

Moving To The Cloud: A Small And Medium Enterprises Perspective

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Abstract

Small and Medium Enterprises (SMEs) are a core component of any strategy designed to achieve inclusive economic growth in Asia. While SMEs recognize the benefits of technology, the sector is slow to embrace such solutions. Cloud computing has been viewed as a promising platform for such organizations. Real-life cases have shown the positive impact of cloud computing, particularly cloud enterprise resource planning (cloud ERP) on global operations. While literature expresses the potential benefit of cloud ERP for SMEs, a formal study of its adoption issues has yet to be conducted particularly in the Philippine context. This is crucial because 99.6 % of the Philippine economy is comprised of SMEs.

This work aims to uncover these issues, viewed using the Technology-Organization-Environment Theory by employing a qualitative, multiple case study approach. In-depth interviews with the chief executives were conducted. Findings indicate that the drivers are supplier's influence, level of maturity towards technology adoption, cost as free while the barriers are government control and influence, telecom industry/infrastructure, cost, knowledge, and data security. This study also revealed that cost is both a driver and a barrier from a Cloud adopter and a non-adopter perspective.

Keywords: Cloud ERP, Cloud Computing, small and medium enterprises, ICT adoption

1. Introduction

In the Asia-Pacific region, 97% of businesses are micro, small, or medium enterprises. It accounts for 70% of all jobs, but only accounts for 35% of annual global exports. SMEs are businesses engaged in any business activity in an industry, agribusiness and/or service. The definition of SMEs varies from country to country, but in the Philippines, it is based on size and assets (excluding land). Based on the 2015 statistical data provided by the Philippine Statistics

Authority (PSA), there are 900,914 establishments in the Philippines. Of these, 99.5% (896,839) are micro, small, and medium enterprises (MSMEs) and the remaining 0.5% (4,075) are large enterprises.

However, SMEs are faced with challenges related to innovation such as ICT, the lack of ability to be globally competitive, to market products and solutions based on customer needs and their inability to fully leverage the benefits provided by the digital and internet economy (APEC, 2016)]. Small businesses are typically slow to consider ICT

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solutions, and therefore fail to take advantage of opportunities to scale as it operates in a digital economy (Asia Cloud Computing Association, 2015).

The Asia-Pacific Economic Cooperation held its Small and Medium Enterprises Ministerial Meeting in Vietnam in September 2017 which focused on how SMEs from member countries can improve its competitiveness and innovation. It opines that technologies can create huge opportunities for startups like cloud computing, connectivity, artificial intelligence, and big data. More recently, APEC discussed that SMEs need to adapt, thrive and participate actively in the digital transformation which is needed for inclusive economic growth. They have cited digitization initiatives on online to offline channels, mobile-commerce, sharing of economy and Internet of Things (IoT).

In the field of ICT, there is now a growing interest in the researchers, the business community and professional organizations on the importance of using cloud ERP and assess the value of cloud ERP. Most of the academic articles lack a theoretical basis (Rodrigues et al, 2014) while early cloud ERP research papers are descriptive study. Since Cloud ERP is an emerging technology, longitudinal studies are still not available. There is also a need for practical and empirical research directly pointing to cloud ERP (Grubisic, 2013).

In addition, many of the early cloud ERP research is descriptive studies (Haddara et al, 2014; Rodrigo et al, 2014) in their analysis. There is a need for practical and empirical research on cloud ERP to avoid pitfalls and misinterpretation in the adoption of cloud ERP (Gide, 2015). While the majority of the researchers agree on the benefit of cloud ERP for SMEs in a global context (Lewandowski, 2013; Johansson, et al, 2015; Salim, 2013; Grubisic, 2013; Rodriguez et al, 2014), it is important to see how such technology can be used in the local context, as Philippine business is largely composed of SMEs.

The use of theories in SaaS business applications' impact on SMEs is also very limited and calls for more theory use. Though both Cloud ERP vendors and IT researchers agree that Cloud ERP is the next big thing, SMEs are still reluctant to adopt due to some barriers (Rodrigues et al., 2014).

Recent studies show the impact of Cloud ERP based on vendor's perspective (Chen, Liang & Yu Shu, 2014; Grubisic, 2013; Johanson & Ruivo, 2013; Seethamraju, 2014; Garverick, 2014; Johansson, Alajbegovic,& Alexopoulos, 2015) or from an IT professional perspective and not on the user's perspective such as the SMEs. It is important to understand how SMEs can embrace cloud ERP and its impact on their business, especially on the point of view of the owners and key decision-makers.

This study revealed that SMEs will adopt Cloud ERP when the subscription is free and there is pressure from an external third-party organization such as its Principal Supplier (PS). The PS' pressure on distributors to adopt cloud ERP to integrate into its supply chain is a major factor in cloud ERP adoption. This is part of the PS' goal to improve supply chain management, quickly respond to change based on customer's demand and preference, improve product quality and lower production cost. For a more organized-structured SME, the level of maturity of technology adoption within the organization and its key decision-makers drives the Cloud ERP adoption.

On the other hand, cloud non-adopters admit that it is a big challenge to understand the technology and the investment cost for successful adoption. However, SMEs are open to undergoing a free-trial period to understand and appreciate the benefits of cloud ERP.

Both the adopters and non-adopters agreed that the country needs to significantly improve its telecom infrastructure, as cloud ERP is heavily dependent on a secure and reliable internet connection. Respondents believe that the role of government

is crucial in ensuring this service is provided.

An Awareness-Adoption Road Map for SMEs using the Cloud ERP-Process View Approach is proposed to usher SMEs to the 21st century's digitally-enabled business environment. Focusing on the Awareness Stage, a road map both for the SME owners and end-users will be formed in partnership with the government, Academia, IT industry, large corporations, financial institution, and telecom companies.

2. Theoretical Framework

Some earlier studies on SaaS was a combination of Diffusion of Innovation (DOI) and TOE. In a study to explore the key factors impacting cloud-based service adoption in Indian SMEs (Gide & Sandu, 2015), the Diffusion of Innovation (DOI) theory and the Technology-Organization-Environment (TOE) framework were used as the theoretical framework. However, it failed to present the methodology used in the study. The factors described are based on previous studies as supporting literature. Though the paper served as a guide for the Indian SMEs, it failed to identify which factors are applicable to Indian SMEs.

There is another cross-sectional field study using multiple case studies on the adoption of SaaS-based ERP in India (Seethamraju, 2014) for four SMEs using the same Cloud-based ERP software. The paper was grounded on the Technology-Organization-Environment (TOE) framework and Diffusion of Innovation (DOI) theory. The study collected data from senior managers of the enterprises and implementation consultants and representatives of the software vendor who were involved in the implementation of SaaS ERP at those firms. However, the study has two limitations: (1) it is focused on one SaaS ERP vendor, and (2) the use of a cross-sectional study suffers from the limitation of drawing definitive

conclusions and findings that are embedded in context.

On the other hand, there are also related studies that focus on Technological, Organizational, and Environmental (TOE) Framework (Tornatzky & Fleischer, 1990) as the sole underlying theoretical framework. The TOE framework was used in the identification of critical success factors in the adoption of cloud computing in developing countries like Taiwan (Lian et al, 2014).

Since the identification of factors is the prime focus of the study, the author used the TOE framework as it sets a generic set of factors as the basis to predict the likelihood of technology adoption. The TOE framework is a broadly applicable theory that can be used in the study of SaaS Readiness Researchers can choose the different factors, but it is dependent on the researcher which variables to use.

TOE encompasses areas in the context of technology, organization, and environment on the firm level. The technological context deals with the internal and external technologies that are important in conducting its business process that creates value. This can be owned by the organization and sourced externally through purchase, acquisition or lease. Organization context deals with the formal and complex structure of the organization, availability of human resources and related skills and the availability of slack resources. Environment context refers to the external context to which the organization operates. This includes pressure from the competition, the availability, and readiness of the institution in which they operate like government policies, economic policies, and technological infrastructure.

3. Methodology

This research employed the discovery of new factors

related to Philippine SMEs; making use of the qualitative, multiple case study approach (Yin, 2009).

In choosing the respondents in this study, the following criteria were used: (a) use of ICT in the organization, and (b) respondent must be a key decision-maker in the adoption of technological innovation in their organization. Based on a preliminary quantitative study of the Philippine Franchise Association, a voluntary organization who shares the vision that SMEs are part of the inclusive growth through franchising. Out of the 245 PFA members, three cloud ERP adopters (CEA) and three cloud non-cloud ERP Adopters (CENA) were chosen to provide insights on their experiences while implementing cloud ERP.

The Philippines' National Economic Development Authority (NEDA) recognizes the value of franchising for developing local industries. NEDA mentioned that franchising is a means of accelerating the development of small and medium-sized enterprises (SMEs). As part of the PFA's mission, they are supporting the development of SMEs through incubation centers, make franchising affordable to SMEs, and expand the franchising concept nationwide.

CEAs are those who had implemented Cloud ERP for the last two years while CENAs are those who have not implemented nor heard about cloud computing technology. For the qualitative data collection, an in-depth interview with the Chief Executives/Managing Director was conducted.

4. Presentation and Analysis of Data

4.1 Cloud ERP Adapters

This study aims to determine the factors that will influence Philippine SMEs to adopt or not to adopt Cloud ERP. The barriers to adoption are identified as both internal and external (Tarute & Gataustis,

2014). External barriers are brought about by political and cultural issues while internal barriers are those that easily change due to progress (Ashrafi & Murtaza, 2008).

4.1.1 The Case of CEA1

Cloud ERP Adopter (CEA1) is a pharmaceutical distributor covering the metropolitan area, where SMEs account for the majority. The National Capital Region (NCR) belongs to the top five industries in terms of the number of MSMEs in 2017. CEA1 was appointed by a Filipino-multinational pharmaceutical company with operations within the Southeast Asian Region.

4.1.1.1 Drivers

External Pressure. Drawing on the TOE perspective, environment pressure was the main reason why CEA1 adopted Cloud ERP. In CEA1's case, it was a result of a coercive pressure from their PS. The project's objective was to monitor their distributor's inventory, sales, and receivables. In addition, this was done to ensure that the distributor's sell-out is within their coverage area to avoid overlap among each other.

Support from external parties is an important factor that influences adoption (Salim, 2013). From the point of view of CEA1, external pressure from their PS had a strong influence to push for Cloud ERP adoption.

Cost. A concern of SMEs is that they do not have the financial resources to invest in sophisticated software for their operation. Unless an external entity shoulders the software, they will not consider Cloud ERP.

By special arrangement on cost-sharing, the PS shoulders the Cloud ERP subscription cost while CEA1 shoulders the internet subscription, thereby, this becomes an attractive scheme for SMEs. The

cost-sharing scheme benefits both the PS and distributors because they can monitor inventory movements, sales, receivables and eliminate territorial conflict due to the geographical separation

Cloud-based ERP makes it easier for all parties within the supply chain to get visibility, no matter their location or relationship with the Principal Supplier. Moreover, sales issues could be accomplished automatically over the cloud. Due to the integration of Cloud ERP, it is easier to connect different parts inside and outside the enterprise (Elmonem et al, 2016).

Having PS and distributor in the supply chain allows them to focus on products that are fast-moving, forecast sales accurately and create a promotion for slow-moving products. In the same manner, distributors can improve their business process and adhere to the industry's best practices, thus, achieving operational efficiency. This is a competitive advantage over other SMEs, which allows them to be exposed to advanced software solutions in the cloud. These extend their marketability to other products and services.

4.1.1.2 Barriers

The barriers are factors that prevent SMEs to adopt Cloud ERP. In the case of CEA1, security is of primary concern, followed by internet infrastructure.

Security. CEA1 perspective of Cloud ERP security is about ensuring that data is kept private, with no leakage of information, trade secrets or best practices. These are confidential information that provides them leverage among their competitors. Their primary concern is protecting the confidentiality and non-disclosure of company information from their competitors, such as customer information, product offerings, pricing, and pricing structure. Part of documented best practice in the cloud-based ERP implementation is considering security concerns like data residency, user provisioning, authentication,

authorizations, and single sign-on, user activity and access monitoring, security vulnerabilities management, disaster recovery planning, due diligence, and service level agreements and incident response (Cloud Security Alliance, 2017).

Examples of such confidential information are a list of customers, product offerings, pricing, and pricing structure. When the idea of Cloud ERP implementation was presented to them by the PS, CEA1's management was worried about the accessibility of the Cloud ERP software. There was an impression that once the user name and password is disclosed, people outside of the organization can access it. However, the PS assured CEA1 that identity management and access control will be in place for security purposes. Security questions and authentication credentials are examples of these.

During the first year of implementation, CEA1 encountered problems with data protection. There were frustrating employees who had access to the data who tried to threaten the management. To solve this problem, CEA1 decided to restrict access to managers in the inflow/outflow of information from their network making their Cloud ERP more secure. As part of the security policy, lower-level employees were given access to the inflow/outflow of information internally, but they cannot send information outside of the organization. A firewall was installed to protect the application from external IP addresses.

Internet Infrastructure. Another challenge that CEA1 encountered is the country's network infrastructure. In the Philippines, internet connectivity is a problem. Unlike other countries like Singapore, Hongkong, and the US, the internet is fast and stable. CEA1 subscribed to two major telecommunication companies. However, when copper wires are disconnected due to theft (Phil star, 2018), or the telco itself encounters a problem, CEA1's operations are badly affected, in particular, sales operations.

Even though the major telecom companies already deployed fiber optic cables, CEA1 still encounters problems with internet reliability and downtime (Schneider, 2016). To overcome this problem, the use of pocket-WiFi as a source of internet back-up became handy.

On the other hand, CEA1 thinks that the flexibility of having an on-premise ERP allows any business to have more control, the ability to customize, and the system can be customized based on their unique business requirements. Because the market is dynamic, SMEs requires ERP software that is easily customizable. However, an on-site ERP requires SME to invest in hardware resources and hire IT staff, which translates to a higher cost of operations.

4.1.2 The Case of CEA2

CEA2 is a franchisor of a chain of drugstores nationwide that offers quality, affordable, generic medicines.

4.1.2.1 Drivers

In a separate, deep interview with the Chief Technology Officer of CEA2, the level of maturity among the decision-makers are the primary reason why their organization implemented Cloud ERP smoothly. CEA2's chief executives and senior managers believe that innovation is one of the keys to gain a competitive advantage. For CEA2, it was not difficult to convince the management to adopt ERP deployed over the cloud. The project was supported by organizational needs, budget and timeline, security control, and implementation strategy.

4.1.2.2 Barriers

Technology Maturity. CEA2 shared that there is a need to understand the level of maturity of the

Philippines when it comes to technology adoption. As compared to a developed country like the US, Japan, China, (PNA, 2018), the Philippines is far behind with respect to innovation. The Philippines remained 73rd of 126 economies in 2018 (Philippine News Agency, 2018).

Education. The CTO observed that the country lacks targeted education programs that encourage entrepreneurship and digital transformation of businesses. While there has been an uptake on technology incubation units with the support of the Department of Science and Technology (DOST), this has not reached critical mass. This affects the appreciation of technology's effect on business transformation and innovation.

Readiness. CEA2 also perceived that Philippine SMEs are "not into technology". For example, SMEs in the metropolitan area does not use any technology equipment/gadgets such as a laptop or smartphones in running their businesses. They are focused on the business livelihood or being an entrepreneur to make it more sustainable in the market.

From the CTO's point of view, the use of technology will start on the economic status followed by the adoption of technology in the mainstream. With the use of technology in running the business, it is expected that new opportunities will be available for SMEs.

4.1.3 The Case of CEA3

A pharmaceutical distributor located in the southern Philippine island of Mindanao. They were also appointed by a large multinational pharmaceutical company to distribute pharmaceutical products.

4.1.3.1 Drivers

Demand. For CEA3, Cloud ERP adoption was a demand from their Principal Supplier. Product evaluation, pre-qualification and awarding were

carried out by their PS and were handed down to CEA3 to implement Cloud ERP. Similar to CEA1, the subscription cost is shouldered by the PS.

Ease of Use. Currently, they are using two systems: Cloud ERP which includes Purchase Order (PO), Receiving of Delivery, Accounts Receivable (AR) and Accounts Payable (AP), Credit Memo for Purchasing and their own system. Comparing both systems, they can easily extract data from Cloud ERP while their local system can only provide raw data. Extracting data is cumbersome and requires further manipulation to get the information that they need. In addition, information such as a sell-out, inventory movement, and stocks are available in the system.

4.1.3.2 Barriers

Internet stability. CEA3 conducts its business in a highly urbanized city on the island of Mindanao. Surprisingly, telecommunication companies offered

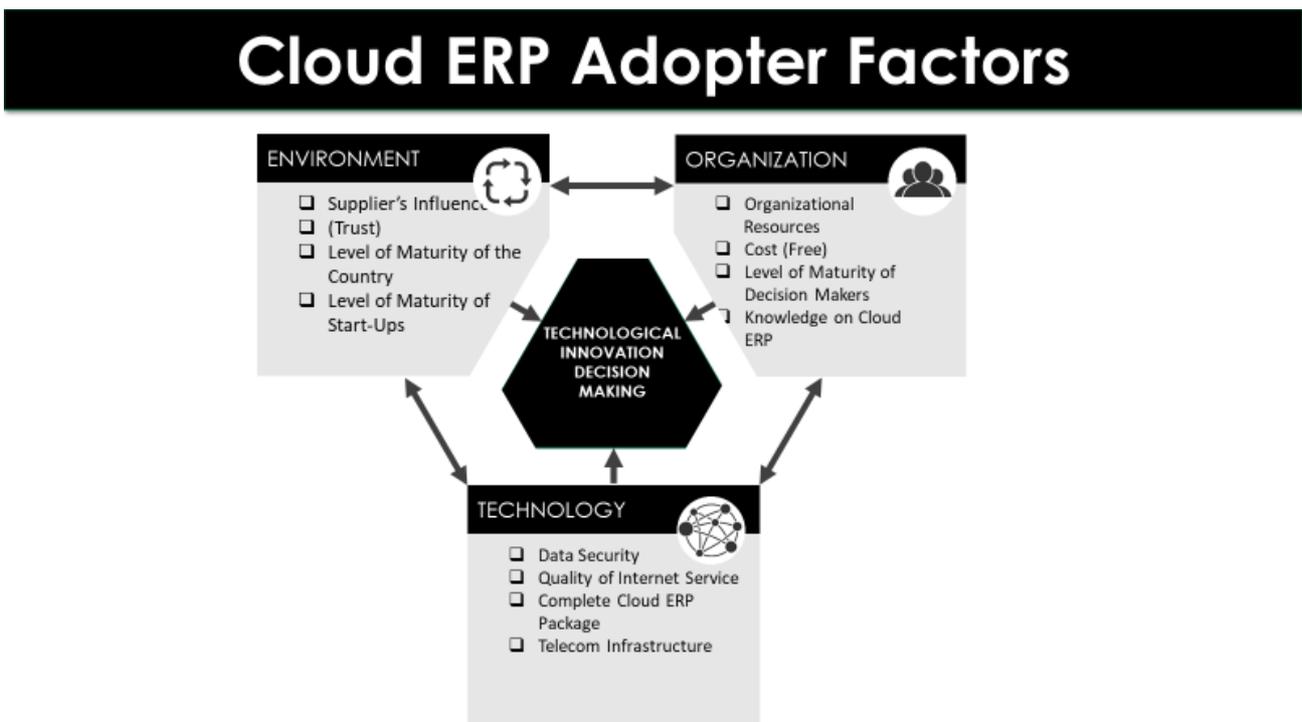
100MBPS using fiber-optic. Like CEA1, internet downtime is experienced and alternatively uses Wi-Fi as a back-up internet connection.

4.1.4 Summary for CEA

Based on the deep interview conducted with chief executives and owners who adopted cloud ERP, the TOE factors in Cloud ERP adoption can be summarized using Figure 1.

Technology factors include (1) data security, quality of internet service, complete cloud ERP package, and telecom infrastructure while organizational factors include: (1) organizational resources, (2) cost, (3) level of maturity of decision-makers on technology adoption, and (4) knowledge on Cloud ERP. For the environmental factors, it includes (1) supplier’s influence, (2) level of maturity of the country on innovation and (3) level of maturity of SMEs on technology adoption.

Figure 1. Cloud ERP Adopter Factors



4.2 Non-cloud ERP Adopters

4.2.1 The Case of CENA1

A franchisor in the pharmaceutical retail industry in the Philippines. They have three hundred franchises nationwide which offers generic, affordable medicines to the Filipino people.

4.2.1.1 Driver

Competition. CENA1 feels threatened because their competitors that use IT in its operation. They have attempted to approach the franchise on this issue, however, their franchises still prefer to use the old system as compared to a new system. CENA1 as the franchiser is optimistic that PFA and other government agencies can look at Cloud ERP and provide awareness on the benefits and costs involved in adopting such technology.

4.2.1.2 Barriers

Lack of IT Strategy. When it started, the use of information technology was not part of its business strategy. The staff used email and private messaging to communicate with franchises, and use productivity software such as Word, Excel, PowerPoint, and use Google for research. This affirms NSO/DICT's study that SMEs only uses ICT for productivity using tools like spreadsheet and word processing (DICT, 2008)

Cost. It deploys a stand-alone Point of Sale (POS) to all franchises to monitor inventory and purchasing. Since the franchise are SMEs, it avoids "additional" costs such as internet subscription fees. Even if the Franchiser would like to set an infrastructure that will connect all the franchises, the cost is a major concern unless the franchise expressed intention to implement and have enough investment in IT.

Security. According to the Managing Director, publicized incidents of hacking and other

compromises, prevent them to consider cloud-based applications. Both the government and private sectors experienced a cyber-attack which includes hacking and defacement, slowdowns, and distributed denial of service. Ensuring trust is very important, especially the confidentiality of their financial data.

4.2.2 The Case of CENA2

In a separate deep interview with CENA2, a Filipino-owned franchiser of store chains with 200 stores, 80 convenience stores, 30 big format stores, and 10 supermarkets. For CENA2, there are several reasons why SMEs are still reluctant to adopt Cloud ERP due to security issues.

4.2.2.1 Barriers

Internet Stability. The country's internet is unreliable because the telecom providers are not reliable and not yet ready. The internet is not secure because there is no redundant power systems supply available. It has upgraded its internet subscription, but this is costly and requires subscribers to maintain on a "per rack basis on a per megabyte" use. However, these limitations on the internet prevent them from rolling out their "on-premise" ERP to their convenience stores. The telecom providers have home-fiber, but the current coverage is not wide enough to satisfy the requirements of the convenience store.

Lack of Telecom Players. Even though the Philippines passed a law that prohibits monopoly, RA 10667, it is difficult for NTC to implement such a law. Currently, there are only two major telecom players in the country. Another law, the Foreign Investment Act of 1991 (RA 7042) only allows foreign-owned companies to own a maximum of 40 percent of the equity capital of the enterprises engaged in the foreign investment negative list. More recently, a third player in the telecom industry, was

awarded by the government to provide faster-reliable internet service.

Cost. SMEs have a limited budget. When SMEs are engaged, they need to consider load balancing, intrusion detection, cloud monitoring, VPN security, and when combined, this is expensive for SMEs. CENA2 believes SMEs are not yet ready for Cloud ERP. The package should be cost-effective to be offered to the SMEs and should be complete. This is a huge capital expenditure for them. SMEs cannot compromise their business name and credibility and a Cloud ERP project on a “piecemeal” approach will not work.

4.2.3 The Case of CENA3

CENA3, a franchisor of ink refilling stations in the Philippines with 12 franchises within the Philippines.

4.2.3.1 Barriers

Control. Like CEA1, control is important with CENA3. For them to use a system, control should be in place. Currently, CENA3 has a website secured with SSL to establish an encrypted link between their website and browser. So far, they have not encountered a virus on their website.

Lack of knowledge. CENA3 admits that they still lack knowledge about cloud technology and its potential. However, they are open to learning about the technology to understand the advantages/benefits of using the Cloud. Consequently, they can consider and use it.

Internet Stability. They noticed that transactions become very slow at 6 pm. CENA3 operates in a highly urbanized area in National Capital Region but still experienced the internet and application slow down. During the deep interview, it can never be avoided to compare the country’s internet speed with Singapore. The upload/download speed can easily

be experience of the user. Also, the customer experience is very important. It is observed that customers are not patient when the system does not respond due to unstable internet. Telecom companies always offer faster internet, but never improved.

Culture. Another customer characteristic is being impatient. Unlike before, people are still relaxed and can take a few moments to sit down. In earlier days, people can afford not to have a mobile phone. In fact, having a mobile phone makes a person experience more stress due to immediate concerns like family and work matters. When the mobile phone rings, the attention is diverted, and an individual cannot concentrate anymore. There is a change in lifestyle brought by technology.

While the respondent grew and studied in Europe, he observed that the lifestyle is different. Developing countries like the Philippines tried to implement a system that is primarily for Western countries. Reasonably, it is so difficult to implement such a system. He observed that European businesses have a more structured business process, that’s why technology adoption is a lot easier.

4.2.4 Summary of CENA

From the point of view of the 3 CENAs who participated in the study, technology factors include the following: (a) data security, (b) quality of internet service, (c) complete Cloud ERP package, and (d) telecom infrastructure while organization factors include the following: (a) lack of knowledge, (b) lack of understanding of the business value of Cloud ERP, (c) cost, (d) organizational structure, and organization resources while environment factors are: (a) customers influence, (b) government and private support, (c) culture, (d) and government control (Figure 2).

4.3 Common Factors Between Cloud ERP Adopter and Cloud ERP Non-Adopter

The common technological factors found between CEA and CENA are: (a) data security (b) quality of internet service, (c) complete Cloud ERP package and (d) telecom infrastructure. The organization factors are (1) organizational resources, (2) cost, (3) knowledge

about Cloud ERP, and (4) business value of Cloud ERP. And lastly, environment factors include: (1) telecom industry, (b) government control, and (c) influence (customers and suppliers) (Figure 3).

Figure 2. Cloud Non-ERP Adopter Factors

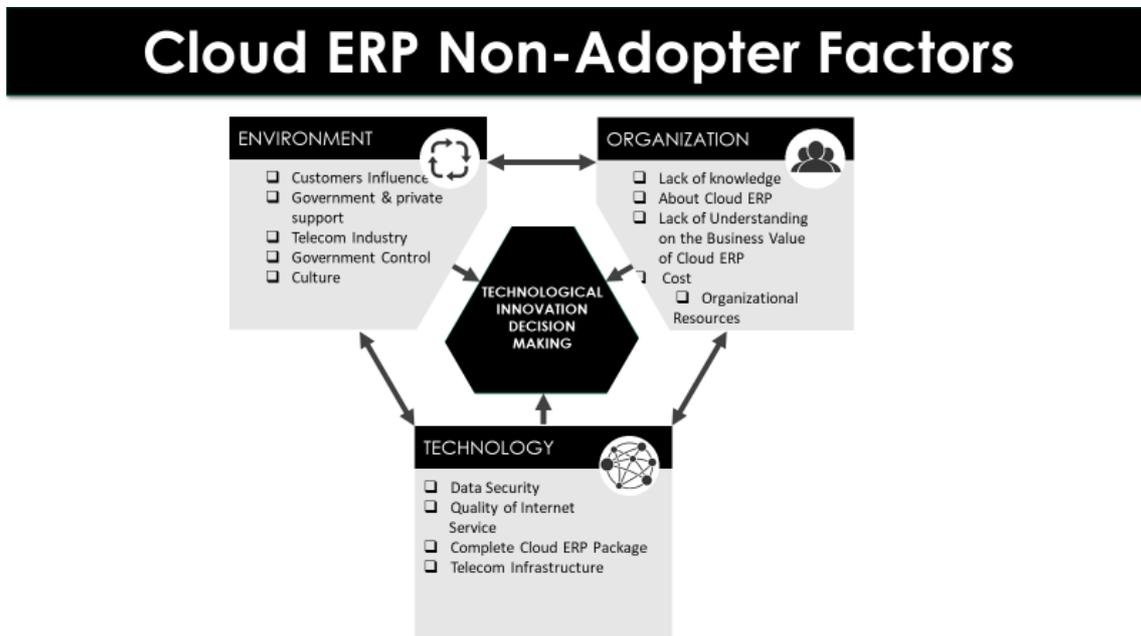


Figure 3. Common factors between Cloud Adopter and Cloud Non-ERP Adopter Factors

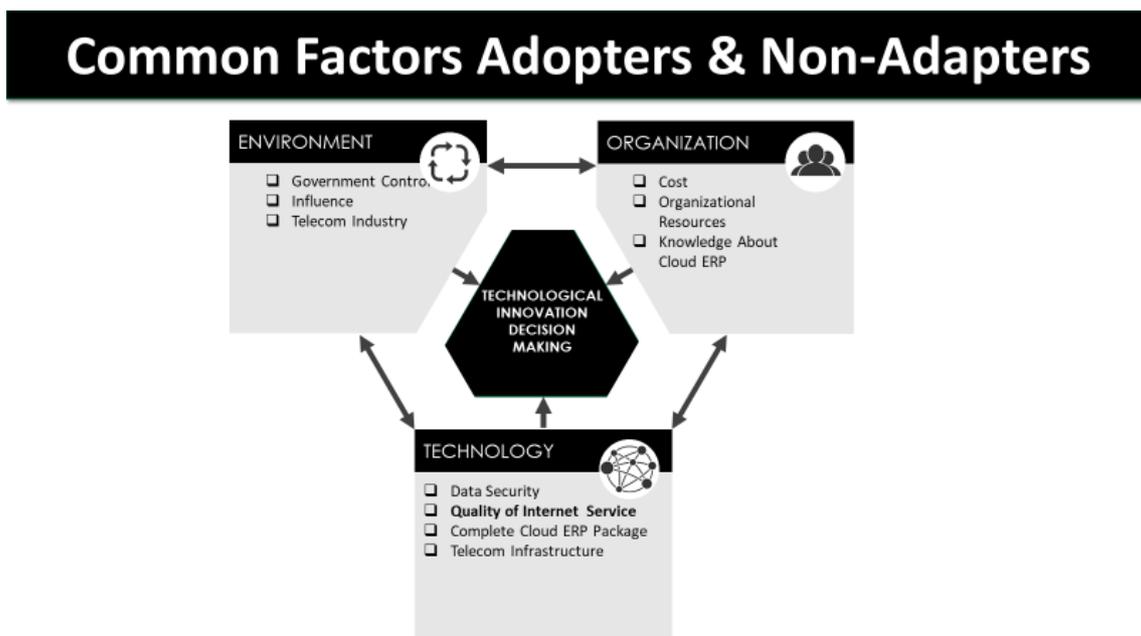
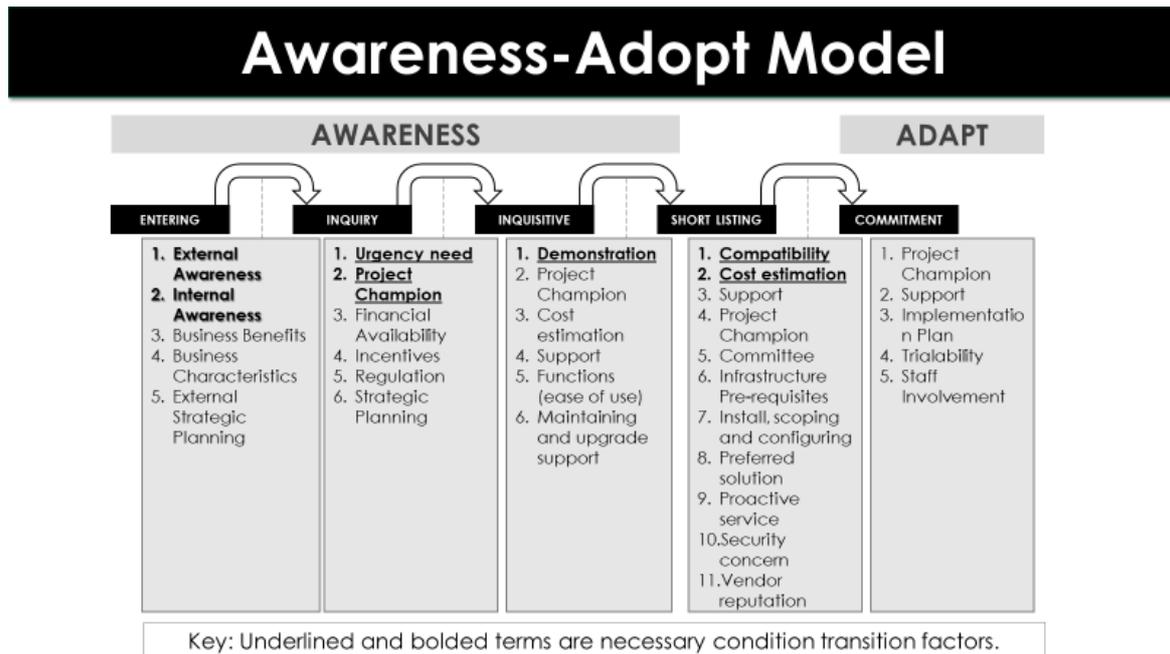


Figure 4. A Priori of Cloud ERP Adoption Framework



Source. Adopted from “Cloud ERP Adoption-A Process View Approach” by Salim, 2013

5. Conclusion

Philippine SMEs always view themselves as a growing company that is responsive to the changing of the business environment. Admittedly, the majority of them have not considered IT as a tool that should be part of their competitive advantage. The barriers and drivers have a strong influence on the adoption of Cloud ERP in the Philippine context.

6. Recommendation

This study recommends an Awareness-Adoption Road map (AAR) for the SMEs to adopt Cloud ERP. Using the Cloud ERP Adoption-A Process View Approach (Salim, 2013), which clearly explains the transitional factors that an SME will undergo when deciding whether to adopt or not adopt Cloud ERP. Also, Salim’s process view was made specifically to develop a process framework for cloud ERP adoption. However, the recommendation will

be focused on the Entering Phase, the internal and external awareness (Figure 4).

Below are the transition phases:

First, the SME will realize an external awareness (information provided by vendors or business affiliations) and internal awareness (recognition of the firm’s needs). Presence of a lack of knowledge of the owner or manager. Afterward, curiosity begins and understanding the business benefits, business process and strategic planning are considered enough indicators.

Second, an inquiry from the organization’s representative (business, manager or project champion) will begin to gather relevant information. The organization’s representative starts to become familiar with the product/s, pay attention to the advertisements, and find the most appropriate vendor and product so that they can ask more specific questions.

Third, SME will become inquisitive and more specific and informational questions will be asked. The potential ERP and cloud vendor will be asked to provide the product demonstration. A demonstration is needed to introduce some of the

most important functions, ensure the compatibility of the system with the firm's business model, and answer specific questions in relation to the product. Queries regarding estimation costs, support, and other system functions will also be raised during this phase.

Fourth, a short Listing will happen where the firm's representative will attempt to screen available product and vendor choices.

Fifth, the SME will enter a commitment where the firm members will express their agreement to buy and adopt the system.

The Internal Awareness Phase involves collaboration with the PFA, DTI-BSMED, and the academia to educate the SMEs about the Cloud technology adoption, and business benefits while the External Awareness involves participating in the Global Value Chains which may involve their Principal Supplier's participation in terms of financial support on the subscription cost for the Cloud ERP, which is like the experience of CEA1 and CEA3. Buy-in support of the Chief executives can be through CEO/CEO/CTOs Forums organized by well-known SMEs advocates like GoNegosyo and PFA with the help of CEA2.

The Adoption Phase will involve the IT Industry, Telecom Players, and Financial Institutions to come-up with the implementation approach and financing scheme for the SMEs. The IT Industry can propose an implementation methodology that is fit to the SME skills and capabilities, a Cloud ERP software that addresses the basic requirements but flexible enough to address future requirements. ISP/Cloud ERP vendor to provide a secured data center that protects the confidentiality of data. The telecom industry can come-up with a stable-cost effective Internet subscription plan with back-up options for continuous operation in case of internet disruption. Financial institutions can propose a financing scheme that will allow SMEs to pay for the subscription cost.

Following on Singapore's Infocomm Media Development Authority's SMEs Go Digital, a similar approach will be proposed (Infocomm Media Development Authority, 2019).

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