Inspecting Diverse Parameters in Adoption of Cloud Computing in Health Sector: A Structural Equation Modeling Approach

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Abstract

The purpose of this paper is to identify the constructs which influences intention to adopt cloud government healthcare sector in a developing country perspective. The research was conducted based on 301 respondents from various government healthcare centres. The main pillars of the theoretical framework are technology, organizational, and environmental contexts. The exploratory factor analysis was done in order to check the total variance explained and also grouping of the variables identified from the literature review. The framework was validated utilizing structural equation modeling approach utilizing Amos 22.0. The findings shows that technology, organizational, and environmental constructs are significant contributors in cloud computing adoption for the healthcare segment. This research offers a new and important paradigm for adoption of this advanced technology in prospering nation perspective, thereby, increasing the overall efficiency of a government healthcare firm. Also, it provides foundation for future research as well as significant insights for intention to adopt this new technology in the prospering nation context.

Keywords: Cloud Computing, Healthcare, Technological, Organisational, Environmental, Structural Equation Modeling.

1. Introduction

This new century has been witnessing many ground-breaking innovations and continuous growth in the IT. Among the IT innovations Cloud Computing (CC) has been able to gather maximum attention because of its advantages and significant in different segments (Luo, et al., 2018). CC is utilized to give utility services to clients (Miao, et al., 2017; Lee 2019). It enables clients for getting the assistance whenever, at any place, and also facilitates by pay-per-use feature. John McCarthy gave this concept in the year 1960s (McCarthy 1961). It provides several advantages like providing a virtual platform for information storage, getting rid of physical IT infrastructures, and flexibility in accessibility of data etc. (Brender & Markov, 2013; Mezgár & Rauschecker, 2014; Wang & He, 2014; Yazdani, 2020). John McCarthy who was Stanford computer researcher and an Artificial Intelligence pioneer, and Douglas Parkhill, at that point Canada's Assistant Deputy Minister for research imagined in the start of 60s that calculation may some time or another be organized as an open utility like power and water (McCarthy 1961; Parkhill 1966; Novais, et al., 2019). CC has been amidst the sixties and since the idea of a significant bandwidth in the nineties; it could be created to serve the majority. CC involves the provision of IT as a service rather than a good. CC is worldview which joins a few existing IT innovations into one service (Pakath, 2015). The greater part of the IT innovations that are being utilized in CC are as of now being utilized separately, for example, Web 2.0 and virtualisation, however in CC a portion of their abilities are chosen to make the cloud condition (Jeffery and Neidecker-Lutz, 2010; Martins, et al., 2015; Miao, et al., 2017). The primary purposes for the relocation to CC are decrease in price and adaptability (Wang et al., 2010); for example, clients utilizing cloud can get the services anyplace and pay for it which they use.

Remarkably the previous research has been done in prospered countries. Even TOE perspective, for developed countries differ from the developing countries. For instance, if we consider technological infrastructure in US or UK, as a developed nation is more advanced when we compare with developing country like India. As a result, the findings of research performed in developed nation will definitely not apply for the developing nation. Hence, intention to adopt (IAC) is well developed and utilized in developed nation but not in developing nation due to circumstantial differences.

The main objective of this article is to scrutinize the factors which influences the CCA in Indian government healthcare sector, through technology, organizational, and environmental (TOE) perspective. Also from the literature review, most of the earlier studies on IAC were done on manufacturing sector throughout the world, hence in this research was focused on Indian government healthcare segment. As the CC is in its infant stage, exploring CCA is advantageous.

There is a huge degree, the technological, organisational and environmental (TOE) contexts of CC betwixt developing and developed world vary. This paper recognizes the factors for IAC in Indian healthcare firms, which is a developing nation. The TOE framework discusses about privacy, compatibility, relative advantage, integration, trust, security, firm size, firm scope, change resistance, higher authority support, innovation acceptance, regulatory support, peer pressure, service expertise. Therefore, TOE framework is suggested in this research for ease of understanding the advantages of IAC in Indian healthcare firms.

This research contributes towards understanding of IAC in various Indian government healthcare firms. There are few studies which are done on TOE context but are done for developed nations and negligible research are done in developing nations' context specifically for government healthcare firms. At present there are negligible studies on government healthcare context of India. This study provides clear understanding of influencing TOE factors for IAC in various government healthcare firms. The technological perspective gives a clear understanding on the sub-factors like relative advantage which explains that IAC has large number of advantages then disadvantages, security of data is an important concern for clients who will be migrating to cloud and compatibility with the existing system is an important concern so that the expense and ease to adopt the new technology becomes feasible. The organizational context helps to understand various factors like firm size and firm scope plays a crucial role in IAC as adoption depends on risk taking capacity and flexibility as it is related to the well-being of patients who are coming for various medical treatments, higher authority support has a crucial role in adopting new technology considering the feasibility and innovation acceptance is also important as preparation of framework and human resources of IT are required for supporting cloud selection. Environmental context helps to understand various factors like regulatory compliance which means the regulations given by government on use of cloud technology, in India we do not have any such regulation which prevents the use of this technology, peer pressure which means competition from competitors, service expertise means capacity of cloud service providers as well as the staff expertise on use of this technology for IAC.

Next section presents the review of literature followed by development of a research framework and research hypotheses. Section 3 discussed the research methodology. The data analysis and findings are provided in Section 4. The discussion is done in Section 5 and the conclusion, managerial implications and future research directions are presented in the final section.

2. Literature Review

Previously, IT has been referred as a good, but now the notion has changed as the IT providers have claimed to offer IT as a service and at low price. CC can be described in broader contexts. CC is described by the National Institute of Standards and Technology (NIST) as "a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" (Manuel, et al., 2019; Kong, et al., 2015). CC has been referred to as a technology which can help in scaling IT- related capabilities as a service to the clients who are using the cloud services from the providers and are charged as per the usage (Gartner, 2009; Endogenous, 2009; Lee, et al., 2014).

The fate of IT frameworks will rely upon CC innovation; this is on the grounds that it can lessen its expenses of IT services and increase flexibility and reliability (Hayes, 2008). Besides, it is viewed as a potential answer for enhancing associations' IT performance and competitiveness (Goscinski, 2010; Thomas, 2011).

2.1 Delivery and deployment models of cloud

CC gives three distinct kinds of services: Software-as-a-Service (SaaS), Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) (Armbrust et al., 2010). IaaS offers distinctive kinds of principal asset (e.g., storage, operating systems, database and networking) as a service for clients, who can control these assets. Be that as it may, the clients are unfit to deal with the basic cloud framework (Mell and Grance, 2009; Chen et al., 2010). Instances of IaaS model is GoGrid (Chen et al., 2010). Next is PaaS, which gives entire programming lifecycle as an administration for clients (Dillon et al., 2010; Addo-Tenkorang, et al., 2016). It is intended to support

programming designers to manufacture and build up their applications on the cloud utilizing distinctive dialects and apparatuses (Zissis and Lekkas, 2012). The instance of the PaaS model is Google App Engine (Foster et al., 2008). The SaaS enables purchasers to get applications on interest over the system, in light of the pay-per-utilize (Chen et al., 2010; Saldanha and Krishnan, 2012). Distinction among PaaS and SaaS is that the PaaS can convey both finished and in-advance applications, whereas SaaS can have just the finished cloud applications. Instances of SaaS are Google Mail and Salesforce.com (Dillon et al., 2010; Kopanaki, et al., 2018).

There are four deployment models through which services of Cloud are offered, in particular, private, public, community and hybrid. To begin with, the private cloud offers interior usage of innovations that are kept up in house. Private cloud is restrictive to a firm and now and then managed by the firm itself. Next cloud is public which gives services to the overall population which includes firms and people. Public cloud framework is usually owned, facilitated and directed by third-party utility providers. Some prominent public cloud administrations are SalesForce.com, Google AppEngine, S3 (Simple Storage Service) and Amazon EC2 (Elastic Cloud). Community cloud provides cloud service to gathering of firms with tantamount trade aim, security and contract document requirements. Participation of gathering is compared to a network where mutual interest individuals share. Cloud benefits that the community expand are to individuals. Ultimately, the hybrid cloud gives a mix of all the three i.e. community, public or private deployment empowered by a regulated innovation which guarantees portability of information and application (Mell and Grance, 2010; Yang and Tate, 2012; Wai-Ming et al., 2013; Jula et al., 2014; Senyo et al., 2016). Apart from these main service delivery models, various varieties are as of now found in the writing. In any case, it is important that there are three-principle models only for delivery of service and rest are all off-shoots from the three (Mujinga, 2012; Senyo et al., 2016).

2.2 Cloud Computing Adoption

There are four deployment models through which services of Cloud are offered, in particular, private, public, community.

Relevant and significant contributions has been made from perspective of prospered nations as per studies like (Gangwar, et al., 2015). For instance, Oliveira and Martin (2010), evaluated that readiness to technology alludes to level of status of IT foundation and HR, which may influences the selection of new innovation. The information for this examination was gathered in Taiwan established on a review of advanced industry of education. The recommendations demonstrated five factors i.e. trading partner pressure, top management support, competitive pressure, relative advantage, and organisation size which effect decision to CCA. Low et al. (2011), recommended model set up on TOE framework. Reason for examination was distinguishing components and decide their effects on choice to embrace CC in Taiwan for advanced education. The eight components recognized in this model are trading partner pressure, competitive pressure, top management support, technology readiness, firm size, compatibility, complexity and relative advantage. Chang et al. (2013), further concentrated that depended on the TOE structure and DOI hypothesis, meaning to explore the variables that influence CC appropriation in Vietnamese organizations. In their examination they distinguished various components, like the previous investigation. It is detectable that these investigations have not considered security factors that may influence the firms' choice to receive CC, despite the fact that one of the principle worries for a firm is security which needs attention. Likewise, Nkhoma and Dang (2013), built up a theoretical model utilizing system of TOE to inspect advantages and boundaries of receiving CC just as the effects of the technological and environmental factors on the adoption choice. They distinguished various hindrances as variables that impact the expectation to utilize CC. One of these hindrances is security, which is the fundamental worry for the greater part of the undertakings on the grounds that putting away their information under the control of another party that makes them feel unreliable. Availability and reliability are another two variables. Any mistakes or defers influences the accessibility or unwavering quality of the cloud service may cost the association a great deal of losses. Abdollahzadehgan et al. (2013), examined organisational factors' impact on CC reception in SMEs. Three components were distinguished (higher administration backing, innovation availability, and firm size) utilizing TOE structure. These components are useful for association to evaluate their circumstances in the event that they need to receive cloud, particularly the SME. They recognized three elements (firm size, top administration support, and innovation availability) utilizing a TOE structure. These components are useful for association to evaluate their circumstances in the event that they need to embrace cloud, particularly the SME. Borgman et al. (2013) recommended a framework dependent on TOE system for looking at elements which impact a firm's expectation to embrace benefits of cloud just as to recognize the effect of IT administration procedures and structures. The elements recognized in this model are competitive pressure, compliance with guidelines, top management support, firm size, compatibility, complexity and relative advantage. The information was gathered utilizing structured interviews in this study.

Their recommendation showed that just three elements, i.e. competitive pressure, top management support and relative advantage, positively affecting cloud adoption. Likewise, this examination disregarded the security viewpoints that may influence a firm's choice.

Oliveira et al. (2014) built up a model to surveying components impacting cloud selection in Portugal's assembling and services divisions. They recognized various elements dependent on DOI theory and the TOE structure. The information was gathered utilizing a questionnaire with Portugal firms in the study. Among the variables inspected, their discoveries demonstrated that firm size, higher authority support, technological readiness, complexity and relative advantage legitimately affected on selection of cloud in these firms. Gutierrez et al. (2015) recommended a model utilizing TOE system to inspect element which may affect adoption of CC in UK firms. The components distinguished in this examination were competitive pressure, firm size, trading partner pressure, technology readiness, top management support, compatibility, complexity and relative advantage. Their recommendations demonstrated that just four elements, which are trading partner pressure, competitive pressure, technology readiness and complexity have critical effect on adoption of cloud decision. Senyo, et al., (2016) contemplated CCA betwixt SMEs in North-East England utilizing the framework of TOE system. The discoveries from investigation showed CCA determinants as innovativeness, relative advantage, trainability, unpredictability, supplier efforts compatibility, prior experience, geo-restriction, higher administration support, market scope, firm size, industry and external computing support. Additionally, rivalry pressure (RP) was found to be an insignificant contributor of CC. Miao, et al, (2017), conducted a research on adoption intentions on mobile health where SEM approach has been utilized to identify the factors which may be useful for the adoption process of m-health for patients suffering from chronic diseases. The research on each sector may be unique from the other.

Prior studies have made significant contribution in developing context (Low et al., 2011; Rawal 2011; Makena; 2013; Senyo et al., 2016). The study done by Senyo, et al., 2016 says that firm size is not a significant contributor on CCA. These prior studies have discussed only TOE framework for CCA whether the study is based on developing or developed context.

2.3 Theoretical underpinning

Existing CC writings, has adopted existing frameworks and speculations for example, grounded theory, technology adoption model (TAM), TOE framework, theory of reasoned action (TRA), migration theory, diffusion of innovation (DOI) etc. Additionally, it has been seen that two different frameworks are utilized in study of CCA, to be specific, firm adoption (meso-level adoption) and individual adoption (micro-level adoption). For example, DOI, TAM and TRA are conspicuous in innovation adoption.

2.3.1 Different Frameworks

The TAM was created by Davis (1989) which is one of the basic theories intended for clarifying and anticipating the acknowledgment of new advancements at entity level. This model tries to clarify relationship between technological innovative acceptance and adoption accordingly, behavioural intension to utilize it (Gangwar *et al*, 2015). TOE system was proposed by Tornatzky and Klen (1982), to break down the adoption of new IT innovations at a firm level. It researched the effect of three variables (Technology, Organization and Environment) on a firm's choice to embrace another innovation. It incorporates technological, organizational and environmental factors which makes it beneficial over other adoption model in studying technological innovation acceptance, innovation use and value creation from innovation development (Gangwar et al, 2015; Senyo et al, 2016; Ooi et al., 2018). DOI theory states individuals receive new thought, behaviour or goods as new or creative. Researchers found that individuals who take up an innovation early have unexpected qualities in comparison to individuals who adopt a development later. In any case, the constraint to this theory is the adopter classes did not start in public health and it was not created to explicitly apply to selection of new practices or health innovators and it likewise does not consider a person's assets or social help to adopt new innovation or behaviour. TRA explains relationships among behaviours within human action and attitudes however this theory is restricted regarding having the capacity to foresee practices that expect access to specific chances, skills, conditions or assets. This paper scrutinizes the CCA determinants among firms, the TOE framework addresses the factors of TOE and is treated as suitable theoretical framework. This framework was helps to inspect firms' decision to acknowledge and execute a creative advancement mulling over the perspective of TOE (Tornatzky and Klein, 1982).

2.4 Development of hypothesis

2.4.1 Technological Perspective (TP)

TP means the in-house and extraneous technologies that firms can use in their business (Low et al., 2011). Advancements that are as of now being utilized by any firm effect choice of adopting CC as they decide the limit and extension of change in technology that a firm can acknowledge. The mindfulness betwixt healthcare firms about the potential advantages of CCA is viewed as a positive factor supporting CCA. Despite of fact that the IT adoption depends to a vast degree on the innovation skill of the firm (Awa et al., 2015), there are deficiency of studies which consider technological attributes while studying factors influencing IT adoption choice in this sector (Premkumar 2003; Alharbi, et al., 2017). In the current study five factors has been considered in this research that has been embraced from earlier research (Alharbi, et al., 2017; Singh, et al., 2017; Alharbi, et al., 2017; Gao, & Sunyaev, 2019).

2.4.1.1 Security (S)

The security factors is a prime concern for many firms as one feels that the information is not safe and secured in cloud due to lack of direct control on them (Zissis and Lekkas, 2012; Sultan 2014; Senyo et al., 2016). There is a lack of trust and confidence to most of the organizations in the developing countries on this technology. Previous research works have not stressed on this as an important factor (Premkumar and Ramamurthy, 1995; Thong, 1999; Zhu et al., 2003). But study done by Senyo, et al., in 2016 have fulfilled this gap. Thus, the proposed hypothesis is:

H1: SC positively influences Intention to adopt cloud

2.4.1.2 Privacy (P)

Privacy is an important concern for the firms as one feels that feels that the data which is kept in the cloud storage only if it can have secrecy or privacy. This data should not be accessible to other individual without ones knowledge and permission. Due to lack of knowledge on this new technology of CC, people are concerned about it before CCA in the healthcare firms. Privacy was found as an important concern in the research done (Feathermann and Pavlou, 2003; Takabi et al., 2010; Alateyah et al., 2013), which stated the privacy as one of the challenges that is faced for CCA. Hence, this factor has been considered in the present research. Thus the proposed hypothesis is:

H2: P influences Intention to adopt cloud

2.4.1.3 Trust (T)

The trust factor is also an important concern for the firms as one feels that information can be kept in in cloud only if one has trust in this technology. There is a lack of trust and confidence to most of the organizations in the developing countries on this technology them (Zissis and Lekkas, 2012; Sultan 2014; Senyo et al., 2016). Previous research works have not stressed on this as an important factor (Premkumar and Ramamurthy, 1995; Thong, 1999; Zhu et al., 2003; Senyo, et al., in 2016). Thus the proposed hypothesis is:

H3: T influences Intention to adopt cloud

2.4.1.4 Relative Advantage (RA)

RA is described as the element to which an aspect identified related to technology can give more profit to the healthcare firms (Roger 2003). CC ensures various advantages to firms that grasp it, for instance, proficient coordination among firms, speed of business correspondence, better customer communication, and access to advertise data mobilization (Low et al., 2011; Alharbi, et al., 2017; Addo-Tenkorang, et al., 2016). Different advantages of CC incorporates diminished costs, flexibility, scalability, portability, pay-per-utilize, and shared assets (Miller, 2008; Guitierrez et al., 2015). The healthcare client of CC can scale up the assets and infrastructure according to necessities. Regarding flexibility, CC enables clients to access and work with reports from wherever and whenever given that they have a PC connected with internet. Additionally, the capacity to offer shared assets is another favourable position of CC that empowers representatives to get to assets put on cloud regardless of their location, in this way firms saves a great deal of time and cash (Jain and Bharadwaj, 2010). Pay-per-use feature also is an added advantage of CCA (Senyo et al., 2016). Thus this research proposes following hypothesis:

H4. RA influences Intention to adopt cloud

2.4.1.5 Compatibility (C)

It alludes to the advancement which fits the potential adopter's previous practices, existing qualities and present needs (Rogers, 2003). It is considered as a fundamental factor for endorsement of new IS developments where healthcare firms will probably adopt the cloud if the technology is perceived as being compatible with existing work application frameworks and the firm's esteems and convictions. CC enables healthcare firms to stay at the outing edge of technology without influencing current heritage IT frameworks in-accordance with their firm's managerial and operational requirements (Gutierrez et al., 2015). Prior studies also have considered it as an important for CCA in healthcare sector (Alharbi, et al., 2017; Singh, et al., 2017; Alharbi, et al., 2017; Ayoobkhan, et al, 2017). Thus, the hypothesis is:

H5: C influences Intention to adopt cloud

2.4.1.6 Integration (I)

Integration is a concern for any firm especially for healthcare sector. Integrating various departments of a hospital or integrating various hospital in one platform for sharing the resources is very important for successfully using getting benefits after CCA (Alharbi, et al., 2017). If any software is not compatible with cloud then then there is a need of IT experts for solving this issue and there is a shortage these experts in healthcare sector in India. Thus the hypothesis is:

H6: I influences Intention to adopt cloud

2.4.2 Organizational Perspective (OC)

OC can be characterized as the assets and characteristics of the firm (Amini, 2014). It identifies various diverse components concerning firm itself, including firm size (FS), firm scope (FSC), higher administration support (HAS) and innovation acceptance (IA). But in healthcare sector research identified three major factors higher administration support (HAS), change resistance (CR), technology readiness (TR) as variables that should be considered in CCA (Tornatzky and Klein, 1982; Low *et al.,* 2011; Oliveira and Martins, 2010; Alshamaila *et al.,* 2013; Makena, 2013; Alharbi, *et al.,* 2017; Ayoobkhan, *et al.,* 2017; Gao, & Sunyaev, 2019).

2.4.2.1 *Firm Size (FS)*

As indicated by Rogers (2003), size of firm is one of the most fundamental determinants of the pioneer profile. Furthermore, Pan and Jang (2008) express that huge firms have a higher inclination to receive new IT advancements, especially because of their prevalent flexibility, aptitude and risk taking capacity. As per Annukka (2008), there are various researches uncovering a positive correlation while other investigation report a negative correlation. In general, it tends to be contended that bigger firms have the right stuff, experience and assets to endure any potential disappointments better than smaller firms. Be that as it may, smaller firms can be more innovative and flexible because of their size and lower levels of bureaucracy. The "pay-per-utilize" highlight of CC makes it more demanding for littler firms to likewise embrace CC (Senyo, *et al.,* 2016). Thus, the hypothesis:

H7: FS influences Intention to adopt cloud

2.4.2.2 Firm Scope (FSC)

Scope means the operating area which the firm or organization functions. CC disregard geological limitation. In this manner, firms with branches far and wide are most appropriate to adopt CC. There is positive relationship between FSC and adoption of IT in the past (Zhu *et al.,* 2003; Oliveira and Martins, 2010). But recent study has shown a negative relation between CCA and FSC (Senyo, *et al.,* 2016). Thus the proposed hypothesis is:

H8: FSC influences Intention to adopt cloud

2.4.2.3 Higher Administration Support (HAS)

HAS assumes a significant role in beginning, implementing and accepting new technologies as they have significant role in setting organizational strategy and establishing directions for technology (Gangwar, *et al.,* 2015). The support dimension results in number of assets dispensed to that technology (Oliveira and Martins,

2010). There is a positive relation between HAS and adoption of an innovation (Premkumar *et al.*, 1997; Zhu *et al.*, 2003; Pan and Jang, 2008; Alshamaila *et al.*, 2013). In the event business process reengineering is required for CCA, the intensity of upper management is a significant contributor as per past research. Thus the proposed hypothesis is:

H9: HAS influences Intention to adopt cloud

2.4.2.4 Change Resistance (CR)

There is a plausibility for resistance to change especially from IT staff at the firms. One possible clarification behind the impediment is its worry of IT staff that they may lose their positions due to the CCA (Alharbi, *et al.*, 2017). Thus the hypothesis is:

H10: CR influences Intention to adopt cloud

2.2.2.5 Innovation Acceptance (IA)

Innovation Acceptance means to grasp new innovation for achieving objectives that is controlled by the general perspective coming about because of a gestalt of mental benefactors and inhibitors. It implies preparation of framework and human resources of IT who are required to support cloud selection. Firms can be divided into five enhanced gatherings reliant on their IA, from pioneers those are the first adopter of another development, to slow pokes those are last adopters and are not motivated technologically (Parasuraman and Colby, 2001). Firms who have the technological readiness are better prepared for CCA. Hence, IA is an important factor for CCA. Thus the proposed hypothesis is:

H11: IA influences Intention to adopt cloud

2.4.3 Environmental Perspective (EP)

It covers the large scale region that a firm directs its business including industry advertise components and the presence of technology service providers. It is imperative to consider issues on environment relating to innovative selection choices of firms. Previous researches (Zhu et al., 2003; Chong and Ooi, 2008; Wu and Subramaniam, 2009; Oliveira and Martins, 2010; Low et al, 2011; Ayoobkhan, et al., 2017, Alharbi, et al., 2017) had recognized factors, for example, industrial pressure, rivalry, access to assets provided by others, and bureaucracy matters as significant factors of adoption. The environmental factors utilized in this research includes regulatory support (RS), peer pressure (PP) and service expertise (SE). These factors are viewed as essential since they have considerable impact on the accomplishment of firms.

2.4.3.1 Regulatory Support (RS)

RS come as legislation that try to protect and promote healthcare firms that embrace a development (Nkhoma and Dang, 2013; Makena, 2013). There is no regulation in India that specifically prohibits, restricts or governs CCA. CC challenges geological limits and is available in various nations. In this manner, a legitimate support is regarded critical to secure firms that receive CC as laws change from nation to nation (Senyo, et al., 2016). Hence, in this study we have considered it as a factor. Thus the proposed hypothesis is:

H12: RS influences Intention to adopt cloud

2.4.3.2 Peer Pressure (PP)

It is the level of pressure which a firm faces from their rival firms in same kind of industry. PP is distinguished as instigator of acceptance (Laforet, 2011). This peer can expect a positive employment in new innovation selection especially when the development impacts the opposition (Ramdani et al., 2009). Thusly, firms those are first to CC adoption are required to infer gains in terms of survival and competitive advantage, this will influence other hospitals to CCA (Gangwar et al., 2015; Alharbi et al. 2017). Thus the proposed hypothesis is:

H13: RP influences Intention to adopt cloud.

2.4.3.3 Service Expertise (SE)

Earlier research have evaluated that in adoption of innovation SE is significant (Pan and Jang, 2008; Chong and Ooi, 2008). In CC, service experts relate to the cloud service providers. Firms that need to receive services of cloud are worried about capacity of service providers to guarantee the accessibility of information when required. Availability of SE is an important factor for CCA in healthcare. The advertising exercises, directed interchanges and past activities finished by these SE can significantly affect a potential customer's choice of whether to receive new IT developments or not. More particularly, managers' will investigate trading partners viewpoints, for example, governmental help (Alshamaila et al., 2013; Oliveira et al., 2014), Service linkage (Chang et al., 2013), IT items co-creation and customisation (Gupta et al., 2013) and seller locking (Sultan, 2011). Thus the hypothesis is:

H14: SE influences Intention to adopt cloud.

3. Research Methodology

Data was collected through secondary sources like literature review and various other reports. Primary data was collected by preparation of structured questionnaire. The questionnaire was checked by qualified Professors in the academic field before the survey began. The questionnaire utilized a five point likert scale for measuring the constructs. The scale which measured each constructs were developed based on prior studies done as much as possible. Each sub-factors were having at least three indicators. Initially for testing the questionnaire pilot survey was conducted with a sample size of 50. Thereafter, as per the needs, requirement and suggestions given by the respondents as well as professors modification was done for collecting the final data. The target crowd were healthcare firms running in India and stratified random sampling technique approach was adopted as it permits population harmony from the sub-population (Hair, et al., 2010). Government hospitals of India were set as target population. The respondents from the selected health centres were doctors, procurement department staffs, hospital store staffs who have IT or procurement knowledge of current and future operations of their respective firms. The sample was selected from each strata through the technique of Stratified Random Sampling method. The questionnaires were sent to 650 respondents but only 301 respondents returned usable questionnaires which was valid for analysis.

Structural Equation Modelling (SEM) was constructed and confirmatory factor analysis (CFA) was utilized for exploring the critical factors which had significant contribution in CCA. The analysis of data was done in five stages, to be specific data examination, analysis of demographics, validity and reliability test, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA was done to check the total variance explained, to identify and group the variables using rotated component matrix table. Thereafter, CFA was implemented for testing and approving the applied models underlying.

SPSS 20.0 was utilized for reliability test and EFA on data collected. AMOS version 22.0 was utilized for CFA on collected information for measuring model outcomes as CFA decides whether a validity test on an estimated model be replicated (Hair, et al., 2010; Byrne, 2010; Senyo, et al., 2016).

3.1 Demographics characteristics of respondents

Table 1 shows the distribution of respondents based on gender and years of online experience. The majority of the respondents have been participated in the survey are male of 83.72% and 16.28% of the respondents are female. Years of experience in using online services is concerned, 48.85% of the respondents are having less than 3 years of experience in using online services, while 29.96% of the respondents are having experience between 3-5 years. Around 21.92% of the respondents are having more than 5 years of experience in using online service in their firms. Therefore, this implies that most of the respondents are having experience in surfing net in order to support the area of the research.

Item	Frequency	Percentage
Gender		
Male	252	83.72
Female	49	16.28

Years of experience using online services		
< 3 years	147	48.85
3-5 years	88	29.26
> 5 years	66	21.92

Table 1. Demographics characteristics of respondents

3.2 Reliability and Validity

There are two critical estimates, validity and reliability that decide the trait and helpfulness of the information gathered. Validity is about correctness and whether the instrument estimates what it is proposed to measure. Reliability is about precision; it is utilized to check the consistency and soundness of the questionnaire. Cronbach's alpha coefficient was used as an instrument to measure the reliability (Hair et al., 2010), the values of all indicators or dimensional scales should be above the recommended value of 0.70. Utilization of 5 point likert scale was done in preparing the structured questionnaire. For analysing the information collected, SPSS 20.0 and Amos 22.0 was used. The reliability test was performed for each constructs based on Cronbach's alpha value Table 3 introduces the estimations of Cronbach's alpha for the constructs.

The table 2 displays Cronbach's alpha (α) for all latent variables. The first context is TP and the latent variables along with the indicators and Cronbach's alpha values are: security (S) has S1, S2, S3, S4 is 0.829, privacy (P) has P1, P2, P3, and P4 is 0.846, trust (T) has T1, T2, and T3 is 0.721, relative advantage (RA), RA1, RA2, RA3, and RA4 is 0.841, compatibility (C) has C1, C2, C3, and C4 is 0.864, integration (I) has I1, I2, and I3 is 0.861. The second context is OP and the latent variables along with the indicators and Cronbach's alpha values are: firm size (FS) has FS1, FS2, FS3, and FS4 is 0.873, firm scope (FSC) has FS1, FS2, FS3, and FS4 is 0.873, higher authority support (HAS) has HAS1, HAS2, HAS3, HAS4 is 0.863, change resistance (CR) has CR1, CR2,CR3, and CR4 is 0.846, innovation acceptance (IA) has IA1, IA2, and IA3 is 0.861. The last context is EP and the latent variables along with the indicators and Cronbach's alpha values are: regulatory compliance has RC1, RC2, RC3, and RC4 IS 0.763, peer pressure (PP) has PP1, PP2, and PP3 is 0.861, and service expertise (SE) has SE1, SE2, SE3, and SE4 is 0.864. Output shows, all the cronbach's alpha values are above 0.7 for all the latent variables' items and composite reliability values are also above the threshold level (0.7).

3.3 Exploratory Factor Analysis (EFA)

For measuring the accuracy validity test is being done. The exploratory factor analysis (EFA) was performed at the initial stage in order to group the variables having similar properties and each variable can be grouped under different factors during this process. SPSS 20.0 was utilized for EFA. Principal component analysis (PCA) was performed in order to identify meaningful bias and for expressing same qualities. In the next stage, Confirmatory factor analysis (CFA) will be performed by which constructs identified from literature survey can be tested and how well the variables represents the constructs. Structural equation modeling (SEM) was used for testing the model fit of the proposed research model (Byrne, 2010).

3.3.1 Bartlett Sphericity Test (KMO)

Bartlett Sphericity Test can be used to determine whether the information or data are suitable for factor analysis (Tobias and Carlson, 1969). The table 2 displays the KMO values for all the perspectives: for TP (0.839), OP (0.840), EP (0.813) and ETC (0.809). All the KMO values are above the threshold level of 0.6 and also is accepted value for further analysis and the significance value is 0.000 which is less than 0.05 i.e. the probability value level that is also at an acceptable level.

Construct	**Latent Variables**	**No. of items**	**Measurement entry**	**Cronbach's alpha (α)**	**Composite Reliability**	**KMO**
Technological Perspective	Security (S)	4	S1, S2, S3, S4	0.829		
	Privacy (P)	4	P1, P2, P3, P4	0.846		
	Trust (T)	3	T1, T2, T3	0.721		

	Relative Advantage (RA)	4	RA1, RA2, RA3, RA4	0.841		
	Compatibility (C)	4	C1, C2, C3,C4	0.864	0.882	0.839
	Integration (I)	3	I1, I2, I3	0.861		
Organizational Perspective	Firm Size (FS)	4	FS1, FS2, FS3, FS4	0.873		
	Firm Scope (FSC)	4	FSC1,FSC2,FSC3,FSC4	0.766		
	Higher Authority Support (HAS)	4	HAS1, HAS2, HAS3, HAS4	0.863		
	Change Resistance (CR)	4	CR1, CR2,CR3, CR4	0.846	0.791	0.840
	Innovation Acceptance (IA)	3	IA1, IA2, IA3	0.861		
Environmental Perspective	Regulatory Compliance (RC)	4	RC1, RC2, RC3, RC4	0.763		
	Peer Pressure (PP)	3	PP1, PP2, PP3	0.861		
	Service Expertise (SE)	4	SE1, SE2, SE3, SE4	0.864	0.821	0.813

Table 2

3.3.2 Total Variance Explained

Table 3 displays the total variance explained. The extraction method used was principal component analysis (PCA). Only the eigen values which have values greater than 1 are extracted as it explains maximum variance. For the first factor (TP), the percentage of total variance explained by component 1 (13.075%), component 2 (12.727%), component 3 (12.664%), component 4 (12.296%), component 5 (10.240%) and component 6 (9.053). The cumulative percentage of total variance explained by all four components is 70.236%. For the second factor (OP), the percentage of total variance explained by component 1 (15.119%), component 2 (15.108%), component 3 (14.850%), component 4 (13.173%), and component 5 (12.047%). The cumulative percentage of total variance explained by all five components is 70.297%. The percentage of total variance explained by component 1 (25.469%), component 2 (22.089%), and component 3 (21.536%). The cumulative percentage of total variance explained by all three components is 69.095%. The percentage of total variance explained by component 1 (25.300%), component 2 (22.329%), and component 3 (21.613%). The cumulative percentage of total variance explained by all three components is 69.242%.

Factors		Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
TP	1	6.490	29.498	29.498	6.490	29.498	29.498	2.876	13.075	13.075
	2	2.900	13.183	42.681	2.900	13.183	42.681	2.800	12.727	25.802
	3	1.852	8.417	51.098	1.852	8.417	51.098	2.786	12.664	38.466
	4	1.541	7.004	58.101	1.541	7.004	58.101	2.705	12.296	50.762
	5	1.520	6.908	65.010	1.520	6.908	65.010	2.292	10.420	61.182
	6	1.150	5.226	70.236	1.150	5.226	70.236	1.992	9.053	70.236
OP	1	5.413	28.492	28.492	5.413	28.492	28.492	2.873	15.119	15.119
	2	3.958	20.829	49.321	3.958	20.829	49.321	2.870	15.108	30.227
	3	1.509	7.944	57.265	1.509	7.944	57.265	2.821	14.850	45.077
	4	1.395	7.340	64.605	1.395	7.340	64.605	2.503	13.173	58.250

	5	1.081	5.692	70.297	1.081	5.692	70.297	2.289	12.047	70.297
EP	1	4.158	37.796	37.796	4.158	37.796	37.796	2.802	25.469	25.469
	2	2.152	19.563	57.359	2.152	19.563	57.359	2.430	22.089	47.559
	3	1.291	11.737	69.095	1.291	11.737	69.095	2.369	21.536	69.095
Extraction Method: Principal Component Analysis.										

Table 3. Total Variance Explained

3.3.3 Rotated Component Matrix

This Rotated Component Matrix is important for interpreting the results of the analysis. Rotation helps in grouping the items and each groups contains more than one item which helps in simplifying the structure. This is a condition called simple structure. Hence, this is the aim for goal of rotation. In this research we have achieved this aim. This helps to identify the cross loadings on more than one group and then it can be corrected by removing those items which are cross loaded. In this research the loadings having less than |.40| are supressed because loadings more than |.40| are typically considered high. So, in the end we achieve a simple structure.

	Component					
	1	2	3	4	5	6
S1				.789		
S2				.738		
S3				.740		
S4				.787		
P1		.753				
P2		.794				
P3		.819				
P4		.722				
T1						.815
T2						.840
T3						.656
RA1					.820	
RA2					.891	
RA3					.773	
I1			.776			
I2			.796			
I3			.805			
I4			.697			
C1	.841					
C3	.826					
C4	.836					
C2	.858					

Table 4. Rotated Component Matrix[a]

There are 22 total variables which were grouped under six different components. Table 4 displays the rotated component matrix. The rotation method used was varimax rotation. All the 22 variables listed were grouped under six different components. C1, C2, C3 and C4 are grouped under first component, P1, P2, P3, and P4 were grouped under second component, I1, I2, I3 and I4 were grouped under third component, S1, S2, S3 and S4 were grouped under fourth component, RA1, RA2, and RA3 were grouped under fifth factor, and T1, T2 and T3 are grouped under sixth component.

	Component				
	1	2	3	4	5
FS1	.800				
FS2	.870				
FS3	.830				
FS4	.772				
FSC1				.756	
FSC2				.814	
FSC3				.635	
FSC4				.737	
HAS1		.791			
HAS2		.788			
HAS3		.750			
HAS4		.814			
CR1			.802		
CR2			.853		
CR3			.846		
CR4			.699		
IA1					.830
IA2					.762
IA3					.817
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.					
a. Rotation converged in 6 iterations.					

Table 5. Rotated Component Matrix[a]

There are 19 total variables which were grouped under five different components. Table 5 displays the rotated component matrix. The rotation method used was varimax rotation. All the 19 variables listed were grouped under five different components. HAS1, HAS2, HAS3 and HAS4 are grouped under first component, FS1, FS2, FS3, and FS4 were grouped under second component, CR1, CR2, CR3 and CR4 were grouped under third component, FSC1, FSC2, FSC3 and FSC4 were grouped under fourth component, and IA1, IA2 and IA3 are grouped under fifth component.

	Component		
	1	2	3
RC1		.776	
RC2		.819	
RC3		.646	
RC4		.729	
SE1	.832		
SE2	.794		
SE3	.789		
SE4	.817		
PP1			.893
PP2			.876
PP3			.866
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

Table 6. Rotated Component Matrix[a]

There are 11 total variables which were grouped under three different components. Table 6 displays the rotated component matrix. The rotation method used was varimax rotation. All the 11 variables listed were grouped under

three different components. RC1, RC2, RC3 and RC4 are grouped under first component, SE1, SE2, SE3, and SE4 were grouped under second component, and PP1, PP2, PP3 and PP4 were grouped under third component.

3.4 Structural Equation Modeling

In order to test the hypothesis SEM was used. AMOS 22.0 was utilized for this research because of its powerful graphic representations and user friendly interfaces. This section represents the outputs of hypothesis testing. The results of significant paths of the model are shown here.

3.4.1 Technological perspective

Figure 1 represents the final model along with the six latent variables along with their indicators and one dependent variable.

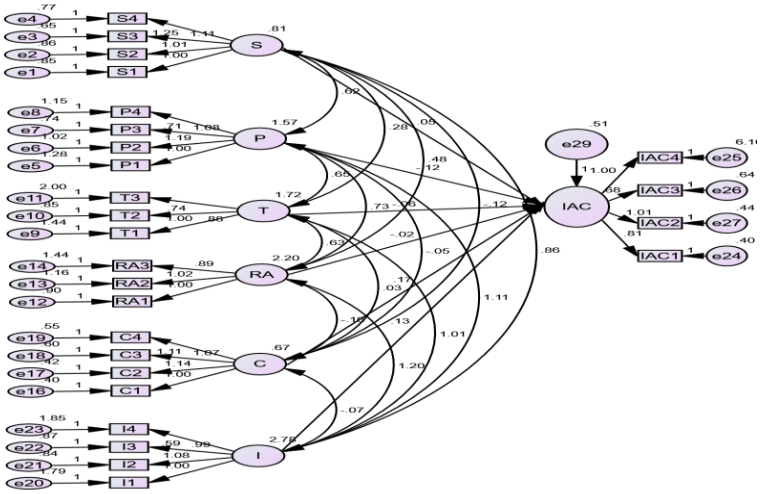

Figure 1. Final measurement model for Technological Perspective

Note: IAC: Intention to adopt cloud; S: Security; P: Privacy; T: Trust; RA: Relative advantage; C: Compatibility; I: Integration.

There are six latent variables: Security (S), Privacy (P), Trust (T), Relative Advantage (RA), Compatibility (C), and Integration (I). Each latent variables are having indicators. For S, there are four indicators: S1, S2, S3 and S4, P has four indicators P1, P2, P3, and P4, T has three indicators: T1, T2, and T3, RA has three indicators, C has four indicators and I also has four indicators. There is one dependent variable is intention to adopt cloud (IAC) which has four indicators.

3.4.2 Organizational Perspective

Figure 2 represents the final model along with the five latent variables along with their indicators and one dependent variable with four indicators.

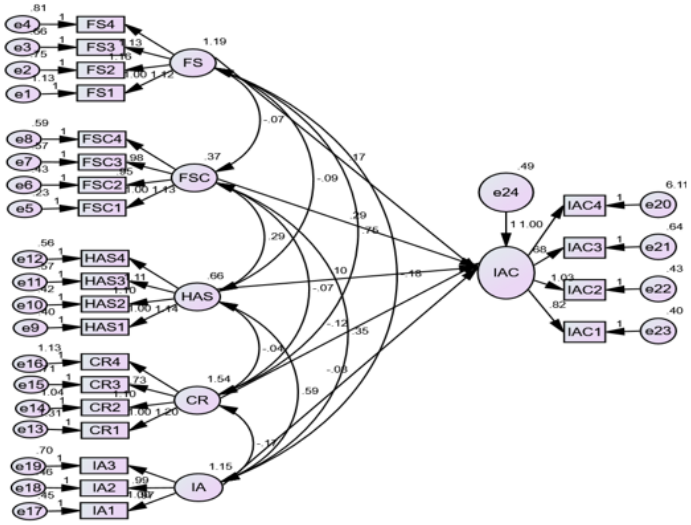

Figure 2. Final measurement model for Organizational Perspective

Note: IAC: Intention to adopt cloud computing; FS: Firm size; FSC: Firm scope; HAS: Higher authority support; CR: Change Resistance; IA: Innovation acceptance.

There are five latent variables: firm size (FS), firm scope (FSC), higher authority support (HAS), change resistance (CR), and innovation acceptance (IA). Each latent variables have four indicators (FS1, FS2, FS3, FS4, FSC1, FSC2, FSC3, FSC4, HAS1, HAS2, HAS3, HAS4, CR1, CR2, CR3, and CR4) except IA which has three indicators (IA1, IA2, and IA3) There is one dependent variable is intention to adopt cloud (IAC) which has four indicators.

3.4.3 Environmental Perspective

Figure 3 represents the final model along with the six latent variables along with their indicators and one dependent variable.

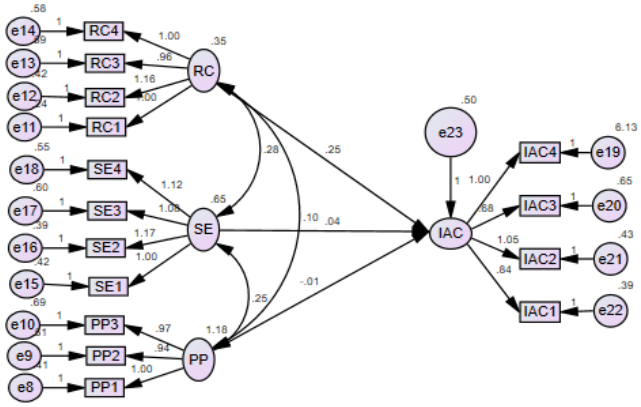

Figure 3. Final measurement model for Environmental Perspective

Note: IAC: Intention to adopt cloud; RC: Regulatory compliance; SE: Service expertise; PP: Peer pressure.

There are three latent variables: regulatory compliance (RC), service expertise (SE), and peer Pressure (PP). Each latent variables are having indicators. For RC, there are four indicators: RC1, RC2, RC3 and RC4, SE has four indicators SE1, SE2, SE3, and SE4, and PP has three indicators: PP1, PP2, and PP3. There is one dependent variable is intention to adopt cloud (IAC) which has four indicators.

3.5 Structural model Goodness of Fit

The above four models (Figure 1, Figure 2, Figure 3 and Figure 4) shows the latent variables along with their indicators which contributed significantly towards the dependent variable which also had four indicators.

3.5.1 Technological Perspective

The estimations of absolute fit indices are: CMIN/Df (1.576), CMIN represents the chi-square value and Df represents the degree of freedom. Goodness of fit index (GFI) is 0.886, normed fit index (NFI) is 0.880, relative fit index (RFI) is 0.859 and incremental fit index (IFI) is 0.952 are having values in the range (0 - 1.0), which is in the threshold level and is accepted. The comparative fit index (CFI) is 0.952 which is more than 0.90 that is the threshold level. The final output is shown in table 8. The six latent variables has a direct effect on IAC, which is the dependent variable. The six latent variables contributes towards achievement of the model fit.

3.5.2 Organizational Perspective

The estimations of absolute fit indices are: CMIN/Df (1.928), CMIN represents the chi-square value and Df represents the degree of freedom. Goodness of fit index (GFI) is 0.899, normed fit index (NFI) is 0.875, relative fit index (RFI) is 0.853 and incremental fit index (IFI) is 0.936 are having values in the range (0 - 1.0), which is in the threshold level and is accepted. The comparative fit index (CFI) is 0.935 which is more than 0.90 that is the threshold level. The final output is shown in table 8. The five latent variables has a direct effect on IAC, which is the dependent variable. The five latent variables contributes towards achievement of the model fit.

3.5.3 Environmental Perspective

The estimations of absolute fit indices are: CMIN/Df (2.162), CMIN represents the chi-square value and Df represents the degree of freedom. Goodness of fit index (GFI) is 0.933, normed fit index (NFI) is 0.896, relative fit index (RFI) is 0.871 and incremental fit index (IFI) is 0.942 are having values in the range (0 - 1.0), which is in the threshold level and is accepted. The comparative fit index (CFI) is 0.941 which is more than 0.90 that is the threshold level. The final output is shown in table 8. The three latent variables has a direct effect on IAC, which is the dependent variable. The three latent variables contributes towards achievement of the model fit.

		P-level	**CMIN/DF**	**RMSEA**	**CFI**	**NFI**	**IFI**	**GFI**	**AGFI**
TP	Model	0.000	1.576	0.044	0.952	0.880	0.952	0.886	0.875
	Recommended standard	<0.05	<3.0	<0.08	0-1.0	0.1.0	0-1.0	0.1.0	>0.80
OP	Model	0.000	1.928	0.056	0.935	0.875	0.936	0.899	0.870
	Recommended standard	<0.05	<3.0	<0.08	0-1.0	0.1.0	0-1.0	0.1.0	>0.80
EP	Model	0.000	2.162	0.062	0.941	0.896	0.942	0.933	0.904
	Recommended standard	<0.05	<3.0	<0.08	0-1.0	0.1.0	0-1.0	0.1.0	>0.80

Table 8. SEM Result Table 8. SEM Result

4. Discussion

The primary aim for conducting this research was to decide whether the elements recommended by TOEE framework is impacting the IAC in healthcare firms of India. From the results, it is very clear that the four components suggested by the framework performed the job in the choice to IAC in different healthcare firms of India.

4.1 Technological Perspective

The first construct comprised of latent variables like S, P, T, RA C and I. Each of them had three or more indicators. The cronbach's alpha and composite reliability values were above 0.7 which is the recommended level. There were total 22 indicators which helped in measuring the impact of TP in the choice of CCA in this research.

The KMO value of TP was 0.839 which is also above the recommended level of 0.6, which allows the data for factor analysis. The total variance explained was 70.236% and in the rotated component matrix the variables were grouped under six groups. The values which were below 0.4 were suppressed in the rotated component matrix table and only the values more than 0.4 were displayed as output. Then the SEM was performed in AMOS 22.0, CMIN/Df was 1.576 and all the fit indices were within the acceptance level. Hence, the model shows goodness of fit. RA's significance in CCA is rational with prior research done (like To and Ngai, 2006; Wang et al., 2010; Alharbi et al., 2017). 'S' additionally had critical effect on CCA and this is likewise in concurrence with surviving research (like Chebrolu, 2011; Zissis & Lekkas, 2012; Sultan, 2014). These earlier investigations stressed the significance of 'S' in the acceptance of a new development. Earlier investigations (like Wang et al., 2010; Oliveira & Martins, 2010) brought up 'C' as huge determinant for selecting cloud. On the other hand, it was observed to be immaterial in the selection of CC in a perspective of developing nation. Regardless, the non-importance of 'C', this investigation is reliable according to Low et al., (2011). Privacy and trust were the two latent variables which were brought up by prior studies (like Feathermann and Pavlou, 2003; Takabi et al., 2010; Alateyah et al., 2013) and same results were observed in this research also. Hence, these sub-factors contribute significantly towards the model fit and are required to be given attention in order to adopt CC in healthcare sector in India.

4.2 Organizational Perspective

The second construct OP comprised of latent variables like FS, FSC, HAS, CR and IA. Each of these sub-factors or latent variables had three or more indicators. The cronbach's alpha and composite reliability values were above 0.7 which the recommended level. There are total 19 indicators which helped in measuring the impact of IAC in this research. The KMO value of OP is 0.840 which is above the recommended level of 0.6, which allows the data for factor analysis. The total variance explained was 70.297% and in the rotated component matrix the variables were grouped under five different groups. Again, the values which were below 0.4 were suppressed in the rotated component matrix table and only the values more than 0.4 were displayed as output. Then the SEM for OP was performed in AMOS 22.0, CMIN/Df was 1.928 and all the other fit indices were within the acceptance level. Hence, the model shows goodness of fit. The importance of HAS is reliable with different researches (like Dholakia and Kshetri, 2004; Pan and Jang, 2008; Low et al., 2011; Alshamaila et al., 2013) as it has been identified as a crucial determinant in technology acceptance. Another vital factor in the firm's point of view is CR. This factor is vital on the grounds that the CCA will influence the entire firm not just explicit units or divisions (Low et al., 2011). This factor was found to adversely influence CCA (HIMSS, 2014) which is similar with the finding of this current investigation. Hence, these sub-factors contribute significantly towards the model fit and are required to be given attention in order to adopt CC in government healthcare sector in India.

4.3 Environmental Perspective

The third construct EC comprised of latent variables like RC, SE and PP. Each of these latent variables had three or more than three indicators. The cronbach's alpha and composite reliability values were above 0.7 which the recommended level. There are total 11 indicators which helped in measuring the impact of IAC in this research. The KMO value of EP is 0.813 which is above the recommended level of 0.6, which allows the data for factor analysis. The total variance explained was 69.095% and in the rotated component matrix the variables were grouped under three different groups. Again, the values which were below 0.4 were suppressed in the rotated component matrix table and only the values more than 0.4 were displayed as output. The SEM for EP was performed in AMOS 22.0, CMIN/Df was 2.162 and all the other fit indices were within the acceptance level. Hence, the model shows goodness of fit. This finding is like the discoveries of different investigations that observed outer strain to be decidedly related with CCA (Alshamaila et al., 2013; Tan et al, 2012; Tashkandi & Al-Jabri, 2015; Alharbi et al., 2017). Another factor SE can provide fruitful usage of CC for government healthcare firms. This finding is reliable with different investigations that found the accessibility of IT providers with great abilities of help and fame to be imperative (Alshamaila et al., 2013; Alharbi et al., 2017).

5. Conclusion

The research determined the factors of CCA in government healthcare firms in India. This examination considered technical, environmental, and organisational perspective. This research encourages the healthcare centres to use the cloud or which might impede them in relation to moving to it. In order to access and test the developed model quantitative method was utilized for CCA. The gathered information was studied through SEM at two phases. In the measurement level, the validity and reliability were used to confirm the estimations utilized in this examination. Also, in structural level, the connections between the components and firms' aim to adopt cloud in healthcare sectors divisions were studied, to investigate factors that were decidedly connected with CCA in healthcare centres in India; along these lines, the proposed hypothesis was evaluated in this stage. Research model initially comprised of sixteen hypothesis. Each of the latent variables had statements which has been used

in the research and tested all the four models in Amos 22.0 and finally the significant contributors were retained in all the four models in the study. The latent variables which contributed significantly in the tested model are S1, S2,S3, S4, P1, P2, P3, P4, T1, T2, T3, RA1, RA2, RA3, RA4, C1, C2, C3, C4, I1, I2, I3, FS1, FS2, FS3, FS4, FSC1, FSC2, FSC3, FSC4, HAS1, HAS2, HAS3, IA1, IA2, IA3, RC1, RC2, RC3, RC4, SE1, SE2, SE3, SE4, PP1, PP2, and PP3. The statements which were insignificant or which were removed from the model are S3, S4, T4, C1, C4, FS3, FS4, FSC4, CR1, CR4, SE5, CO4 and RT2. There was latent variable like internet connection (IC) in TP which was removed due to lower value of cronbach's alpha less than the threshold level i.e. 0.7 and also when exploratory factor analysis was performed it produced cross-loadings in the initial stage only. In this manner, it is recommended that healthcare centres should give careful consideration to the critical contributors particularly in perspective of the state.

5.1 Managerial implications

This research adds to rehearse by illustration consideration of managers or decision makers to the essential factors of IAC. The benefits of CC over traditional system upgrades association with clients and partners and encourages managers to better frame their administration structure and strategies. This investigation endeavours to test the recommended TOE model associated with one another and fundamentally impact the choice of government healthcare units for IAC. The managers and decision makers need to concentrate on budgetary and technological assets, for example, physical frameworks, elusive information and procuring employees with IT aptitudes. Likewise, the managers need to comprehend that utilizing particular IT workforce with ranges of abilities over the regular IT condition and the cloud stage and developing vital undertakings to help business development empower CCA. Before a healthcare firm migrates to this new technology of cloud the firm should consider the functionalities which varies from traditional system which they were using and as a result they need to consider all the significant factors before migrating or adopting CC. As the managers are the decision makers for the firms they will have to consider the pros and cons of IAC. With the assistance of this examination, officers can get to whether the assistances are in reality with their frameworks and how complex is the assistance to complete and get it.

5.2 Contribution to research and practice

This study has made significant contribution to research and practice. In terms of research it has contributed to body of knowledge on CC by testing and validating the TOE framework in government healthcare perspective of India along with empirical support. Ultimately this investigation bridges the ostensible writing gap on CC among prospering and prospered nations.

Additionally, this investigation adds to rehearse by attracting consideration of practitioners to important factors in IAC. Thus, the healthcare firms venturing into CC have a fundamental understanding of the determinants, a knowledge which was not available to Indian government healthcare firms. This study likewise exhibits that making a great ICT condition will have positive effect on IAC in Indian government healthcare sector. The empowering condition as enactment, ICT policies and infrastructures will engender the CC agenda. This investigation repeats the significance of sufficient RC as strategies in help of CC as present laws are viewed as playing catch-up with innovative advancements particularly in creating and developing countries like India.

5.3 Limitations and further research

This investigation put light mainly on government healthcare centres in India. Henceforth, comparative investigations should be possible for different nations, and states. Further examination should be possible on other explicit sectors.

Annexure

Table 9. Provides the list of factors which are found from extant literature as determinants for CCA in healthcare sector

Perspectives	Factor	Definitions in the study	Sources
Technological	Security	Security is a prime concern for many firms as one feels that the information is not safe and secured in cloud due to lack of direct control on them	Premkumar and Ramamurthy, (1995); Thong, (1999); Zhu et al., (2003); Zissis and Lekkas, (2012); Sultan (2014); Senyo et al., (2016); Alharbi et al. (2017)
	Privacy	It is the secrecy which a client needs from the provider for its stored information for utilizing CC.	Feathermann and Pavlou, (2003); Takabi et al., (2010); Alateyah et al., (2013)
	Trust	It is the trust or reliability for the customers on CCA for utilizing CC.	Premkumar and Ramamurthy, (1995); Thong, (1999); Zhu et al., (2003); Zissis and Lekkas, (2012); Sultan (2014); Senyo et al., (2016); Alharbi et al. (2017)
	Relative Advantage	It is the dimension to which a technological perspective has a bigger number of advantages has a larger number of points of interest than hindrances.	Roger (2003), Miller (2008), Jain and Bharadwaj (2010), Low et al., (2011),Alshamaila et al., (2013), Guiterrez (2015), Senyo, et al., (2016), Allharbi et al. (2017)
	Compatibility	It alludes to the advancement which fits the potential adopter's past works on, existing values and present needs.	Rogers, (2003); Gutierrez et al., (2015); Alharbi, et al., (2017); Singh, et al., (2017); Alharbi, et al., (2017); Ayoobkhan, et al, (2017)
	Integration	It refers to join CC with present IT systems.	Alharbi, et al., (2017)
Organisational	Firm Size	It alludes to size of a firm as far as capital venture, workers' numbers and target market size.	Zhu *et al.,* (2003); Dholakia and Kshetri (2004); Hong and Zhu (2006); Pan and Jang (2008); Anukka (2008); Wang *et al.*, (2010); Oliveira and Martins (2010); and Alshamaila *et al.*, (2013); Senyo, *et al.,* (2016)
	Firm Scope	It alludes to the particular area on which a firm operates.	Deewan *et al.*, (1998); Hitt (1999); Zhu *et al.,* (2003); Oliveira and Martins (2010); Senyo, *et, al.* (2016)

	Higher Authority Support	Top administration has significant role in initiating, executing and adopting new advances as they have critical job in setting firm's strategy and building up directions for innovation.	Premkumar et al., (1997); Zhu et al., (2003); Pan and Jang, (2008); Alshamaila et al., (2013); Gangwar, et al., (2015); Ayoobkhan, et al., (2017)
	Change Resistance	It refers to the attitude towards change.	Alharbi, *et al., (*2017)
	Innovation Acceptance	It implies preparation of framework and IT human resources who are required to help cloud adoption.	Alharbi, *et al., (*2017)
Environmental	Regulatory Support	Governmental help which is given to empower CCA.	Nkhoma and Dang, (2013); Makena, (2013); Senyo, et al., (2016);Alharbi et al. (2017)
	Service Expertise	Service expertise refers to cloud service providers. Firms that need to receive services of cloud are worried about capacity of service providers to guarantee the accessibility of information when required.	Pan and Jang, (2008); Chong and Ooi, (2008); Sultan, (2011); Alshamaila et al., (2013); Chang et al., (2013);Gupta et al., (2013); Oliveira et al., (2014); Alharbi et al. (2017)
	Peer Pressure	Degree of pressure which a firm faces from their rival firms in same type of industry	Laforet, (2011); Ramdani et al., (2009); Gangwar et al., (2015); Alharbi et al. (2017)

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