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Human Factors in Influencing the Decision to Adopt Cloud Computing by Small and Medium Enterprises in Uganda

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Abstract

Introduction: Cloud computing in SMEs in developing countries has been at a very slow pace with one of the main contributors towards this phenomenon being human factors.

Aim: the aim of the study is to assess the effect of human factors in influencing the decision to adopt cloud computing by Small and Medium Enterprises in Uganda.

Method: The research design for this study was descriptive and explanatory-quantitative. The motivation for a descriptive research design was to permit measurement of the extent of the decision to adopt cloud computing. A sample of 416 employees was selected from a total of 379257 from 1000 documented tax complaint SMEs in Uganda.

Results: The odds ratio indicates that the odds of being iata a higher level on cloud computing adoption increases by a factor of 0.687 for every one-unit increase on human factors. Given the odds ratio is < 1, this indicates a decreasing probability of being at a higher level on cloud computing adoption as values increase on human factors. Data analysis shows that when a Spearman's rank correlation was run to determine the relationship between human factors and cloud computing adoption, there is a very weak, negative monotonic correlation between human factors and cloud computing adoption decision ($r_s = -.059$, $n = 307$, $p > .001$).

Conclusions: The study concluded that decision-makers in an organization or business are a critical and fundamental factor in the decision of cloud computing adoption based on their innovativeness and cloud computing knowledge.

Keywords: Human factors, Cloud Computing Adoption decision, SMEs, Innovativeness, Cloud Knowledge

Introduction:

Globally, small and medium-sized enterprises (SMEs) are regularly alluded to as the economy's backbone since they can contribute to economic growth, job creation, innovation, and social integration (Airaksinen et. al., 2016). SMEs are an important part of the economic development of Eastern countries like Malaysia, accounting for 98.5 percent (907,065) of total company enterprises (Economic Census Report, 2016). These SMEs account for 36.3 percent of the country's GDP, 65 percent of its employment, and nearly 18 percent of countries in several areas of the world. There are significant competitions and challenges among SMEs as a result of

their rapid growth. According to Habjan and Popovic (2007), the advancement of ICT has pushed many organizations to conduct their businesses in extremely complex and changing contexts due to a broader choice and flexibility of products, changing buying patterns, and increased consumer demands.

There is no commonly agreed definition for Small and Medium Enterprises, according to Ayyagari and Demirguc-Kunt (2011), because the definition of SMEs varies by country and include a wide range of metrics. In addition, they maintain that the most common basis of SME's definitions incorporates employment, sales/revenue turnover, and total assets.

According to the Uganda Investment Authority (UIA, 2020), a 'Micro Enterprise' in Uganda is a company that employs up to four people and has annual sales/revenue turnover or total assets of less than ten million Uganda shillings. Small businesses, on the other hand, employ between 5 and 49 people and have total assets of between UGX 10 million and UGX 100 million. As a result, a Medium Enterprise employs between 50 and 100 people and has total assets of more than $100 million but less than 360 million.

Review of Related Literature

Human Factors and adoption of cloud computing

The study of how humans behave physically and psychologically when confronted with specific surroundings, products, or services is known as human factors (also known as ergonomics). Most large businesses and other firms have a Human Factors department, or at the very least a consulting firm that researches and evaluates how consumers will react to a new product. Human factors study needs to focus on public and general human behaviour, as well as how others influence people in human-human interactions in relation to technology (for example, studies of how people adapt to new characteristics), a standard type of product (for example, new web storage for file sharing), or a specific context or platform (for example, studies of how people adapt to new characteristics) (such as cloud computing). The findings of a human factors study can serve as a general guideline and starting point for defining such objectives based on the study's aims and goals, or they can provide recommendations on how to reform the study's objectives (Abdollahzadegan, chen, gory, and Amini, 2013). All these factors, therefore, are put in place to make sure that just in case there are possible damages that may arise from an innovation, the effects would be minimal since they are monitored over time.

The proper interplay between people, processes, and technology is required for the successful adoption and utilization of IT resources. Participation in the planning process, support for technology use, and sufficient training to use IT resources are all examples of human interactions. While CC comprises a number of IT package resources, it still necessitates adequate human involvement inside the organization to ensure its effectiveness and long-term viability (Lian et al., 2014, Roepke et al., 2000). The involvement of corporate human resources would be a significant determining factor in this achievement, and SMEs would need to lead their way to the effective adoption of the CCS. The gap though noticed from the scholars is that they centered much on the internal interactions if the CC would be successful. Though this is not bad, it was insufficient given that there are other critical factors such as the external support and competitive pressure from the environment that would equally be influential in the adoption of cloud

computing, and this study looked at those areas.

This circumstance is well-suited to the arguments of the resource-centric view of the firm (Wade and Hulland, 2004, Barney, 2001). SMEs would have to develop the ability to use the CCS. That is, SMEs must devise new methods to use the CCS they have accepted. The cloud middlemen may help you find the finest CCS package, but the service package's unique fit will be determined internally. This will necessitate a human resources involvement trajectory that will eventually improve their cloud computing-related human resource capacity. It is critical that human resources be involved in the CCS adoption planning process (Hitt et. Al., 2001). This involvement ensures a basic understanding of technology as well as the organization's IT-business alignment (Preston and Karahanna, 2009, Kearns and Sabherwal, 2007). The addition of additional IT resources necessitates the development of new ways to connect with business operations. While end-users will be able to transfer the majority of their technical skills to the new environment, some training will be required. The importance of end-user training in the successful implementation of information systems cannot be overstated (Bostrom and Olfman, 1990). Obtaining IT resources as a utility has primarily been motivated by the need to control IT spending. However, long-term usage of CCS would necessitate allocating some of these savings to technical human resources. This work will benefit the organization in a little way. The SMEs' coordinated involvement of human resources in the CCS adoption process ensures a rapid transformation of the business environment and a long-term strategy to developing cloud computing service-related competencies. These initiatives aid SMEs in accomplishing their cloud computing-related business goals. However, the gap that these scholars do not address is the aspects that come with the innovation characteristics that would be involved such as the relative advantage of the technology, its complexity, compatibility, and so on. These scholars seem to assume that these would be met but this ongoing research looks at them in detail.

Economic downturns have prompted executive administrative mandates to use cloud computing, and have played a significant role in federal government agency adoption ("Federal Govt," 2010; Kundra, 2010; Mell & Grance, 2009). Only 34% of the federal agencies polled in the 2010 "Federal Govt" research said they were unfamiliar with cloud computing. Although 14 percent of individuals polled said they used cloud computing in some way, 21 percent of cyber-security specialists said they were unaware of it ("Federal Govt.," 2010). These studies left behind a methodological gap whereby they specialized only in federal agencies. This is a gap because security agencies, though they may use similar cloud computing strategies as other businesses, definitely have more and customized demands in their cloud computing due to the special sensitivity that comes with their industry.

Cloud computing adoption has a number of hurdles, including security concerns, legal and regulatory concerns, and organizational concerns (Andrei, 2009, Buyya et al., 2008, Catteddu and Hogben, 2009, Khajeh-Hosseini et al., 2010a). The issue of trust between customers and vendors is linked to all of these challenges because cloud computing requires businesses to entrust vendors with the administration of their IT resources and data. The gap in this though is that the scholars never showed how much of the information would be required to be kept with the agencies and these can determine the disposition to cloud computing adoption decisions in an organization or not.

People are the foundation of any company or society. Good executives and employees have the greatest impact on a company's performance and long-term viability. Humans, on the other hand, require the latest technological tools in order to contribute their best. Convenience, knowledge management, web collaboration, and learning are some of the main areas where Cloud benefits businesses for improved human resource management.

Convenience

Business needs and technical developments, according to Kumar and Vidhyalakshmi (2012), render software obsolete in a short period of time. Upgrading software or hardware is required to maintain a successful business and keep up with the competition. Even commercial operations are not limited to a single location. They spread around the world, and people are on the move. They must also be able to use the company's IT infrastructure with ease. The cloud is the most effective platform for accomplishing this. It alters the way businesses employ technology. Cloud computing makes apps and data accessible 24 hours a day, seven days a week, from any device the user chooses. Mobile devices that are convenient to carry, such as smartphones and tablets, are also utilized to access business data via Cloud applications. Bring Your Own Device (BYOD) is a popular slogan these days. Employees will utilize their preferred device, and the application must be compatible with that device. This saves a lot of money on desktop systems' overhead costs. This also encourages the use of a fully HTTP-based architecture (Kumar and Vidhyalakshmi, 2012). Because of the rapid advancements in cloud computing, the concept of a centralized office will soon be obsolete, and businesspeople will be able to work from anywhere in the world by connecting to the cloud (Oliver, 2012). Cloud Computing components are already available to Google users through Google Docs, email, youtube, and other Google sites. There is a utilizing of Google Drive to store our data in the cloud.

The following are some of the most well-known cloud service companies and their most recent developments:

A) AWS (Amazon Web Services) is the world's largest and most well-known public cloud service provider. It has decreased its costs by 19 times in the last six years. It will release Amazon Beanstalk, which will make deploying and administering Amazon Cloud much easier.

B) Microsoft is merging Windows 8, Windows Phone 8, and Windows Azure to make it easier for developers to create cloud-friendly multi-platform programs that run on all Windows form factors, including pcs, laptops, tablets, and smartphones, with less code.

C) Oracle Taleo Cloud Service enables large and medium enterprises to acquire excellent people, align that talent with critical goals, track performance, and analyse top performers. The solutions gather critical talent information throughout an employee's career and enable HR managers and employees to capitalize on talent insights through the industry's most complete Cloud-based talent management platform.

D) Cloud.com's Cloud Stack was a prominent open source iaas platform among Cloud providers looking to establish and manage open Cloud services.

E) Bluelock has become linked with vmware's cloud Datacenter by delivering vcloud services with a great reputation for reliability. The company, which connects users' vmware data centres with its public Cloud, has gained a reputation as a leader due to its focus on small and mid-size organizations.

The gap in the above structure of the outlined and illustrated businesses is methodological in that these businesses are rather big in nature. They can be said to be multinational and international businesses. However, this study caters to small and medium businesses that would adopt the cloud computing model of business operations.

Knowledge Management (KM)

Many individuals believe that in the future, knowledge work will be a key contributor to the global economy (Davenport, 2005). 'The Next Society will be a knowledge society,' said Drucker (2001), the man who coined the term 'knowledge worker.' Knowledge will be its most valuable resource, and knowledge workers will make up the majority of the workforce.' A knowledge management system is a knowledge-based information system that creates, organizes, and disseminates business knowledge to employees at all levels of a company. Big Data, which contains data, information, and output from other modules, is taken into account by the knowledge models. This should be regularly and consistently monitored and improved upon. The model should include a mechanism for learning from previous decision-making processes. Big Data also originates from sources outside the company, such as social media, tweets, blogs, events, and demographic information. Big Data is defined by three primary characteristics: volume, diversity, and velocity (Kumar and Vidhyalakshmi, 2012). According to Judith Lamont, velocity relates to the rate at which data enters the system (April 2012). Apache Hadoop is a distributed computing framework for storing, processing, and analyzing data that is open-source. It also uses Google's mapreduce technology. Big Data engines are built on this technology. The input data is disseminated across multiple nodes in the 'map' stage, and the outputs are collected in the 'reduce' step to generate a solution to the initial inquiry. Cloud era is a Hadoop participant who has created a commercial distribution bundle that includes the source code as well as other features (Kumar and Vidhyalakshmi, 2012). The gap posed by these scholars also lies in the fact that they only studied big organizations and more so whose central business is online. This means that in one way or another such businesses approach cloud computing as a necessity and not as an option that for better business strategy would be such as would be a case for most SMEs in developing countries.

The KM database was enormous and constantly updated, and significant analysis was required. When a large volume of data is involved, the likelihood of noise increases. The data of one individual may be the noise of another (Lamont, 2012). To extract the essential information, careful data analysis is required. More computational capacity, innovative technology, massive data services, talents, and investment are all required. The gap by this scholar is also like earlier researchers who concentrated on businesses that use or adopt cloud computing as a necessity due to the nature of their businesses and not as what SMEs would do as a business strategy for their efficient running.

Web Collaboration

Since its inception in 2007, an estimated 1.25 billion people have been linked to the Internet. The modern web is transforming, with a focus on being more social, open, and expansive. Using social networking services such as Facebook, Twitter, linkedin, and Google+, millions of people are connected through blogs and posting. Organizations recognize the relevance and expansion of social media, but often face hurdles in realizing its full potential (Kumar and Vidhyalakshmi, 2012). Cloud computing has been working on ways to convert this flood

of data into valuable commercial data interchange. These social networking sites are regarded as the most effective promotional technique in the corporate world for informing clients about products and gathering feedback on their products and services. Salesforce, Sage CRM, Microsoft Dynamic CRM, Netsuite, Commence, salesboom, and Open CRM are examples of cloud-based CRM services. The information gathered via Facebook can be used to plan corporate events as well as automate marketing decisions. Businesses can use cloud computing to access information acquired from these sites in order to support CRM. The link between Cloud Computing and Twitter is a good illustration. Businesses can search for tweets about their organization using a cloud-based CRM application. The information from the tweets can be entered into their bespoke database to establish client cases. Through open communication, the study of these tweets will provide a platform for learning about their potential consumer base, their opinions, promoting new products, and analysing market needs. All of this will result in a significant increase in business for the company (Kumar and Vidhyalakshmi, 2012). However, the researcher notes that the scholars tried to detail the operations of cloud computing and in what businesses but they did not elaborate on the innovation characteristics that would have to be considered in detail as have been looked at in this study.

Learning

Learning is a never-ending process that has always led to success. Even after finishing your studies, there will always be a desire or need to learn more. There may be a gap in one's personal knowledge that has to be filled through short courses. Microlearning, as defined by Kovachev, Cao, Klamma, and Jarke, is a sort of targeted learning for a brief period of time (2011). The gap which arises here due to the indifferences between the theoretical and real-life practices is that training in an organization may equip employees with cloud computing knowledge but if the technology has not been adopted, then the knowledge would be equally useless. Likewise, in case there has been an adoption of the technology but no knowledge equipped with the employees, then there is a theoretical gap.

ICT advancements have ushered in a slew of new learning and knowledge-gathering methods. These learning processes take place online or are based on content found on the internet. The content created is also linked to youtube videos to help users comprehend it better. Users can expand their knowledge of their subject of interest by using Wikipedia, blogs, tweets, Wiki Answers, and Yahoo answers. Students can participate in blog discussions and assess their knowledge growth. The institutions' webinars provide a venue for virtual meetings with industry professionals all over the world. This will benefit student users since they will be able to tailor their knowledge to the current industry needs, making them more employable. Web learning content must now be accessible across all platforms, including pcs, laptops, tablets, and smartphones, due to advancements in web technology and the demand for rapid knowledge by consumers (Leimeister et al., 2010). The learning materials utilized on a PC should be available on smartphones and tablets without the need to repurchase or reinstall the software (Kumar and Vidhyalakshmi, 2012). The researcher here notes that what can be said of the students, in a given organization setting, can equally apply to employees that have been newly initiated to new technology or say to internees that may have been recruited in an organization and thus can do that work.

This is possible with the help of cloud computing. The cloud is capable of storing, processing, and delivering adaptive content to a variety of devices. The use of the cloud will also aid the education industry. IT infrastructure will no longer be over-provisioned. The study content is available to students and educators at any time and from any location. Cloud installations can be beneficial for practical work on simulations and networking concepts, such as routing and firewall settings because they minimize the need for students to be assigned high-end workstations. As a result, Cloud Computing can help with a variety of human activities such as learning, collaboration, knowledge management, and convenience. Several Cloud companies provide solutions to help with these human resource functions. Some of these options are reasonably priced, and some are even free to use (Kumar and Vidhyalakshmi, 2012). Though the scholars show that these can be harnessed to see the Cloud interventions for the small and big organizations, in this study the researcher sees a gap left out by the fact that they only looked at infrastructure without keeping in mind other critical factors that have been mentioned here.

Methodology

The study undertook a positivist approach paradigm. According to the positivist paradigm, real events may be witnessed experimentally and explained by logical analysis. Our knowledge claims (that is, theory-based predictions) must be consistent with the information we can gather using our senses to determine whether a scientific theory is valid. The research design for this study was descriptive and explanatory-quantitative. The motivation for a descriptive research design was to permit measurement of the extent of the decision to adopt cloud computing. The targeted study population in this study was 379, 257 employees that work with the registered SMEs according to a report by the Uganda Bureau of Statistics Census of Business Establishments 2010/2011

The comprehensive List of SMEs in Uganda by the Federation of Small and Medium-Sized Enterprises- Uganda (FSME) documents 1000 tax compliant SMEs in Uganda as listed by the Uganda Revenue Authority (FSME, 2021) consisting of all the major industries as shown in table 1 below:

Table 1: Population Distribution of Employees by Industry Sector

SME Type	Population (N)	Proportionate Sample	Sampling Technique
Agriculture	2,068	25 (e = ±.2)	Simple Random
Forestry	64	26 (e = ±.15)	Simple Random
Fishing	136	21 (e = ±.2)	Simple Random
Mining and Quarrying	1,095	24 (e = ±.2)	Stratified
Food processing	13,268	25 (e = ±.2)	Simple Random
Other manufacturing	37,605	25 (e = ±.2)	Simple Random
Utilities	854	24 (e = ±.2)	Simple Random
Construction	11,776	25 (e = ±.2)	Simple Random
Trade	150,720	44 (e = ±.15)	Simple Random
Transport and Storage	8,444	25 (e = ±.2)	Simple Random
Accommodation and food services	5,1201	25 (e = ±.2)	Simple Random
Information and communication	7,307	25 (e = ±.2)	Simple Random
Financial and insurance services	10,299	25 (e = ±.2)	Simple Random
Real estate and business services	33,980	25 (e = ±.2)	Simple Random
Education, health and social services	21,608	25 (e = ±.2)	Simple Random
Recreation and personal services	28,832	25 (e = ±.2)	Simple Random
Total	**379,257**	**416** (e = ±4.9%)	

Source: Adopted from the Federation of Small and Medium-Sized Enterprises- Uganda (FSME) 2021

Data Analysis Human Factors and Cloud Computing Adoption Decision

In order to achieve this objective, the respondents were prompted to do a self-rating on Human factors using 10 items. Each item was based on a Likert Scale ranging from 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree to 5-Strongly Agree. Agreement on each item was computed using the item Means and Standard Deviations. The descriptive statistics there from are shown in Table 2

Table 2: Descriptive Statistics on Human Factors

	N	Min.	Max.	Mean	Std. Deviation
I have knowledge of the underlying structure of cloud computing	307	1	4	2.80	1.258
I understand the benefits of using cloud computing	307	1	5	3.48	1.127
All my employees (and colleagues) have the basic knowledge of Cloud computing	307	1	4	2.61	1.211
Training processes on the use of the cloud takes a lot of time and effort	307	4	5	4.30	.459
All our employees (and colleagues) need to be trained in order to use the cloud	307	2	5	4.34	.985
All my employees (and colleagues) have already used cloud computing (for personal / business use)	307	2	4	2.87	.827
I would say that I have a bias on cloud computing	307	2	5	3.14	1.086
I am a kind of person who generally creates new ideas	307	1	5	3.73	1.130
I have information about different types of cloud (public, private and hybrid cloud)	307	1	4	2.19	1.154
I have knowledge about various models of cloud computing (saas, paas and iaas)	307	1	4	1.97	1.153
Valid N (listwise)	307				

Source: Primary data (2021)

Study findings revealed that there were moderate agreement levels by respondents that they understand the benefits of using cloud computing (Mean = 3.48, St. Dev = 1.127). This finding thus could justify a major human factor that would trigger a desire for cloud adoption in SMEs.

However, the study also shows that respondents generally disagreed on the items that they have knowledge on the underlying structure of cloud computing (Mean = 2.80, St. Dev = 1.258). This could be understood alongside another finding with disagreement levels on the item that all their employees (and colleagues) have the basic knowledge on Cloud computing (Mean = 2.61, St. Dev = 1.211). This, therefore, implies that although there is a need and desire for the adoption of cloud computing in SMEs, the majority of the employees are not that literate regarding cloud computing.

The above findings justify another finding from the same study where respondents agreed that all their employees (and colleagues) need to be trained in order to use the cloud (Mean = 4.34, St. Dev = .985). This implies that employees understand the need for training and development in the

business to manage better the use of cloud computing.

The study however revealed that the majority of the respondents highly agreed that the training processes on the use of cloud take a lot of time and effort (Mean = 4.30, St. Dev = .459). This implies that respondents seem to conceive the training process as a sacrifice that is time-consuming in a way.

Study analysis also shows that there were disagreements by respondents in the fact that all their employees (and colleagues) have already used cloud computing (for personal / business use) (Mean = 2.87, St. Dev = .827). This implies that the majority of the respondents are not familiar with the use of cloud computing in the businesses they operate.

An astonishing revelation in this study also was the admission by the majority of the respondents that they have a bias towards cloud computing (Mean = 3.14, St. Dev = 1.086). This finding thus implies that many of the employees in the Ugandan SMEs approach cloud computing with skepticism, meaning that only a few of them embrace it rather openly and with an open mind.

The study also disclosed that there was an agreement by the majority of the respondents that they are the kind of people who generally create new ideas (Mean = 3.73, St. Dev = 1.130). This means that respondents are in businesses that have the potential for growth because of the new ideas generated in the business.

Study findings also revealed that the majority of the respondents disagreed that they have information about different types of cloud (public, private and hybrid cloud) (Mean = 2.19, St. Dev = 1.154) which also can be looked at alongside a similar outcome with the majority of respondents having high disagreement levels about having knowledge about various models of cloud computing (saas, paas, and iaas) (Mean = 1.97, St. Dev = 1.153). These findings imply that many businesses that may have adopted cloud computing, do so with a limited understanding of the available models and types of cloud computing on the market.

Route Two Results

Table 3: Parameter Estimates

Parameter		Hypothesis Test			Exp(B)
		Wald Chi-Square	Df	Sig.	
Threshold	[Adoption Decision=3]	12.242	1	.000	.034
	[Adoption Decision=4]	.274	1	.601	.598
Human Factors		1.027	1	.311	.687

Source: Primary data (2021)

The key difference between the route-two results and route-one results is the Exp (B) column (and Confidence Interval). The Exp (B) column contains odds ratios reflecting the multiplicative change in the odds of being in a higher category on the dependent variable, holding the remaining independent variables constant.

The odds ratio for Human factors

The odds ratio indicates that the odds of being in a higher level on cloud computing adoption increases by a factor of 0.687 for every one-unit increase on human factors. Given the odds ratio is < 1, this indicates a decreasing probability of being at a higher level on cloud computing adoption as values increase on human factors.

Table 4: Table showing the Spearman's Rank correlation

			Human factors	Adoption Decision
Spearman's rho	Human factors	Correlation Coefficient	1.000	-.059
		Sig. (2-tailed)	.	.299
		N	307	307

Source: Primary data (2021)

Data analysis shows that when a Spearman's rank correlation was run to determine the relationship between human factors and cloud computing adoption, there is a very weak, negative monotonic correlation between human factors and cloud computing adoption decision (r_s = -.059, n = 307, p>.001). This essentially implies that as the human factors increase in the negative directive direction, meaning that when decision maker's Innovativeness and decision maker's cloud knowledge are reduced or are in the negative direction in an organization, then the chances for the decision to adopt cloud computing in an organization is reduced.

Discussion

Primarily, the study found out there is a very weak, negative monotonic correlation between human factors and cloud computing adoption decision (r_s = -.059, n = 307, p>.001). This essentially implies that as the human factors increase in the negative directive direction, meaning that when decision maker's Innovativeness and decision maker's cloud knowledge are reduced or are in the negative direction in an organization, then the chances for the decision to adopt cloud computing in an organization is reduced.

The finding that many of the employees in the Ugandan SMEs approach cloud computing with skepticism, meaning that only a few of them embrace it rather openly and with an open mind is in alignment with conclusions from other scholars such as Andrei, 2009 and Khajeh-Hosseini et al. (2010a) who asserted that Cloud computing adoption has a number of hurdles, including security concerns, legal and regulatory

concerns, and organizational concerns. the researcher notes that when these issues come up, it arises a red flag for the decision-makers in the business/ organization on their next step towards the decision to adopt cloud computing.

The study found out that although there is a need and desire for the adoption of cloud computing in SMEs, the majority of the employees are not that literate regarding cloud computing. it is on this ground that the study also found out that employees understand the need for training and development in the business to manage better the use of cloud computing. these findings coincide with Kovachev et. al, (2011) who noted that Learning is a never-ending process that has always led to success. Reviewing more literature from these scholars one notices the indifferences between the theoretical and real-life practices that training in an organization may equip employees with cloud computing knowledge but this study noted that if the technology has not been adopted, then the knowledge would be equally useless. Likewise, in case there has been an adoption of the technology but no knowledge equipped with the employees, then there was a theoretical gap that had to be addressed. It is against that gap and others observed in the literature review that the Diffusion of Innovation Theory (DOI) was adopted since it explains why one innovation successfully diffuses in a business or company, while another does not while keeping into consideration the decision makers' innovativeness and decision makers' cloud knowledge in an organization.

Conclusion

From the study analysis and review, the researcher concluded that decision-makers in an organization or business are a critical and fundamental factor in the decision of cloud computing adoption as based on their innovativeness and cloud computing knowledge. Whilst the human factor is an important aspect that affects cloud computing adoption, it is actually not given much attention in developing countries. Based on the scale of this study, the human factors as one of the important aspects of cloud-based applications especially in the domain of SMEs need more and better approaches so as to enhance its adoption.

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