



Conceptualizing hybrid model for influencing intention to adopt cloud computing in North-Eastern Nigerian academic libraries

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ARTICLE INFO

Keywords:

Cloud computing
Cloud adoption factors
Cloud computing adoption
Academic libraries
North-Eastern Nigeria

ABSTRACT

The understanding of cloud computing adoption in academic libraries in North-Eastern Nigeria is still unclear. Therefore, this research combines two technology adoption theories of technology-organizational-environmental and diffusion of innovation (TOE-DOI) theories to identify the influencing factors and develop a model for the adoption of cloud computing in academic libraries. A quantitative technique using survey design was adopted and previously used scales were adapted and formulated structured questionnaires. The study population comprises decision-makers from North-Eastern Nigerian academic libraries and purposive sampling was used in selecting 212 sample respondents where 192 were found usable. Statistical Package for Social Science (SPSS) and Partial Least Square-Structured Equation Modeling (PLS-SEM) was used for analyzing the data. Findings revealed that all the independent variables (relative advantage, compatibility, technophobia, government regulations and competitive pressure) were significant factors in the adoption of cloud computing in academic libraries. In contrast, the moderating variable (perceived trust) was found to be insignificant in all the relationships. Based on this finding, it is recommended that the significant factors should be given serious attention when deciding to adopt cloud computing by academic libraries. The moderating variable should be tested in future studies to ascertain its effect in that context.

Introduction

Academic libraries are always found in higher institutions of learning, designed and charged with the responsibility of providing knowledge-based information for sustaining the academic standard of the institutions (Momodu, 2015). Academic libraries continuously acquire knowledge-based resources from all angles of sources in a voluminous quantity just to satisfy the information needs of their community members. Academic libraries process, store, filter and disseminate the acquired information to members of the academic community for their information quest solution (Akpohonor, 2005), therefore, Therefore, their tasks need the application of cloud computing for it to be more effective and efficient (Yaokumah & Amponsah, 2017).

Cloud computing is regarded as a group of interrelated computing facilities that provide on-demand resources and services over a medium of the network to subscribers on a pay-per-use basis (Oliveira et al., 2014). Cloud computing providers allow subscribers of their services to increase or decrease their service purchases whenever the need arises

(Hiran & Henten, 2020). Cloud computing as new technology that brings substantial changes in the world of computing has been considered the best alternative for organizations such as academic libraries in particular and higher institutions at large to improve efficiency, reduce and save cost (Jibrin et al., 2019).

Many organizations regard cloud computing as a cost-reduction and efficiency improvement strategy that can enhance their activities more profitably (Yaokumah & Amponsah, 2017). Higher institutions in Africa can leverage cloud computing to increase research collaboration, learning capabilities and better academic standards (Sabi et al., 2016).

Despite the enormous benefits and opportunities that cloud computing offers to its subscribers, several studies reported that the adoption rate in African countries is too low (Al-Hujran et al., 2018; Senarathna et al., 2016, 2018). In the context of Nigeria, studies further revealed a very low rate of cloud computing technologies adoption as many of the organizations have not adopted (Christopher et al., 2014; Oyoyo & Baguma, 2019).

Similarly, the story is almost the same in Nigerian academic libraries,

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<https://doi.org/10.1016/j.jacalib.2023.102747>

Received 22 March 2023; Received in revised form 3 June 2023; Accepted 5 June 2023

Available online 14 June 2023

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where the adoption rate is reported as very low or even absent in some regions (Makinta et al., 2019) and this bring about inefficiency in service delivery, difficulties in information accessibility, untimely dissemination of information resources and poor academic performance (Kayode et al., 2020; Momodu, 2015). Although, the low rate of cloud computing adoption is mostly attributed to inadequate skills, poor electricity supply, internet connectivity and lack of trust (Al-Hujran et al., 2018; Oyoyo & Baguma, 2019). Similarly, other researchers outlined inadequate government support, inadequate organizational management support, interoperability issues with the existing organizational system and fear of technology as some of the factors that likely bring about the low acceptance of cloud technology (Yeboah-boateng & Essandoh, 2014).

Moreover, understanding the actual factors influencing cloud computing adoption in higher institutions of learning in Africa are yet to be ascertained by the decision-makers (Sabi et al., 2016), likewise in academic libraries (Comfort, 2018; Ifijeh, 2014; Makinta et al., 2019). Studies revealed inconsistent and conflicting results on the factors that influence the adoption of cloud computing in both African countries and Nigeria specifically (Oyoyo & Baguma, 2019).

Equally, research in higher institutions establishments in African countries regarding the adoption and implementation of cloud computing is insufficient (Sabi et al., 2016), and the need to adopt novel technology such as cloud computing in academic libraries is inevitable (Okike & Adetoro, 2019). This highlights a gap that need serious attention of researchers to address the issues using most appropriate approach in order to enhance efficient and effective service delivery. To salvage the situation and fill in the identified gaps, this research aims at developing a conceptual hybrid model for the intention to adopt cloud computing using combined Technological-Organizational-Environmental and Diffusion of Innovation (TOE-DOI) frameworks; and takes North-Eastern Nigerian academic libraries as a case study. Conceptualizing the hybrid model to determine the intention to adopt cloud computing will help the academic libraries to burst their intention toward adoption of the cloud computing services for better and improved library services delivery to clients.

To achieve the aims of this research, the following research questions will be objectively and firmly addressed: 1. What technological factors influence the intention to adopt cloud computing in North-Eastern Nigerian academic libraries? 2. What environmental factors influence the intention to adopt cloud computing in North-Eastern Nigerian academic libraries? 3. How can the developed model predict and explain the intention to adopt cloud computing in North-Eastern Nigerian academic libraries?

Objectives and scope of the study

This study aims to achieve the following objectives:

- i. To examine the technological factors that influence the intention to adopt cloud computing in North-Eastern Nigerian academic libraries
- ii. To examine the environmental factors that influence the intention to adopt cloud computing in North-Eastern Nigerian academic libraries
- iii. To develop a model that can predict and explain the adoption of cloud computing in North-Eastern Nigerian academic libraries

Based on the examined literature which revealed that there is absence of this type of study in North-Eastern Nigeria, this study covers all academic libraries in North-Eastern Nigeria amounted to be 78. Moreover, only decision-makers of the academic libraries which comprise Chief librarians, Deputy librarians and Head of ICT units whose minimum academic qualification is Degree/Higher National Diploma are purposively sampled. They were identified to the researchers by the Head of human resources in the libraries. TOE-DOI variables are used as independent variables while intention to adopt

cloud computing served as a dependent variable.

Literature review

Overview of cloud computing adoption in academic libraries

Cloud computing Academic libraries are vital components in higher educational institutions that collect, organize and disseminate scholarly information to members of the academic community (Odeyemi, 2019). To actualise their mandate more efficiently, academic libraries employ the use of robust technology such as cloud computing technology (Bhardwaj, 2018). Yuvaraj (2015) investigated the use of cloud computing in academic libraries in India, and found that the adoption process is low. Hussaini et al. (2017) examine the influence of cloud technology on the efficient services of the libraries in ... and establishes that cloud technology is very vital in that aspect. Similarly, Tella et al. (2020) investigate the intention to adopt cloud computing by academic librarians in Southwestern Nigeria and discovered that the librarians have good intentions to adopt the cloud computing in their daily service delivery. Likewise (Zubairu et al., 2021) also investigate the awareness and adoption of cloud computing in southwestern Nigeria and reported that the adoption among the libraries is low, but the awareness is high. Several other related researchers such as (Adegilero-iwari & Hamzat, 2017; Alkhater et al., 2015; Comfort, 2018; Judith, 2013; Kayode et al., 2020; Makinta et al., 2019; Makori, 2016; Shivalingaiah & Sheshadri, 2012) investigated the adoption-related matters and implementation of cloud computing technology in academic libraries in various countries.

To this extent, it is believed that deployment of cloud computing is essential for better and improved services delivery. More investigations are still underway on the adoption of cloud computing by academic libraries across the globe.

Overview of cloud computing model

Cloud computing model is all about the idea in which organizations subscribe to computing services from a third party located elsewhere called cloud services providers and get a shared computing infrastructure, storage, development environment and network accessibility from the third party's data centre based on pay-per-use mode (Yaokumah & Amponsah, 2017). The Cloud computing model primarily has to do with developing a concept of outsourcing computing resources and services by the organizations from the third party to reduce investment costs, increase efficiency and improve product quality and service delivery. Moreover, this provides benefits that include the provision of flexible, agile, elastic and dynamic resources to cloud subscribers (Al-Sharafi et al., 2017; Oyoyo & Baguma, 2019). Therefore, to solve academic libraries services issues, the need to develop a model that can serve as a road map for the adoption of cloud computing in academic libraries is of paramount importance.

Cloud computing in relation to academic libraries

Cloud computing has some features that differentiate it from on-premises ICT facilities. These include on-demand service provision, rapid elasticity, pooling of adequate resources to all users, provision of measured services and vast broad network access (Oyoyo & Baguma, 2019). Equally, cloud computing offers services in form of:

- a. Software as a Service (SaaS) - which allows users to utilize already existing applications hosted by the cloud services provider through web browsers and other user interfaces (Chen et al., 2018; Gutierrez et al., 2015). Academic libraries can harness this great opportunity by subscribing to some applications that can be utilized by its teeming clients. Academic libraries nowadays subscribe to ready-made cloud applications such as MS 365 and G mails from cloud computing vendors (Tella et al., 2020).

- b. Platform as a Service (PaaS)- which allows a user to have access to an enabling environment for him to seamlessly and conveniently develop and/or deploy his customized applications that can serve his own needs (Gutierrez et al., 2015; Oyoyo & Baguma, 2019). Academic libraries may opt to hire some portion of space to develop and deploy their applications that can be accessed anywhere and anytime by their clients, by doing so a lot of investment requirements will be saved when compared with owning the platform in-house.
- c. Infrastructure as a Service (PaaS)- which provides users with other resources such as computing capabilities, storage units, and operating systems among others (Oliveira et al., 2019). Academic libraries always strive to ensure that they have unlimited storage and computing capabilities which of course can mostly happen when they subscribe to cloud computing services.

Moreover, cloud computing has 3 prominent deployment models used to give out services to subscribers. The deployment model describes who provides and who accesses the contracting services, which include:

- i. Private deployment model - which is strictly provided to only a single organization to be managed by a third party or by the organization itself (Jibrin et al., 2019; Oyoyo & Baguma, 2019). Here, the provided services are not shared with any other organization or individual. Academic libraries can hire their cloud computing services through this private deployment model if they don't want to run their library affairs in a shared services mode. Hussaini et al. (2017) stated that libraries always want to have a safer and more trusted network that will not compromise its standard service provisions.
- ii. Public cloud deployment model - provide cloud computing services to all intending subscribers without much segregation (Jibrin et al., 2019). It is provided to the general public though in a separate and conscience segment. Here, the services provided are shared and are vulnerable to certain risks, unlike private cloud services. Academic libraries can utilize such services as it is reported by Juma and Tjahyanto (2019) that cloud computing services are less associated with risk and accommodated some protective measures that ensure the safety of user's data.
- iii. Hybrid cloud deployment model- this deployment model combines the characteristics of all other types of deployment models and provides the services to users (Oyoyo & Baguma, 2019). In this scenario, academic libraries can leverage the benefits of having more than one feature to use in delivering their information services. It is acknowledged that academic libraries benefit more in a situation where more opportunities are provided regarding knowledge-based service acquisition and provision (Okike & Adetoro, 2019).

Theoretical and conceptual background

With the manifestation and proliferation of technology such as ICT and its incorporation into the lifecycle of individuals and organizations, its decision of acceptance and/or rejection is yet to be fully established, thus remains an open question to researchers (Marangunić & Granić, 2015). This has informed the researchers to further swim into looking for various factors that could be responsible for adopting or rejecting the technologies, which eventually come up with some theories and frameworks. Many theories and frameworks have been developed to examine the adoption of technology at both individual as well as the organizational level (Marangunić & Granić, 2015). The theories which investigate at individual level include but not limited to:

- the Technology Acceptance Model (TAM) (Davis., 1986), was primarily developed to measure the adoption of new technology by individuals based on their attitude. The model assumed that for

technology to be likely adopted, it must be very useful and easy to use.

- Technology Acceptance Model2(TAM2) (Venkatesh et al., 2000), is an extended version of original TAM which has the same assumption but put other external factors into consideration to improve the technology adoption predictive robustness.
- Technology Acceptance Model3(TAM3) (Venkatesh & Bala, 2008), integrated and advance TAM2 to develop TAM 3, by including social influence, system characteristics, individual differences and facilitating conditions as determinant of perceived usefulness and perceived ease of use. TAM3 has more additional variables and moderators than TAM2 which indicates its further robustness in predicting and explaining new technology in question.
- Theory of Reason Action (TRA) (Fishbein & Ajzen, 1975), propounded that the action of a person toward a given behaviour, is determines by his/her behavioral intention to perform such behaviour; and behavioral intention is determine by person's attitude and subjective norms regarding the behaviour in question.
- Theory of Plan Behaviour (TPB) (Ajzen, 1991), postulated that users' personal belief and attitude determines the adoption and usage of new technology. Person's attitude, subjective norms and perceived behavioral control toward intention influence final person's behaviour toward adoption of new technology
- Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) is a further improvement of all the TAM versions. UTAUT integrated many theories to have more and ever predicting and explaining power on technology adoption.

All the above outlined theories are among the popular theories that examined technology adoption by individuals and still remain good in predicting and explaining adoption of new technology. While Technology-Organizational-environmental framework (Tornatzky & Fleischer, 1990) and Diffusion of Innovation theory (DOI) (Rogers, 1995, 2003) are among the popular theories that examined technology adoption by organizations.

It is recommended to adapt variables from more than one theory when examining the adoption of complex, novel and interactive technology such as cloud computing (Stieninger et al., 2018). Consequently, this research opted to use the combination of TOE and DOI to develop a model that can examine the adoption of cloud computing in academic libraries. Relative advantage and Compatibility variables are adapted from DOI while Government regulations and Competitive pressure variables are adapted from the TOE. Moreover, 1 variable which is technophobia was adapted from the relevant and related literature. All the variables were adapted based on their suitability to the objectives, context and nature of this study as observed from extant literature that were reviewed.

Moreover, another reason for integrating the 2 theories in this research is to strengthen the explanatory power of the model to predict the relevant factors to be considered when deciding to adopt cloud computing in academic libraries.

DOI was primarily developed to provide a solid ground for research on innovation adoption and diffusion (Lai, 2017; Rogers, 2003). Moreover, DOI focus on understanding how internal and external organization characteristics influence organizational innovativeness (Rogers et al., 2019). The theory highlights how technology is diffuse in a social system as a result of some influencing factors. While TOE explains manifold perception of technological, environmental and organizational context as they are the factors likely to influence the organizational decision to adopt novel technology (Baker, 2012; Tornatzky & Fleischer, 1990).

Technological context involves all sorts of relevant technologies that are currently in use by an organization and other technologies that are available in the market but not acquired by the organization yet. On the other hand, organizational context involves organizational characteristics, employee relationship structure, intra and extra-organizational

communication process, firm size and slack resources. While the environmental context involves competitive structure, industry structure, policies, rules and regulations that can affect organizations' operations (Baker, 2012; Tornatzky & Fleischer, 1990). One lovely nature of TOE-DOI theories which makes them attractive is the liberty to slightly change the factors or variables to outfit any given new research (Baker, 2012).

Several researchers examined the influence of TOE and DOI variables on technology adoption in different contexts and countries (Alkhater et al., 2015; Alqarni & Barnawi, 2019; Alsaad et al., 2017; Che Hussin, 2013; Fawaz et al., 2016; Gangwar et al., 2015; Gutierrez et al., 2015; Kandil et al., 2018; Pumplun et al., 2020; Sayginer & Ercan, 2020; Senyo et al., 2016; Singh & Mansotra, 2019; Telukdarie & Shisane, 2018; Zabadi, 2016) among others. Their findings on many occasions revealed different, inconsistent and conflicting results, hence the need for further testing their influences and predictive power in other contexts and countries is of utmost important.

Research hypotheses and model development

Based on the conceptual and theoretical explanations, coupled with the variables derived from them, this research proposes a conceptual model that will guide the adoption of cloud computing in academic libraries across many academic libraries in Africa and specifically in North-Eastern Nigeria as shown in Fig. 1.

The model established and depicted the relationship between independent variables (IVs) (Relative advantage, Compatibility, Technophobia, Government regulations and Competitive pressure) and the dependent variable (DV) (intention to adopt cloud computing in academic libraries). Equally, the researchers deem it fit that after evaluating the influencing variables of cloud computing in a main (direct) relationship, there is a need to moderate the relationships and find out the influencing differences. Perceived trust, therefore, was utilized as a moderating variable in this research.

From the technological perspective, variables such as relative advantage, compatibility and technophobia are considered in this research. Relative advantage (RA) highlights that the perceived benefit

that users can derive from adopting new technology will surely outweigh the existing way (Rogers et al., 2019). RA indicates that the benefit that the adoption of cloud technology will bring may supersede what is being obtained from the existing technology and idea.

Previous researchers revealed that cloud computing help organizations to have cost reduction, improved and simplified services (Mokhtar et al., 2017; Oyoyo & Baguma, 2019; Tashkandi & Al-Jabri, 2015). RA is reported to be one of the significant determinants of new technology adoption (Munguti & Opiyo, 2018; Sayginer & Ercan, 2020). Compatibility (COM) highlights the level of agreement or congruence that will exist between the new technology and the existing technology, norms, values and operational style of the organization of potential adopters (Tornatzky & Klein, 1982). COM revealed the extent of fitness that the new technology will be with that of the potential adopters' existing style, practice, needs and technologies. Previous researchers revealed that COM is reported to be one of the factors that positively influence the adoption of new technology such as cloud computing (Munguti & Opiyo, 2018; Yoo & Kim, 2018). Likewise, technophobia (TPH) which indicates the perceived skepticism and fear that users of new technology exhibit toward the adoption of such technology, mostly influence the adoption of the technology negatively (Nimrod, 2018). Previous researchers revealed that TPH leads to the rejection of new technology by organizations despite the importance of that new technology (Khasawneh, 2018; Nimrod, 2018; Yusuf et al., 2019).

Based on the aforementioned, this research proposes the following hypotheses:

H1. RA positively influences the intention to adopt cloud computing in academic libraries.

H2. COM influences the intention to adopt cloud computing in academic libraries.

H3. TPH negatively influences the intention to adopt cloud computing in academic libraries.

Furthermore, the environmental perspective considered variables such as government regulations (GR) and competitive pressure (CP) in this research as factors that may influence the intention to adopt cloud

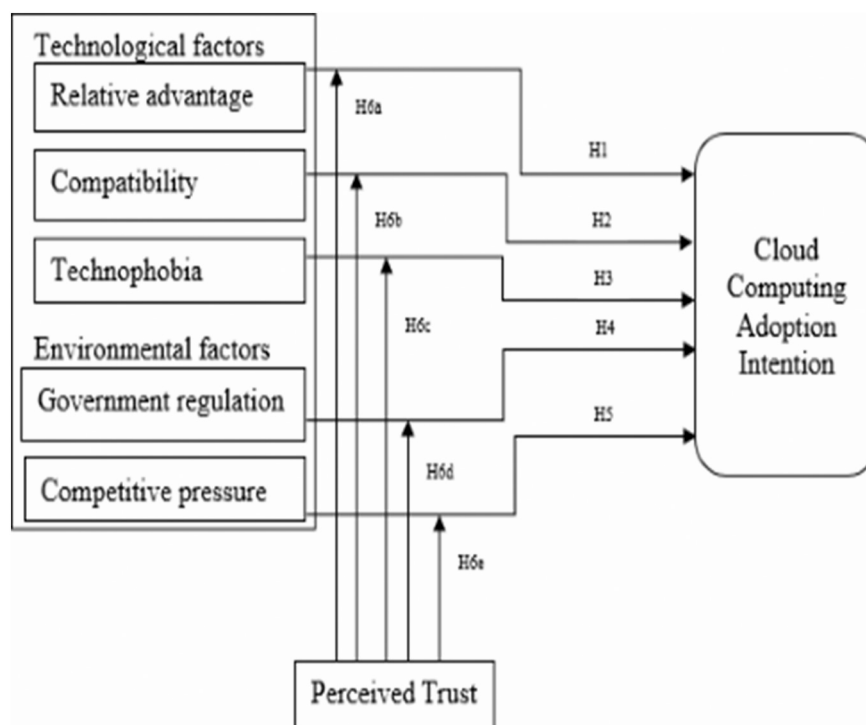


Fig. 1. Research model.

computing in academic libraries. GR highlight the perceived support cloud users will receive from government authorities that can provide an enabling and conducive environment for cloud computing to thrive. GR plays a vital role in the adoption or rejection of new technology such as cloud computing (Al-Hujran et al., 2018) through enacting rules and regulations, policies and programs related to ICT (Oyoyo & Baguma, 2019). The government sometimes enact or amends laws that govern the operation of cloud computing, which may influence the adoption or rejection of cloud computing by the concerned organizations (Al Mudawi et al., 2019). Previous researchers revealed that GR is found to be a significant factor that influences the adoption of new technology such as cloud computing (Al-Hujran et al., 2018; Salamh Mujali Al-rawahna et al., 2018). Moreover, CP refers to the extent of opposition that an organization feels from its competitive alliance (Hiran & Henten, 2020). CP which highlights the perceived pressure an organization will receive from its competitors within the same industry is another factor that influences the adoption of cloud computing (Usman et al., 2019). Nowadays, academic libraries have new competitors, demands and expectations (Okike & Adetoro, 2019). Meaning if an organization did not adopt a certain technology, its competitors will outsmart it and eventually kick it out of the business (Hiran & Henten, 2020). Previous researchers revealed that CP plays a significant role when deciding to adopt or reject a given technology (Al Mudawi et al., 2019; Lin et al., 2011).

Based on the aforementioned, this research proposes the following hypotheses.

H4. GR positively influence the intention to adopt cloud computing in academic libraries.

H5. CP positively influences the intention to adopt cloud computing in academic libraries.

Perceived Trust (TR) has been regarded as the heart of social exchange and has been used as both a direct variable and moderating (Alsaad et al., 2017; Williams et al., 2017). TR in this research refers to the academic libraries' relative confidence in cloud computing adoption for library services. TR is a vital factor related to the increased intention to adopt new technology (Jaradat et al., 2018; Yasir & Majid, 2017). Some studies used TR as a moderator to examine the adoption of technology and further recommend its use again as a moderator (Alsaad et al., 2017). TR plays a significant influencing role in online-based services, therefore considered an important factor that influences the adoption of technology such as cloud computing (Al Mudawi et al., 2019). There is a need to protect the library clients' privacy, confidentiality, digital devices and information contents itself from any form of unauthorized acts (Okike & Adetoro, 2019). Therefore, this can only be achieved when priority is given to the trust measures of cloud service providers. Inter-organizational transactions heavily rely on trust (Alsaad et al., 2017). When making a decision on the adoption of cloud computing for storing and processing sensitive information, subscribers always use the TR factor to help them make the best decision on which cloud services provider to choose (Ritu et al., 2017). Therefore, this research will use TR as a moderator to find its moderation influence on the relationships between the research independent variables (relative advantage, compatibility, technophobia, government regulations and competitive pressure) and the dependent variable (intention to adopt cloud computing in academic libraries).

Based on the aforementioned, the research proposes the following hypotheses:

H6a. TR moderates the relationship between RA and intention to adopt cloud computing in academic libraries.

H6b. TR moderates the relationship between COM and intention to adopt cloud computing in academic libraries.

H6c. TR moderates the relationship between TPH and intention to adopt cloud computing in academic libraries.

H6d. TR moderates the relationship between GR and intention to adopt cloud computing in academic libraries.

H6e. TR moderates the relationship between CP and intention to adopt cloud computing in academic libraries.

Methodology

A quantitative approach using a survey method was adopted in this research. All staff of the academic libraries in North-Eastern Nigeria who directly involved in the core services of the libraries formed the population of the study. The respondents to be sampled from were identified to the researchers by the Head of human resources in the libraries. 234 sample respondents who are decision-makers and occupying the position of Chief librarian, Deputy librarian and Head of ICT unit in the library were drawn from the population using purposive sampling technique. This is because the data are needed only from those who can decide on the adoption or rejection of technology in the earmarked academic libraries.

Previously used scales based on the research variables were adapted and developed into a well-structured questionnaire using a 7-points Likert scale. Thereafter, content and face validities were examined by subjecting the questionnaire to further verification by experts, which eventually were distributed to the targeted respondents for obtaining data that will address the research questions. Questionnaire distribution and collection were conducted within 3 months. Out of 234 distributed questionnaires, only 212 questionnaires were successfully returned, but after data cleaning was conducted, only 192 (90.6 %) were found usable and therefore subjected to further analysis. The remaining 20 questionnaires were discarded due to outlier and extreme missing value issues. Data for the research was analyzed using Statistical Package for Social Science (SPSS) software version 20 and Partial Least Square-Structural Equation Modeling (PLS-SEM) software. SPSS was used in screening the data and analyzing the demographic variables of respondents, while Smart PLS – SEM version 3.0 was used in analyzing the measurement and structural models of the research, which eventually provide the results that answered our hypotheses and objectives.

Findings

Demographic characteristics of respondents

Data regarding the characteristic of respondents were carefully analyzed and the results revealed that male constitutes 148 (77.1 %) while female on the other hand constitutes 44 (22.9 %). This indicated that males participated in this research more than females, which is the case in most studies that include that of (Kayode et al., 2020; Tella et al., 2020).

Respondents' qualification results revealed that PhD holders had 10 (5.2 %), Master's holders had 87 (45.3 %), Degree/Higher National Diploma holders had 89 (46.4 %) and holders of other qualifications had 6 (3.1 %). This signified that Degree/Higher National Diploma holders are the majority while those with other qualifications are the minority in this research. Furthermore, respondents' years of experience results revealed that 6–10 years had 18 (9.4 %), 11–15 years had 73 (38.0 %), 16–20 years had 63 (32.8 %), and 21 and above had 34 (17.7 %). This indicated that the majority of respondents had 11–15 years of experience in library services while the minority of respondents have 1–6 years of experience in library services.

Measurement model assessment

Item's reliability, convergent and discriminant validity assessment

For the analysis of any data to be good enough in research, the reliability and validity of measurement items and constructs need to be carefully examined to ensure they satisfy a certain threshold. Item's

reliability shows how suitable the items are to measure a given variable in research.

Results of item reliability indicated that most items satisfied the minimum threshold above 0.5 as suggested by (Hair et al., 2011). Equally, convergent validity which measures how empirically measures are related to their corresponding variable was assessed. Assessment of convergent validity aims at showing how measures that are expected to be closely related are really closely related under the same variable. Values of composite reliability, outer loadings and average variance extracted were used in assessing the discriminant validity as suggested by (Hair, Matthews, et al., 2017; Sarstedt et al., 2014).

Based on Table 1, all the required values satisfied the threshold, as composite reliability values are all above 0.7 (Hair et al., 2019), outer loadings are above 0.6 with few that recorded less than that and are retained just to maintain content validity (Hair et al., 2011; Hair, Matthews, et al., 2017), and average variance extracted values are all above 0.5 (Hair, Matthews, et al., 2017) which can be seen in Table 2. Moreover, Discriminant validity which explains that measures that are not supposed to be related are empirically and testable not related was assessed. The heterotrait-Monotrait ratio was used to assess the discriminant validity in this research (Hair et al., 2012). Heterotrait-Monotrait ratio results indicated that all the required values are satisfied as can be seen in Table 3.

Structural model assessment

Now that the measurement assessment is conducted and results showed that it satisfied the necessary conditions, therefore structural model which explains the relationships that exist between the independent variables (IVs) and dependent variable as well as the moderation effect was assessed (Sarstedt et al., 2014). Some important parameters such as coefficient of determination (R^2), effect sizes (F^2) and predictive relevance (Q^2) for both main (direct) and moderation relationships were assessed and have their results presented. They are believed to have indicated how accurate, relevant, powerful and suitable a model is (Hair, Matthews, et al., 2017; Sarstedt et al., 2014).

Prior to that, the variance inflation factor (VIF) which examines collinearity issues among the research variables was checked and found to have been with no collinearity (See Table 2). It was propounded that for a structural model to be evaluated, the VIF values of variables should be <5 (Hair, Matthews, et al., 2017), and this research found that the variables' VIF ranges between 1.031 and 1.202 as can be seen in Table 2.

Testing of main (direct) hypotheses

This research examined the main (direct) relationship between the 5 IVs (RA, COM, THP, GR, CP) and the DV (intention to adopt cloud computing) using a non-parametric bootstrapping technique with 5000 resampling. To indicate the significance of any variable, the variable must have achieved at least a t value of ≥ 1.645 (one tail), a P value of ≤ 0.05 at 95 % and confidence interval of the threshold value (Hair et al., 2013; Sarstedt et al., 2014). The results of this research analysis revealed

Table 1
Demographic characteristics of respondents.

Demographic variable	Category	Frequency	Percentage (%)
Gender	Male	148	77.1
	Female	44	22.9
Qualifications	Ph.D.	10	5.2
	Masters	87	45.3
	Degree/HND	89	46.4
	Others	6	3.1
Years of Experience	1–5	4	2.1
	6–10	18	9.4
	11–15	73	38.0
	16–20	63	32.8
	21 and above	34	17.7

Table 2
Reliability and convergent validity assessment.

Variables	Measures	Loadings	CR	AVE	VIF	Validity /Reliability
RA	RA1	0.847	0.928	0.764	1.202	Achieved
	RA2	0.941				
	RA3	0.730				
	RA4	0.959				
COM	COM2	0.664	0.869	0.627	1.041	Achieved
	COM3	0.763				
	COM4	0.843				
	COM5	0.881				
TPH	TPH1	0.687	0.869	0.570	1.031	Achieved
	TPH2	0.771				
	TPH3	0.791				
	TPH4	0.788				
	TPH5	0.735				
GR	GR1	0.888	0.843	0.527	1.102	Achieved
	GR2	0.802				
	GR3	0.782				
	GR4	0.525				
	GR5	0.561				
CP	CP1	0.893	0.977	0.916	1.133	Achieved
	CP2	0.972				
	CP3	0.976				
	CP5	0.985				
TR	TR2	0.789	0.835	0.628	1.202	Achieved
	TR4	0.760				
	TR5	0.825				
	TR5	0.825				
INT	INT1	0.658	0.832	0.555		Achieved
	INT3	0.739				
	INT4	0.799				
	INT5	0.775				
	INT5	0.775				

CR: Composite reliability, AVE: Average variance extracted, A: Relative Advantage, COM: Compatibility, TPH: Technophobia, GR: Government Regulations, CP: Competitive Pressure INT = Intention to adopt CA, TR = Perceived Trust.

Table 3
Heterotrait-monotrait rations for discriminant validity assessment.

Heterotrait-Monotrait Ratio							
	COM	CP	GR	INT	RA	TPH	TR
COM							
CP	0.099						
GR	0.154	0.267					
INT	0.429	0.400	0.497				
RA	0.161	0.212	0.206	0.423			
TPH	0.119	0.134	0.182	0.232	0.095		
TR	0.184	0.225	0.242	0.642	0.350	0.118	

that all 5 main relationships are significant as can be seen in Table 4. Meaning, the 5 IVs influences the intention to adopt cloud computing in academic libraries.

Coefficient of determination (R^2), effect size (F^2), predictive relevance (Q^2) for main (direct) relationships

The coefficient of Determination (R^2) which measures the contribution of all IVs on the DV is achieved by having 0.432 (43.2 %). R^2 explains the variance that has been accounted for by the DV through the collective contributions of the IVs. R^2 values of 0.75, 0.50 and 0.25 are considered substantial, moderate and weak respectively (Hair et al., 2011; Hair et al., 2013). Moreover, effect Size (F^2), which measures the contribution of each IV on the DV is equally achieved by having values ranging from 0.042 to 0.176. F^2 explains the variances accounted for in the DV by each individual IV. F^2 values of ≥ 0.02 , ≥ 0.15 and ≥ 0.35 are considered small, moderate and large respectively (Cohen, 1988). Furthermore, predictive relevance (Q^2) which measures the predictive power of the model is achieved by having a value of 0.22. Q^2 measures whether a model has predictive relevance or not, meaning how relevant

Table 4

Path coefficient for main (direct) relationship effect.

Hypotheses	Variables relations	Beta coefficient	Sample mean	Std Dev	T Statistics	P Values	LB 5 %	UB 95 %	Decision
H1	RA - > INT	0.229	0.230	0.065	3.506	0.000	0.123	0.338	Accepted
H2	COM - > INT	0.304	0.310	0.057	5.344	0.000	0.215	0.403	Accepted
H3	TPH - > INT	-0.192	-0.198	0.062	3.100	0.001	-0.295	-0.095	Accepted
H4	GR - > INT	0.330	0.332	0.058	5.676	0.000	0.237	0.428	Accepted
H5	CP - > INT	0.163	0.161	0.055	2.955	0.002	0.068	0.253	Accepted

$P \leq 0.05$, t value ≥ 1.645 (significant level at 5 %) One tailed.

the IVs are to the model and the model to the study. Q^2 values > 0 indicates that the model has predictive relevance (Chin, 1998; Cohen, 1988). As indicated in Table 5, both the R^2 , F^2 and Q^2 satisfied the required threshold suggested by (Chin, 1998; Hair et al., 2011; Hair, Hult, et al., 2017).

Testing for moderation relationship effect

Using same parameters employed and utilized in path coefficient of main (direct) relationship assessment above, Interaction (moderation) effect of perceived trust on the relationships between the research IVs and DV was equally assessed and results indicated that perceived trust (TR) does not moderate any of the relationships between the IVs and DV. The moderation results revealed that all the t values are less than the threshold values of 1.645 ($t < 1.645$) and P values are greater than the threshold values of 0.05 ($p > 0.05$). It has been propounded that for the relationship to be significant, the t values should be ≥ 1.645 using one-tail and p values should be ≤ 0.05 at 95 % confidence (Hair, Hult, et al., 2017; Sarstedt et al., 2014). Based on this research result, TR is not a good moderator in this research as can be seen in Table 6 and Fig. 2.

Coefficient of determination (R^2), effect size (F^2), predictive relevance (Q^2) for moderation relationships

The R^2 for moderation effect revealed a value of 0.560 (56 %) which is moderate (Hair et al., 2011; Leguina, 2015), this indicates an increase from that of the direct effect that has 0.432 (43.2 %). Moreover, the F^2 of the moderation effect revealed that 4 interactions have no effect while only 1 has small effect (Leguina, 2015) as can be seen on Table 7. This is not surprising because all the moderation relationships as can be seen on Table 6 are insignificant. Similarly the Q^2 revealed that the model has a moderate predictive relevance by having the value of 0.274 (Chin, 1998; Cohen, 1988) as can be seen in Fig. 3. Table 7 presented the moderation values of R^2 , F^2 and Q^2 .

Discussion of findings

Understanding the factors that influence cloud computing adoption is still important. This research developed a hybrid model using combined theories of TOE-DOI, where technological and environmental variables were used to formulate the research model. The relationships between the IVs and the DV were examined through both direct and moderation analyses. As indicated in Table 4, all the hypotheses for direct effect are supported while as indicated in Table 6 all the moderation effects are not supported.

Relative Advantage- RA (H1 with $\beta = 0.229$, $t = 3.506$, $P = 0.000$) is a significant factor in this research, which indicated that decision-

makers of academic libraries believed that cloud computing adoption will add more values, efficiency and benefits to their information services delivery than the previous way, which in turn may accelerate their intention to deploy it for improved and cost-efficient service delivery.

This implies that the higher the expected benefits from cloud computing by the decision-makers of academic libraries, the more rapid their intention to adopt it could be. This finding is in line with the findings of (Oliveira et al., 2014) who also found that RA is a significant factor in influencing the adoption of cloud computing in the manufacturing sector of Portugal. RA was also found to be significant in influencing cloud computing adoption in Saudi Arabian government (Al Mudawi et al., 2019), likewise, in other new technologies that include cloud computing as revealed by (Al-Jabri, 2015; Emad & Shatha, 2015; Jaradat et al., 2018; Tashkandi & Al-Jabri, 2015). Despite the predictive power of RA as revealed by literature, other researchers like (Oliveira et al., 2014) found RA as an insignificant factor in the service sector of Portugal.

Also, Compatibility - COM (H2 with $\beta = 0.304$, $t = 5.344$, $P = 0.000$) is a significant factor influencing cloud computing adoption research. This result indicated that decision makers of academic libraries believed that cloud computing will surely be congruent with their existing facilities, operational style and ethics, which in turn may escalate their intention to adopt it for better delivery of information services. This result coincided with another research which found that COM is a significant factor in cloud computing adoption by the Saudi Arabian government (Al Mudawi et al., 2019), likewise in other new technologies that include cloud computing (Al-Barashdi & Al-Karousi, 2019; Emad & Shatha, 2015; Jaradat et al., 2018). Surprisingly, COM was found to be a significant factor in influencing the adoption of cloud computing in the service sector, but not significant in the manufacturing sector (Oliveira et al., 2014). Another research contrarily to this, also revealed that COM is an insignificant factor in adopting cloud computing in higher educational institutions in Saudi Arabia (Tashkandi & Al-Jabri, 2015).

Technophobia - TPH (H3 with $\beta = -0.192$, $t = 3.100$, $P = 0.001$) is a negative significant factor influencing cloud computing adoption. This revealed that decision makers of academic libraries agreed that anxiety and fear related to new technology such as cloud computing, will negatively influence their intention to adopt cloud computing, which in turn leads to rejection of the cloud computing entirely. Equally, other researchers found TPH as a significant determinant that negatively influences the adoption of technology in different contexts and countries (Komolafe-Opadeji & Ojo, 2019; Mani & Chouk, 2018). Contrary to this research finding, Ali et al. (2020) found that TPH is not influencing cloud computing adoption.

Government Regulation - GR (H4 with $\beta = 0.330$, $t = 5.676$, $P = 0.000$) are a significant factor in this research. Based on this result, decision-makers of academic libraries believed that favorable government policies, programs, rules and regulations can play a vital role in their intention to adopt cloud computing. This can go a long way in fastening their intention to deploy cloud computing in their libraries. This finding is in line with the results which revealed that GR influences the adoption of cloud computing in the Saudi Arabian government (Al Mudawi et al., 2019). The results also coincided with the findings which revealed GR significantly influences the adoption of cloud technologies (Akar & Mardiyani, 2016; Ali & Osmanaj, 2020; Gutierrez et al., 2015).

Table 5Coefficient of determination (R^2), effect size (F^2) and predictive relevance (Q^2) for main (direct) relationship.

Variable	F^2	Effect	R^2	Effect	Q^2
COM	0.157	Moderate	0.432(43.2 %)	Small	0.22
CP	0.042	Small			
GR	0.176	Moderate			
RA	0.086	Small			
TPH	0.064	Small			

Table 6
Path coefficient for moderation relationship effect.

Hypotheses	Variable relations	Beta values	Sample Mean	Std Dev	T statistics	P values	LB 5 %	UB 95 %	Decision
H6a	TR*RA -> INT	-0.069	-0.054	0.081	0.851	0.198	-0.166	0.107	Rejected
H6b	TR*COM -> INT	-0.057	-0.039	0.099	0.581	0.281	-0.168	0.143	Rejected
H6c	TR*TPH -> INT	-0.064	-0.033	0.107	0.600	0.274	-0.168	0.180	Rejected
H6d	TR*GR -> INT	-0.100	0.004	0.124	0.803	0.211	-0.169	0.199	Rejected
H6e	TR*CP -> INT	0.040	0.026	0.069	0.581	0.281	-0.098	0.132	Rejected

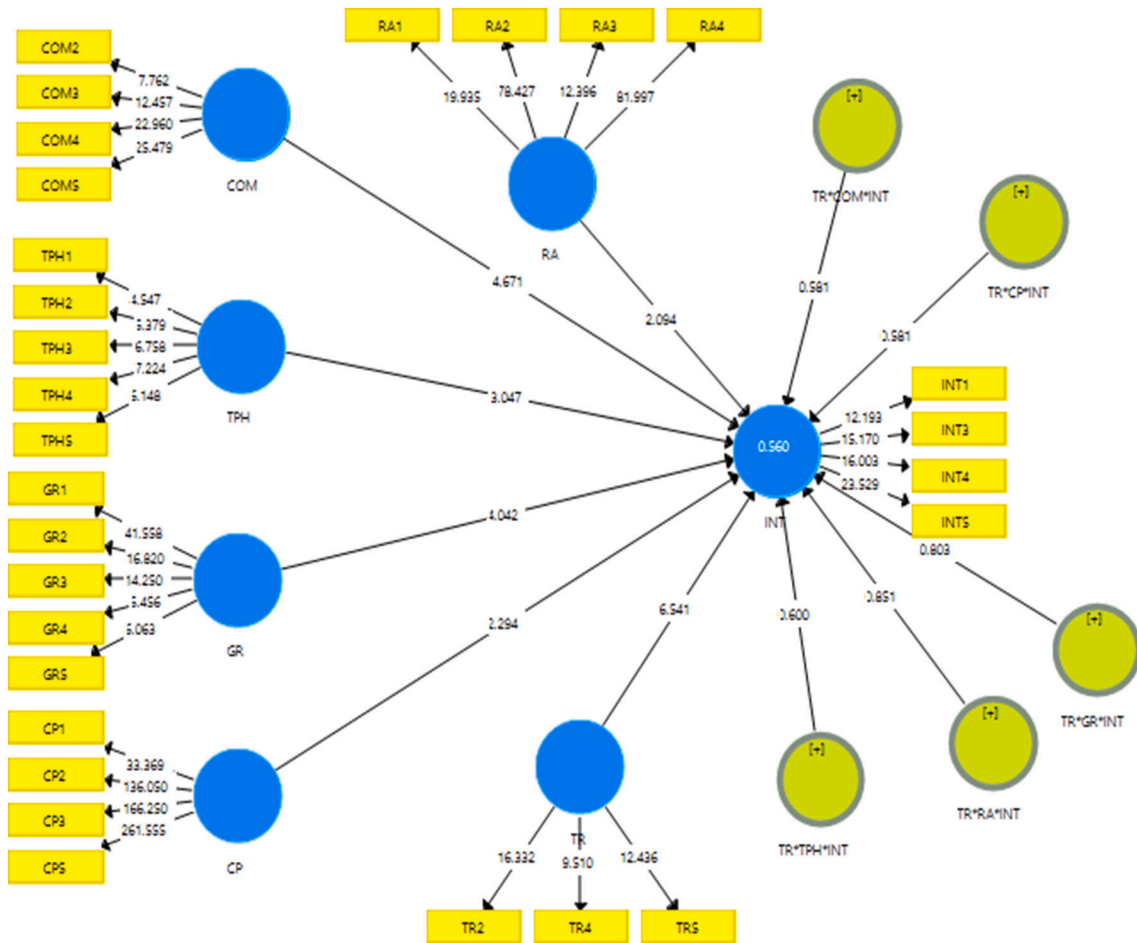


Fig. 2. Moderation (interaction) effect and R² results.

Table 7
Coefficient of determination (R²), effect size (F²) and predictive relevance (Q²) for moderation relationship.

	F ²	Effect	R ²	Effect	Q ²
TR*RA -> INT	0.010	No effect	0.560 (56 %)	Moderate	0.274
TR*COM -> INT	0.007	No effect			
TR*TPH -> INT	0.008	No effect			
TR*GR -> INT	0.021	Small			
TR*CP -> INT	0.003	No effect			

However, the findings contradicted the finding of (Hsu & Lin, 2016) who found that GR is an insignificant factor in influencing the adoption of cloud computing by enterprises in Taiwan. Same with another research which equally found that GR is found to be insignificant in influencing the adoption of cloud computing in Saudi Arabia (Tashkandi & Al-Jabri, 2015).

Competitive Pressure - CP (H5 with $\beta = 0.163$, $t = 2.955$, $P = 0.002$) is a significant factor in this research which implied that academic

libraries facing strong competition from sister libraries tend to adopt cloud computing more quickly. Decision makers of academic libraries agreed that competition intensity from their counterparts can influence their intention to adopt cloud computing so that they can remain relevant and effective. This finding coincided with the assertion that CP is an important factor influencing the adoption of new technology, and is found to be significant in influencing cloud technology adoption (Al Mudawi et al., 2019; Hsu & Lin, 2016). Contrarily to that, CP is found to be insignificant in influencing the adoption of cloud computing in Saudi Arabian higher institutions of learning (Tashkandi & Al-Jabri, 2015).

Based on the above discussion which reported that factors under consideration are significant in some research while insignificant in other research, revealed another door for further investigation as to why such inconsistency occurs before making a definitive conclusion. Though it has identified that context, countries, unit of analysis and experiences of respondents regarding the technology in question are fundamental in making a given variable to be significant or insignificant (Tashkandi & Al-Jabri, 2015).

Perceived Trust - TR is found to be insignificant in moderating the

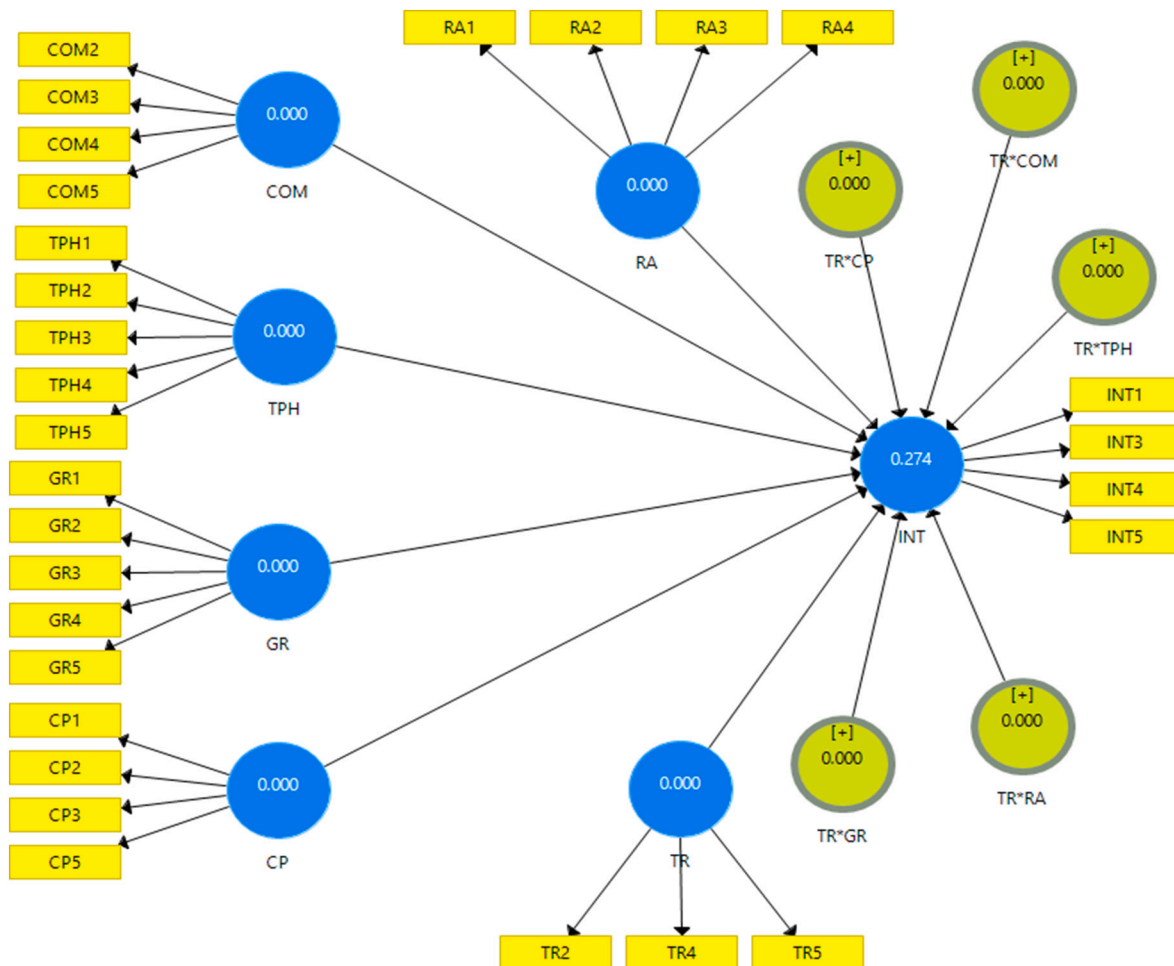


Fig. 3. Blind folding showing the Q^2 results.

relationships between the research IVs and DV. This implies that TR has no serious effect in strengthening the effect of all the IVs toward adoption of the cloud computing in academic libraries. The moderation relationship between TR and RA (H6a with $\beta = -0.069$, $t = 0.851$, $P = 0.198$) revealed that TR is not necessary to encourage the decision makers of academic libraries to believe that cloud computing offers more benefits than the existing way of handling library services. The plausible reason could be that decision-makers believed that their contents located somewhere will surely remain untampered. Likewise, the moderation relationship between TR and COM (H6b with $\beta = -0.057$, $t = 0.581$, $P = 0.281$) results indicated that trusting cloud computing will not improve the decision makers' belief that cloud computing compatibility with the academic libraries' existing facilities and operational style. The probable reason could be that decision-makers already believed that cloud computing is surely in alliance with their existing facilities. Moreover, the moderation relationship between TR and TPH (H6c with $\beta = -0.064$, $t = 0.600$, $P = 0.274$) results revealed that trusting of cloud strengthens the belief that TPH discourages cloud computing adoption. In fact, all the results of moderation in the technology context revealed an inverse relationship, therefore, decision-makers should pay less attention or even neglect to trust cloud computing before deciding to adopt it in their respective libraries.

The moderation relationship between TR and GR (H6d with $\beta = -0.100$, $t = 0.803$, $P = 0.211$), TR and CP (H6e with $\beta = 0.040$, $t = 0.581$, $P = 0.281$) all revealed that TR did not have an impact in strengthening the belief that academic libraries have on the adoption of cloud computing in their respective libraries, putting into consideration the intensity of competition as well as rules and regulations related to cloud

computing operations. Therefore, decision-makers of academic libraries believe that there is no need to trust cloud computing before deploying it, which may be due to the fact that cloud security is satisfactory to them.

The inability of TR to strengthen and improve the adoption of cloud computing in academic libraries as revealed in this study does not necessarily mean trust is not important in information exchange and storage at an unknown location. It could be that the perception decision-makers have on cloud computing sufficiently convince them to adopt it without any doubt about its authenticity, security attributes, privacy, confidentiality and availability of data breaches. Equally, it could be that the elements of trustiness surrounding cloud computing have not been cleared and earnestly embraced by the decision-makers of academic libraries. But trust is claimed to be very fundamental in anything related to online transactions. However, before reaching a definite conclusion regarding the moderation effect of TR, additional research must be carefully undertaken to test its effect.

Limitations of the study

Like most other research, this research is also associated with some limitations. This research collected data from academic libraries only, and leave other types of libraries such as special, public, school and private libraries which to some extent this results will not applicable to them. Equally, there are a lot of variables out there, but this research adopted only a few, and the time frame scheduled for the research is another limitation.

Conclusion and implication of the study

Conclusively, a model that will guide the adoption of new technology such as cloud computing in academic libraries, especially in African countries, remains a topic of discussion and continues to be thought of by researchers as it has not reached a definite stand. Based on the findings of this research as well as the zeal to contribute to solving that issue, it is concluded that this current research enriches the body of knowledge, especially in the field of librarianship and its associates by developing a hybrid model being moderated by perceived trust (TR) factor to determine cloud computing adoption for better library services. The significant relationships exhibited by the influencing factors here signified their importance in adopting cloud computing in academic libraries, which indicates that academic libraries' decision-makers should pay serious attention to them whenever a cloud-based decision is taken. Furthermore, the results of this research suggest that applying a scientific approach such as integrated TOE-DOI which considers Environmental-Organizations factors have implications on technology adoption especially at the organizational level offers valuable awareness to potential cloud adopters and researchers.

To indicate the implication of this study, Table 4 showed that this research contributed to the theoretical understanding of TOE and DOI factors influencing the adoption of cloud computing in academic libraries. Though most of the factors used here have been examined in another context, but inclusion of technophobia (TPH) which has not been sufficiently examined adds more knowledge to the theory building. Moreover, combining of theoretical lenses of TOE-DOI to determine the intention to adopt cloud computing has equally been done by (Alsaad et al., 2017; Hiran & Henten, 2020; Kumar et al., 2017; Oliveira et al., 2014; Senarathna et al., 2018), but this research introduced perceived trust (TR) as a moderator and in academic libraries context. This can add more value to the field of librarianship, especially regarding a model that can assist in the adoption of cloud-based technologies for improving their library service delivery. The research model developed here signified that technological and environmental factors underpinning this research are significant influencers of cloud computing adoption intention in academic libraries.

Managerially, this research provided the library stakeholders and cloud services providers with valuable information about the factors that influence the adoption of cloud computing in academic libraries in particular and other organizations in general. Decision-makers of academic libraries will use these results and initiate successful ways of adopting cloud computing in their academic libraries for better service delivery. It should be categorically note that in Nigeria, academic libraries decision-makers have strong control over adoption or rejection

of technology in the libraries. That is why an act was initiated that 10 % recurring annual budget of any higher institution of learning must be allocated to the libraries to independently run their needs (Ubogu & Okiy, 2011) likewise tertiary education fund (TEDFund) set aside periodic allocations of fund for each academic libraries as library development fund. Finding of this study will enable decision-makers of the libraries to improve their intention toward adoption of cloud computing in their services delivery. This will finally lead to the adoption of the cloud computing and then improve the services of the libraries in so many ways such as: wide information accessibility and dissemination, 24/7 information accessibility, cost effectiveness, above all, efficient and effective library services delivery.

Recommendations for future research

Based on the outcome of this research, it is recommended that the influencing factors and the developed model should be given serious attention when a decision of adopting cloud computing will be taken by the decision-makers of academic libraries so that to serve as a road map that can guide their action to the appropriate path. The research further recommended that future research should cover more areas than this one so that all vital information left behind here (if any) is included. Equally, more variables should be included to ascertain their effect in such type of study in the future and the moderator (perceived trust) should be employed in future study and tested again so that to find its real effect.

Authors' statement

All the authors verify that this work has not been currently submitted to other publications for considerations. All authors confirm that they are involved in this study from the beginning to the end. This study did not have any external funding and was carried out as part of the authors' academic research work. All authors contributed to the overall article, critically reviewed, and approved the content.

Declaration of competing interest

There is no conflict of interest declared.

Acknowledgements

Acknowledgment to "Ministry of Higher Education Malaysia for Fundamental Research Grant Scheme Project with Project Code: FRGS/1/2020/SS0/USM/02/4".

Appendix 1. Questionnaire

Section A: Demographic Information of Respondents.

Please tick the appropriate answer.

Gender: Male ☐ Female ☐

Qualification: Ph.D. ☐ Masters ☐ Degree/Higher National Diploma ☐ Others ☐

Years of experience in service: 1–5 ☐ 6–10 ☐ 11–15 ☐ 16–20 ☐ 21 and above ☐

Cloud computing is a novel technology provided by the cloud vendors to support clients' needed data storage, applications, platforms and infrastructure on-line Yes ☐ No ☐

Is cloud computing used to store data/information to be accessed anywhere any time when authorised? Yes ☐ No ☐

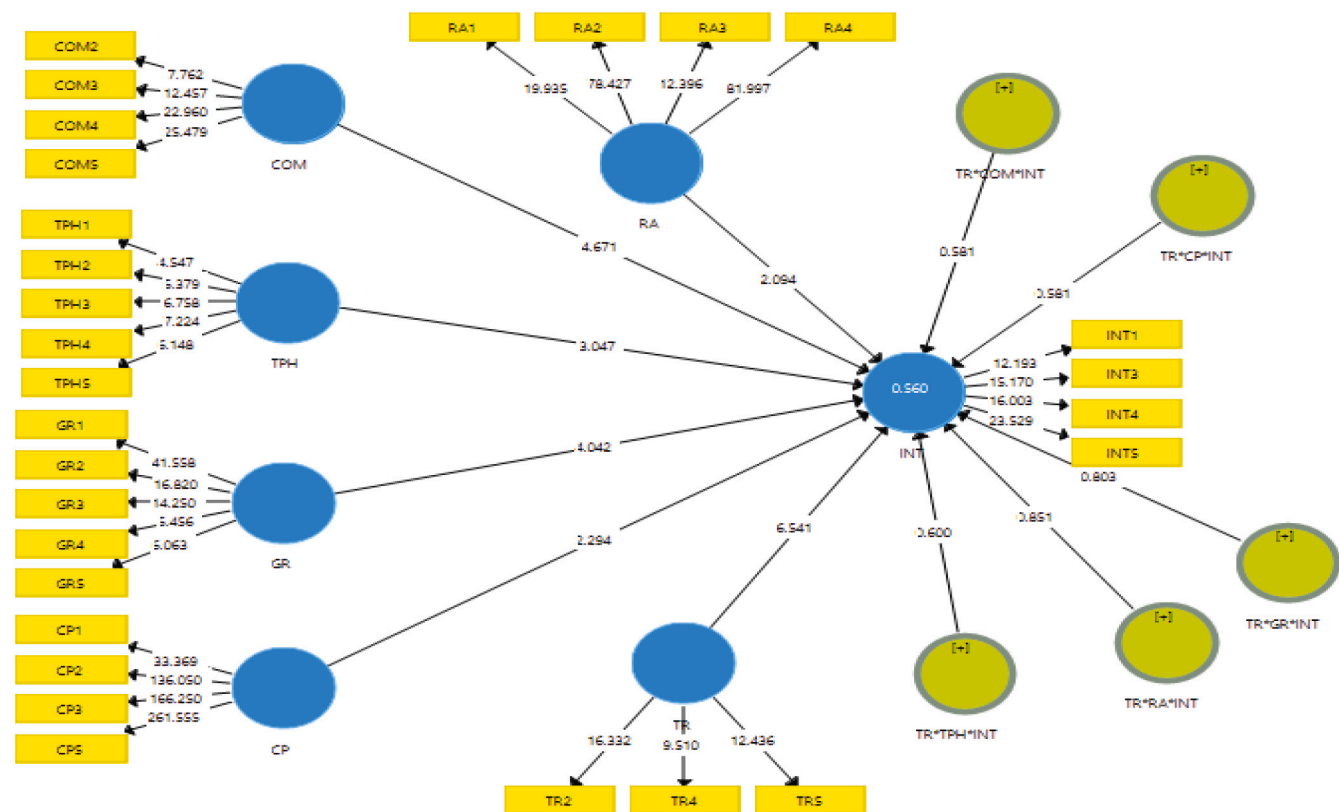
Section B: Views on the Determinants for the Intention to Adopt Cloud Computing in Academic Libraries.

The responses to the bellow questions can be answered as either:

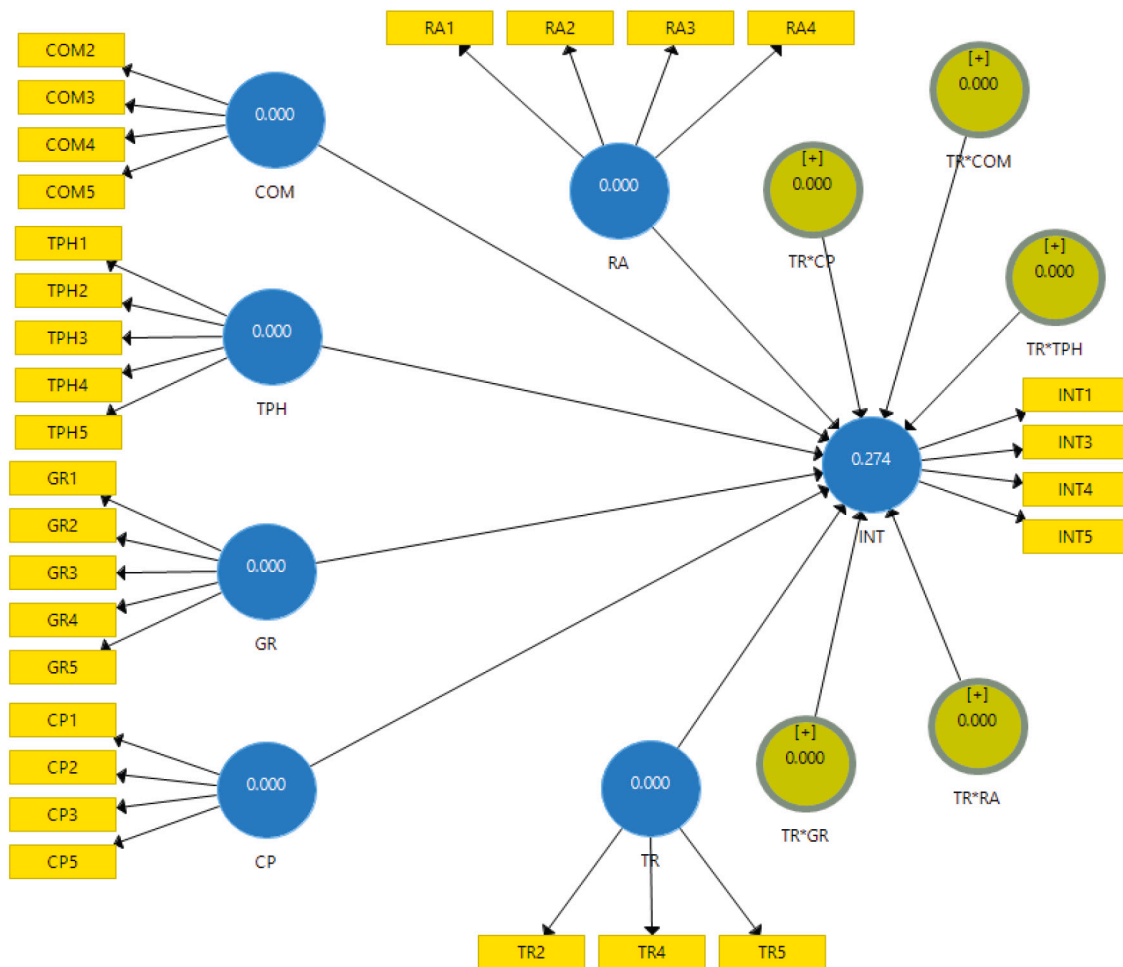
1 = strongly disagree, 2 = disagree, 3 = partially disagree, 4 = undecided, 5 = partially agree, 6 = agree and 7 = strongly agree.

Relative advantage		Level of agreement						
Code	Items	1	2	3	4	5	6	7
RA1	Cloud computing will give us greater control over our library collections than the on-premises ICT facilities							
RA2	Cloud computing will allow us to manage our library collections more efficiently than the on-premises ICT facilities							
RA3	Cloud computing will be more convenient than the on-premises ICT facilities							
RA4	Providing library services using cloud computing system will lower the costs							
RA5	cloud computing will be a useful technology for managing my task in the library							
Compatibility								
Code	Items	1	2	3	4	5	6	7
COM1	Using cloud computing services will be compatible with all aspect of our work in the library							
COM2	Usage of cloud computing services will fit well with the way we want to do our work in the library							
COM3	Using cloud computing services will create changes that are compatible with our existing work in the library							
COM4	Cloud computing will be consistent with current values, believes and infrastructures of our library							
COM5	Customization in cloud-based services will be simply possible and implementable							
Technophobia								
Code	Items	1	2	3	4	5	6	7
TPH1	We feel restless when we have to learn much about emerging technology like cloud computing							
TPH2	We afraid of using new technology like cloud computing because it may interfere with my life emotionally, physically and psychologically							
TPH3	We afraid of new technology such as cloud computing because if anything goes wrong, we will go back to where we were							
TPH4	We terrified of being connected to the internet, as some one will be tracking me							
TPH5	I am afraid of using some features of new technology such as cloud computing							
Government regulations								
Code	Items	1	2	3	4	5	6	7
GR1	There is lack of security rules, policies and privacy laws governing the use of cloud computing in library							
GR2	The existing rules and regulations are not sufficient enough to protect the use of cloud computing in libraries							
GR3	Due to differences in legislation, our libraries might lose control of data if it used cloud computing services provided from a supplier hosting data outside the country							
GR4	There is unclear standard legal protection in the use of cloud computing in libraries							
GR5	Provision of strong regulations will ease the process of adopting the cloud in academic libraries							
Competitive pressure								
Code	Items	1	2	3	4	5	6	7
CP1	Cloud computing will allow stronger competitive advantage among academic libraries							
CP2	Cloud computing will increase academic libraries' ability to outperform competition							
CP3	cloud computing will allow the generation of higher efficiency and patronizations of library collections							
CP4	Our competitors that have adopted cloud computing have more patrons than us							
CP5	Academic libraries with cloud-based services are more patronized than those with manual services							
Perceived trust								
Code	Items	1	2	3	4	5	6	7
TR1	We trust the cloud because its vendors are competent and professional to serve our library							
TR2	The cloud vendor is one that will keep promises and commitments of our libraries							
TR3	We believed that cloud applications to be use in our libraries are very secured							
TR4	We trust the cloud vendor because they will keep our libraries' best interests in mind							
TR5	Overall, the cloud is trustworthy							
Intention to Adopt Cloud Computing								
Code	Items	1	2	3	4	5	6	7
INT1	Overall, our library intends to adopt cloud computing solution in the future for services delivery							
INT2	If possible, our library is ready to try cloud computing solution in our library							
INT3	Our library plan to use cloud computing solution in the future for services delivery							
INT4	Our library will take steps to adopt cloud computing in the future							
INT5	Assuming cloud computing will be available on my job, I predict that we will use it on a regular basis in the future							

Appendix 2. Moderation (interaction) effect and R² results



Appendix 3. Blind folding showing the predictive relevance (Q^2) results



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