**Journal of Global Information Management**
Volume 28 • Issue 1 • January-March 2020

# Understanding the Drivers of Cloud-Based Service Adoption and Their Impact on the Organizational Performance:
## An Indian Perspective

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## ABSTRACT

This study aims to understand the drivers of cloud-based services (CBS) adoption and its impact on the performance of Indian organizations. The conceptual model was developed using diffusion of innovation theory, technology-organization-environment framework, transaction cost economics, technology acceptance model, and balanced scorecard model. This quantitative study collected data from IT experts of 334 Indian organizations using questionnaire survey method. Data analysis using structural equation modelling reveals that among six identified drivers, credibility of cloud service provider has the strongest impact on the decision to adopt CBS, followed by top management attitude, economic flexibility, perceived usefulness, and relative advantage. While perceived ease of use of the CBS was found statistically not significant. Conversely, the impact of CBS adoption was found strongest on the financial performance of the organizations. Further, CBS's adoption drivers and their impact on performance vary significantly on the basis of age and size of the organizations.

## KEYWORDS

Adoption, Balanced Scorecard Model, Cloud Computing, Organizational Performance, Technology Adoption

## 1. INTRODUCTION

Information Technology (IT) is an integral part and a fundamental to support to sustain and grow a business. Cutting-edge IT tools and Web-based technologies can help organizations in improving their performance by cutting the cost of production as well as distribution, offering innovative products or services, and living up to the customer expectations by delivering high standards of customer service. Adoption of innovative technologies like cloud-based services (CBS) can help organizations in ensuring the seamless and timely flow of information between various business processes and in developing their capabilities. These organizational capabilities can be defined in terms of effective execution of business processes, workflow coordination, and resource optimization (Bhardwaj, 2000; Rai et al., 2006).

Market studies conducted during the last four to five years point out that organizations around the world are saving up to 36% of their IT costs by adopting cloud-based IT services (Versace & Perry, 2013). According to a study conducted by Zinnov Management Consulting, the adoption of CBS will drive the growth of the Indian domestic IT market, which is estimated to touch $67 billion

DOI: 10.4018/JGIM.2020010104

by 2020 (Zinnov, 2015). Further, the Indian government's initiatives for a digital India and variety of public and private cloud-based IT offerings from cloud service providers are considered as the main reasons why CBS' adoption is gaining momentum in India. Thus, it is apparent that more and more Indian organizations will move to the cloud-based platform. Consequently, the study seeks to understand what factors drive the decision to adopt CBS, and how the cloud adoption impacts the overall performance of Indian organizations. With this aim, the study seeks to answer following research questions:

RQ 1: What are the factors affecting the decision to adopt cloud-based services?
RQ 2: What is the impact of cloud-based services' adoption on the organizational performance?

The remainder of this paper is organized as follows. Section 2 introduces the concept of Cloud Computing as well as the notion of organizational performance with reference to this study. Section 3 provides the theoretical background used to develop a conceptual model to answer the research questions mentioned above. Section 4 specifies the constructs of the conceptual model as well as the hypothesis developed. Section 5 presents the research methodology, followed by section 6 that explains the data analysis done using the two-step structural equation modeling (SEM) approach. Section 7 discusses the results, and in section 8, we present the significant contribution of this study to research and practice. Section 9 summaries the conclusions and limitations of the study as well as future research possibilities.

## 2. LITERATURE REVIEW

### 2.1. Cloud- based Services

CBS bring a paradigm shift in the way IT is deployed and managed in an organization. These IT services can be provisioned on demand according to the technical requirements of the organization, be it software, hardware, database, or network. Broadly these IT services are adopted either using the Software-as-a-Service (SaaS), the Platform-as-a-Service (PaaS), or the Infrastructure-as-a-Service (IaaS) model of cloud computing.

A review of the literature reveals that the phenomenon of cloud computing or CBS has been studied from various perspectives, which can be grouped into studies related to conceptual understanding, technology issues, business aspects, and domain-specific issues of CBS (Yang & Tate, 2012; Yang et al., 2005). Further, studies look at the business aspects of CBS represented issues related to the adoption, costing, pricing, trust, privacy, and risk associated with CBS (Yang & Tate, 2012; Yang et al., 2005). This study is focused on the business aspects, specifically the adoption of CBS by organizations. Thus, the literature related to cloud-based service's adoption was reviewed extensively. A review of the literature provides evidence of both qualitative as well as quantitative studies conducted to understand the adoption of CBS from different perspective in various countries. For example, the adoption of CBS has been studied in order to understand the benefits as well as the challenges (Alshamaila et al., 2013), opportunities and risks associated with Software-as-a-Service (SaaS) adoption (Benlian & Hess, 2011), the issue of trust faced by organizations (Wu et al., 2011), and cloud computing acting as an enabler for supply-chain management systems (Cegielski et al., 2012).

There are many reported drivers of CBS adoption at the organizational level in the literature. The majority of the studies have identified cost saving as the key driver of CBS adoption, with reference to the implementation and maintenance costs of IT infrastructure (e.g., hardware, software, and network). In addition,the pay-per-use feature of CBS helps organizations in controlling the expenditure on CBS because IT expenditure can easily be altered based on the high or low demand of IT services in an organization (Janssen & Joha, 2011, Oliveira et al., 2014), Other than cost, some of the drivers which were identified significant in cloud computing adoption studies in an organizational context

include scalability of IT services on demand (Cegielski et al., 2012), regular and easy installation of updates of cloud based IT applications (i.e. SaaS) (Yang, 2012), availability and accessibility of CBS from any location and from any device at any time (Oliveira et al., 2014), relative advantage of CBS (Benlian & Hess, 2011), and support of the top management for the adoption of new technologies (Alshamaila et al., 2013; Lian et al., 2014) .

While there is plentiful publicity revealing the benefits of cloud computing and how every organization in the world should adopt certain elements of these services where appropriate, there are some concerns and drawbacks as well. Despite cloud service providers offering the benefit of high levels of support, advanced security procedures, in-depth experience and knowledge in this area (Gupta et al., 2013), security has remained one of the main barriers for cloud computing adoption, as discussed in the next section. It must be noted that cloud service providers will potentially encounter similar technical issues as an organisation might becasue they have their information and data stored in-house, such as server downtime, maturity and performance issues as well as internet service outage (Yang, 2012).

The review of the literature provides evidence that there have been very few studies, which researched the adoption of cloud computing from an organization's perspective. These studies were conducted in different geographical areas, ranging from the USA, Germany, Taiwan, Australia, England and Ireland, and Portugal and one of the studies included a very small sample from India (e.g., Gupta et al., 2013).

### 2.2. Organizational Performance

Organizational performance is the vital dependent variable of interest for researchers concerned with all fields of management (Richard et al., 2008). Examination of the literature suggests that organizational performance is one of the most important variables for evaluating organizations as well as their actions over time and comparing them to their rivals (Richard et al., 2008). Past studies have revealed that there is no doubt that IT contributes in enhancing the performance of organization (e.g., Sandulli et al., 2012; Wen et al., 1998). Additionally, the magnitudes of the impact of IT on the organization's performance depend on a variety of factors, including the type of IT implemented, management attitude towards technology, and organizational structure, as well as the industry the organization operates in (Melville et al., 2004).

A review of the literature provides evidence of studies conducted to understand the impact of IT on organizational performance. For example, organizations have adopted IT in various forms for improving the performance of their supply chain (SCM) (e.g., Boubekri, 2001; Ngai et al., 2011), customer relationships (CRM) (e.g., Chen & Popovich, 2003; Jayachandran et al., 2005), internal processes (e.g., ERP) (e.g., Gupta, 2000; Hitt et al., 2002), training and management (e.g., HRM) (e.g., Carroll & Wagar, 2010), manufacturing (e.g., CAD/ CAM) (e.g., Boyer et al., 1992), and online business (e.g., e-commerce/ e-business) (e.g., Salwani et al., 2009). To the best of our knowledge, there is no study, as yet, that has studied impact of the adoption of CBS on organizational performance.

In summary, the adoption of the CBS has been studied from different perspectives, such as drives, challenges, and risks associated with the adoption of CBS. However, these studies have not explored the impact of CBS on the overall performance of the organization. Thus, this study tries to bridge the gap in the cloud computing literature and contribute to the knowledge by not only identifying the factors influencing the adoption of CBS by Indian organizations but also by assessing the link between CBS adoption and organizational performance in an Indian context.

## 3. THEORETICAL BACKGROUND

The theoretical model for this study is developed in two parts. First, part of the model focuses on the CBS adoption drives and then, the second part emphasize the evaluation of the impact of CBS on organizational performance.

The first part of the theoretical model for CBS adoption reflects factors that influence the propensity to adopt and use the innovation within an organization. The literature review suggests that the technology-organization environment (TOE) framework (Tornatzky & Fleischer, 1990) is suitable for this study as it provides a technological, environmental, and organizational context to the adoption and use of innovation. The review of literature also reveals that the TOE framework has been used widely by researchers to understand different types of technological adoption. These include, for example, inter-organizational system standards (Chan & Chong, 2012), electronic data interchange (EDI) (Kuan & Chau, 2001), collaborative commerce (Lin et al., 2009), RFID (Adhiarna et al., 2013; Wang et al., 2010), enterprise resource planning (ERP) (Pan & Jang, 2008), healthcare information systems (Yang et al., 2013), customer relationship management (CRM) (Hung et al., 2010), electronic signature (Chang et al., 2007), cloud computing (Alshamaila et al., 2013; Lian et al., 2014), e-business (Lin & Lin, 2008; Oliveira & Martins, 2010), and Knowledge Management Systems (KMS) (Lee et al., 2009).

According to Tornatzky and Fleischer, (1990) with reference to the organizational context, two processes that appear to be the key in establishing a positive environment for technology adoption decision making are informal linkage and communication, and top management support. The technological context defines technologies that are relevant to the organization. These technologies can be internal - the one that is already owned by the organization, or external - the one that is available from an external source (i.e., the IT service provider) (Hage, 1980; Tornatzky & Fleischer, 1990). The environmental context represents the sphere in which firm operates, i.e., the industry the organization belongs to, its competitors and suppliers, and the government. The need to deal with the pressure from industry and competitor, collaboration with a supplier, as well as compliance with government policies influences organizations in the degree to which they can see the need for new technology (Tornatzky & Fleischer, 1990). Additionally, Tornatzky and Fleischer (1990) suggest that the competitive attributes of the industry and the existence of significant technological support available from technology suppliers are the key elements for the adoption of innovative technologies by organizations. In this study, the TOE framework was found relevant for theoretical grounding, as the CBS adoption decision may be influenced by top management attitude (i.e., the organizational factor) as well as characteristics of the technology supplier (i.e., the environmental factor).

In line with the TOE framework, the Diffusion of Innovation theory by Rogers (1995) also provides strong theoretical grounding for explaining the technological factors of the adoption and diffusion of innovation. The review of the literature suggests that a number of studies have used the diffusion of the Innovation Model (DOI) as a theoretical grounding for explaining technology diffusion in the context of information system innovations (e.g., Agarwal & Prasad, 1998). Rogers (1995) introduced a DOI model wherein he identified five attributes of innovations that a variety of diffusion studies had shown to consistently influence adoption. These attributes are relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is the degree to which an innovation, be it a new product, new services or a new technology, is perceived to be more advantageous by the customers/managers than the existing one. For the adopter, the importance of the innovation depends on its characteristics, because it will help the adopter in understating the type of relative advantages achieved by adopting the innovation. These may be economic, social, and functional (Rogers, 1995). Factors like technological compatibility, complexity, trialability and observability are there irrespective of any technology solution, but what differentiates the adoption of CBS from other technologies is the relative advantage in terms of functionality, i.e., how these services are implemented and managed. Thus, DOI theory provides a strong grounding for relative advantage as an important factor in CBS adoption.

In addition to TOE and DOI theory, the theoretical model of this study also used Transaction Cost Economics (TCE) and the Technology Acceptant Model (TAM). TCE theory provides a base for understanding cost as driver of the adoption of CBS. In the case of CBS, organizations need to weigh the benefits in terms of costs incurred in implementing as well as managing IT services in-

house through the cloud service providers. This makes the transaction cost an important factor in a decision to adopt CBS. Thus, in this study, Economic Flexibility (EF) is the construct taken from the grounding of transaction cost in economics theory.

The Technology Acceptance Model (TAM) (Davis, 1989) has been very prominent in the field of technology acceptance research. TAM, introduced by Davis in 1989, is based on identifying the reasons that influence individuals to accept or reject IT. According to TAM, two main variables, which play an important role in acceptation or rejection of information technology are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis, 1989). The popularity of TAM among researchers can be understood by the number of times, i.e., over 3000 times, it has been cited in technology acceptance literature. The review of the literature suggests that TAM had been used to assess the acceptance of IT systems ranging from document management systems, to enterprise systems, to Web-based applications (Hess et al., 2014). It is important to note that the study conducted by Barthelemy and Geyer (2001) identified that in the organization's decision regarding the adoption of new technology is predominantly influenced by the perception of the individuals involved in the decision-making process, such as CIOs, IT-Head, and CEOs. The literature provides evidence that some researchers have used TAM model constructs to understand the adoption of technology at the organizational level (e.g., Benamati & Rajkumar, 2008; Grandon & Pearson, 2004). Consequently, in this research, two constructs from TAM, i.e., Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are found relevant as usefulness and ease of use of CBS will impact the decision of an organization to adopt CBS.

The second part of the theoretical model uses the Balance Scorecard Model to assess the impact of CBS adoption on organizational performance. Kaplan and Norton's revolutionized conventional thinking about organizational performance metrics with the concept of Balanced Scorecard (BSC) introduced in 1992. BSC goes beyond the traditional measures of financial performance and includes non-financial measures in the metrics for accessing organizational performance. According to Kaplan and Norton (1992), in addition to financial measures, the performance of the organization should be measured from three perspectives – those of customers, internal business process, and learning and growth.

The learning and growth perspective of BSC emphasizes measures that enhance the capabilities of employees as well as information systems (Kaplan & Norton, 1996). The internal business perspective stresses those variables that are important in improving the internal business processes. This improvement can be done by innovation, by improving/ redesigning existing business processes, and/or by providing efficient after sales service (Kaplan & Norton, 1996). Customer perspective empowers organizations to align the measures of their core customer outcomes i.e., customer satisfaction, customer loyalty, customer retention, and the acquisition of the targeted customers and market segments. Attributes that can help organizations to retain and expand their business can be related to the product, customer relationship, or the image of the organization. Product attributes, such as functionality, quality and price of product are considered important. In the case of customer relations, the quality of purchasing experience and personal relationships play an important role. Finally, the brand of the organization in the market is also important for attracting and retaining customers. Financial perspective not only specifies the measures used to evaluate the long-term success of an organization but is also the factor considered most significant to generate and drive long-term outcome objectives. These objectives may be developed based on any of the specified themes, namely: revenue growth, productivity improvement, cost reduction, asset utilization, and risk management.

The Balanced Scorecard Model (BSC)has been used to study the performance of various information systems, for example, e-commerce (Mistry & Dhavale, 2011), ERP systems performance (Fang & Lin, 2006), CRM (Al-Mudimigh, 2009), HRIS performance (Hagood & Friedman, 2002), e-SCM (Wu & Chang, 2012), e-procurement (Rotchanakitumnuai, 2013), and SaaS assessment (Lee et al., 2013). This research will also use the BSC model for assessing the impact of cloud-based services' adoption from all four perspectives, learning and growth, internal business processes, customer and financial.

## 4. CONCEPTUAL MODEL BUILDING

The conceptual model for this study was developed, based on the DOI, TOE framework, TCE, TAM and the BSC Model. These theories were used to identify measurement items from the literature review, which were further grouped into ten constructs as displayed in Figure 1 The conceptual model contains two parts, each addressing the two research objectives of the study.

The first part of the model focuses on the first objective of the study, i.e., to identify the factors that affect an organization's decision to adopt CBS. Based on the theoretical basis of DOI, the TOE framework, TCE, and TAM we have identified six constructs, namely, Attitude towards using Technology (ATUT), Service Provider's Credibility (SPC), Relative Advantage (RA), Economic Flexibility (EF), Perceived Ease of Use (PEOU), and Perceived Usefulness (PU). Each of these constructs, as well as the six-hypothesis developed based on these constructs, are explained in detail in the following section.

### 4.1. Attitude Towards Using Technology (ATUT)

The construct ATUT is supported by the TOE framework. Fishbein and Ajzen (1975) define attitude as "*an individual's positive or negative feeling about performing the target behavior*" (p. 216). In this study, ATUT is defined as a positive or negative feeling regarding the use of technology in an organizational setting. According to the literature, awareness of management regarding new technology and their enterprising nature to experiment with the same, positive attitude towards technology adoption (Alshamaila et al., 2013; Lian et al., 2014), and willingness to invest in the technology (Chan & Chong, 2012; Low et al., 2011) are considered significant variables to evaluate the attitude of the top management regarding technology adoption. The decision to invest in the adoption of CBS, if considered as a value for money (Lian et al., 2014; Low et al., 2011) by top management will be favored. Therefore, the following hypothesis is proposed:

H1: Positive attitude towards technology will positively affect the likelihood of the adoption of cloud-based services.

### 4.2. Service Provider's Credibility (SPC)

The construct, SPC, is grounded on the TOE framework. Credibility refers to "*judgments made by a perceiver concerning the believability of a communicator*" (O'Keefe, 2002, p.181). In this study, SPC is defined as the decisions made by the organizations concerning the believability of the IT service provider. In the case of technology, the service provider's credibility is established based on IT expertise (Hong & Zhu, 2006), experience in implementing and providing IT services (Lee et al., 2013; Tsai et al., 2010) and the variety of the IT skill-set they provide. In IT technology, rapid changes keep IT services providers on the toes. This may result in an IT service provider who is expert in the latest technology but may not be considered experienced because the technology is new. SPC also depends on the time taken by them to respond to market uncertainty (Alshamaila et al., 2013), i.e., how fast they are in anticipating new technological changes in today's dynamic business environment, but also whether they are first among those who provide IT applications to the organizations for dealing with such business uncertainties and user requests (Cegielski et al., 2012). In the case of CBS, trustworthiness (Chan & Chong, 2012) and reputation (or brand) (Lee et al., 2013) of the service provider also becomes essential as security of the data is crucial for an organization. The requirement of 24/7 and anywhere/anytime IT service availability makes the selection of the service provider an important factor for making an adoption decision. This argument forms the premise for the following hypothesis:

H2: The service provider's credibility will positively affect the likelihood of adoption of cloud-based services.

### 4.3. Relative Advantage (RA)

The construct, RA, is supported by DOI theory. Unlike traditional IT services, CBS provides scalability in terms of scaling up/down IT resources and functionality (Cegielski et al., 2012; Pagani, 2006). The implementation time of CBS is less because organizations just need the required number of systems and an Internet connection to access these services. Additionally, any change in the IT functions or resources can be implemented on-demand by using just few clicks (Tsai et al., 2010). Thus, in comparison to traditional IT, CBS provides a relative advantage in terms of scalability, least implementation time, and on-demand availability of IT services so that organizations can concentrate on their core business. Therefore, the following hypothesis is proposed:

H3: Relative advantage will positively affect the likelihood of adoption of cloud-based services.

### 4.4. Economic Flexibility (EF)

The construct, EF, is supported by TCE theory. According to TCE theory, organization incurs a transaction cost when it is found that developing and maintaining IT in-house is costlier than outsourcing (Ang & Straub, 1998). As opposed to traditional IT outsourcing, CBS provides flexibility in terms of payment by giving an option to the organizations for paying only for the services they are using. Further, organizations can also select any method of payment based on their requirement, be it paying according to usage, function, or monthly subscription (Benlian & Hess, 2011; Wu et al., 2011). Organizations also get the flexibility in terms of changing these payment methods according to their requirements. Further, cloud resource usage by organizations is monitored, controlled, and reported, providing transparency to the user as well as to the cloud service provider regarding how they are billed. This gives flexibility to the organizations in managing their IT expenditure. Given these arguments, we propose:

H4: Economic flexibility will positively affect the likelihood of adoption of cloud-based services.

### 4.5. Perceived Ease of Use (PEOU)

The construct, PEOU, is supported by TAM. Though the PEOU construct represents an individual's perspective towards the technology, it is also considered relevant in the organizational context as the decision to adopt technology in the organization is ultimately influenced by individuals such as CIOs, and CTOs. Studies suggest that adoption of new technology depends a lot on how easy its use is perceived to be, while bringing in changes in the existing business processes (Lewis et al., 2003; Oh et al., 2009). CBS and solutions are accessed through very interactive Web-based, rich graphical user interface (GUI) which can be used to implement, use, monitor and update IT services according to an organization's requirements. Consequently, CBS provides IT applications, which are very easy to navigate, thus taking less time and effort to learn and master them (Behrend et al. 2011; Grandon & Pearson, 2004). Therefore, the following hypothesis is proposed:

H5: Perceived Ease of Use will positively affect the likelihood adoption of cloud-based services.

### 4.6. Perceived Usefulness (PU)

The grouping of the construct, PU, is also supported by TAM. Research studies have revealed that those organizations that have adopted IT solutions have observed performance gains (Oliveira *et al.*,

2014). These gains are visible in form of improvement in the performance of employees/users and help them to complete their tasks quickly as well as effectively (Grandon & Pearson, 2004; Wu, 2011). IT services available on the cloud platform are no exception to this and are also capable in enhancing employee's/ user's overall productivity (Oh et al., 2013). Thus, the following hypothesis is proposed.

H6: Perceived Usefulness will positively affect the likelihood of adoption of cloud-based services.

### 4.7. Cloud Adoption (CADOPT)

In this research, the items for measuring the adoption of CBS include the duration of adoption, the level of adoption, and the percentage of IT budget spent on them. The duration of adoption signifies the time period that the organization has been using CBS (i.e., 3-6 months, 7-12 months, 13-24 months or 25-36 months). The level of adoption signifies whether the organization is still in the initial stage and had implemented both traditional as well as CBS in the organization or is using only cloud-based IT services for performing business operations. The last and most important aspect of understanding cloud adoption is the percentage of the IT budget (i.e., 25%, 26-50%, 51-75%, 76-100%) spent on CBS by the organization. This will help in understanding the organization's shift from traditional IT to the cloud platform.

The second part of the conceptual model addresses the second research objective, i.e., to understand the impact of the adoption of CBS on organizational performance. The BSC model was used to understand the impact of CBS adoption on the organizational performance and four constructs have been identified, Learning and Growth Perspective (LGP), Internal Business Perspective (IBP), Customer Perspective (CP), and Financial Perspective (FP). The following section describes each of these constructs as well as four hypotheses developed based on these constructs.

### 4.8. Learning and Growth Perspective (LGP)

The construct LGP is supported by the BSC Model. The adoption of technologies, such as cloud computing encourages organizations to take risk and innovate (Tsai et al., 2010). Adoption of CBS ensures the availability of a technological foundation for the organizations for designing and developing innovative products and services without worrying about implementing and managing a technology infrastructure. The implementation of technology may require reskilling employees to achieve efficiency in internal business processes (Kaplan & Norton, 1996). In studies conducted to understand benefits of IT adoption, most have suggested that adoption of technology results in improving the IT skills of employees and makes them more confidant in using technology (Hagood & Friedman, 2002; Wu & Chang, 2012). In the case of CBS, learning of technology becomes easy because they provide a user-friendly interface which is easy to understand and learn. Further, since CBS can help employees finish their work fast, they can efficiently use their time for other organizational activities, thus improving their overall productivity as well as their satisfaction (Grandon & Pearson, 2004; Lewis et al., 2003). Therefore, the following hypothesis is proposed:

H7: Adoption of cloud-based services will positively impact the learning and growth of an organization.

### 4.9. Internal Business Perspective (IBP)

The BSC model emphasizes improving the performance of internal business processes, not only by redesigning existing business processes, but also by using technological innovations to introduce new products and services (Kaplan & Norton, 1996). This innovation can be in the form of designing and developing new products/services or the introduction of new business models (Bunduchi et al., 2011). CBS provides the flexibility in terms of lesser time to deploy, variability of the cost component and availability of innovative IT solutions to enhance the organizations' growth. Moreover, CBS also

provides an opportunity to identify innovative markets for existing products and services, where organizations can interact with customers using the cloud platform (Wu & Chang, 2012; Zelbst et al., 2011). Further, adoption of CBS may result in re-designing the existing process or introducing new ways to perform internal operations so as to reduce the time of business operations (Hofmann & Orr, 2005), thus resulting in improved business productivity (Love & Irani, 2004; Zelbst et al., 2011). In the case of CBS adoption, organizations do not need to worry about changing user requirements, up-gradation of hardware/software, management of licenses, or business continuity issues as, these are also handled by the cloud service provider (Rotchanakitumnuai, 2013). Therefore, the following hypothesis is proposed:

H8: Adoption of cloud-based services will positively impact the internal business processes of an organization.

### 4.10. Customer Perspective (CP)

According to the BSC model, three attributes - product/service attributes, customer relationship and reputation of the organization can be used to measure customer value propositions (Kaplan & Norton, 1996). Adoption of cloud-based customer services can help organizations in managing customer interaction by providing the availability of customer service 24/7 (Hagood & Friedman, 2002; Yang et al., 2005) as well as providing accessibility through different devices, such as desktop, laptop, mobile and smartphones (Pagani, 2006; Yang et al., 2005). This availability and accessibility of cloud-based customer services also results in the reduction of customer response time (Wu & Chang, 2012). Adoption of cloud-based customer services also helps organizations in introducing new ways to interact with customers and provides the best customer experience and satisfaction (Hong & Zhu, 2006). This can lead to maintaining good customer relations (Zain et al., 2005). Thus, the following hypothesis is proposed.

H9: Adoption of cloud-based services will positively impact the customer service of an organization.

### 4.11. Financial Perspective (FP)

According to the BSC model, organizations can reframe their financial themes, such as asset utilization/ investment strategy, cost reduction, productivity improvement, and revenue growth (Kaplan & Norton, 1996). No matter which financial theme an organization selects, information technology can always contribute to achieving the target. The adoption of CBS can benefit organizations in reducing the time to reach new markets and customers. This provides an opportunity for the organization to increase revenue and market share (Lee et al., 2013) without worrying about incurring any additional cost in IT infrastructure. On the other hand, CBS can also be implemented if the objective of the organization is to reduce the cost of setting up an IT infrastructure without compromising productivity (Beatty et al., 2001; Oh et al., 2009). Cloud-based service providers also help organizations in dealing with IT issues related to the purchase of software licenses, backup, real-time detection of system tampering, and re-constitution of servers (Love & Irani, 2004; Oh et al., 2009). Thus, the following hypothesis is proposed.

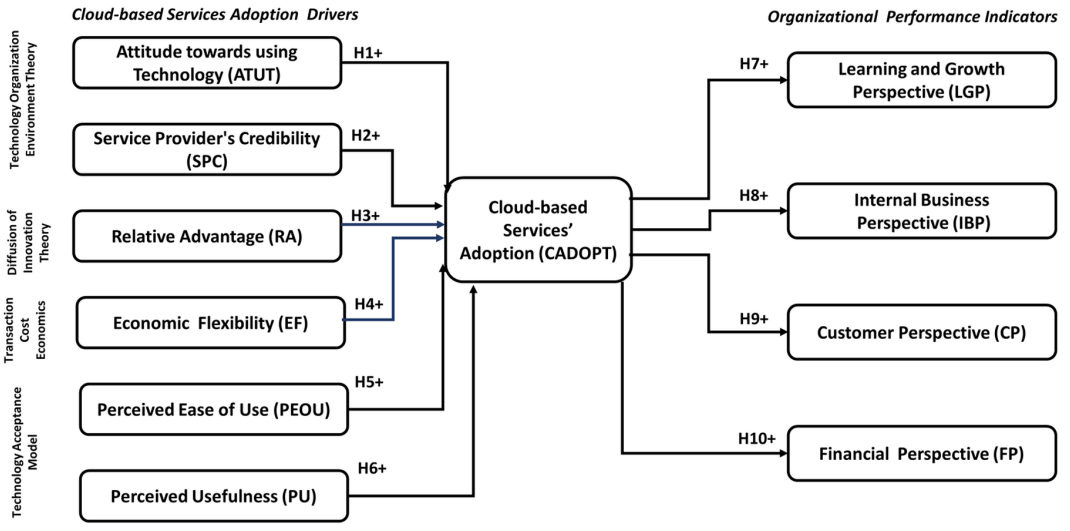
H10: Adoption of cloud-based services will positively impact the financial performance of an organization.

Figure 1 presents the conceptual model developed for this study, with six constructs identified as the drivers of cloud adoption and four perspectives to understand the impact of cloud adoption on organizational performance. Further, Appendix A represents a summary of all the constructs and measurement items and their key references.

## 5. RESEARCH METHODOLOGY

In this quantitative study, the questionnaire survey method was used to collect the data. The questionnaire for the survey was made up of three parts. The first part was designed to capture the details regarding the adoption of CBS in the respondents' organization. The second part was comprised of questions related to the measurement items (Appendix B) of the constructs, which were mixed together to minimize the response bias (Davis & Venkatesh, 1996). Finally, the respondent's demographic data, organizational data such as size, and industry, as well as the characteristics of the CBS adopted by the organizations were captured through the last part of the questionnaire. Pilot testing of the questionnaire was conducted to check the validity and reliability of the survey instrument. This pilot study was conducted in NCR of India. NCR was selected because it is the hub of businesses in north India. The pilot study was conducted over a span of five weeks, from 19 August 2013 to 10 September 2013 and resulted in the collection of a total of 48 responses. For the main study, data was collected using the cross-sectional approach during October 2013 - March 2014 and responses were collected through an online survey as well as through face-to-face interaction from respondents. These included senior managers such as the Chief Information Officers (CIO), and IT managers, consequently representing the organizational view of cloud-based services' adoption and the impact of CBS adoption on organizational performance. Stratified random sampling was used to identify those organizations that have already adopted CBS in India. In total, 900 organizations were approached for participation in this study. Of these, 362 responses were received. Preliminary screening of the questionnaires resulted in the discarding of twenty-one responses because eleven respondents selected same option on the Likert scale for all the questions, while ten questionnaires were identified as incomplete where crucial information was missing, such as demographical and organizational details. Further, data was analyzed for outliers. Univariate outliers were detected by first standardizing the variables (Kline, 2011). Cases whose standardized values fell above the absolute

**Figure 1. The conceptual model**



value of 3.29 were deemed to be univariate outliers (Tabachnick & Fidell, 2012). Five of the cases had values above the absolute value of 3.29. These cases were deleted from the data set. Multivariate outliers were detected via the Mahalanobis D2 values yielded by the SPSS program. According to (Byrne, 2009), a case is a multivariate outlier if its D2 value is very high relative to the D2 values of the other cases. Two cases met this criterion and were deleted from the data set. Thus, preliminary analysis of 341 responses resulted in total 334 usable responses, making the final response rate equal to 37.1%. The Respondents' Profile for this study is presented in Table 1.

The common method bias was addressed using Harman's single-factor test and the Common Method Factor (CMF). Harman's single factor test validated that common method variance was not a concern as eleven distinct factors with eigen value greater than one was extracted, accounting for 67 percent of total variance. The first largest factor accounted only for seventeen percent of the variance. Thus, common method bias does not appear to affect the results of this study.

## 6. ANALYSIS

PLS-SEM using SmartPLS3.0 was employed to assess the measurement and structural models the two-step Structural Equation Modeling (SEM) approach. The first step of SEM involved assessing the fit and validity of the measurement model. Second step of SEM involved assessing the fit of the structural model, and testing hypothesized relationships between the latent constructs as defined by the conceptual model of this research. The conceptual model included both reflective constructs (PEOU, PU, CADOPT) as well as formative constructs (ATUT, SPC, RA, EF, FP, CP, IBP, LGP).

### 6.1. Measurement Model Analysis

The conceptual model for this study included both reflective as well as formative constructs. Thus, data was analyzed for them separately. Table 2 summarizes the result of a reflective construct assessment for internal consistency, convergent validity and discriminant validity. Composite reliability was used to assess internal consistency of the construct and values of all the constructs were found to be greater than prescribed value of 0.70 (Hair et al., 2009). The AVE value was computed to evaluate the convergent validity, wherein an AVE value of at least 0.5 indicates sufficient convergent validity. Results for the AVE values for this study satisfy the convergent validity of the constructs. In the next step, discriminant validity of the construct was assessed using Fornell-Larcker criterion and the cross-loadings. Results presented in Table 3 establish the discriminant validity of the construct as AVE values for all the constructs are higher than the inter-construct correlations. Further additional evidence of discriminant validity is provided through cross-loadings analysis (see Table 4) where the individual loading of all items was found to be greater than their respective cross-loadings (Hair et al., 2013).

Table 5 summarizes the result of formative construct assessment. Analysis of VIFs of all the items were below 3, indicating sufficient construct validity for the formative constructs. In the next step, outer weights and outer loadings of each item were examined to assess their relative contribution and absolute contribution to the assigned construct, respectively. We observed that out of 44 items, fifteen items were not significant, whereas outer loadings of all the indicators were found significant (i.e. $> 0.5$). As suggested by Hair et al. (2014), if an item's outer weight is not significant but its outer loadings are higher, in that case, the item is generally retained. In this study, outer loadings of fifteen items were found to be relatively high (i.e. $> 0.6$) and thus, all the items are retained as they are theoretically relevant to the respective constructs.

### 6.2. Structural Model Analysis

The output of the overall structural model with hypothesized relationships is represented in Table 6. Parameter estimates demonstrate that t-values were above 1.96 for nine causal paths, i.e. H1, H2, H3, H4, H6, H7, H8, H9, and H10, confirming positive and statistically significant paths with $\beta =$ 0.297, 0.364, 0.156, 0.246, 0.157, 0.610, 0.614, 0.531, 0.623, respectively. The hypothesized path,

**Table 1. Respondent's profile for the study**

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Job Profile | | | |
| | CIO | 98 | 29% |
| | CTO | 63 | 19% |
| | IT Director | 37 | 11% |
| | IT Head | 82 | 25% |
| | Systems Manager | 54 | 16% |
| Experience | | | |
| | Less than 10 years | 40 | 12% |
| | 11-15 years | 52 | 16% |
| | 16- 20 years | 86 | 26% |
| | 21 -25 years | 94 | 28% |
| | More than 25 years | 62 | 19% |
| Organization Size | | | |
| | 250 or less employees | 242 | 72% |
| | 251 or more employees | 92 | 28% |
| | | | |
| Age of the organization | | | |
| | Established in 2006 or before | 122 | 37% |
| | Established in 2007 or later | 212 | 63% |
| Location | | | |
| | Ahmedabad | 20 | 6% |
| | Noida | 24 | 7% |
| | Mumbai | 26 | 8% |
| | Delhi | 28 | 8% |
| | Pune | 32 | 10% |
| | Hyderabad | 38 | 11% |
| | Bengaluru | 48 | 14% |
| | Gurgaon | 58 | 17% |
| | Other | 60 | 18% |
| Industry | | | |
| | IT & ITES | 92 | 28% |
| | Retail | 48 | 14% |
| | Tourism | 32 | 10% |
| | Health | 24 | 7% |
| | Banking and Finance | 18 | 5% |
| | Real Estate | 18 | 5% |
| | Healthcare | 16 | 5% |
| | Manufacturing | 15 | 4% |
| | Education | 14 | 4% |
| | FMCG | 13 | 4% |
| | Media | 10 | 3% |
| | Other | 34 | 10% |
| | | | |

H5, between the PEOU and cloud-based services' adoption (CADOPT) has $\beta = 0.002$, t-value = 0.093 and $p = 0.926$. Therefore, this path was found to be statistically not significant and thus hypothesis H5 was rejected.

Further, the output of the structural model in Figure 2 indicates that all the independent variables, i.e., ATUT, SPC, RA, EF, and PU accounted for 69.7% of the total variance in the decision to adopt CBS ($R^2 = 0.679$). On the other hand, the impact of the adoption of CBS accounted for 37.8% of the total variance in FP ($R^2 = 0.0.378$) followed by 36.5% of total variance in IBP ($R^2 = 0.365$), 36.3%

**Table 2. Result of reflective construct assessment**

| Constructs | Item | Item | Outer Loadings | AVE | α | CR |
|---|---|---|---|---|---|---|
| **Perceived Ease of Use** | PEOU1 | Easy navigation | 0.814 | 0.659 | 0.837 | 0.885 |
| | PEOU2 | Less effort to learn | 0.744 | | | |
| | PEOU3 | Less time to learn | 0.893 | | | |
| | PEOU4 | Easy to be mastered | 0.789 | | | |
| | | | | | | |
| **Perceived Usefulness** | PU1 | Support critical aspects of work | 0.832 | 0.668 | 0.876 | 0.910 |
| | PU2 | Makes work easier | 0.816 | | | |
| | PU3 | Accomplish tasks more quickly | 0.790 | | | |
| | PU4 | Enhanced job effectiveness | 0.822 | | | |
| | PU5 | Improve performance | 0.828 | | | |
| | | | | | | |
| **Cloud Adoption** | CADOPT1 | Level of adoption | 0.899 | 0.721 | 0.800 | 0.885 |
| | CADOPT2 | Duration of adoption | 0.720 | | | |
| | CADOPT3 | Percentage of IT expenditure on cloud | 0.914 | | | |
| | | | | | | |

Notes: AVE= Average variance extracted; α: Cronbach's α; CR: Composite Reliability

**Table 3. Discriminant validity–the Fornell–Larcker criterion**

| Constructs | ATUT | CADOPT | CP | EF | FP | IBP | LGP | PEOU | PU | RA | SPC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ATUT** | | | | | | | | | | | |
| **CADOPT** | 0.633 | **0.849** | | | | | | | | | |
| **CP** | 0.445 | 0.603 | | | | | | | | | |
| **EF** | 0.321 | 0.518 | 0.244 | | | | | | | | |
| **FP** | 0.431 | 0.604 | 0.455 | 0.333 | | | | | | | |
| **IBP** | 0.456 | 0.615 | 0.367 | 0.341 | 0.413 | | | | | | |
| **LGP** | 0.370 | 0.522 | 0.423 | 0.295 | 0.380 | 0.405 | | | | | |
| **PEOU** | 0.091 | 0.073 | 0.049 | 0.003 | 0.037 | 0.081 | 0.166 | **0.812** | | | |
| **PU** | 0.330 | 0.448 | 0.295 | 0.195 | 0.275 | 0.34 | 0.287 | 0.099 | **0.818** | | |
| **RA** | 0.329 | 0.478 | 0.288 | 0.294 | 0.223 | 0.342 | 0.303 | 0.077 | 0.250 | | |
| **SPC** | 0.418 | 0.648 | 0.469 | 0.271 | 0.441 | 0.442 | 0.467 | 0.061 | 0.285 | 0.308 | |

of total variance in CP ($R^2$= 0.363), and 27.3% of total variance in LGP ($R^2$= 0.273). Thus, results indicate adequate model fit between the proposed research model and the empirical data.

Cohen's $f^2$ was calculated to assess the effect size for all the significant paths (Cohen, 1988). Chin (2010) suggests that 0.02, 0.15, 0.35 are the cutoff values of $f^2$, representing small, medium and large effect size. Table 7 represents the results of effect size for this study wherein all the values exceeded the criterion of 0.02. Further prediction relevance of the model was analyzed using the

**Table 4. Cross-loadings**

| Items | ATUT | CADOPT | CP | EF | FP | IBP | LGP | PEOU | PU | RA | SPC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ATUT1 | **0.849** | 0.537 | 0.350 | 0.258 | 0.393 | 0.381 | 0.315 | 0.071 | 0.334 | 0.298 | 0.324 |
| ATUT2 | **0.748** | 0.473 | 0.295 | 0.246 | 0.331 | 0.347 | 0.238 | 0.063 | 0.177 | 0.238 | 0.316 |
| ATUT3 | **0.794** | 0.503 | 0.386 | 0.230 | 0.323 | 0.382 | 0.318 | 0.057 | 0.295 | 0.221 | 0.354 |
| ATUT4 | **0.841** | 0.532 | 0.406 | 0.315 | 0.381 | 0.337 | 0.291 | 0.045 | 0.247 | 0.265 | 0.335 |
| ATUT5 | **0.841** | 0.532 | 0.365 | 0.260 | 0.319 | 0.423 | 0.331 | 0.141 | 0.254 | 0.311 | 0.388 |
| CADOPT1 | 0.565 | **0.899** | 0.534 | 0.455 | 0.551 | 0.539 | 0.462 | 0.108 | 0.368 | 0.397 | 0.544 |
| CADOPT2 | 0.490 | **0.720** | 0.450 | 0.382 | 0.472 | 0.491 | 0.361 | 0.019 | 0.317 | 0.380 | 0.529 |
| CADOPT3 | 0.553 | **0.914** | 0.546 | 0.476 | 0.512 | 0.536 | 0.498 | 0.087 | 0.448 | 0.437 | 0.577 |
| CP1 | 0.386 | 0.489 | **0.811** | 0.171 | 0.381 | 0.346 | 0.342 | 0.009 | 0.238 | 0.242 | 0.378 |
| CP2 | 0.315 | 0.386 | **0.640** | 0.040 | 0.320 | 0.272 | 0.264 | 0.030 | 0.186 | 0.196 | 0.309 |
| CP3 | 0.335 | 0.457 | **0.758** | 0.148 | 0.384 | 0.226 | 0.349 | 0.026 | 0.216 | 0.217 | 0.373 |
| CP4 | 0.361 | 0.417 | **0.692** | 0.168 | 0.310 | 0.260 | 0.331 | 0.017 | 0.184 | 0.192 | 0.387 |
| CP5 | 0.337 | 0.413 | **0.685** | 0.155 | 0.320 | 0.291 | 0.324 | 0.092 | 0.222 | 0.230 | 0.369 |
| CP6 | 0.353 | 0.472 | **0.782** | 0.187 | 0.326 | 0.316 | 0.332 | 0.049 | 0.237 | 0.213 | 0.364 |
| CP7 | 0.332 | 0.495 | **0.821** | 0.225 | 0.360 | 0.278 | 0.307 | 0.034 | 0.240 | 0.233 | 0.350 |
| EF1 | 0.240 | 0.405 | 0.208 | **0.782** | 0.286 | 0.254 | 0.172 | 0.128 | 0.105 | 0.190 | 0.227 |
| EF2 | 0.233 | 0.350 | 0.134 | **0.676** | 0.216 | 0.246 | 0.198 | 0.043 | 0.143 | 0.200 | 0.131 |
| EF3 | 0.240 | 0.424 | 0.196 | **0.819** | 0.242 | 0.273 | 0.224 | 0.029 | 0.161 | 0.201 | 0.239 |
| EF4 | 0.272 | 0.413 | 0.215 | **0.797** | 0.317 | 0.290 | 0.245 | 0.034 | 0.145 | 0.240 | 0.228 |
| EF5 | 0.285 | 0.433 | 0.191 | **0.836** | 0.263 | 0.285 | 0.293 | 0.014 | 0.195 | 0.304 | 0.202 |
| FP1 | 0.345 | 0.447 | 0.348 | 0.214 | **0.740** | 0.299 | 0.277 | 0.007 | 0.202 | 0.144 | 0.383 |
| FP2 | 0.316 | 0.442 | 0.357 | 0.308 | **0.732** | 0.359 | 0.326 | 0.016 | 0.166 | 0.133 | 0.304 |
| FP3 | 0.370 | 0.487 | 0.370 | 0.318 | **0.807** | 0.273 | 0.313 | 0.053 | 0.223 | 0.206 | 0.346 |
| FP4 | 0.363 | 0.544 | 0.395 | 0.263 | **0.902** | 0.390 | 0.325 | 0.033 | 0.260 | 0.205 | 0.384 |
| IBP1 | 0.407 | 0.515 | 0.311 | 0.282 | 0.347 | **0.837** | 0.354 | 0.103 | 0.317 | 0.323 | 0.360 |
| IBP2 | 0.326 | 0.440 | 0.335 | 0.252 | 0.352 | **0.716** | 0.297 | 0.054 | 0.315 | 0.216 | 0.276 |
| IBP3 | 0.441 | 0.490 | 0.272 | 0.230 | 0.339 | **0.796** | 0.330 | 0.127 | 0.257 | 0.290 | 0.341 |
| IBP4 | 0.320 | 0.425 | 0.249 | 0.209 | 0.253 | **0.692** | 0.300 | 0.059 | 0.247 | 0.221 | 0.344 |
| IBP5 | 0.259 | 0.446 | 0.268 | 0.223 | 0.328 | **0.725** | 0.264 | 0.042 | 0.212 | 0.181 | 0.333 |
| IBP6 | 0.344 | 0.537 | 0.313 | 0.339 | 0.341 | **0.873** | 0.339 | 0.007 | 0.271 | 0.287 | 0.396 |
| LPG1 | 0.304 | 0.421 | 0.355 | 0.275 | 0.285 | 0.333 | **0.806** | 0.071 | 0.263 | 0.251 | 0.380 |
| LPG2 | 0.271 | 0.410 | 0.331 | 0.202 | 0.327 | 0.323 | **0.785** | 0.114 | 0.225 | 0.235 | 0.311 |
| LPG3 | 0.242 | 0.376 | 0.327 | 0.218 | 0.265 | 0.324 | **0.719** | 0.101 | 0.203 | 0.236 | 0.368 |
| LPG4 | 0.313 | 0.427 | 0.313 | 0.225 | 0.295 | 0.301 | **0.817** | 0.173 | 0.211 | 0.213 | 0.435 |
| LPG5 | 0.315 | 0.403 | 0.334 | 0.243 | 0.303 | 0.308 | **0.771** | 0.205 | 0.216 | 0.257 | 0.350 |
| PEOU1 | 0.063 | 0.047 | 0.063 | 0.007 | 0.075 | 0.076 | 0.130 | **0.814** | 0.064 | 0.015 | 0.080 |
| PEOU2 | 0.104 | 0.031 | 0.045 | 0.026 | 0.003 | 0.052 | 0.157 | **0.744** | 0.049 | 0.069 | 0.048 |
| PEOU3 | 0.052 | 0.086 | 0.036 | 0.018 | 0.003 | 0.080 | 0.153 | **0.893** | 0.117 | 0.132 | 0.052 |
| PEOU4 | 0.113 | 0.049 | 0.024 | 0.020 | 0.055 | 0.045 | 0.107 | **0.789** | 0.058 | 0.016 | 0.021 |
| PU1 | 0.287 | 0.387 | 0.228 | 0.182 | 0.253 | 0.293 | 0.258 | 0.133 | **0.832** | 0.170 | 0.234 |
| PU2 | 0.255 | 0.334 | 0.218 | 0.152 | 0.177 | 0.257 | 0.222 | 0.074 | **0.816** | 0.183 | 0.179 |
| PU3 | 0.290 | 0.379 | 0.285 | 0.124 | 0.256 | 0.314 | 0.262 | 0.086 | **0.790** | 0.200 | 0.280 |
| PU4 | 0.293 | 0.365 | 0.248 | 0.173 | 0.255 | 0.257 | 0.218 | 0.035 | **0.822** | 0.255 | 0.214 |
| PU5 | 0.221 | 0.360 | 0.223 | 0.164 | 0.175 | 0.265 | 0.210 | 0.071 | **0.828** | 0.214 | 0.253 |
| RA1 | 0.270 | 0.352 | 0.143 | 0.293 | 0.125 | 0.272 | 0.184 | 0.005 | 0.216 | **0.736** | 0.241 |
| RA2 | 0.226 | 0.364 | 0.217 | 0.202 | 0.180 | 0.296 | 0.238 | 0.053 | 0.188 | **0.763** | 0.204 |
| RA3 | 0.273 | 0.403 | 0.238 | 0.315 | 0.185 | 0.304 | 0.274 | 0.074 | 0.219 | **0.844** | 0.246 |
| RA4 | 0.293 | 0.416 | 0.278 | 0.183 | 0.205 | 0.261 | 0.258 | 0.082 | 0.201 | **0.872** | 0.291 |
| SPC1 | 0.363 | 0.550 | 0.369 | 0.200 | 0.401 | 0.312 | 0.339 | 0.038 | 0.235 | 0.258 | **0.848** |
| SPC2 | 0.333 | 0.547 | 0.384 | 0.223 | 0.349 | 0.395 | 0.421 | 0.115 | 0.199 | 0.250 | **0.844** |
| SPC3 | 0.287 | 0.461 | 0.326 | 0.202 | 0.318 | 0.384 | 0.393 | 0.096 | 0.254 | 0.236 | **0.711** |
| SPC4 | 0.353 | 0.571 | 0.430 | 0.254 | 0.387 | 0.399 | 0.402 | 0.028 | 0.265 | 0.283 | **0.880** |
| SPC5 | 0.400 | 0.546 | 0.399 | 0.243 | 0.369 | 0.406 | 0.416 | 0.088 | 0.273 | 0.232 | **0.843** |
| SPC6 | 0.352 | 0.509 | 0.367 | 0.238 | 0.377 | 0.319 | 0.396 | 0.062 | 0.228 | 0.260 | **0.785** |
| SPC7 | 0.293 | 0.476 | 0.409 | 0.197 | 0.300 | 0.323 | 0.433 | 0.096 | 0.265 | 0.212 | **0.734** |
| SPC8 | 0.306 | 0.536 | 0.418 | 0.216 | 0.336 | 0.410 | 0.435 | 0.108 | 0.246 | 0.287 | **0.827** |

**Table 5. Result of formative construct assessment**

| Constructs | | Item | VIF | Outer Weights | P-value | Outer Loadings | P-value |
|---|---|---|---|---|---|---|---|
| **Attitude Towards using Technology** | ATUT1 | Management awareness | 2.065 | 0.312 | 0.001 | 0.849 | 0.000 |
| | ATUT2 | Positive attitude | 1.902 | 0.141 | 0.123 | 0.748 | 0.000 |
| | ATUT3 | Willingness to invest | 1.889 | 0.235 | 0.010 | 0.794 | 0.000 |
| | ATUT4 | Value for money | 2.140 | 0.281 | 0.002 | 0.841 | 0.000 |
| | ATUT5 | Innovation risk | 2.308 | 0.244 | 0.019 | 0.841 | 0.000 |
| | | | | | | | |
| **Service Provider's Credibility** | SPC1 | Expertise | 2.470 | 0.257 | 0.014 | 0.848 | 0.000 |
| | SPC2 | Experience | 2.727 | 0.225 | 0.035 | 0.844 | 0.000 |
| | SPC3 | Dependable | 2.318 | 0.023 | 0.821 | 0.711 | 0.000 |
| | SPC4 | Trust | 2.696 | 0.308 | 0.002 | 0.880 | 0.000 |
| | SPC5 | Service provider's brand | 2.494 | 0.203 | 0.047 | 0.843 | 0.000 |
| | SPC6 | Response time | 2.620 | 0.083 | 0.428 | 0.785 | 0.000 |
| | SPC7 | Adapting to user's need | 2.358 | 0.003 | 0.979 | 0.734 | 0.000 |
| | SPC8 | Market uncertainty | 2.710 | 0.124 | 0.231 | 0.827 | 0.000 |
| | | | | | | | |
| **Relative Advantage** | RA1 | Less time to implement | 1.764 | 0.146 | 0.283 | 0.736 | 0.000 |
| | RA2 | Scalability of IT resources | 1.731 | 0.210 | 0.111 | 0.763 | 0.000 |
| | RA3 | Scalability of IT functions | 1.797 | 0.401 | 0.003 | 0.844 | 0.000 |
| | RA4 | Focus on core business | 1.845 | 0.452 | 0.000 | 0.872 | 0.000 |
| | | | | | | | |
| **Economic Flexibility** | EF1 | Usage based IT cost | 1.813 | 0.224 | 0.068 | 0.782 | 0.000 |
| | EF2 | Function based IT cost | 1.732 | 0.058 | 0.619 | 0.676 | 0.000 |
| | EF3 | Transparent payment system | 1.769 | 0.361 | 0.002 | 0.819 | 0.000 |
| | EF4 | IT as variable expenditure | 1.957 | 0.219 | 0.081 | 0.797 | 0.000 |
| | EF5 | Easy to change payment type | 1.914 | 0.377 | 0.002 | 0.836 | 0.000 |
| | | | | | | | |
| **Learning and Growth Perspective** | LGP1 | Innovation adoption | 1.932 | 0.275 | 0.026 | 0.806 | 0.000 |
| | LGP2 | Improvement in employee's IT skills | 1.573 | 0.338 | 0.001 | 0.785 | 0.000 |
| | LGP3 | Enhancing employee productivity | 1.647 | 0.180 | 0.107 | 0.719 | 0.000 |
| | LGP4 | Employee satisfaction | 1.996 | 0.268 | 0.046 | 0.817 | 0.000 |
| | LGP5 | Fast access to new technology | 1.773 | 0.213 | 0.079 | 0.771 | 0.000 |
| | | | | | | | |
| | | | | | | | |
| **Internal Business Perspective** | IBP1 | Easy customization of IT services | 2.129 | 0.283 | 0.006 | 0.837 | 0.000 |
| | IBP2 | Reduction in time | 1.842 | 0.093 | 0.284 | 0.716 | 0.000 |
| | IBP3 | Market opportunities | 1.845 | 0.262 | 0.009 | 0.796 | 0.000 |
| | IBP4 | Developing new products or services | 1.721 | 0.110 | 0.254 | 0.692 | 0.000 |
| | IBP5 | Improved business processes | 1.897 | 0.093 | 0.345 | 0.725 | 0.000 |
| | IBP6 | Increase business productivity | 2.018 | 0.395 | 0.000 | 0.873 | 0.000 |
| | | | | | | | |
| | | | | | | | |
| **Customer Perspective** | CP1 | Availability of IT | 2.035 | 0.297 | 0.003 | 0.811 | 0.000 |
| | CP2 | Accessibility of IT at any location | 2.062 | 0.102 | 0.309 | 0.640 | 0.000 |
| | CP3 | Accessibility of IT through any device | 1.894 | 0.276 | 0.012 | 0.758 | 0.000 |
| | CP4 | Reduction in customer service time | 1.950 | 0.074 | 0.474 | 0.692 | 0.000 |
| | CP5 | Customer satisfaction | 1.686 | 0.110 | 0.283 | 0.685 | 0.000 |
| | CP6 | Improves customer relationship | 1.875 | 0.239 | 0.024 | 0.782 | 0.000 |
| | CP7 | Increase corporate image | 1.745 | 0.367 | 0.000 | 0.821 | 0.000 |
| | | | | | | | |
| **Financial Perspective** | FP1 | Reduced IT setup cost | 1.590 | 0.229 | 0.015 | 0.740 | 0.000 |
| | FP2 | Reduction in IT operating cost | 1.670 | 0.177 | 0.080 | 0.732 | 0.000 |
| | FP3 | Increase revenue growth | 1.779 | 0.299 | 0.001 | 0.807 | 0.000 |
| | FP4 | Increase market share | 1.847 | 0.509 | 0.000 | 0.902 | 0.000 |
| | | | | | | | |

Notes: VIF: *Variance Inflation Factor*

**Table 6. Hypothesis testing results**

| *Path* | *β* | *S.E.* | *t-value* | *p-value* | *Decision* | $f^2$ |
|---|---|---|---|---|---|---|
| H1. ATUT → CADOPT | 0.297*** | 0.037 | 8.105 | 0.000 | Accepted | 0.211 |
| H2. SPC → CADOPT | 0.364*** | 0.043 | 11.008 | 0.000 | Accepted | 0.335 |
| H3. RA → CADOPT | 0.156*** | 0.035 | 4.335 | 0.000 | Accepted | 0.065 |
| H4. EF → CADOPT | 0.246*** | 0.037 | 7.850 | 0.000 | Accepted | 0.169 |
| H5. PEOU → CADOPT | $0.002^{ns}$ | 0.036 | 0.093 | 0.926 | Rejected | - |
| H6. PU → CADOPT | 0.157*** | 0.031 | 4.979 | 0.000 | Accepted | 0.070 |
| H7. CADOPT → LGP | 0.610*** | 0.033 | 13.946 | 0.000 | Accepted | 0.375 |
| H8. CADOPT → IBP | 0.614*** | 0.032 | 17.495 | 0.000 | Accepted | 0.609 |
| H9. CADOPT →CP | 0.531*** | 0.036 | 14.614 | 0.000 | Accepted | 0.571 |
| H10. CADOPT → FP | 0.623*** | 0.033 | 16.837 | 0.000 | Accepted | 0.574 |

S.E. = standardized error; C.R. = critical ratio (> [1.96]); β = standardized regression weights ns = not significant; * $p < .05$. ** $p < .01$. *** $p < .001$.

non-parametric Stone-Geisser test. In this, blindfolding procedure was followed to calculate $Q^2$ values for identifying the predictive relevance of all endogenous constructs. Results reveal that $Q^2$ values for all endogenous constructs CADOPT ($Q^2 = 0.465$), LGP ($Q^2 = 0.146$), IBP ($Q^2 = 0.208$), CP ($Q^2 = 0.184$) and FP ($Q^2 = 0.215$) were greater than zero, suggesting that all endogenous constructs had adequate predictive relevance in the model.

## 6.3. Multi group Analysis

The data was further analyzed to test the effects of the age of the organization (i.e., *years of operation*) and the size of the organization (i.e., employee size) on the data of this research. To investigate the moderating effect of the *age* of the organization on the decision to adopt CBS and its impact on the organization, the sample was divided into two groups, i.e., (1) old organizations: organizations established in 2006 or before and (2) new organizations: organizations established in 2007 or later. The findings in Table 7 indicate that the two groups, created on the basis of age, were different on three parameters. Within the sample of new organizations, service provider credibility was found to have significantly stronger influence than in old organizations (β diff (| old - new |) = 0.086, t=2.213, p<0.05). The impact of CBS on FP was found to be significantly stronger in the case of new organizations than old ones (β diff (| old - new |) = 0.135, t=2.105, p<0.05). Further, the impact of CBS service on IBP was found stronger in case of new organizations than old ones (β diff (| old - new |) = 0.147, t=1.878, p<0.1).

On the other hand, to investigate the effect of the *size* of the organization on the decision to adopt CBS and its impact on the organization, the sample was divided into two groups, i.e. (1) large organizations: organizations with 251 or more employees and (2) small organizations: organizations with 250 or less employees. The findings in Table 8 indicate that the two groups created on the basis of size were significantly different on four parameters. Within the sample of large organizations, attitude towards using technology was found to have statistically stronger influence than in small organizations (β diff (| large - small|) = 0.115, t=1.918, p<0.1). On the contrary, reverse trend was examined in the case of the impact of EF on the decision to adopt CBS. For small organizations, the impact of EF was found to be statistically stronger than for large ones (β diff (| large - small |) = 0.064, t=1.872, p<0.1). The impact of CBS on IBP and FP was found to be statistically stronger in the case of small organizations (IBP: β diff (| large - small |) = 0.238, t=2.709, p<0.05; FP: β diff (| large - small |) = 0.206, t=3.297, p<0.05) than in large organizations.

**Figure 2. Result of structural model**

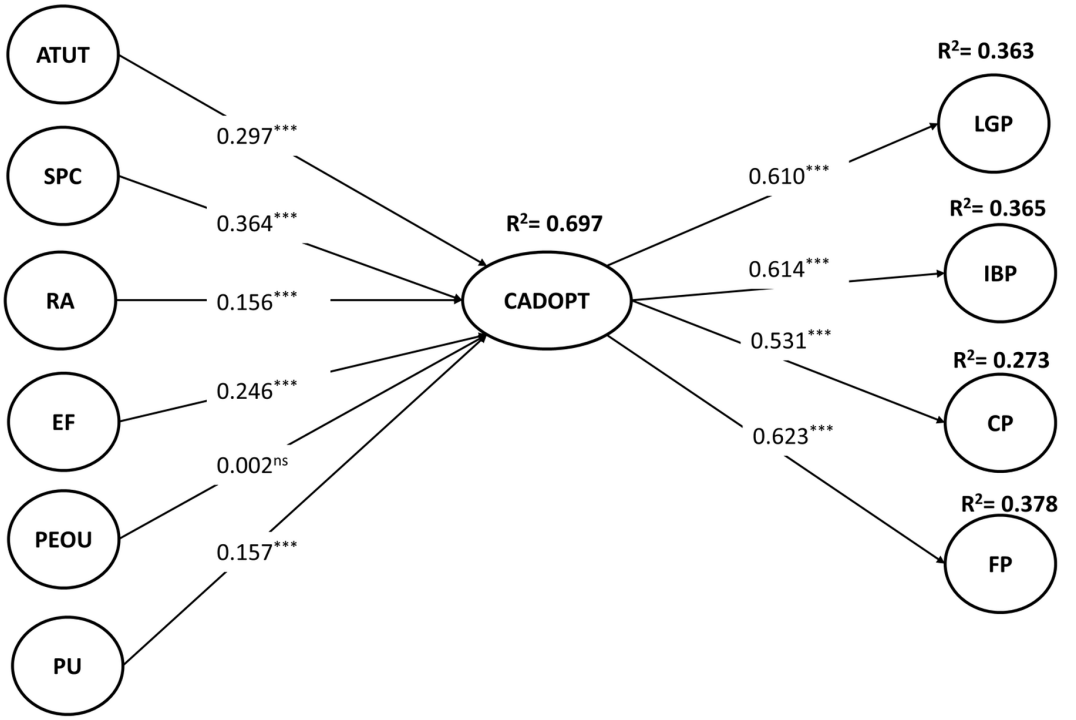



**Table 7. Multi group analysis – age of the organization**

| Path | β new (n=212) | β old (n=122) | β-diff (\| old - new \|) | t-Value (old vs new) | p-Value (old vs new) |
|---|---|---|---|---|---|
| ATUT -> CADOPT | 0.249 | 0.350 | 0.100 | 1.321 | 0.187 |
| SPC -> CADOPT | 0.391 | 0.305 | 0.086 | 2.213 | 0.026 |
| RA -> CADOPT | 0.181 | 0.075 | 0.105 | 1.506 | 0.133 |
| EF -> CADOPT | 0.252 | 0.290 | 0.038 | 0.590 | 0.556 |
| PU -> CADOPT | 0.149 | 0.167 | 0.018 | 0.297 | 0.767 |
| CADOPT -> LGP | 0.548 | 0.515 | 0.033 | 0.455 | 0.650 |
| CADOPT -> IBP | 0.661 | 0.514 | 0.147 | 1.878 | 0.061 |
| CADOPT -> CP | 0.588 | 0.670 | 0.082 | 0.997 | 0.319 |
| CADOPT -> FP | 0.668 | 0.533 | 0.135 | 2.105 | 0.036 |

## 7. DISCUSSIONS

### 7.1. Factors Driving the Adoption of Cloud-based Services

Out of six identified factors that influence the decision for adoption of CBS, the credibility of the service provider was found to be considered the most important. Results reveal that the credibility of the cloud service provider is assessed in terms of their experience, expertise, dependability, brand, ability to customize service according to customer's need, as well as capability to deal with

**Table 8. Multi group analysis – size of the organization**

| Path | β large (n=92) | β small (n=242) | β-diff (\| large - small \|) | t-Value (large vs small) | p-Value (large vs small) |
|---|---|---|---|---|---|
| ATUT -> CADOPT | 0.380 | 0.265 | 0.115 | 1.918 | 0.057 |
| SPC -> CADOPT | 0.34 | 0.374 | 0.033 | 0.483 | 0.630 |
| RA -> CADOPT | 0.185 | 0.131 | 0.054 | 0.684 | 0.494 |
| EF -> CADOPT | 0.199 | 0.262 | 0.064 | 1.872 | 0.084 |
| PU -> CADOPT | 0.136 | 0.164 | 0.028 | 0.381 | 0.704 |
| CADOPT -> LGP | 0.493 | 0.544 | 0.051 | 0.641 | 0.522 |
| CADOPT -> IBP | 0.433 | 0.672 | 0.238 | 2.709 | 0.007 |
| CADOPT -> CP | 0.593 | 0.644 | 0.051 | 0.552 | 0.581 |
| CADOPT -> FP | 0.469 | 0.675 | 0.206 | 3.297 | 0.001 |

market uncertainties related to technology. Respondents of this research disclosed that support as well as willingness of the top management in investing in technology and taking risk with new socio technological innovations encouraged them in either shifting from the existing information systems of a traditional IT platform to cloud platform or setting up a new business entirely on the cloud platform.

As compared to traditional IT services, CBS provides a relative advantage in the way they are implemented and managed. Cloud service adoption provides IT managers with the ability to immediately tap the computing power. IT resources can be easily scaled up/ down based on the business requirements with no extra efforts. Another aspect of CBS, which encourages adoption is the flexibility in terms of expenditure incurred on IT services. According to respondents, flexibility to select any payment option for using cloud-based services, be it pay-per-use, pay according to functionality or monthly subscription, makes the spending on IT a variable expense. Further, flexibility to shift easily from one payment option to another along with transparent and metered billing of CBS also influences the decision of these organizations to adopt CBS.

Though the decisions to adopt technology are considered to be drawn on an individual's perception of the usefulness and ease of use of the technology (Benamati & Rajkumar, 2008; Grandon & Pearson, 2004), the impact of their decisions will be visible on the organizational level. Thus, consistent with previous studies, analysis of data regarding the adoption of the cloud-based service implies that respondent's decision to adopt CBS was influenced by their perception of the usefulness of these services. Respondents perceive the usefulness of CBS because these services make their work easier by supporting the critical aspect of their tasks and thus help them in completing their work quickly. Further it was perceived that adoption of CBS will result in the improvement of their performance and will enhance their job effectiveness. On the contrary, ease of use was not perceived an important factor in case of CBS. This implies that respondents did not perceive the easy interface, less time and effort to learn these services, as important as the usefulness of CBS and thus weighted usefulness higher than the ease of using CBS.

### 6.2. Impact of Cloud-based Services (CBS) Adoption on the Organizational Performance

A key contribution of this study is the identification of the impact of CBS on the performance of the organizations. In this study, the impact of CBS' adoption was found strongest on the FP of the organization, followed by IBP, CP and LGP, respectively.

Results of this research provide evidence that Indian organizations that have adopted CBS have been able to adopt and implement technological innovations faster than ever before using the cloud

platform as compared to the traditional platform. Moreover, adoption of CBS has resulted in the learning and growth of the studied organizations in terms of improving the IT skills of their employees, which resulted in enhancing the employee productivity as well as employee satisfaction.

Analysis of the data suggests that Indian organizations have used CBS for redesigning their existing business processes, which resulted in the improvement of their business productivity. For example, respondents from Indian organizations working in media industries are selecting CBS over traditional IT services for streaming videos online because scalability of the cloud platform enables them to deal with spikes in demand. A number of studied Indian organizations have also used CBS for the identification of new market opportunities and developing cloud-based products and services accordingly examples include online bus ticket booking, and an online portal of local retailers.

Customer service is another aspect of CBS, which, as compared to traditional IT services, is very different in terms of availability and accessibility. A majority of respondents agreed that the adoption of CBS had resulted in 24/7 availability of customer services, along with the accessibility of customer services through any device (e.g., laptop, Tablet, or smart phone) at any location. Thus, CBS helps organizations to reach to varied user groups with a diverse assortment of devices, resulting in an improved customer relationship, reduced customer service time, and an increase in the brand image and customer satisfaction.

In this research, the impact of CBS was strongest in case of the financial performance of the Indian organizations. An analysis of responses indicates that adoption of CBS had helped organizations in the reduction of IT set-up and operational costs as compared to traditional IT services. Further, organizations assessed the impact on financial performance in terms of an increase in the market share because of the introduction of new products and services as well as new market opportunities created due to adoption of CBS.

## 8. IMPLICATIONS OF THE STUDY

### 8.1. Theoretical Implications

Theoretical implications of this research are both significant and interesting. This research contributes, in theory, by extending technology adoption drivers and linking them with the impact on the performance of the organization. Though the model is developed for CBS, it can be applied to any type of adoption of IT as a service (e.g., SaaS, PaaS, or IaaS). This research identifies that perceived usefulness is a significant factor in making a decision regarding the adoption of CBS at the organizational level. Thus, this research contributes in terms of expanding the application of the TAM model at organizations level with a view that organizational decisions regarding technology are influenced ultimately by the attitude of individuals in managerial positions. This research also contributes to theory by introducing economic flexibility as a new construct for managing the cost of technology when IT is available as a service, i.e., as CBS. According to this study, economic flexibility is identified in terms of flexibility of payment, ability to switch from one form of payment to another form easily, and the ability to monitor service usage and aligned it with payment accordingly. It is important to point out that this research identified the relative advantage of CBS over traditional IT services in terms of scalability, as well as implementation.

### 8.2. Practical Implications

The results of this research have considerable practical relevance to the organizations as well as to the cloud service providers. The decision to adopt any new technology is critical as it involves cost, time and may lead to changes in the existing business processes. Getting these resources is not possible until and unless the organization's top management supports the decision to invest. The study suggests that a positive attitude towards using technology is very important because until and unless top management is aware of the benefits an organization can achieve by the implementation or adoption

of new technology, they will not be willing to invest. Thus, managers and CIOs of the organizations who are in the process of making a decision regarding the adoption of CBS can use the results of this study to support their views/argument. It can help to convince top management by presenting the impact of the adoption of CBS in terms of an increase in learning and growth, improved internal business processes, efficient management of customer service, and improved financial performance of the organization.

In addition, results of the study suggest that irrespective of the size and age of an organization, the decision to adopt CBS requires a thorough evaluation of the economic flexibility, the relative advantages, and the usefulness of the CBS as they are significant in making the decision regarding adoption. Managers can compare CBS with the traditional IT services in terms of on-demand availability of IT services, flexible payment options, and scalability. This is significant because in this digital economy, organizations are expanding not only in terms of geography but also in their product and service portfolios. Every decision regarding change in these will impact the technology infrastructure of the organization in terms of increasing number of licenses, upgrading existing technology, and procuring new hardware, which require both time to implement and cost. Organizations are not only expanding, but they are expanding at a very fast pace, thus making changes in technology infrastructure very complex. This is where CBS can provide relative advantage to the organizations in dealing with the change, as CBS can be easily scaled up/ down and also provide flexibility in managing IT cost.

The results of this research also provide significant insights to the cloud service providers as it suggests that the credibility of the service provider is the prime concern of the organizations while making a decision to adopt CBS. Thus, cloud service providers should emphasize their expertise in managing different types of CBS, their experience in providing CBS to the organizations, and how their services are available and accessible to the customers through a diverse set of devices. The results of the study also emphasize that the impact of a service provider's credibility is stronger in new organizations than in old ones. This is also supported by the IBM study, which studied the huge adoption of cloud computing among Indian startups (IBM, 2015 July 13). Further, NASSCOM Startup Report 2014 (NASSCOM, 2014), endorses that India is the fastest-growing and third largest Start-up ecosystem, giving cloud service providers a chance to tap this opportunity.

## 9. LIMITATIONS AND FUTURE SCOPE

Even though the findings of this research are promising and beneficial, it has some limitations as do most quantitative studies. First of all, the data was collected using the cross-sectional approach for understanding the cloud adoption and its impact on the organizational performance. Future studies can use longitudinal studies to investigate the factors influencing the adoption decision as well as their impact on the organizational performance after a defined time period. Finally, four perspectives from the Balanced Scorecard model were used to identify the impact of the adoption of CBS, which can be researched further to identify and analyze the impact of CBS on these perspectives and their linkage. Additionally, future studies can also use the model to define quantitative measures to assess the impact the adoption of CBS on learning and growth, internal business process, customers, and financial performance.

## 10. CONCLUSION

The results of this research are very relevant in the current business ecosystem wherein India is witnessing a huge increase in the number of new organizations, especially startups facing the challenge to compete in the digital economy. The same is also true for the old organizations that are trying to deal with technological changes and stay in the competition. This is where the results of this research can help Indian organizations in making decisions regarding the adoption of technology

as well as evaluating the impact of technology on the organizational performance, covering every aspect of business, i.e., supplier, employees, internal business processes, customers, market, and the most important - cost.

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## APPENDIX A: CONSTRUCTS AND MEASUREMENT ITEMS

**Table 9. Constructs and measurement items**

| Latent constructs | Measurement items | Key references |
|---|---|---|
| Attitude Towards using Technology (ATUT) | ATUT1: Management Awareness<br>ATUT2: Positive attitude<br>ATUT3: Willingness to invest<br>ATUT4: Value for money<br>ATUT5: Innovation risk | Alshamaila, Papagiannidis, & Li (2013); Lian, Yen, & Wang (2014); Bunduchi, Weisshaar, & Smart (2011); Chan & Chong (2012); Low, Chen & Wu (2011); Love & Irani (2004)<br>Lewis, Agarwal, & Sambamurthy (2003) |
| Service Provider's Credibility (SPC) | SPC1: Expertise<br>SPC2: Experience<br>SPC3: Dependable<br>SPC4: Trust<br>SPC5: Service provider's brand<br>SPC6: Response time<br>SPC7: Adapting to user's need<br>SPC8: Market uncertainty | Hong & Zhu (2006); Lee, Chae, & Cho (2013); Tsai, Zhu, Ho, & Wu (2010); Benlian & Hess (2011); Chan & Chong (2012); Johansson & Ruivo (2013); Lee, Chae, & Cho (2013); Lin & Chen (2012); Cegielski, Jones-Farmer, Wu, & Hazen (2012); Alshamaila, Papagiannidis, & Li (2013); Behrend, Wiebe, London, & Johnson (2011) |
| Relative Advantage (RA) | RA1: Less time to implement<br>RA2: Scalability of IT resources<br>RA3: Scalability of IT functions<br>RA4: Focus on core business | Janssen & Joha (2011); Cegielski, Jones-Farmer, Wu, & Hazen (2012); Lee, Chae, & Cho (2013); Pagani (2006); Benlian & Hess (2011); Tsai, Zhu, Ho, & Wu (2010) |
| Economic Flexibility (EF) | EF1: Usage based IT cost<br>EF2: Function based IT cost<br>EF3: Transparent payment system<br>EF4: IT as variable expenditure<br>EF5: Easy to change payment type | Benlian & Hess (2011); Janssen & Joha (2011); Wu, Lan, & Lee (2011)<br>Researcher's own |
| Perceived Ease of Use (PEOU) | PEOU1: Easy navigation<br>PEOU2: Less effort to learn<br>PEOU3: Less time to learn<br>PEOU4: Easy to be mastered | Lian, Yen, & Wang (2014); Love & Irani (2004) |
| Perceived Usefulness (PU) | PU1: Support critical aspects of work<br>PU2: Makes work easier<br>PU3: Accomplish tasks more quickly<br>PU4: Enhanced job effectiveness<br>PU5: Improve performance | Oh, Cruickshank, & Anderson (2009); Pagani (2006); Behrend, Wiebe, London, & Johnson (2011); Wu (2011); Lewis, Agarwal, & Sambamurthy (2003); Grandon & Pearson (2004) |
| Learning and Growth Perspective (LGP) | LGP1: Innovation adoption<br>LGP2: Improvement in employees' IT skills<br>LGP3: Enhancing employee productivity<br>LGP4: Employee satisfaction<br>LGP5: Fast access to new technology | Kim & Kim (2009); Lee (2004)<br>Hagood & Friedman (2002); Wu & Chang (2012); Lewis, Agarwal, & Sambamurthy (2003)<br>Researcher's own |
| Internal business Perspective (IBP) | IBP1: easy customization of IT services<br>IBP2: time is reduced for processes<br>IBP3: Identify innovative market opportunities<br>IBP4: developing new products or services<br>IBP5: improved business processes<br>IBP6: increase business productivity | Rotchanakitumnuai (2013); Hofmann & Orr (2005); Wu & Chang (2012); Zelbst, Green Jr., Sower, & Abshire (2011);<br>Bunduchi, Weisshaar, & Smart (2011); Beatty, Shim, & Jones (2001); Grandon & Mykytyn (2004); Love & Irani (2004) |
| Customer Perspective (CP) | CP1: Availability of IT<br>CP2: Accessibility of IT at any location<br>CP3: Accessibility of IT through any device<br>CP4: Reduction in customer service time<br>CP5: Customer satisfaction<br>CP6: Improves customer relationship<br>CP7: Increase corporate image | Hagood & Friedman (2002); Pagani (2006); Rotchanakitumnuai (2013); Yang, Cai, Zhou, & Zhou (2005); Wu & Chang (2012)<br>Pagani (2006); Plouffe, Hulland, & Vandenbosch (2001); Kim & Garrison (2010) |
| Financial perspective (FP) | FP1: Reduced IT setup cost<br>FP2: Reduction in IT operating cost<br>FP3: Increase revenue growth<br>FP4: Increase market share | Bunduchi, Weisshaar, & Smart (2011); Chan & Chong (2012); Tsai, Lai, & Hsu (2013); Zelbst, Green Jr., Sower, & Abshire (2011); Lee, Park, & Lim (2013) |
| Cloud Adoption (CADOPT) | CADOPT1: Level of adoption<br>CADOPT2: Duration of adoption<br>CADOPT3: Percentage of IT expenditure on cloud | Researcher's own |

## APPENDIX B: QUESTIONNAIRE

1. For how long you have been using Cloud-based services?
   a. 3 - 6 months
   b. 7 – 12 months
   c. 13- 36 months
   d. More than 36 months
2. At what level has your organization adopted Cloud-based services?
   a. At present rely solely on cloud-based services or your ICT needs.
   b. Currently utilizes a combination of cloud-based services and internally owned IT systems.
   c. Are experimenting with cloud-based services.
3. My organization 's spending on cloud-based services (approximately) is:
   a. Less than 25% of IT expenditure
   b. 26%-50% of total IT expenditure
   c. 51%-75% of total IT expenditure
   d. 76%-100% of total IT expenditure

Response Scale: Six-point scale, with 1= "Strongly Disagree," … and 6= "Strongly Agree".

4. In my organization
   a. Management is aware of the benefits that can be achieved with the use of cloud-based services adoption.
   b. Management hence supports and encourages the use of cloud-based services for job related to work.
   c. Management hence is willing to invest in the cloud-based services.
   d. Management is willing to adopt cloud computing as they consider it as value for money.
   e. Management is ready to take risk with innovative ideas and technologies.
5. We decided to adopt cloud-based services because as compared to traditional IT services cloud-based services
   a. provide understandable and easier navigation.
   b. requires less effort to learn.
   c. takes less time to learn.
   d. can easily be mastered.
   e. support critical aspects of employee's task.
   f. makes work easier for the employees.
   g. help employees to accomplish tasks more quickly.
   h. help employees to enhanced job effectiveness.
   i. help employees in improving their performance.
6. What factors have you considered while selecting cloud service provider?
   a. Cloud service provider should be expert in what they do.
   b. Cloud service provider should have good amount of experience.
   c. Cloud service provider should be dependable in terms of providing services as promised.
   d. The cloud service provider makes truthful claims.
   e. Cloud service provider's brand is very popular.
   f. Cloud service provider should be able to anticipate and respond promptly to user request.
   g. Cloud service provider should understand and adapt to the user's specific needs.
   h. Cloud service provider should be capable to deal with market uncertainties related to technological changes.
7. Cloud based solutions provide flexibility in managing my organization's IT expenditure because

   a. The IT expenditure vary based on the usage of IT resources.
   b. Cloud service providers are further giving flexible pricing options based on the access to functionality.
   c. The billing of cloud-based services is transparent and metered.
   d. The investment in IT has become a variable expenditure on monthly/ yearly basis.
   e. It is easy to change method of payment (e.g. pay-per-use to monthly) for using cloud-based services as compared to traditional IT services.
8. In my organization we are satisfied with the cloud-based services because:
   a. Cloud-based services can be customized as our organization's need.
   b. Cloud-based services reduces time for performing business processes.
   c. Cloud-based services provides the ability to immediately tap computing power and software.
   d. We can scale-up/scale-down the usage of IT resources provided through cloud.
   e. We can easily add or remove functions from cloud-based applications as and when required.
   f. Cloud-based services allow the organization to focus more on its core business.
   g. Cloud-based services are available 24X7 to the user.
   h. For employees/ customers there is flexibility to access cloud-services in any location
   i. For employees/ customers there is flexibility to use cloud services using any media (smart phones, laptop, mobile etc.).
9. Adoption of cloud-based services have helped my organization in
   a. innovation.
   b. improving employee IT skills.
   c. enhancing employee productivity.
   d. improving employee satisfaction.
   e. Cloud-based services help in the fast access of new technology.
   f. identifying innovative market opportunities.
   g. developing new products and services.
   h. improving existing business processes.
10. Adoption of cloud-based services have resulted in the
   a. reduction of IT setup cost.
   b. reduction of IT operating cost.
   c. increase in the business productivity.
   d. increase in revenue growth.
   e. increase in the market share.
   f. reduction in customer service time.
   g. increase in the customer satisfaction.
   h. improvement in the customer relationship.
   i. improvement in the corporate image among customers.

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