lin, 2016).

Nevertheless, there are certain drawbacks to cloud computing. These include data security, privacy, uneven service availability concerns, lack of compatibility with the applications and systems, and ineffective regulatory frameworks (Bhoir & Principal, 2014). According to Gupta, Seetharaman, and Raj (2013), cloud computing services provided through the net have been constant replacements of in-house hosted computing systems. The cloud computing model used in organizations can address computing requirements, but its use is affected by various geographic and operating environments at different levels. Based on prior studies, there are many cloud computing levels based on geographies due to their different economic factors and background (Tashkandi & Al-Jabri, 2015). The adoption of cloud computing in organizations is often attributed to their need to address various issues (operational and logistical). As such, cloud computing adoption and integration success call for comprehending the determinants of cloud services and a clear plan on the way, the challenges can be tackled. In particular, Njenga et al. (2019) stated that the determinants of cloud computing adoption might arise from technological,

environmental, and organizational aspects, involving stakeholders like providers of cloud services, end-users, corporate heads, regulatory entities, and market competitors. Several frameworks have been forwarded in the literature to examine innovation adoption in the IT field.

2.1. Cloud Computing Adoption Theories

Several studies have been dedicated to investigating the effect of cloud computing adoption factors, with proposed research models built on various technology adoption theories like Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Diffusion of Innovations (DOI), Task/Technology Fit Theory (TTF), Technology Organization Environment Model Factors (TOE), among others. Related research models showed factors that this study considered but based on the knowledge gathered, a comprehensive research model of cloud computing model factors has yet to be proposed to provide extensive information on the significance of the factors and their relationship to cloud computing adoption.

2.1.1. Technology-Organization-Environment (TOE) Model

Adoption based on organizational context is underpinned by the TOE framework (Torantzky, Fleischer, & Chakrabarti, 1990), which is, in turn, based on Fiedler's contingency theory arguing that common factors are grouped based on their effect on the adoption of technology. Prior cloud computing literature indicates that the TOE framework can provide a suitable basis for examining the topic (e.g., Khayer, Talukder, Bao, & Hossain, 2020). Other related studies like Low, Chen, and Wu (2011) and Oliveira, Martins, Sarker, Thomas, and Popovic (2019) revealed that cloud computing adoption theory should take into consideration the determinants of intention towards adopting and using technology, which is integrated into the contexts of technology, organization, and environment.

To begin with, the technological component highlights the internal and external technologies that influence the members of the organization and the organization itself (Tu, 2018; Effendi, Sugandini, Istanto, Van Dat, & Le, 2020), and it focuses on firm obtainability and expertise of using various resources to help in IS acceptance which in turn affect productivity. Such context consists of the enterprise's size, scope, culture, structure, communication channels, centralizations degree, beliefs of management, and human resources sufficiency (Oliveira, Martins, Sarker, Thomas, & Popovič, 2019; Lakhwani, Dastane, Satar, & Johari, 2020).

With regards to the environment component, it covers industry factors, including market elements, regulatory environment, and competitors that influence the enterprises' operations and running, whether directly or indirectly (Khayer et al., 2020). Based on the theoretical and empirical findings, the TOE framework is a good foundation upon which emerging technologies like cloud computing (adoption, implementation, and usage) can be examined (Oliveira, Thomas, & Espadanal, 2014). Furthermore, TOE has been extensively used as a framework as it generally concentrates on individuals as opposed to their roles and beliefs (Awa, Ukoha, & Igwe, 2017).

2.1.2. Technology Acceptance Model (TAM)

The inception of TAM is based on the TRA that predicts the acceptance and use of technology among the end-users as proposed by Davis, Bagozzi, and Warshaw (1989). TRA was developed in IS to explain IS adoption using perceived usefulness and perceived ease of use as the main factors. TAM and the succeeding versions (TAM2 and TAM3) have been used in different technology and user sets and groups to explain IT adoption and usage (Venkatesh & Bala, 2008). TAM is useful in providing insight into the determinants of intention towards IT usage and providing interventions useful for management to enhance such use (Venkatesh & Bala, 2008; Yigitbasioglu, 2015; Ambarwati, Astuti, & Dijaya, 2020; Agustina & Pramana, 2019; Lee, Wu, & Fan, 2017). The TAM model is invaluable for IT managers and cloud vendors to enhance adoption and control factors that drive it.

2.1.3. Information Systems Success Model (De Lone and Mc Lean Model)

D&M is considered as the pioneering IS success model proposed by De Lone and Mc Lean (1992) based on three levels containing six factors; 1) system initialization, where system quality gauges information processing system and information quality depicts the IS output measurement, 2) system use where use is deemed to refer to recipient's employment of the IS output, and user satisfaction refers to the recipient's satisfaction of the same, and lastly, 3) system effectiveness, where individual impact refers to the effectiveness of information on the behavior of the user, and organizational impact refers to the information effectiveness on the performance of the entity (De Lone & Mc Lean, 1992), through data storage with technological advances (cloud accounting). And finally, the update of technology is used to store and retrieve databases (Kim, Huh, Lee, & Shin. 2019).

The model was updated by De Lone and Mc Lean (2003) and called it the updated D&M model, with the main differences being the addition of service quality as a factor that depicts the service and support in IS success, and the addition of intention to use that depicts the user's attitudes, instead of user's employment/usage. IS success model thus consists of six factors, with three being quality factors (information quality, system quality, and service quality), and the remaining being the intention to use, user satisfaction, and net benefits (De Lone & Mc Neal, 2003).

Specifically, intention to use is a concept connected to TAM, as proposed by Davis et al. (1989) and UTAUT by Venkatesh et al. (2003). In some contexts, intention towards use is interchanged with use, with the former depicting the attitude towards use behavior (with attitude and behavior connected) (De Lone & Mc Lean, 2003). Due to the difficulty in measuring 'use,' most studies opted to use the attitude scale for the scale of behavior. Several works even used IS with IS success interchangeably, while others used IS effectiveness synonymous with individual impact/organizational impact/ net benefits (De Lone & Mc Lean, 2004).

2.2. Combining TOE, TAM and De Lone and Mc Lean Models

The underpinning models of this study are TAM, TOE, and De Lone and Mc Lean framework, which have all been extensively used and tested in the literature. Extensive empirical and conceptual studies have been done to justify their significance, dominance, and role, particularly TAM and TOE in technology adoption at the level of the individual, particularly TAM and TOE in technology adoption, despite their limitations. TAM's constructs, namely PU and PEOU, manage to explain approximately 40% of the use of the system (Rad, Nilashi, & Dahlan, 2018), with undefined external variables that have been added, time and again, to extend the model. Comparatively, TOE has unclear main constructs and has been deemed too general a model (Bazi, Hassanzadeh, & Moeini, 2019), and thus, it needs to be reinforced through the integration of robust and clear constructs of other models. In this regard, the authors have also recommended integrating TAM and TOE to increase the predictive power of the combined model and overcome their limitations. However, TAM and TOE's integration is not a simple feat as their external variables and their significance differ throughout cases. In other words, there is a lack of consensus as to the set of variables that can be generalized into shedding light on the adoption of technology through a model that is appropriate for any context and technology type (Gangwar, Date, & Ramaswamy, 2015).

The integration approach considers that although there are various TAM extensions, two primary constructs stand out: usefulness and ease of use, which has been highlighted in Abdullah and Ward's (2016) study. As such, the present study included usefulness as the original TAM variable and combined the model with De Lone and Mc Lean's model, as suggested by Seddon (1997), who considered usefulness as a general perceptual measure of benefits and is a main user satisfaction determinant. Ease of use in TAM was not operationalized as a distinct model construct rather than an aspect that is attributed to the quality of the technical system. In this regard, the effect of technical system quality on perceived satisfaction, perceived usefulness, and use is predicted to be higher than the effect of ease of use on the same constructs. Hence, ease of use was included and considered as one of the indicators under the technical system quality. In addition, in light of intention to use the system of its actual use, acceptance was considered in the study model. Intention to use was integrated by De Lone and Mc Lean's model (2003) as an alternative measure for the use construct according to the level of system usage. Also, researchers revealed that intention to use is a valid measure at the early system implementation stage.

The current study is expected to contribute to the literature on cloud computing accounting systems success as it proposes an extensive multi-dimensional model that consists of the primary dimensions and sub-dimensions of the approaches. Moreover, based on studies focused on De Lone and Mc Lean model, it is capable of measuring the success of information systems, but it has to be extended to cover variables that are aligned with the cloud computing accounting services to improve its explanatory power. Also, De Lone and Mc Lean (2003) failed to conduct an empirical validation of their model but introduced it as a framework, upon which IS success dimensions can be conceptualized. According to them, other researchers should develop and validate the model in different cases.

Similarly, TAM enables the assessment of new technologies' acceptance and adoption, and this includes cloud computing, but acceptance does not translate into success, and it confines the understanding of behavioral aspects, necessitating a full understanding of success. Furthermore, the entire phases of system' usage have to be considered, including system design, quality of information, among others, as well as usefulness and satisfaction of its use, and following its use, the benefits garnered from it. In other words, additional external variables have to be added to the main TAM constructs.

The updated De Lone and Mc Lean model theoretically supports the factors of content quality, content design quality, interactivity, functionality, user-interface design, accessibility, availability, personalization, and responsiveness as the top IS success drivers (Almaiah, Jalil, & Man, 2016). Nevertheless, it lacks theoretical validation when it comes to the connections among quality features and beliefs and intention towards use among users in the case of successful cloud computing accounting systems. Therefore, only by combining the two models for complementary support can the weaknesses be addressed. Thus, it is reasonable to obtain support from De Lone and Mc Lean's model to develop a hybrid model by acquiring the quality features and combining them with perceived usefulness, perceived ease of use, and behavioral intention towards use.

Overall, the development of an integrated model fell along the line of including significant and insignificant TAM, TOE, and De Lone and Mc Lean variables that were determined from the literature. Gangwar et al. (2015) related that the importance of variables differs based on contexts like technology type, country of study, and companies' size (turnover, number of employees, etc.). As such, the variables should not be left out because of their inconsistent insignificant relationship in specific contexts.

3. Research Model and Hypothesis Development

In this study, the barriers to cloud computing adoption are identified using a survey and literature review, where several search engines were explored, including Emerald Insight, Inderscience Online, Science Direct (Elsevier), Springer, Taylor & Francis Group, Wiley Online Library, and IEEE Explorer.

The study was underpinned by the TOE, TAM, and De Lone and Mc Lean's paradigms and theories to develop the research model, which relates the drivers of technological and environmental factors to usefulness and ease of use to intention towards using cloud services based on the formulated hypotheses.

3.1. Top Management Support

There is a significant influence of top management consisting of CEOs (Ahmed, Majid, & Zin, 2016), owners and managers, on the successful adoption of IS or IT as they are the ones who are responsible for the strategic, tactical, and operational decisions. Cloud computing adoption within organizations is a strategic decision that top management has to decide upon. Literature supports that top management is a significant predictor of cloud computing adoption (e.g., Gangwar, Date, & Ramaswamy, 2015). Sufficient top management support significantly affects cloud technology use as top management has a primary role in appropriating resource budgets, services integration, and business re-engineering (Gangwar et al., 2015; Low, Chen, & Wu, 2011). Akin to the management discipline, IT adoption has highlighted the top management support role in initiating, implementing, and adopting IT. According to Gangwar et al. (2015), the top management perceptions and actions regarding the use of technology in developing firm values is of significance, ensuring the long-term vision, values reinforcement, resources commitment, optimal resources management, facilitation of positive organizational climate, higher levels of individual self-efficacy, and supporting the overcoming of change barriers and resistance. Literature indicates that top management's support positively relates to perceived usefulness and perceived ease of use when it comes to IT adoption. Thus, this study proposes the following hypotheses;

H1a: *Top management support has a positive effect on perceived usefulness.*

H2b: *Top management support has a positive effect on perceived ease of use.*

3.2. Organizational Competency

Organizational competency is the perception and evaluation of the management of the level to which they think that their organization possesses awareness, resources, commitment, and governance when it comes to IT adoption (Gangwar et al., 2015). There are two dimensions to organizational readiness, and they are financial competency, which refers to the financial resources for the implementation of cloud computing and expenses for continuous usage, and technological competency, which refers to the infrastructure and human resources for the use and management of cloud computing system (Raut, Gardas, Jha, & Priyadarshinee, 2017). It is argued that firms with robust infrastructure, expert workforce, and financial support enhance the technologies in light of usefulness and ease of use. This study thus formulated the following hypotheses;

H2a: *Organizational competency has a positive effect on perceived usefulness.*

H2b: *Organizational competency has a positive effect on perceived ease of use.*

3.3. Service Quality

There are several policy issues that stem from cloud computing, among which is the service quality, which can be defined as customer's (user of information) perceptions and it is judged by them in person, not by organizations (Potluri & Angiating, 2018). Cloud computing services are considered by organizations in light of cost savings and late technology platforms acquisition (Ali & Osmanaj, 2020). The service quality level that technology offers to the end-users significantly influences the usage of online services in the organization (Alkhater, Walters, & Wills, 2018). In the same line of study, Al-Fraihat, Joy, and Sinclair (2020) and Pai and Huang (2011) revealed that service quality covers on-time, professional, and personalized services, and these positively affect perceived usefulness and perceived ease of use.

Almaiah et al.'s (2016) empirical study investigated the influence of quality factors on IS adoption and based on their findings, system quality and service quality affect perceived ease of use of the system in a significant manner, whereas system quality affects the perceived usefulness of the system

in an insignificant manner. Thus, this study proposes the following hypotheses for testing;

H3a: *Service quality has a positive effect on perceived usefulness.*

H3b: *Service quality has a positive effect on perceived ease of use.*

3.4. System Quality

The system's quality is described as the IS interface technical aspects and quality that generate the information output (De Lone & Mc Lean, 1992). Davis (1989) addressed the inclusion of judicious system characteristics into TAM. Still, he failed to address system characteristics, while Al-Fraihat, Joy, and Sinclair (2020) and Pai and Huang (2011) indicated that system quality encapsulates design quality, response time, and accessibility. Generally speaking, design quality is described as the inquiry system function and the speed of file transfer. Moreover, the online time of response refers to the fastness in which response is provided, and accessibility is described as the ease to which the software and hardware can be accessed, and they all have significant effects on the perceived ease of use of the IS. Al-Fraihat et al. (2020) revealed that system quality increase leads to increased usefulness, so service characteristics and system elements have also been seen to have an effect on usefulness and perceived ease of use. Perceived ease-of-use and usefulness often influence the intention of users to accept technology (which is cloud accounting in this paper) (Park, 2020), and as such, it is a crucial determinant of both ease of use and usefulness. This study proposes that;

H4a: *System quality has a positive effect on perceived usefulness.*

H4b: *System quality has a positive effect on perceived ease of use.*

3.5. Perceived Usefulness

The firm's operational and strategic advantages can reap from cloud computing are known as the system's perceived usefulness, which relates to mobility, an efficient decrease of computing costs, ease of installation and maintenance, and easy analysis of data online (Arpaci, 2017). Cloud computing is capable of delivering complete service online in such a way that users do not have to be physically present to perform the analysis and operations of data. Through online connectivity, there is enhanced mobility, and because of cloud computing, firms do not need to invest significant resources to develop IS because cloud computing vendors currently install, maintain, and upgrade the system, reducing the costs of IT. On the basis of the above discussion, cloud computing is expected to provide a significant advantage as highlighted by Gupta, Seetharaman, and Raj (2013) and Lal and Bharadwaj (2016) and thus, this study proposes that;

H5: *Perceived usefulness has a positive effect on the intention to use.*

3.6. Perceived Ease of Use

In some instances, employees work externally to an actual physical office and can still have easy data access through mobile devices, which is a great advantage (Raut, Gardas, Jha, & Priyadarshinee, 2017; Zin, Ibrahim, & Hassan, 2016). Remote access to online transactions even in remote locations is required by employees in the face of an increased number of online transactions, and this calls for the need for cloud computing solutions (Chiregi & Navimipour, 2018; Sabi, Uzoka, Langmia, & Njeh, 2016). Activities in accounting and finance are outsourced by the cloud system, allowing small business management to focus more on strategic work and initiatives (Lal & Bharadwaj, 2016). There is a trend shift from PC-based accounting packages to cloud-based packages (Chiregi & Navimipour, 2018), steering clear of updates of hardware by small businesses and maintenance costs for using various technologies. The accounting field is increasingly employing cloud technologies for SMEs' clients at a monthly fee. Gupta et al. (2013) mentioned the ease of replacing FTP (file transfer protocol) with uploads to a cloud environment. This approach assists in eradicating the overhead of administration and allows access from any location, device, and organization (Sabi et al., 2016). Added to this, the user's perceived ease of use positively influences perceived usefulness, and thus, this study proposes that;

H6a: *Perceived ease of use has a positive effect on perceived usefulness.*

H6b: *Perceived ease of use has a positive effect on the intention to use.*

3.7. Intention to Use Cloud Accounting

In cloud computing, scalable and versatile IT is entailed to allow computing capabilities provided through customer services online, using technologies. It is described as a complex service model summation, and it is for the firm to select different combinations and integrate specific service models for cloud computing adoption. The primary dependent variable that studies identified is the intention on the basis of TAM, and it refers to how likely the individual will use IS. The intention has a significant role in new technology actual usage (Davis, 1989), and it is sometimes considered as an attitude (De Lone & Mc Lean, 2003). In the domain of acceptance, researchers examined the intention to use-actual

use relationships in the IS field (Chiregi & Navimipour, 2018; Chow, Herold, Choo, & Chan, 2012). To steer clear of increased complexity, Mohammadi (2015) stressed the importance of the IS success model to differentiate between intention to use and actual use in the model, with the former being an individual-level construct and the two having a positive relationship between them. In this study's context, intention to use is considered affecting cloud accounting's actual use positively.

H7: *Intention to use cloud accounting has a positive effect on actual use.*

4. Research Methodology

This study used a self-administered, structured questionnaire containing 35 items to obtain data (refer to Appendix 2) from Jordanian banks from January-April 2020. Jordan has three types of banks, namely commercial banks, Islamic banks, and foreign banks. Prior to the administration of the survey, the author forwarded it to 15 managers working in different Jordanian bank branches and 5 AIS professors in government universities to determine instrument issues in terms of wording, content, and ambiguity. Their feedback was used to make minor changes to the survey, after which the final survey was distributed to 400 managers (financial managers, IT department managers, audit managers, heads of accounting departments, and head of internal control departments) in Jordanian bank branches. Data was obtained using stratified sampling of probability sampling that ensures the equal and independent representation of data, as suggested by Hair, Money, Samouel, and Page (2007). There was no mention of the names of the respondents to secure privacy (Tran et al. 2020). After retrieval, the questionnaires were carefully checked, dropping the invalid ones (those with zigzag answers and unfinished questionnaires). A total of 265 questionnaires were retrieved, from which 32 lacked answers in terms of cloud accounting usage, 46 had missing values in many sections, and thus, 78 surveys were dropped, making the total useable questionnaires to be 187. SmartPLS 3 software was used to analyze the data (Yim, 2019; Yoo, & Kim, 2019).

5. Data Estimation

The present study employed a Partial Least Squares-Structural Equation Modeling (PLS-SEM) technique. This is a suitable technique owing to several reasons; 1) it concentrates on predicting endogenous variables according to Joresckog and Wold (1982), 2) the study research model is a highly complex one (Hair, Risher, Sarstedt, & Ringle, 2019), and 3) latent variable scores are used in analyzing predictive relevance (Hwang, Sarstedt, Cheah, & Ringle, 2020; Yim, 2019). According to Hair, Hult, Ringle and Sarstedt (2017), PLS-SEM is the most appropriate technique to be utilized for exploratory study, modeling reflective and formative constructs. Lastly, SmartPLS version 3.2.9 was utilized under the suggestion of Sarstedt and Cheah (2019) and followed the two-staged approach established by Hair et al. (2017), which involves evaluating the measurement and the structural model.

6. Results

6.1. Measurement Model Evaluation

Similar to prior studies of this caliber (e.g., Al Shbail, Salleh, & Mohd Nor, 2018; Chin, 2010; Ha, Youn, & Moon, 2020; Hair et al., 2017; Kim, 2020; Yim, 2019), the present one evaluated the measurement model's reliability and validity prior to the interpretation of the structural relationships. Based on the results in Table 1, the reflective measures satisfy the defined quality conditions (Chin, 2010; Hair et al., 2017), with outer loadings (>0.7), indicator reliability (>0.5), average variance extracted (>0.5), rho$_{_A}$ and composite reliability (>0.7), which all corresponded to the established threshold values for reliability evaluation.

Moving on to discriminant validity, it was established with the use of two criteria, namely the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio by Henseler, Ringle, and Sarstedt (2015). In the first criterion, the AVE square root of each LV was obtained and found to be larger in comparison to the correlation with other LVs (Hair et al., 2017). In Table 2, it is evident that discriminant validity based on this criterion was confirmed. Through the second criterion, the HTMT ratio was required by Henseler, Ringle, and Sarstedt (2015) and Obeid, Salleh, and Mohd Nor (2017) to be 0.85 or 0.9 or less. From Table 2, the entire LVs HTMT values were all lower than 0.85, demonstrating the tolerability of the discriminant validity of constructs (Henseler et al., 2015). This established the measurement model's validity.

Steps were conducted and followed to ensure the absence of common method bias; first, clear instructions were provided to the respondents prior to gathering data, and they were assured of their personal information's confidentiality and anonymity (Reio, 2010). In the second step, the survey items relating to the variables (dependent and independent) were separated in the survey through blocks to minimize potential bias owing to their sequencing. The third step involved the eradication of complicated and/or ambiguous words for the complete understanding of the participants as suggested by Mac Kenzie and Podsakoff (2012), and fourth, the potential effects of common method bias post hoc were assessed with the help of Harman's single factor test. According to Podsakoff and Organ (1986), data does not have a general factor, and thus, common method bias has a lower likelihood to pose an issue in the present study.

Table 1: Validity and Reliability of the Measurement Model

Construct	Items	Loadings	CA	rho_A	CR	AVE
Top Management Support	TMS-1	0.886	0.874	0.910	0.907	0.664
	TMS-2	0.817				
	TMS-3	0.896				
	TMS-4	0.723				
	TMS-5	0.735				
Organizational Competency	OC-1	0.840	0.849	0.851	0.898	0.688
	OC-2	0.836				
	OC-3	0.822				
	OC-4	0.819				
Service Quality	SEQ-1	0.843	0.904	0.907	0.929	0.724
	SEQ-2	0.901				
	SEQ-3	0.853				
	SEQ-4	0.861				
	SEQ-5	0.791				
System Quality	SYQ-1	0.881	0.932	0.936	0.948	0.785
	SYQ-2	0.901				
	SYQ-3	0.853				
	SYQ-4	0.913				
	SYQ-5	0.882				
Perceived Usefulness	PUCA-1	0.922	0.883	0.883	0.928	0.810
	PUCA-2	0.896				
	PUCA-3	0.882				
Perceived Ease to Use	PECA-1	0.823	0.825	0.837	0.883	0.654
	PECA-2	0.849				
	PECA-3	0.781				
	PECA-4	0.779				
Intention to Use Cloud Accounting	ICA-1	0.722	0.812	0.828	0.877	0.641
	ICA-2	0.865				
	ICA-3	0.767				
	ICA-4	0.840				
Cloud Accounting Usage	CA-1	0.829	0.861	0.875	0.899	0.640
	CA-2	0.820				
	CA-3	0.772				
	CA-4	0.756				
	CA-5	0.822				

Table 2: Discriminant validity based on Fornell-Larcker and HTMT criteria

	CA	ICA	OC	PECA	PUCA	SEQ	SYQ	TMS
Fornell-Larcker criterion								
CA	0.800							
ICA	0.559	0.801						
OC	0.436	0.516	0.829					
PECA	0.424	0.516	0.578	0.809				
PUCA	0.539	0.560	0.623	0.624	0.900			
SEQ	0.150	0.118	0.320	0.386	0.238	0.851		
SYQ	0.410	0.543	0.671	0.594	0.687	0.295	0.886	
TMS	0.473	0.583	0.433	0.511	0.563	0.173	0.576	0.815
HTMT criterion								
CA	–							
ICA	0.645	–						
OC	0.506	0.619	–					
PECA	0.495	0.636	0.677	–				
PUCA	0.625	0.652	0.718	0.703	–			
SEQ	0.170	0.146	0.366	0.442	0.266	–		
SYQ	0.456	0.618	0.756	0.661	0.755	0.315	–	
TMS	0.530	0.682	0.488	0.575	0.618	0.189	0.624	–

Note: TMS = Top management support, OC = Organizational competency, SEQ = Service Quality, SYQ = System quality, PUCA = Perceived usefulness, PECA = Perceived ease to use, ICA = Intention to use cloud accounting, IC = Cloud accounting usage.

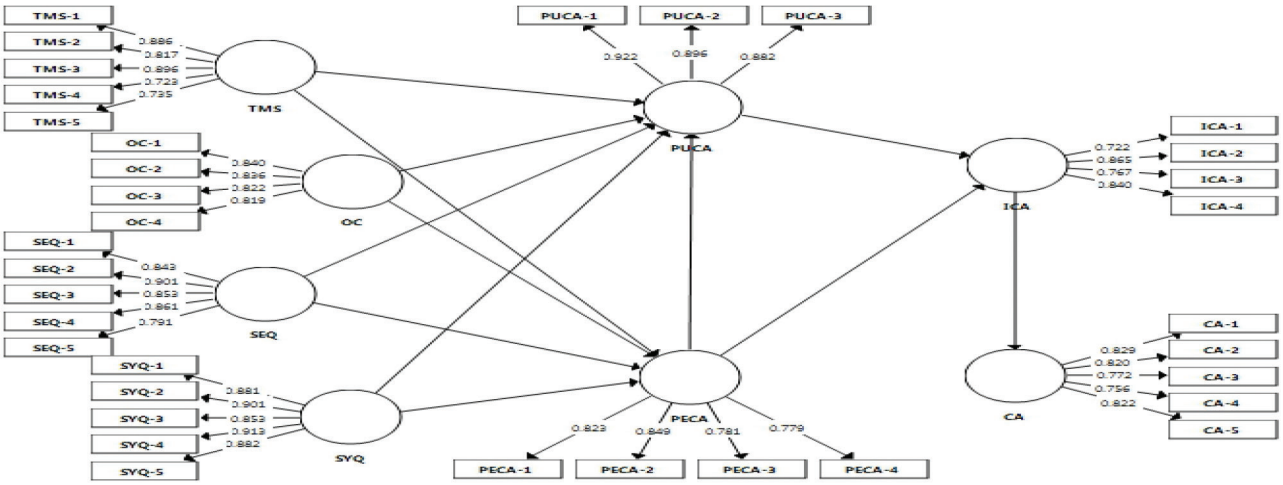

Figure 1: Evaluation of the measurement model

6.2. Structural Model Evaluation

The second stage of PLS-SEM is evaluating the structural model which is conducted following the measurement model's specification. The structural path model assessment involves the examination of its predictive relevance and the path coefficients along with their statistical significance. This study followed Hair, Risher, Sarstedt, and Ringle's (2019) established guidelines when evaluating the structural model and results reporting.

First, the coefficient of determination (value of R^2) for predictive accuracy, cross-validated redundancy index (Stone Geisser's Q^2), and effect size (f^2) for the structural model's predictive relevance were obtained. The R^2 value was 0.31 for cloud accounting use (referring to Figure 2 and Table 3), indicating that exogenous construct (intention to use cloud accounting) managed to explain 31% of the variance in the use of cloud accounting (moderate relationship). In the same way, the intention to use cloud accounting had an R^2 value of 0.36, which means perceived usefulness and perceived ease of use in combination explained 36% of the intention to use cloud accounting. Moving on to the perceived usefulness R^2 value, which was 0.59, it shows that top management support, organizational competency, service quality, and system quality explained 59% variance in perceived usefulness in combination. For perceived ease of use, the R^2 value was 0.48, which shows that 48% of perceived ease of use is explained by top management support, organizational competency, service quality, and system quality in combination. The R^2 values of intention to use cloud accounting in terms of perceived usefulness and perceived ease of use were also substantial.

This study used the blindfolding procedure to produce the values of Q^2 for the endogenous variables, as brought forward by Hair et al. (2019). The Q^2 values found were as follows; cloud accounting usage (0.18), intention to use cloud accounting (0.21), perceived usefulness (0.44), and perceived ease of use (0.28). They all exceeded the value of 0, illustrating the predictive relevance of the structural path model. As for the f^2 value, it was 0.45, and based on Cohen's (1988) study, f^2 values in the vicinity of 0.02 are weak, 0.15 are moderate, and 0.35 are strong.

The next step involved the evaluation of the structural model for path coefficients and their statistical significance, and for this, a bootstrapping procedure using 5000 re-samples was used to produce *t*-values and *p*-values as recommended by Streukens and Leroi-Werelds (2016).

Based on the obtained values, top management support has a significant relationship with both perceived usefulness and perceived ease of use, supporting both H1a and H1b (β = 0.174, 0.234, p = 0.012, 0.000, respectively). Moving on to H2a and H2b, organizational competency significantly impacted perceived usefulness and perceived use of use (β = 0.211, 0.264, p = 0.026, 0.006, respectively). Service quality was found to be insignificantly related to perceived usefulness in the negative direction (β = −0.046, p = 0.384), rejecting H3a, and significantly related to perceived ease of use in the positive direction (β = 0.195, p = 0.006), supporting H3b. With regards to system quality and its relationships with perceived usefulness and perceived ease of use (H4a and H4b), it was found to have a significant path coefficient (β = 0.314, 0.225, p = 0.001, 0.012 respectively), supporting both hypotheses. Added to the above results, perceived ease of use significantly impacted perceived usefulness (β = 0.244, p = 0.004), supporting H5.

Table 3: Results of Hypothesis Testing

Structural path	β and *t*-values	Conclusion	f^2	R^2	Q^2
H1a: TMS → PUCA	0.174 (2.521)	Accepted	0.045	0.586	0.440
H1b: TMS → PECA	0.234 (3.713)	Accepted	0.070	0.481	0.283
H2a: OC → PUCA	0.211 (2.227)	Accepted	0.053		
H2b: OC → PECA	0.264 (2.786)	Accepted	0.071		
H3a: SEQ → PUCA	−0.046 (0.872)	Rejected	0.004		
H3b: SEQ → PECA	0.195 (2.746)	Accepted	0.065		
H4a: SYQ → PUCA	0.314 (3.284)	Accepted	0.102		
H4b: SYQ → PECA	0.225 (2.530)	Accepted	0.043		
H5: PUCA → ICA	0.390 (4.102)	Accepted	0.145	0.359	0.209
H6a: PECA → PUCA	0.244 (2.905)	Accepted	0.075		
H6b: PECA → ICA	0.272 (3.020)	Accepted	0.071		
H7: ICA → CA	0.559 (8.470)	Accepted	0.453	0.312	0.177

Note: TMS = Top management support, OC = Organizational competency, SEQ = Service Quality, SYQ = System quality, PUCA = Perceived usefulness, PECA = Perceived ease to use, ICA = Intention to use cloud accounting, CA = Cloud accounting usage.

Lastly, both perceived usefulness and perceived ease of use were found to positively influence intention towards using cloud accounting (β = 0.390, 0.272, p = 0.000, 0.003, respectively), indicating support for both H6a and H6b (refer to Table 3). Intention towards using cloud accounting also had a significant impact on cloud accounting actual use (β = 0.559, p = 0.000), supporting H7.

7. Conclusion

In this study, a comprehensive model that integrated TOE, TAM, and De Lone and Mc Lean's model was proposed to determine the factors and the level to which each of them affected the cloud accounting adoption among financial firms in Jordan on intention towards cloud accounting usage. The study adopted a two-pronged approach comprising a thorough review of the literature and questionnaire survey. Based on the study findings, the proposed hypotheses were validated, with the top highest influence stemming from the intention to use cloud accounting on cloud accounting use among Jordan's financial firms.

Additionally, the study findings contribute to both theory and practice; first, the findings contribute to theory through the proposed comprehensive model that integrated TOE, TAM, and De Lone and Mc Lean model. The TAM framework has generally been used in studies dedicated to the adoption of technology, but only a few such studies have attempted to integrate it with TOE and De Lone and Mc Lean model, particularly in developing nations' financial firms. Another contribution is the two-pronged approach adopted that involved an extensive literature review and the administration of the survey.

Several studies have tackled similar examinations using individual models of the TOE, TAM, and De Lone and Mc Lean model, but none combined between them and tested in developing countries on a distinct technology taking into consideration the differences in culture and context. This attempt was made to understand technology adoption from the local/regional perspective.

Moving on to the contributions to practice, this study presented solid empirical evidence of the factors and the level to which they influence cloud accounting adoption among financial firms in Jordan and their effects on using the same. This information has implications for cloud accounting providers, banks searching for cloud accounting to adopt, vendors, and policymakers. From the perspective of technology, cloud accounting providers can consider the importance of system and service quality and ensure the well functioning of products and their alignment to the firm's other products.

Regarding banks searching for and wanting to adopt cloud accounting, this study shows the importance of organizational competency, with top management support of the system implementation being the top construct to be used to mitigate resistance and conflicts and bring about cloud accounting potential. Firms adopting the system as well as those who are still thinking of adopting it, can make decisions as to its usage. Meanwhile, policymakers can make sure that policies supporting cloud accounting adoption, particularly financial firms in Jordan, should be addressed for local and regional competitiveness among banks.

Like other studies, this study has its limitations that future researchers should tackle. The first is the local-based sample, which does not represent the global adoption behavior of financial firms. Another limitation is the number of factors included in the study, in which case, future studies can add more factors to conduct a comprehensive examination of the adoption from various viewpoints.

References

Abdullah, F., & Ward, R. (2016). Developing a General Extended Technology Acceptance Model for E-Learning (GETAMEL) by analysing commonly used external factors. *Computers in Human Behavior, 56*, 238–256. https://doi.org/10.1016/j.chb.2015.11.036

Ahmed, U., Majid, A. H. A., & Zin, M. M. (2016). Moderation of meaningful work on the relationship of supervisor support and coworker support with work engagement. *The Journal of Business, Economics, and Environmental Studies, 6*(3), 15–20. https://doi.org/10.13106/eajbm.2016.vol6.no3.15

Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004

Al Shbail, M., Salleh, Z., & Mohd Nor, M. (2018). The effect of ethical tension and time pressure on job burnout and premature sign-off. *Journal of Business and Retail Management Research, 12*(4), 43–53. https://doi.org/10.24052/JBRMR/V12IS04/ART-05

Al Shbail, M., Salleh, Z., & Nor, M. (2018). Antecedents of burnout and its relationship to internal audit quality. *Business and Economic Horizons, 14*(4), 789–817. https://doi.org/10.22004/ag.econ.287230

Ali, O., & Osmanaj, V. (2020). The role of government regulations in the adoption of cloud computing: A case study of local government. *Computer Law & Security Review*, *96*, In press. https://doi.org/10.1016/j.clsr.2020.105396

Alkhater, N., Walters, R., & Wills, G. (2018). An empirical study of factors influencing cloud adoption among private sector organisations. *Telematics and Informatics, 35*(1), 38–54. https://doi.org/10.1016/j.tele.2017.09.017

Almaiah, M. A., Jalil, M. A., & Man, M. (2016). Extending the TAM to examine the effects of quality features on mobile learning acceptance. *Journal of Computers in Education, 3*(4), 453–485. https://doi.org/10.1007/s40692-016-0074-1

Ambarwati, R., Astuti, M., & Dijaya, R. (2020). Strengthening the intention to use vehicle tax service online in Indonesia. *Distribution Science Research, 18*(5), 25–33. https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE09386084#

Agustina, N., & Pramana, S. (2019). The impact of development and government expenditure for information and communication technology on Indonesian economic growth. *The Journal of Business Economics and Environmental Studies, 9*(4), 5–13. https://doi.org/10.13106/jbees.2019.vol9.no4.5

Arpaci, I. (2017). Antecedents and consequences of cloud computing adoption in education to achieve knowledge management. *Computers in Human Behavior, 70*, 382–390. https://doi.org/10.1016/j.chb.2017.01.024

Asatiani, A., Apte, U., Penttinen, E., Rönkkö, M., & Saarinen, T. (2019). Impact of accounting process characteristics on accounting outsourcing-Comparison of users and non-users of cloud-based accounting information systems. *International Journal of Accounting Information Systems, 34*, 1–18. https://doi.org/10.1016/j.accinf.2019.06.002

Attaran, M., & Woods, J. (2019). Cloud computing technology: improving small business performance using the Internet. *Journal of Small Business Entrepreneurship, 31*(6), 495–519. https://doi.org/10.1080/08276331.2018.1466850

Awa, H. O., Ukoha, O., & Igwe, S. R. (2017). Revisiting technology-organization-environment (TOE) theory for enriched applicability. *The Bottom Line, 30*(1), 2–22. https://doi.org/10.1108/BL-12-2016-0044

Bhoir, H., & Principal, R. (2014). Cloud computing for supply chain management. *International Journal of Innovations in Engineering Research and Technology, 1*(2), 1–9.

Chin, W. W. (2010). How to write up and report PLS analyses. In V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares* (pp. 655-690), Berlin: Springer.

Chiregi, M., & Navimipour, N. J. (2018). Cloud computing and trust evaluation: A systematic literature review of the state-of-the-art mechanisms. *Journal of Electrical Systems and Information Technology, 5*(3), 608–622. https://doi.org/10.1016/j.jesit.2017.09.001

Choi, C., Kim, C., & Kim, C. (2019). Towards Sustainable Environmental Policy and Management in the Fourth Industrial Revolution: Evidence from Big Data Analytics. *Journal of Asian Finance, Economics and Business, 6*(3), 185–192. https://doi.org/10.13106/jafeb.2019.vol6.no3.185

Chow, M., Herold, D. K., Choo, T.-M., & Chan, K. (2012). Extending the technology acceptance model to explore the intention to use Second Life for enhancing healthcare education. *Computers & Education, 59*(4), 1136–1144. https://doi.org/10.1016/j.compedu.2012.05.011

Cleary, P. (2016). Intellectual capital and business performance: An exploratory study of the impact of cloud-based accounting and finance infrastructure. *Journal of Intellectual Capital, 17*(2), 255–278. https://doi:10.1108/JIC-06-2015-0058

Cohen, J. (1988). *Statistical power analysis for the behavioral sciencies*. London, UK: Routledge.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science, 35*(8), 982–1003. https://doi.org/10.1287/mnsc.35.8.982

Deegan, C. (2017). Twenty five years of social and environmental accounting research within Critical Perspectives of Accounting: Hits, misses and ways forward. *Critical Perspectives on Accounting, 43*, 65–87. https://doi.org/10.1016/j.cpa.2016.06.005

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60–95. https://doi.org/10.1287/isre.3.1.60

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems, 19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

DeLone, W. H., & Mclean, E. R. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of Electronic Commerce, 9*(1), 31–47. https://doi.org/10.1080/10864415.2004.11044317

Effendi, M. I., Sugandini, D., Istanto, Y., Van Dat, T., & Le, N. M. T. (2020). Social Media Adoption in SMEs Impacted by COVID-19: The TOE Model. *Journal of Asian Finance, Economics and Business, 7*(11), 915–925. https://doi.org/10.13106/jafeb.2020.vol7.no11.915

El-dalabeeh, A. E. R. K. (2019). The Impact of Accounting Information Systems Development on Improving E-Commerce in the Jordanian Public Shareholding Industrial Companies. *Academy of Accounting and Financial Studies Journal, 23*(2), 1–11. https://www.abacademies.org/articles/The-Impact-of-Accounting-Information-Systems-Development-on-Improving-E-Commerce-1528-2635-23-2-377.pdf

Ferri, L., Spanò, R., & Tomo, A. (2019). Cloud computing in high tech startups: evidence from a case study. *Technology Analysis Strategic Management*, *32*(2), 146–157. https://doi.org/10.1080/09537325.2019.1641594

Fu, J., Zhang, Z., & Lyu, D. (2019). Research and application of information service platform for agricultural economic cooperation organization based on Hadoop cloud computing platform environment: taking agricultural and fresh products as an example. *Cluster Computing, 22*(6), 14689–14700. https://doi.org/10.1007/s10586-018-2380-z

Gangwar, H., Date, H., & Ramaswamy, R. (2015). Understanding determinants of cloud computing adoption using an integrated TAM-TOE model. *Journal of Enterprise Information Management*, *28*(1), 107–130. https://doi.org/10.1108/JEIM-08-2013-0065

Gupta, P., Seetharaman, A., & Raj, J. R. (2013). The usage and adoption of cloud computing by small and medium businesses.

International Journal of Information Management, 33(5), 861–874. https://doi.org/10.1016/j.ijinfomgt.2013.07.001

Ha, S., Youn, S., & Moon, J. (2020). Emotional Leadership, Leader Legitimacy, and Work Engagement in Retail Distribution Industry. *The Journal of Distribution Science*, *18*(7), 27–36. http://dx.doi.org/10.15722/jds.18.7.202007.27

Hair, J., F, Hult, G., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed). Thousand Oaks. CA: Sage Publications.

Hair, J., F, Money, A. H., Samouel, P., & Page, M. (2007). Research methods for business. *Education & Training, 49*(4), 336–337. https://doi.org/10.1108/et.2007.49.4.336.2

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hapsari, R. (2017). The impact of service quality, customer engagement and selected marketing constructs on airline passenger loyalty. *International Journal of Quality and Service Sciences, 9*(1), 21–40. https://doi:10.1108/IJQSS-07-2016-0048

Henseler, Ringle, C., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hsu, C.-L., & Lin, J. C.-C. (2016). Factors affecting the adoption of cloud services in enterprises. *Information Systems and e-Business Management, 14*(4), 791–822. https://doi.org/10.1007/s10257-015-0300-9

Hwang, H., Sarstedt, M., Cheah, J. H., & Ringle, C. M. (2020). A concept analysis of methodological research on composite-based structural equation modeling: bridging PLSPM and GSCA. *Behaviormetrika, 47*(1), 219–241. https://doi.org/10.1007/s41237-019-00085-5

Jöreskog, K. G., & Wold, H. (1982). The ML and PLS techniques for modeling with latent variables: historical and comparative aspects. *Systems under Indirect Observation, 1*, 263–270. https://ci.nii.ac.jp/naid/10011543616/en/

Kim, W., Huh, M. Y., Lee, S. P., & Shin, H. K. (2019). A Study of Healthcare Management and Technology in Asia: Focused Analysis on South Korea, China and Japan. *The Journal of Industrial Distribution & Business*, *10*(3), 17–23. https://doi.org/10.13106/ijidb.2019.vol10.no3.17

Kim, Y. (2018). A Design of Human Cloud Platform Framework for Human Resources Distribution of e-Learning Instructional Designer. *The Journal of Distribution Science, 16*(7), 67–75. https://doi.org/10.15722/jds.16.7.201807.67

Khayer, A., Talukder, M. S., Bao, Y., & Hossain, M. N. (2020). Cloud computing adoption and its impact on SMEs'performance for cloud supported operations: A dual-stage analytical approach. *Technology in Society, 60*. https://doi.org/10.1016/j.techsoc.2019.101225

Kyriakou, N., & Loukis, E. N. (2019). Do strategy, processes, personnel and technology affect firm's propensity to adopt cloud computing? *Journal of Enterprise Information Management*, *32*(3), 517–534. https://doi.org/10.1108/JEIM-06-2017-0083

Labati, R. D., Genovese, A., Piuri, V., Scotti, F., & Vishwakarma, S. (2020). Computational Intelligence in Cloud Computing. In *Recent Advances in Intelligent Engineering* (pp. 111–127): Springer.

Lakhwani, M., Dastane, O., Satar, N. S. M., & Johari, Z. (2020). The Impact of Technology Adoption on Organizational Productivity. *The Journal of Industrial Distribution & Business, 11*(4), 7–18. https://doi.org/10.13106/jidb.2020.vol11.no4.7

Lal, P., & Bharadwaj, S. S. (2016). Understanding the impact of cloud-based services adoption on organizational flexibility. *Journal of Enterprise Information Management*, *29*(4), 566–588. https://doi.org/10.1108/JEIM-04-2015-0028

Laudien, S. M., & Pesch, R. (2019). Understanding the influence of digitalization on service firm business model design: a qualitative-empirical analysis. *Review of Managerial Science, 13*(3), 575–587. https://doi.org/10.1007/s11846-018-0320-1

Lee, J. H., Wu, R., & Fan, L. (2017). Influence on the Use Intention of User's Traits in China Market. *The Journal of Business Economics and Environmental Studies, 7*(2), 21–29. https://doi.org/10.13106/eajbm.2017.vol7.no2.21

Lin, H.-F. (2010). An investigation into the effects of IS quality and top management support on ERP system usage. *Total Quality Management & Business Excellence, 21*(3), 335–349. https://doi:10.1080/14783360903561761

Low, C., Chen, Y., & Wu, M. (2011). Understanding the determinants of cloud computing adoption. *Industrial Management & Data Systems*, *111*(7), 1006–1023. https://doi.org/10.1108/02635571111161262

MacKenzie, S. B., & Podsakoff, P. M. (2012). Common method bias in marketing: causes, mechanisms, and procedural remedies. *Journal of Retailing, 88*(4), 542–555. https://doi.org/10.1016/j.jretai.2012.08.001

Mohammadi, H. (2015). Investigating users'perspectives on e-learning: An integration of TAM and IS success model. *Computers in Human Behavior, 45*, 359–374. https://doi.org/10.1016/j.chb.2014.07.044

Njenga, K., Garg, L., Bhardwaj, A. K., Prakash, V., & Bawa, S. (2019). The cloud computing adoption in higher learning institutions in Kenya: Hindering factors and recommendations for the way forward. *Telematics and Informatics, 38*, 225–246. https://doi.org/10.1016/j.tele.2018.10.007

Novais, L., Maqueira, J. M., & Ortiz-Bas, Á. (2019). A systematic literature review of cloud computing use in supply chain integration. *Computers & Industrial Engineering, 129*, 296–314. https://doi.org/10.1016/j.cie.2019.01.056

Obeid, M., Salleh, Z., & Mohd Nor, M. (2017). The mediating effect of job satisfaction on the relationship between personality traits and premature sign-off. *Academy of Accounting and Financial*

Studies Journal, 21(2), 1–17. https://www.abacademies.org/articles/the-mediating-effect-of-job-satisfaction-on-the-relationship-between-personality-traits-and-premature-sign-off1528-2635-21-2-102.pdf

Oliveira, T., Martins, R., Sarker, S., Thomas, M., & Popovič, A. (2019). Understanding SaaS adoption: The moderating impact of the environment context. *International Journal of Information Management, 49*, 1–12. https://doi.org/10.1016/j.ijinfomgt.2019.02.009

Oliveira, T., Thomas, M., & Espadanal, M. (2014). Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information & Management, 51*(5), 497–510. https://doi.org/10.1016/j.im.2014.03.006

Park, H. Y. (2020). A Study on the Customer Attitudes toward the Airport IT Service: Focusing on Handling Process and Acceptance Intention. *The Journal of Distribution Science*, *18*(1), 27–34. https://doi.org/10.15722/jds.18.1.202001.27

Pai, F.-Y., & Huang, K.-I. (2011). Applying the technology acceptance model to the introduction of healthcare information systems. *Technological Forecasting and Social Change, 78*(4), 650–660. https://doi.org/10.1016/j.techfore.2010.11.007

Pflanzner, T., & Kertész, A. (2016). A survey of IoT cloud providers. In: *2016 39th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)* (pp. 730-735). *IEEE*

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531–544. https://doi.org/10.1177/014920638601200408

Potluri, R. M., & Angiating, G. (2018). A study on service quality and customer satisfaction in Nigerian Healthcare sector. *International Journal of Industrial Distribution & Business*, *9*(12), 7–14. https://doi:http://dx.doi.org/10.13106/ijidb

Rad, M. S., Nilashi, M., & Dahlan, H. M. (2018). Information technology adoption: a review of the literature and classification. *Universal Access in the Information Society, 17*(2), 361–390. https://doi.org/10.1007/s10209-017-0534-z

Rajan, C. A., & Baral, R. (2015). Adoption of ERP system: An empirical study of factors influencing the usage of ERP and its impact on end user. *IIMB Management Review, 27*(2), 105–117. https://doi.org/10.1016/j.iimb.2015.04.008

Raut, R. D., Gardas, B. B., Jha, M. K., & Priyadarshinee, P. (2017). Examining the critical success factors of cloud computing adoption in the MSMEs by using ISM model. *The Journal of High Technology Management Research, 28*(2), 125–141. https://doi.org/10.1016/j.hitech.2017.10.004

Reio Jr, T. G. (2010). The threat of common method variance bias to theory building. *Human Resource Development Review, 9*(4), 405–411. https://doi.org/10.1177/1534484310380331

Reza Bazi, H., Hassanzadeh, A., & Moeini, A. (2017). A comprehensive framework for cloud computing migration using Meta-synthesis approach. *Journal of Systems and Software, 128*, 87–105. https://doi.org/10.1016/j.jss.2017.02.049

Sabi, H. M., Uzoka, F.-M. E., Langmia, K., & Njeh, F. N. (2016). Conceptualizing a model for adoption of cloud computing in education. *International Journal of Information Management, 36*(2), 183–191. https://doi.org/10.1016/j.ijinfomgt.2015.11.010

Salem, M. M., & Hwang, G.-H. (2016). Critical Factors Influencing Adoption of Cloud Computing for Government Organizations in Yemen. *The Journal of Distribution Science, 14*(11), 37–47. https://doi.org/10.15722/jds.14.11.201611.37

Sarstedt, M., & Cheah, J.-H. (2019). Partial least squares structural equation modeling using SmartPLS: a software review. *Journal of Marketing Analytics, 7*(3), 196–202. https://doi.org/10.1057/s41270-019-00058-3

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information systems research, 8*(3), 240–253. https://doi.org/10.1287/isre.8.3.240

Streukens, S., & Leroi-Werelds, S. (2016). Bootstrapping and PLS-SEM: A step-by-step guide to get more out of your bootstrap results. *European Management Journal, 34*(6), 618–632. https://doi.org/10.1016/j.emj.2016.06.003

Tashkandi, A. N., & Al-Jabri, I. M. (2015). Cloud computing adoption by higher education institutions in Saudi Arabia: an exploratory study. *Cluster Computing, 18*(4), 1527–1537. https://doi.org/10.1007/s10586-015-0490-4

Tran, D. T., Lee, L. Y., Nguyen, P. T., & Srisittiratkl, W. (2020). How Leader Characteristics and Leader Member Exchange Lead to Social Capital and Job Performance. *Journal of Asian Finance, Economics, and Business, 7*(1), 269–278. https://doi.org/10.13106/jafeb.2020.vol7.no1.269

Tornatzky, L. G., Fleischer, M., & Chakrabarti, A. K. (1990). *Processes of technological innovation*. Lanham, CA: Lexington Books.

Tu, M. (2018). An exploratory study of Internet of Things (IoT) adoption intention in logistics and supply chain management. *The International Journal of Logistics Management*, *29*(1), 131–151. https://doi.org/10.1108/IJLM-11-2016-0274

Turner, L., & Weickgenannt, A. (2020). *Accounting information systems: controls and processes*. Hoboken, NJ: John Wiley & Sons.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273–315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425–478. https://doi.org/10.2307/30036540

Wang, E., Klein, G., & Jiang, J. J. (2006). ERP Misfit: Country of Origin and Organizational Factors. *Journal of Management Information Systems, 23*(1), 263–292. https://doi.org/10.2753/MIS0742-1222230109

Yigitbasioglu, O. M. (2015). External auditors' perceptions of cloud computing adoption in Australia. *International Journal of Accounting Information Systems, 18*, 46–62. https://doi.org/10.1016/j.accinf.2015.09.001

Yim, M. S. (2019). A study on factor analytical methods and procedures for PLS-SEM (Partial Least Squares Structural Equation Modeling). *The Journal of Industrial Distribution & Business, 10*(5), 7–20. https://doi.org/10.13106/ijidb.2019.vol10.no5.7

Yoo, S.-K., & Kim, B.-Y. (2019). The effective factors of cloud computing adoption success in organization. *Journal of Asian Finance, Economics and Business, 6*(1), 217–229. https://doi.org/10.13106/jafeb.2019.vol6.no1.217

Zin, M. L. M., Ibrahim, H., & Hassan, Z. (2016). The determinants of human resource information system success in Japanese manufacturing companies. *The Journal of Business Economics and Environmental Studies, 6*(4), 27–34. https://doi.org/10.13106/eajbm.2016.vol6.no4.27

Appendixes

Appendix 1: Studies on cloud computing

Author(s) and Year	Factors	Approach/Methodology/Framework
Gangwar et al. (2015)	Relative advantage, Compatibility, Complexity Organizational competency, Top management support, Training and education, Competitive pressure, Trading partner support, perceived ease of use perceived usefulness, Adoption intention	TAM-TOE Survey IT industry India
Sabi, Uzoka, Langmia & Njeh, (2016)	Awareness, Costs, Risks & security, Relative advantage, Compatibility, Complexity, Observability, Trialability, Results demonstrable, Ease of use, Usefulness, National infrastructure, ICT infrastructure, Intention to adopt and use	DOI and TAM survey Universities Developing countries
Lal and Bharadwaj (2016)	Relative Advantage, Perceived Usefulness, Perceived Ease of Use, Top Management Support, Vendor Credibility, Cloud-based Model Adoption, Organizational Flexibility	DOI, TOE, Dynamic capability theory and TAM Survey Different organization India
Raut, Gardas, Jha & Priyadarshinee, (2017)	Reliability, Top management commitment and innovativeness, Ecological sustainability, Saving on IT expenditure, Elasticity Competitive advantage, Compatibility, Trialability, Size of organization, Previous technological experience, Competitive pressure, Competency of the enterprise, Knowledge and training, Assurance of security and privacy, Ease of use and convenience, Governmental support	Literature review and expert opinions Small and medium enterprises
Arpaci, (2017)	knowledge management practices , perceived usefulness , Perceived Ease of Use, Innovativeness, Training and Education, Attitudes and Continued Use Intentions	TAM and TRA Survey public university Turkey
Alkhater, Walters & Wills, (2018)	Quality of service, Security, Privacy, Trust, Relative advantage, Compatibility, Top management support, Firm size, Technology readiness, Compliance with regulations, Physical location, intention to adopt cloud computing.	Survey organizations in the private sector Saudi Arabia
Chiregi & Navimipour, (2018)	Security Dependability Integrity Reliability Dynamicity Safety Scalability Availability Confidentiality, cloud environments	Systematic literature review
Ali & Osmanaj, (2020)	Cost, Quality of services, Competition, Security Privacy, Public awareness, Management, Flexibility, Government-based facilitating condition, Firm-based facilitating conditions, Regulation for cloud adoption	Survey Government Australia

Appendix 2: Measures and Operationalizations

Construct	Items	Question Items	Adapted from
Top Management Support	TMS-1	There is awareness of management of the benefits that are achievable through the use of the cloud accounting system.	(Rajan & Baral, 2015; Wang, Klein, & Jiang, 2006)
	TMS-2	There is constant support and encouragement from management towards the use of cloud accounting system to complete job tasks.	
	TMS-3	Majority of assistance and resources are provided by management to allow the use of cloud accounting system.	
	TMS-4	People's happiness and ease in using cloud accounting system is maintained by management.	
	TMS-5	Top management takes their role seriously in selecting cloud accounting system vendor along with the consulting firm.	
Organizational Competency	OC-1	My company employs specialized and expert personnel to run cloud computing.	(Gangwar, Date, & Ramaswamy, 2015)
	OC-2	My company has sufficient technological resources for the cloud computing implementation, with complete computer access.	
	OC-3	My company has sufficient technological resources for the cloud computing implementation, with high bandwidth connectivity to the internet.	
	OC-4	My company appropriates budget from the total revenue for the purpose of cloud computing implementation.	
Service Quality	SEQ-1	Our staff delivers optimum and first class services.	(Hapsari, 2017)
	SEQ-2	Our firm has excellent service facilities.	
	SEQ-3	Our firm has convenient services.	
	SEQ-4	Our firm offers a robust security system.	
	SEQ-5	I feel safe and secure when dealing with the firm.	
System quality	SYQ-1	Cloud accounting system operation is dependable.	(Lin, 2010)
	SYQ-2	Cloud accounting system response time is acceptable.	
	SYQ-3	Cloud accounting system is adaptable to various needs of the business.	
	SYQ-4	Cloud accounting system carries out an effective integration of data from various company departments.	
	SYQ-5	Cloud accounting system facilitates easy access to information.	
Perceived usefulness	PUCA-1	Cloud accounting system usage enhances good decision-making.	(Lin, 2010)
	PUCA-2	Cloud accounting system facilitates our expedient achievement of tasks.	
	PUCA-3	Cloud accounting system use improves our job effectiveness.	
Perceived ease to use	PECA-1	I have clear and understandable interactions with cloud accounting system.	(Rajan & Baral, 2015)
	PECA-2	Cloud accounting system interaction does not require high mental effort.	
	PECA-3	Cloud accounting system is easy to use.	
	PECA-4	Cloud accounting system is easy to operate to achieve tasks.	

Appendix 2: Continued

Construct	Items	Question Items	Adapted from
Intention to Use Cloud Accounting	ICA-1	I try to use cloud accounting system as much as possible in my job performance.	(Gangwar et al., 2015; Rajan & Baral, 2015)
	ICA-2	On the whole, cloud computing service use is a positive aspect for me.	
	ICA-3	On the whole, I think cloud computing service should be used to provide services.	
	ICA-4	I would, as much as possible, make use of cloud accounting system in my job.	
Cloud accounting usage	CA-1	Our company uses cloud accounting system to integrate business processes throughout the enterprise.	(Delone & McLean, 2003; Lin, 2010)
	CA-2	Our company uses cloud accounting system to provide optimum use of organizational data resource.	
	CA-3	I use cloud accounting system on a day to day basis.	
	CA-4	I frequently use cloud accounting system.	
	CA-5	I will use cloud accounting system frequently in the future.	