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Investigating Cloud ERP Adoption in Australian Higher Education Institutions: A Case Study

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Abstract

Background: Some higher education institutions (HEIs) are constantly under pressure to deliver superior quality education services at low costs through deploying traditional on-premise systems. Cloud-based enterprise resource planning (Cloud ERP) presents an ideal opportunity to lower HEI costs in terms of scalability and pay-per-use features. Adoption of Cloud ERP is, however, still low for the context of HEIs. The successful adoption of Cloud ERP depends not only on the support of system providers but also on understanding Cloud ERP adoption from the client organization perspective. This study explores Cloud ERP adoption in the context of Australian HEIs.

Method: This study adopted a case study methodology involving the in-depth semi structured interviews of several key stakeholders. Thematic analysis was used to analyze and interpret interview data.

Results: Based on the case study, our findings suggest that this particular Australian HEI was subject to strategic, operational, technological, and financial motives originating from either internal or external locus. Most of the expected motives were realized, except the full flexibility of Cloud ERP. Four major challenges of Cloud ERP implementation were found.

Conclusion: This study empirically investigates Cloud ERP adoption in HEIs by identifying the motives, realized benefits and challenges of Cloud ERP adoption, which bridges the research gap of this topic. This study could assist Cloud ERP providers to adjust their marketing strategies to promote the adoption rate of Cloud ERP in HEIs. Understanding the motives, challenges and benefits of IT adoption in HEIs facilitates judicious decision-making prior to selection and minimizes the possibility of the failure of Cloud ERP adoption.

Keywords: Cloud ERP, Adoption, Higher Education Institutions, Australia.

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Introduction

Enterprise Resource Planning (ERP) systems are information systems designed to support all business processes across an entire organization by providing them with a comprehensive set of functions (Peng & Gala, 2014). While traditional ERP has been widely adopted in the past few decades, its implementation is always perceived as challenging because of high implementation costs, change management issues, and the complexity involved in the implementation process itself (Ranjan et al., 2016). The rise of Cloud Computing (CC) has altered the ways in which systems are offered, obtained and utilized (Li et al., 2019). It has been claimed that Cloud ERP, provided on the Software-as-a-Service (SaaS) model, is an attractive alternative to solve the ongoing problems of traditional ERP adoption and operation (Mezghani, 2019).

The advantages of Cloud ERP systems have led to the widespread implementation of such systems across many business sectors. According to Mijač et al. (2019), ERP systems that are Cloud-based or hosted in the Cloud have contributed to the increase of client organization market share from 23% to 51% between 2015 and 2019. Furthermore, the global market of Cloud ERP has shown a continuous growth of the Cloud ERP market and is expected to exceed USD 37.7 billion by 2024 (AlGhazzawi, 2020). This suggests that migration from on-premise traditional ERP to Cloud ERP is progressing rapidly. While a considerable and ever-increasing body of research focuses on Cloud ERP adoption in the business sectors (e.g., financial services and manufacturing), few studies about Cloud ERP adoption have focused on the context of higher educational institutions.

Higher Educational Institutions (HEIs) depend heavily on IT for content delivery, communication and collaboration (Huang, Oliver, & Anwar, 2022b). Furthermore, the increasing uptake of students by HEIs requires better IT infrastructure to facilitate the provision of affordable education; thus, resource management is a critical concern for HEIs because of the fast pace of IT technology change. This concern is unlikely to be solved by an on-premise system since it has to meet several conditions, such as adequate initial capital, necessary resources and a comprehensive maintenance plan (Qasem et al., 2021). Cloud ERP is a good option for HEIs to maximize their resources and deliver excellent service by offering the necessary infrastructure, storage and software (Huang, Rahim, et al., 2021). The coronavirus (COVID-19) pandemic affected HEIs, but Cloud ERP enabled educational countermeasures to continue the education process (Qasem et al., 2020). As a result, Cloud ERP is not only an alternative option but also an essential solution for HEIs.

Generally, Cloud ERP in HEIs is increasing in popularity, but it is still lagging other sectors such as the commercial sector (Qasem et al., 2020). In addition, the adoption rate of Cloud ERP in HEIs varies by country. For example, Australia's adoption rate is lower than the US adoption rate by a year or more because organizations have some concerns about implementation (Senarathna, 2016). While some existing literature has studied different aspects of Cloud ERP in Australia from the perspective of business sectors, little attention has so far been given by scholars to investigating Cloud ERP adoption in the context of educational institutions. Thus, many aspects of the technology adoption in this sector may not be fully understood. According to Kamhawi (2008), investigating the motives, challenges and realized benefits are considered crucial to improve the adoption rate and help organizations increase the successful implementation rate. Since these aspects of Cloud ERP adoption have not been fully understood in the context of HEIs, these results could be considered inspiration for current and potential Cloud ERP implementers in HEIs, especially concerning the motives (future objectives) for their projects, the benefits expected to be realized and, finally, the challenges to expect. Understanding these questions could also help HEIs build better business cases for their new project proposals (Kamhawi, 2008).

The outcomes of this understanding for the HEI context may differ from that of business organizations. Different industries are likely to exhibit different motives for Cloud ERP adoption because of the potential variation in understanding the importance of such systems by senior business managers (Oliveira et al., 2014). Existing research about Cloud ERP motives was mostly undertaken in the US and a few European countries (e.g., Boillat & Legner, 2014; Picek et al., 2017). The formation of motives for technology adoption is complex, and various factors can influence such formation (Palacios-Marqués et al., 2015). According to Saadé et al. (2009), Asian and Western countries have different systems of thought rooted in their respective national cultures. The motives for Cloud ERP adoption reported in those few studies are to be revisited for their appropriateness to other contexts. Furthermore, compared to traditional hierarchical organizations where decision-making follows a strict line of control, HEIs are likely to be loosely coupled systems with components that function together but exhibit significant independence from each other (Okunoye et al., 2008). As such, the challenges HEIs face in achieving educational benefits from Cloud ES implementation differ from those of business sectors but are no less difficult. However, research on the adoption challenges of Cloud ERP in HEIs is scarce.

The paucity of studies about Cloud ERP adoption among Australian HEIs hinders understanding about how and why it is needed to improve the adoption practices of such systems. As a result, this paper aims to provide insights into Cloud ERP adoption in Australian HEIs by identifying motives, challenges and the realized benefits of Cloud ERP adoption. The following research questions are thus addressed, the outcomes of which will assist in devising appropriate strategies for promoting Cloud ERP adoption practices in the context of Australian HEIs:

RQ1: What are the motives for Cloud ERP adoption in Australian HEIs?

RQ2: What are the challenges of Cloud ERP adoption in Australian HEIs?

RQ3: What are the benefits expected from the adoption of Cloud ERP in Australian HEIs?

To address these questions, a case study of the implementation of Cloud ERP in an Australian university was undertaken. Findings will: a) contribute to the scientific knowledge towards the unexplored area of Cloud ES adoption in Australian HEIs by identifying the motives, realized benefits and challenges of Cloud ERP adoption; b) assist Cloud ERP vendors, consultants and service providers in understanding user needs in HEIs. This information will help them develop and introduce effective marketing strategies or new systems to promote the adoption rate of Cloud ERP in HEIs, especially in the Asia-Pacific region; c) assist intending adopters in HEIs to produce reasonable estimates of expected benefits and help to determine the most appropriate adoption decision.

The remainder of this paper is organized as follows. The next section provides a brief review of the relevant literature followed by discussion of the research design. Data analysis and findings are then presented and discussed. The final section concludes the paper and outlines the next phase of the research project.

Background Literature

Cloud ERP systems represent a popular phenomenon; however, relatively scant attention has so far been given by scholars to understanding Cloud ERP adoption in the context of HEIs. Literature relating to the issues raised by the research questions is briefly summarized below.

Cloud ERP

The structure of organizations has become more complicated than ever. ERP systems are considered an effective tool to break down information barriers between departments (Jiang

& Wang, 2022) by removing the “silo mindset” of business managers. Cloud ERP systems represent a significant technology in today’s working environment for three reasons. Firstly, these systems provide organizations with an ease of scalability to attain strategic flexibility and competitiveness through offering resource pooling and resource elasticity (Tripathi & Mishra, 2019). Secondly, since these systems are hosted and managed by Cloud ERP vendors, organizations can quickly implement them without performing software installation and set-up operations (Huang, Oliver, et al., 2021). Thirdly, organizations can concentrate on their core competencies and services by outsourcing the ERP operation to the Cloud (Abd Elmonem et al., 2016). Additionally, Cloud ERP is an attractive option to adapt to the COVID-19 environment when staff in organizations are required to conduct their work activities remotely. Cloud ERP, with high accessibility and mobility features, can bring and connect all information anywhere and anytime, which can enhance organizations’ operational performance during COVID-19 (Tongsuksai et al., 2021).

Cloud ERP is significantly different to traditional ERP. For example, the process of implementing traditional ERP takes a considerable amount of time for infrastructure preparation, system installation and the recruitment of specialist staff to handle all required IT tasks. In comparison, the time needed for Cloud ERP implementation is shorter as customer needs can almost be covered by out-of-the-box system functions, and there is no hardware procurement necessary (Al Hayek & Odeh, 2020). Additionally, traditional ERP is highly customizable to adapt to business needs. Customization in traditional ERP is secure and can be applied to the clients’ production environment immediately. However, Cloud ERP only allows customization to a certain extent and is subject to multiple considerations (e.g., project budget and timelines) (Al Hayek & Odeh, 2020; Huang, Anwar, et al., 2021). As a result, the motives, realized benefits and challenges of traditional and Cloud ERP might be different.

Organizational Motives

Motives and drivers were sometimes used interchangeably by researchers; however, these two concepts have different meanings. The Cambridge Dictionary (<https://dictionary.cambridge.org/>) defines “motive” as the willingness to do something or something that causes willingness, whereas “driver” is defined as a planned effort to achieve something, indicating that an organization first conceives a motive for information and communication technology (ICT) applications adoption. The presence of drivers simply facilitates the adoption of ICT applications once that organization has already conceived a motive for adoption. Thus, it can be argued that without a motive, the presence of drivers may not necessarily lead to the organizational adoption of ICT applications.

The definition of the organizational motives for the Cloud ERP adoption context followed by this paper was developed by Huang, Anwar, et al. (2021, p. 10): “Motive represents expected business value (business benefit) that drives the organization to initialize cloud ERP systems, and it includes various aspects like strategic, operational, financial, technical from both the internal and external locus”.

Organizational Motives for Cloud ERP Adoption

Few studies have empirically discussed organizational motives for the context of Cloud ERP adoption. Key information about these papers is shown in Table 1.

Table 1 – Summary of Organizational Motives for Cloud ERP Adoption

Authors	Country	Industry type	Motive type			
			Strategic	Operational	Technical	Financial
Saeed et al. (2012)	Sweden	Manufacturing, service, accounting	e.g., Provides flexibility for business innovation	e.g., Scalable on demand	e.g., Provide automatic upgrades	e.g., Low capital expenditure
Garverick (2014)	US	Manufacturing, service, accounting	e.g., Provides flexibility for business innovation	e.g., Scalable on demand	e.g., Provide high technical reliability	e.g., Low capital expenditure
Boillat & Legner (2014)	Switzerland	Service	e.g., Enabling business innovations	e.g., Service process efficiency	e.g., IT complexity	e.g., Low initial investment
Picek et al. (2017)	Croatian	Manufacturing, service, sales	e.g., Faster and easy implementation	Not mentioned	e.g., Easy to upgrade	e.g., Low initial investment
Chang & Hsu (2019)	Multinational	Cloud service provider	Not mentioned	e.g., Ease of use	e.g., Privacy risk	e.g., Low initial investment
Chang (2020)	Taiwan	Telecom	e.g., Industry pressure	Not mentioned	e.g., System quality	e.g., Financial advantage
Huang, Anwar, et al. (2021)	Australia	Manufacturing, service	e.g., Provides flexibility for business innovation	e.g., Scalable on demand	e.g., Provide automatic upgrades	e.g., Low capital expenditure

Saeed et al. (2012) provided the earliest study that generated a unified framework for motives and barriers for Cloud ERP adoption. Their framework includes three types of motives with relevant indicators: a) Strategic motive is reflected in terms of faster time to market, opportunity to concentrate on core business and flexibility for business innovation; b) Operational motive is reflected as low capital expenditure, scalability and reduced IT costs; c) Technical motive is described in terms of automatic upgrades and high technical reliability. Garverick (2014), in his doctoral research, has further empirically evaluated Saeed's framework by conducting interviews and a survey of 110 US companies. Most indicators were supported by the findings, except the indicator "automatic upgrades". Furthermore, Huang, Anwar, et al. (2021) adapted Saeed's framework for the Australian context based on 40 vendor case studies. They identified eight motivation categories, each with its motive indicators (e.g., provides flexibility for business innovation). The taxonomy is presented in Figure 1.

Type of motive \ Locus of motive	Internal motives	External motives
Strategic motives	Motivation Category I	Motivation Category II
• Provides flexibility for business innovation		
• Faster time to market for products and services		
• Allows users to concentrate on their core business	Motivation Category III	Motivation Category IV
Operational motives		
• Scalable on demand		
• Offers solutions to diversified business IT complexity	Motivation Category V	Motivation Category VI
Technical motives		
• Provide high technical reliability		
• Provide automatic upgrades	Motivation Category VII	Motivation Category VIII
Financial motives		
• Reduced IT costs for the enterprise		
• Low capital expenditure		

Figure 1 – The Taxonomy of Motives for Cloud ERP Adoption Developed by Huang, Anwar, et al. (2021).

Compared with studies by Garverick (2014) and Saeed et al. (2012), who characterized motives using a single attribute only (i.e., type of motive), Huang, Anwar, et al. (2021) introduced the locus of motives in their taxonomy and found each type of motive could be categorized in terms of internal or external locus. For example, the scalability of Cloud ERP is expected to satisfy the growing business of the organizations (i.e., internal motive) and manage a large number of external requirements (i.e., external motive). The internal locus is evident when the motivational triggers were conceived by the key stakeholders (e.g., functional managers, managers) within organizational boundaries when facing pressing issues with business growth and business inefficiencies. On the other hand, the external locus was evident when the triggers creating motivational demands for considering Cloud ERP adoption emerged in response to pressure arising from the customer community and powerful external business partners (Huang, Anwar, et al., 2021). In addition, some indicators were removed from the original taxonomy developed by Saeed et al. (2012), such as “pressure to keep up with competitors” and “low capital expenditure”. One additional type of Cloud ERP motive was identified from the findings (i.e., Cloud ERP offers solutions to diversified business IT complexity), suggesting that Saeed et al.’s (2012) framework is not found to be applicable to every context.

All existing studies about Cloud ERP adoption motives focused on private sectors such as manufacturing and service. For example, Boillat and Legner (2014) examined the motives for Cloud ERP adoption by large service organizations in Switzerland. Several motives (e.g., enabling business innovations, IT complexity, and IT cost reduction) were identified in their case studies. Picek et al. (2017) analyzed Cloud ERP adoption motives for Croatian manufacturing companies and reported three key reasons that motivated organizations to adopt those systems: low initial investment, availability, and ease of upgrade. However, the existing literature suggests the motives for Cloud ERP adoption might vary according to the sector (Oliveira et al., 2014). For example, the motive “owning a single system for pre-sale and after-sale” was only mentioned by service organizations in Switzerland by Boillat and Legner (2014).

Researchers paid more attention to Western countries such as the US and Switzerland. Few studies have been conducted in the Asia-Pacific region. The Asia Cloud Computing Association (ACCA) Readiness Index (2020) assessed the readiness of 14 countries within the Asia-Pacific region based on 10 quantitative parameters (e.g., infrastructure, security) to learn about how prepared nation states are to implement Cloud computing. The report suggests Cloud readiness is advancing in the region, but the pace of progress is stalling. For example, Australia dropped from fourth position in 2018 to sixth in 2020 (ACCA). This downward trend suggests that Cloud adoption by Australian organizations is still not motivating for adoption compared with other countries. According to Isma'ili and Zahir (2017), the motives for Cloud ERP adoption may differ in terms of context. For example, ease of upgrade is considered a motive for Croatian companies to adopt Cloud ERP based on the findings of Picek et al. (2017), whereas the study of Garverick (2014) excluded this motive after conducting the survey in Switzerland.

Organizational Motives for ERP Adoption in HEIs

Few studies about motives for ERP adoption have focused on the context of HEIs. Chang and Wills (2013) conducted case studies in the UK and identified five motives for universities to adopt CC: a) the reduction of environmental and financial costs; b) the capacity to make experiments more repeatable; c) the facilitation of workload sharing with partner organizations; d) the accessibility of the system and data; and e) the flexibility feature and the aspect of pay-as-you-go. In addition, Tortorella and Fries (2015) conducted a qualitative study in a public university in the south of Brazil to identify the motives for ERP adoption and identified four categories of motive: integration, process, decision-making and complexity. Their findings also suggested that some motives are different to the motives in other industries because of the unique characteristics of HEIs, such as the academic processes. The study of Odeh et al. (2017) suggests CC adoption in Jordan HEIs are motivated by cost effectiveness, ease of use, decentralization and management support.

According to Zamzeer et al. (2020), Cloud ERP is the buzz phrase, which is finding its application in almost every area, including HEIs, and is regarded as a powerful enabling tool for HEIs. For example, the efficiency of Cloud ERP can help HEIs keep pace with the requirements for ever-growing resources and energy costs (Bulla et al., 2016). The immense potential to derive monetary benefits and business value from Cloud ERP is perceived as an important opportunity to solve the challenges (e.g., reduced government funding, increased expectations from stakeholders) faced by HEIs (Das & Dayal, 2016). Although HEIs are still considered in the "early adopter" stage of diffusion with respect to Cloud ERP adoption, this domain can benefit immensely by deploying this system (Das & Dayal, 2016). In addition, HEIs are unique organizations, different from other business corporations in several ways, such as limited measurability of outputs, the complexity of purpose, and diffuse structure and authority (Das & Dayal, 2016; Huang, Oliver, & Anwar, 2022). Prior studies have demonstrated Cloud ERP adoption has different motives across different sectors (Oliveira et al., 2014). Therefore, it is important to devote specific research attention to understanding the motives for Cloud ERP adoption in HEIs.

The Challenges of Cloud ERP Implementation

According to Jiang et al. (2019), the implementation of Cloud ERP is not just a case of deploying a new technology but also entails the redesign of business processes and organizational structure. Organizations have significant concerns regarding some of the challenges resulting from Cloud ERP implementation that hinder the implementation (Li et al., 2019). A considerable number of studies have focused on the challenges of Cloud ERP implementation in private sectors. For example, Awan et al. (2021) investigated the challenges faced by Pakistani SMEs and found 10 possible challenges (e.g., security, customization) of

Cloud ERP that influence its implementation. According to Huang, Oliver, Rahim, et al. (2022), the main challenges of Cloud ERP implementation include data security, customization, network failure, service level agreement, and long-term cost. According to Strong et al. (2006), the challenges HEIs face in achieving educational benefits from Cloud ERP implementation differ from those of business organizations, but are no less problematic. Compared to traditional hierarchical organizations where decision-making follows a strict line of control, HEIs are likely to be loosely coupled systems with components that function together but exhibit significant independence from each other (Okunoye et al., 2008).

Although the aforementioned papers concentrate on HEIs, none of them comprehensively investigated the challenges of Cloud ERP implementation in this sector. Akin et al. (2014) discussed the challenges of moving collaboration services (email, calendar, Google Docs) to CC after surveying public universities in South West Nigeria, while Al-Shqeerat et al. (2017) mainly investigated the security challenges universities face in implementing CC technology; however, they did not mention any specific Cloud-based systems. El Mhouthi et al. (2018) identified the challenges of introducing CC into e-learning (connectivity weakness, Cloud privacy and security issues). None of these researchers mentioned any specific Cloud-based systems. Huang, Oliver, and Anwar (2022) identified the challenges of Cloud ES (i.e., Cloud CRM, Cloud procurement) implementation in an Australian HEI. For example, ongoing upgrades are considered a challenge in this study although most of the existing research (e.g., Abd Elmonem et al., 2016) suggests that ongoing upgrades are one of the benefits of Cloud ES systems. Considerable planning and testing are needed to ensure the success of ongoing upgrades in HEIs. This sector is comprised of very diverse departments and faculties; thus, it takes much more time to convince people from different backgrounds (e.g., researchers, students) who have their own specific ways of working to accept new changes. This study also suggests that the challenges of Cloud ES might be different in terms of different Cloud ES systems because of their specific characteristics. For example, external user engagement is considered a challenge for Cloud procurement only in this study. It is challenging to convince all suppliers to adopt a Cloud procurement system which provides a one-size-fits-all process. Furthermore, it is necessary to understand related challenges to successfully improve the motivations of adopting Cloud ERP and achieve the promised benefits (Alsharari et al., 2020; Huang, Oliver, Rahim, et al., 2022). Accordingly, it is necessary to understand the challenges of Cloud ERP systems' implementation in the context of HEIs.

Realized Benefits of Cloud ERP Implementation

Very limited studies explicitly focus on the HEI context; most studies about the benefits of Cloud ERP implementation have focused on the business context (Ali et al., 2018). For example, Gupta, Kumar, et al. (2018) investigate the impact of Cloud ERP adoption on the market and the operational performance of various Indian business sectors (e.g., financial and consulting sectors) by deploying a dynamic capability view theory. Their findings suggest that Cloud ERP services positively impact an organization's operational and market performance. Gupta, Kumar, et al. (2018) adopted the contingent resource-based view theory to investigate the relationship between the impact of Cloud ERP adoption on organizational performance in Indian business sectors (e.g., shipping companies) and found Cloud ERP services have a positive impact on both the financial and market performance of an organization. According to existing literature, current studies are expected to improve in two ways: firstly, most studies rely on the survey-based approach for empirical validation; it would be more insightful to understand the relationship between Cloud ERP implementation and its impact by conducting interviews (Gupta, Qian, et al., 2018); secondly, adopting the theoretical lens may contribute to assumptions about both identified variables and relationships; further explorative empirical investigation should be conducted to avoid this limitation (Gupta, Kumar, et al., 2018; Khand & Kalhor, 2020).

According to existing literature, motives for Cloud ERP adoption are the expected benefits that drive the organization to initialize Cloud ERP systems (Lin, 2007; Schubert & Williams, 2009).

Achieving the expected benefit from IT investments ranked as one of the most critical issues overall for organizations of all sizes (Schubert & Williams, 2009). However, prior studies provided little insight into the distinction between variations in the motives to adopt Cloud ERP and how these different motives shape the assessment of the realized benefits of Cloud ERP implementation. For example, is the expected benefit realized at the outcome of the project, or is it an unanticipated benefit that appears during implementation? Existing studies include little focus on whether, or to what extent, these benefits match the expected benefits as described in the case organization. Understanding this distinction will be beneficial for prospective adopters to have the appropriate IS portfolio decisions and produce reasonable estimates of expected benefits (Barnden, 2003). Unlike business sectors, the Cloud ERP adoption rate in HEIs is relatively low. According to Soliman and Noorliza (2022), identifying the benefits of Cloud ERP could increase adoption by HEIs.

Research Gaps

The literature review demonstrated the importance of analyzing Cloud ERP adoption in Australian HEI contexts. Previous research showed that understanding organizational motives, challenges and realized benefits is likely to impact the system adoption, implementation and use (Rahim et al., 2006). The ACCA Readiness Index (2020) suggests that the pace of progress in CC adoption in the Asia-Pacific region is slowing. Even though research on Cloud ERP adoption is emerging, very little has been conducted in this context, especially in Australia. In addition, prior studies on Cloud ERP adoption have been conducted in various industries, but did not discuss adoption in the context of educational institutions. This is significant because it has been argued that industry type influences IT activities and decisions due to differing business requirements for IT services (Demlehner & Laumer, 2020; Kauffman et al., 2018).

Research Approach

The project adopted a qualitative methodology using in-depth semi-structured interviews to derive the motives, challenges and realized benefits of Cloud ERP adoption in HEIs. This methodology was chosen for three reasons. First, the concept of Cloud ERP is still at an “early adopter” stage in Australian HEIs. Not many HEIs have successfully adopted, implemented and benefited from Cloud ERP. Therefore, it is difficult to identify a statistically significant number of respondents necessary for quantitative research. Second, most prior studies have used a qualitative approach based on semi-structured interviews to understand this topic better. Qualitative methods are ideal for studying Cloud ERP adoption at this stage since they are considered an appropriate way to understand people and organizations’ views, actions, and reasons in depth (Saeed et al., 2012). Third, it is important to directly communicate with the interviewees in order to collect more insightful and comprehensive information and dig deeper into the overview of Cloud ERP adoption than is possible by analyzing vendor case studies (Das & Dayal, 2016).

A case study is defined as a research strategy that examines a phenomenon in its natural setting and allows the researchers to collect information from one or multiple entities by using various data collection methods (Yin, 2003). According to Chetcuti (2008), the intention of adopting a single case study is not to present the world but to present the case under study. The possibilities of compatibility resulting from case studies should not be associated with the number of case studies but with the adequacy in the analysis of the phenomenon (Outhwaite & Turner, 2007). A single case study typically involves a small sample population for arriving at an in-depth investigation (Gustafsson, 2017; Yin, 2009).

A single case study is reported in this paper. The unit of analysis in this study is the Cloud ERP system. The case study was chosen based on the following criteria: 1) The university had successfully implemented a Cloud ERP system. 2) The implementation project

experienced implementation challenges and had realized benefits. 3) The condition of the case university could represent other Australian universities in terms of organization structure and size.

Semi-structured qualitative interviews were used in order to facilitate understanding of the statements given by the interviewees regarding their context and background. In addition, this method provides an opportunity for real-time interaction and conversation between interviewers and interviewees to understand, clarify and explore the issues and concepts effectively (Das & Dayal, 2016).

Data Collection

University X (U1) was selected as the location for this case study because it has successfully implemented a Cloud ERP system and represents a very complex organizational environment as it is one of the largest universities in Australia. We targeted the key stakeholders who were involved in the decision-making process during Cloud ERP adoption and implementation. Four interviews from U1 were performed with an approximate average time of 45 minutes per interview. The interviewees were representative of different stakeholders in the adoption and implementation process as it was important to interview people with different roles to elicit diverse responses related to understanding, perception and conceptualization of an innovation (Das & Dayal, 2016). In total, four interviews with high involvement during Cloud ERP adoption in U1 were conducted. The role of the interviewees is shown in Table 2.

Table 2 – Participants Interviewed		
Code	Department	Participant's Role
P1	Project team (university side)	Program director
P2	IT (university side)	Architect
P3	Consultant company	Consultant director
P4	University side	CC expert/user

Research Instrument

The interview consisted of four sections (see Appendix for an outline of the interview protocol). The first section consisted of general questions about the interviewees' roles in the organization and in Cloud ERP adoption. The second section asked about Cloud ERP systems, such as the reason for selecting a particular type of Cloud ERP and the functions of the system. The third section focused on the Cloud ERP system itself, the motives for its adoption, the challenges during implementation and the benefits realized post implementation. The final section asked about the people involved in the adoption process, such as external consultants, to help us identify any further possible interviewees. Participant consent was obtained for each interview.

Data Analysis

Thematic analysis was applied for analyzing and interpreting interview data. The process of the thematic analysis followed by researchers (e.g., Peng & Gala, 2014) started with reviewing each transcript and highlighting some potentially significant points (Ponelis, 2015). This stage can enable researchers to familiarize themselves with the data and organize the data. After becoming familiar with the data, we searched for the data with meanings and interesting patterns and took notes. After coding, a list of codes was sorted into different themes motivated by similarities in the codes. The themes in this research are the motives, challenges and realized benefits. These themes were reviewed, and some of them were merged into one. Regarding defining the motives, the indicators of motives identified by Huang, Anwar, et al. (2021) were primarily considered. For example, this extract "Partly because we wanted to secure the future of the product. We wanted to make sure that we didn't have to maintain the infrastructure... we don't have that infrastructure risk" is relevant to technical reliability, so the

existing motive indicator was used as the theme for it: “provide high technical reliability”. Otherwise, we defined new indicators inductively according to the coded texts in the data if there were no relevant existing indicators.

Findings

U1 provided an excellent environment for understanding the Cloud ERP adoption phenomenon. The university has successfully adopted some Cloud ERP modules into the organization, including HR, finance and student management. Three topics (motives for Cloud ERP adoption, challenges of Cloud ERP implementation and realized benefits of Cloud ERP implementation) were identified from the interview data.

Motives for Cloud ERP Adoption

While the analysis was influenced by findings from the literature, it is important to remain open-minded to preserve openness to the data (Walsham, 1995). The taxonomy of Cloud ERP motives developed by Huang, Anwar, et al. (2021) was used to guide the identification of motives for Cloud ERP adoption for three reasons: a) The taxonomy was developed based on the Australian context, which could reduce the influence of national culture on the results; b) Motives might change over time but this taxonomy is the most recent; c) The taxonomy was developed based on other studies so provided a good basis for comparison with the literature. The interview data showed that the motives identified for the Australian HEIs context reflected most of the indicators and categories of Cloud ERP adoption motives identified by Huang, Anwar, et al. (2021): internal and external strategic motives, internal and external operational motives, internal technical motives and internal financial motives. The taxonomy was refined and is shown in Figure 2.

Locus of motive Type of motive	Internal	External
Strategic	Internal strategic motives • Provide flexibility for business innovation (source: adapt to U1 requirements and structure)	External strategic motives • Provides flexibility for business innovation (source: adapt COVID-19)
Operational	Internal operational motives • Scalable on demand (source: satisfying increasing internal demand) • Offers solutions to diversified business IT complexity (source: help with some integrations, reduce resistance from users) • The failed implementation experience of on-premise systems (new) (source: satisfy digitalization, user-friendly feature)	External operational motives • Scalable on demand (source: meet external accessing needs)
Technical	Internal technical motives • Provides high technical reliability (source: meet internal technical requirements)	External technical motives (not mentioned)
Financial	Internal financial motives • Reduced IT costs for the enterprise (source: financial burden)	External financial motives • Reduced IT costs for the enterprise (source: low income because of COVID-19)

Figure 2 – The Refined Taxonomy of Motives for Cloud ERP Adoption for HEIs Context

The characteristics of each indicator are discussed below:

Strategic Motives

Cloud ERP provides flexibility for business innovation: This motive was mentioned several times by interviewees. Participant P1 said, “We spoke to the CTO of the vendor. They’re talking about infusing artificial intelligence into the core to do transactions ... you may even be able to put transactions on things like the blockchain so that in the future...” and

They have quite comprehensive user forums where they work with customers ... if there’s something that’s not working for people, they want something new, then usually you can get into some sort of backlog, and get those things rolled out in a subsequent release. (Participant P1)

This indicates Cloud ERP constantly offers IT innovation by introducing new technologies and responding to users’ requirements. Some reasons are quite unique to the HEI context. According to Participant P2, Cloud ERP is quite flexible to adapt to U1 requirements and its organizational structure because

Cloud ERP is incredibly flexible in the way you can configure them ... you can actually build charts of accounts or organization structures or whatever you want in the system you’re interested in. You might have academic organizations, you might have financial organizations, and you can configure those things for the business. (Participant P2)

For example, U1 has a fairly complex model around how they pay their casual staff. Unlike normal organizations, individuals could hold multiple positions across an HEI (Participant P3). Participant P4 also mentioned: “They need the system help to enhance the student experience and employees experience overall through adapting to online working and teaching”. For example, U1 expected Cloud ERP to support flexible working:

We need a system that staff can access anywhere and anytime, so they can put their time at home, they don’t have to be in the office, they don’t have to connect to VPN, they don’t have to do any of that stuff, they don’t have to submit to have a special security setup (Participant P3).

Therefore, U1 was motivated by both internal (adapt to U1 requirements and structure) and external (enhance the student experience) motives.

Operational Motives

Cloud ERP is scalable on demand: U1 considered this motive an internal motive for the adoption of Cloud ERP to satisfy their increasing demands. From an internal stakeholder perspective, Participant P1 stated that “We were looking for a cloud environment with features that can scale to satisfy the university’s needs”. The external stakeholder P3 supported P1 and elaborated that “Their current landscape footprint didn’t quite meet the needs anymore ... they have additional campuses now [overseas] etc. So, they just basically identified that they needed a more global model to meet their increasing demand”. It was also considered an external trigger for U1 as well. Unlike other types of organizations, HEIs (U1) have more requirements for systems in certain specific times. In order to satisfy needs during those periods, U1 has to purchase more memory or disks if they use on-premise ERP, which is not cost-effective. However, Cloud ERP with the pay-per-use pricing model provides a solution. According to Participant P1, “Universities have a big enrolment period. Everyone wants to know what their results are at one time. Everyone wants to access something. There are just

distinct periods. So, you've got some flexibility in how you scale". As a result, U1 was motivated by both internal (satisfy increasing internal demands) and external (meet external accessing needs) motives.

Cloud ERP offers solutions to diversified business IT complexity: U1 was driven by this motive internally. Participant P1 suggested that "We were looking for a system that could help with some integrations that we wanted to be able to do for separate systems". Participant P2 further elaborated: "The separate systems enabled our staff to visit HR and finance systems individually. It was time-consuming to merge and produce a report because these systems had different data formats". U1 was also looking for a system which could reduce the resistance from users. According to Participant P4, Cloud ERP could also reduce business IT complexity because of its user-friendly features. Cloud ERP is developed based on the experiences of a large number of customers worldwide; thus, users can spend less time adapting to a new system when it is introduced. Participant P3 also mentioned:

Cloud system invested so much in the user interface and experience and a nice little app that does certain things ... The change (introducing Cloud ERP to the organizations) isn't really scary to people, because it's just like the way every app works ... (Participant P3)

Furthermore, U1 was looking for a user-friendly system because of having failed implementation experience with on-premise systems before. It would be more challenging to change people's working habits from the manual processes to the entire digital realm if the interface was not user-friendly ("The failed experience made us realize the importance of having a high user-friendly system") (Participant P2).

Technical Motives

Cloud ERP vendors provide high technical reliability: Participant P2 suggested: "We were looking for someone with professional knowledge and skills to look after the system since we experienced a significant security breach and rebuilt a lot of systems before". Participant P1 also stated that "Partly because we wanted to secure the future of the product we wanted to make sure that we didn't have to maintain the infrastructure... So, we don't have that infrastructure risk". Given the infrastructure of Cloud ERP is maintained by high technical expertise and well-trained IT personnel from the vendor side, the stability and availability of the resources (e.g., infrastructure) can be guaranteed even during the most intensive periods (Saeed et al., 2012).

Financial Motives

Reduced IT costs for the enterprise: U1 was driven by this motive. According to Participant P1, U1 experienced difficulties in retaining people with the appropriate technical knowledge and skills:

Some technologies are very hot in the HEIs, people go through and spend two years of their life understanding the technology adoption and implementation in a way for the HEI's context. Every other HEI that subsequently wants to copy. These people become very valuable employees. We were trying to retain them by raising their salary, but it increased our financial burden ... at the same time, our financial situation experienced a hard time because of the reduced student number. (Participant P1)

Participants P3 and P4 also said that "What were the options for the university to consider was reducing overall cost, and then they could put more money on their core services". As a result, U1 was motivated by both internal (e.g., retain existing staff) and external (e.g., reduced student number) motives.

Benefits of Cloud ERP Implementation

While the benefits of Cloud ERP implementation have been discussed in the existing literature, their findings still suggest organizations do not always achieve the benefits that they expect from their system implementation (Schubert & William, 2009). In order to have the appropriate business's IS portfolio decisions and produce reasonable estimates of expected benefits for potential adopters, it is critical to take into account the variations between motives for Cloud ERP adoption and the realized benefits of Cloud ERP implementation (Barnden, 2003). The most important benefits that resulted from Cloud ERP implementation in U1 have been identified. Table 3 lists the realized benefits and compares them to the motives (mentioned in the previous section).

Table 3 – The Realized Benefits of Cloud ERP Implementation and the Comparison with Motives for Cloud ERP Adoption

Motives (expected benefits)	Realized benefits	Quotes
Cloud ERP provides flexibility for business innovation	Partially realized this motive through: <ul style="list-style-type: none"> • adapting to the lockdown issue during COVID-19 • allowing staff and students access anywhere and anytime 	<ul style="list-style-type: none"> • "... One of the beautiful things about Cloud system. Because basically, anyone with a web browser can get into it ..." (Participant P2) • "The benefits are in COVID. And going live with a cloud system is, it supports working from anywhere, right in terms of Workday ... It's a cloud based online system that you can access anywhere you can access any mobile app ... remote working arrangements, which is really good." (Participant P3) • "... people not used to getting up and going to a meeting room ..." (Participant P2)
Cloud ERP is scalable on demand	This motive was realized through: <ul style="list-style-type: none"> • scaling to satisfy the university's needs 	<ul style="list-style-type: none"> • "It's very configurable and adjustable and flexible." (Participant P4) • "After the vaccination requirements came out around institutions, they were able to turn around in a week, a configuration set for them to track their employees vaccination status ... they just were able to configure and create a solution within a week and test it and then deploy it ..." (Participant P3)
Cloud ERP offers solutions to diversified business IT complexity	This motive was realized through: <ul style="list-style-type: none"> • having an integrated system • having a user-friendly system 	<ul style="list-style-type: none"> • "It's a lot more user friendly. A lot clearer about how to operate things." (Participant P4) • "It's certainly a much pleasanter interface ... it's a lot easier to navigate." (Participant P1) • "... they've (Cloud vendors) invested so much in the user interface and experience and a nice little app that does certain things ..." (Participant P2) • "People have got a lot more access to the HR and finance system than they had before." (Participant P3) • "You have a lot of integrated services ... So you don't have to merge reports ... the management information you can get out of it is a lot better. And a lot more complete..." (Participant P1) • "You don't have a bespoke finance system and expense system. It's all within one system, there's no integration framework that you need to worry about." (Participant P3)

Table 3 – The Realized Benefits of Cloud ERP Implementation and the Comparison with Motives for Cloud ERP Adoption

Motives (expected benefits)	Realized benefits	Quotes
Cloud ERP vendors provide high technical reliability	This motive was realized through: <ul style="list-style-type: none"> • having a quick response time • providing security 	<ul style="list-style-type: none"> • “To our cybersecurity event, it’s been on the cloud does give us that sense that it is secure.” (Participant P1) • “It is responding a lot more quickly. So, its response time is really quick.” (Participant P1)
Reduced IT costs for the enterprise	This motive was realized through: <ul style="list-style-type: none"> • saving IT costs 	<ul style="list-style-type: none"> • “I think probably financials ... we pay yearly licensing fees for these products ... there’s the financial type benefit overall.” (Participant P1)

The existing literature suggests there is a discrepancy between the motives for Cloud ERP adoption and the actual realized benefits of Cloud ERP implementation. Apart from expected benefits, organizations also usually realize some unexpected benefits during Cloud ERP implementation (Hawking et al., 2004). Three unexpected benefits mentioned in this case are shown in Table 4.

Table 4 – Unexpected Realized Benefits of Cloud ERP Implementation

Unexpected benefit name	Definition	Quote from interview data
Self-service provisioning	Cloud ERP enables users to have more power to make decisions with self-service portals and allows users to participate more actively in the business process, thus realizing cost reduction for the process execution (Zhong & Rohde, 2014)	<ul style="list-style-type: none"> • “Users are able to do a lot more self-service. So they don’t have to put requests in to get something done, they can self-serve those requests ... you reduce the number of things that have to be done either in a HR department or a finance department, people can self-serve and those sorts of things.” (Participant P1)
Visibility	Cloud ERP facilitates easy access to important information in organizations through making data available to all levels (Alsharari et al., 2020)	<ul style="list-style-type: none"> • “... visibility of the employees now and the visibility of their financials in their budgets now is vastly increased ... Employees have much more access and information at their fingertips around ... its access to information the data is much richer ...” (Participant P3) • “They were able, like the talent module ... you can track where employee skills are ...” (Participant P4)
Easy to update	The Cloud ERP vendors are responsible for updating the system on a regular basis and thus clients do not have to do this on their own. Updated Cloud solutions accomplished faster than on-premise ERP (Ali et al., 2018)	<ul style="list-style-type: none"> • “If something changes, something needs to be updated, it’s one change within workday. It’s not changing 15 different integrations.” (Participant P3)

Challenges of Cloud ERP Implementation

The challenges of Cloud ERP implementation cannot be underestimated, since understanding and preparing for these challenges is vital for organizations to successfully implement Cloud ERP and realize the benefits (Ranjan et al., 2016). According to Peng and Gala (2014), failure to identify the challenges of Cloud ERP implementation can lead to substantial financial loss

and reputation damage in client organizations. The major challenges faced by U1 are identified and discussed here.

Change management: This challenge was mentioned by all participants as a challenge to implement Cloud ERP in U1. Four reasons contribute to this challenge: a) It took a significant amount of time to convince people from different backgrounds to change their habits. P4 stated that

The people challenge is quite significant ... everyone in the organization about how you train and make change appropriately is really hard ... So I think there are a lot of people challenges in being able to move from one thing to the next thing without there being drama. (Participant P4)

P1 emphasized that

I think one of the biggest things that we see within organizations is that level of change. And within higher education, it can even be worse, because there's lots of resistance to change. So it's just how do you both convince the business and academic areas within the organization that the change is good ... a large part of the change resistance can come from the academic world. (Participant P1)

b) P3 has noticed that unique organization structure made change management more complex; "Higher education can have a very complex delegation of authority constructed in terms of who can approve what funding, especially in the academic side, that can get very challenging." Participant P1 specified that

It's very common within higher education for the schools/faculties to act like their own business units, almost like mini conglomerate subsidiaries, where the head office is the conglomerate. And each of those can act as in their own business and create their own processes. So, it's not uncommon to go in and see five different processes and hire, or five different ways that you can raise appeal, because they all have different processes and policies that they've created, because they do have some sort of autonomy. If you're going for wholesale transformation, that can have a massive impact on an organization. (Participant P1)

c) Inflexibility of the system led to partial misalignment with the expectations of managers. Participant P2 mentioned that

If you haven't got the executives, the leaders of those functions are completely and utterly aligned. So what happens is, when you have the new world and the old world, the old world is like an empire that strikes back. And so we had a lot of problems through the implementation whereby the old world, they dragged their feet, or they wouldn't accept requirements. So all they question requirements that have been coming up with the new team. And so there was a real tension there. (Participant P2)

COVID-19: Three participants pointed out that COVID-19 provided some challenges for Cloud ERP implementation. Firstly, Participant P2 commented on the financial and human resource problems regarding implementation, such as "The project was nearly canceled. so that had a significant financial impact on the organization ... So there was a real financial impact of COVID 19. that we were going to be down" and

University's priorities were different because of COVID-19. They had to concentrate on their business and make sure their business maintained itself. So that caused a big impact on the overall program. A lot of our members on the program had to turn around and dip back into the business to support. (Participant P2)

Secondly, Participants P1 and P4 explained that it was challenging to communicate and work under COVID-19:

We had to sort of learn to work as a team remotely, and it's probably took the last couple of years for us for everyone to actually work out how to use the tools and technology to be able to work as a team. (Participant P2)

Thirdly, Participant P1 also stated that

A lot of the EBA and contract policies don't have, weren't around virtual working and virtual, how do we support virtual staff? So you know, it was challenging to create brand new processes on them in a short time, like how does an employee request an external monitor? (Participant P1)

Integration: Two participants perceived integration as a challenge for Cloud ERP implementation. Participant P1 noted the integration challenge in terms of the interface problem:

There's the integration challenges that we had as well. So when you're moving from existing interfaces that might have happened on premise, you move to a cloud environment, you have to make sure that same interface works on the cloud environment ... particularly with financing and HR. So we had to do a lot of new integrations and a lot of redoing integrations in order for them to optimize the interface over a cloud environment. (Participant P1)

Participant P2 further specified that

Security is a big one. So you have to make sure all those interfaces have been secured. The various bridges, IT environments ... And then you move to virtualized machines ... And depending on where your data center is, but there is always a latency and a security overlay. (Participant P2)

Less flexibility of the system: This challenge was revealed by two participants. Participant P1 claimed that the system is not flexible enough to adapt all the requirements of the users: "They are less flexible. You can configure labels and codes and all that. But you do have to stick to how things are built up in the system. You can't compromise how things work. So you can't recode it". Participant P3 also commented "There's a number of design challenges, in terms of the unique requirements within higher education", and added that some design challenge examples resulted from the inflexibility of the system, such as "Academic promotions are a very different process from the corporate based, professional employee promotion process", "the university had a fairly complex model around how they pay their casual staff", and "multiple positions within higher education, which is individuals holding multiple positions across an organization".

Discussion

Our findings reflect some of the results that are presented in the initial taxonomy of Cloud ERP adoption motives developed by Huang, Anwar, et al. (2021). Motives for Cloud ERP adoption for U1 clearly reflected some of the indicators and categories in the initial taxonomy of Cloud ERP adoption motives, such as: *provides flexibility for business innovation*, and *scalable on demand*. In addition, U1 was also motivated by both internal and external triggers in terms of the locus of motives. For example, U1 moved to Cloud ERP because it had the flexibility to satisfy the requirements raised from the business structure (internal trigger) and was also capable of adapting to the changing external environment (external trigger). Although the

notion of “locus of motive” is rarely used for the Cloud ERP context, it has been used by a number of studies conducted for the context of different information systems (IS). For example, Rahim et al. (2011) describe organizational motives using two dimensions (i.e., type of motive and locus of motive) for introducing an IOS solution to link procurement functions between supply chain partners. The psychology literature also suggests organizations might require either internal or external triggers to understand their motives (Rahim et al., 2011).

Some motives also align with the findings and observations reported by prior studies (see section 2.0 Background Literature above). For example, the adoption of Cloud ERP is driven by *reduced IT costs for the enterprise* and *scalability on demand* in the context of Australian HEIs, which is in agreement with the viewpoints of Boillat and Legner (2014), Garverick (2014) and Saeed et al. (2012). These findings are consistent with the result of the literature review analysis: there are some similar motives to make Cloud ERP adoption decisions even in different contexts (e.g., industry type, country). Some reasons behind these motives are similar. For example, the reason for using Cloud ERP is that it allows U1 to increase financial support for their main services, which is also mentioned by some existing research when they discussed the motive to *reduce IT costs for the enterprise* in other contexts (e.g., Picek et al., 2017; Saeed et al., 2012). However, some of the reasons that contribute to these motives are quite different because of organizational characteristics. For example, U1 was motivated by *Cloud ERP providing flexibility for business innovation* since they looked for a new system a) to adapt their unique organization processes (e.g., casual staff payment, academic promotion); b) to enhance students’ online learning experience. In addition, U1 considered *Cloud ERP is scalable on demand* as a motive for Cloud ERP adoption because the system could a) satisfy their new requirements (e.g., establish a new campus); c) meet different workload requirements (e.g., during enrolment).

Some indicators from the initial taxonomy are not considered motives of adoption in this case study e.g., *faster time to market for products and services*. According to Huang, Anwar, et al. (2021), this specific motive is mostly applicable to private sector organizations (e.g., manufacturing and service organizations). This is because the lesser need for a high level of configuration and integration for Cloud ERP enables its operation and implementation time to be shorter; this benefit provides private sector organizations with a faster time to roll out their products and services (Saeed et al., 2012). However, our results suggest that Cloud ERP in HEIs often includes some configurations due to the unique characteristics of organizations in the education sector, such as fragmented business units and diversity of unique business processes. In addition, the primary purpose of adopting Cloud ERP in HEIs is to support management and academic processes. As a result, this particular motive is not considered in the HEI context.

Our findings showed that U1 was motivated by more than one category of motive to adopt Cloud ERP. For example, they adopted Cloud ERP because they were looking for a system that could a) *provide flexibility for business innovation* (“Strategic motives” type); b) *offer solution to diversified business IT complexity* (“Operational motives” type); c) *reduce IT costs for the enterprise* (“Financial motives” type); d) *provide high technical reliability* (“Technical motives” type). This is consistent with several studies on motives for IS adoption, which suggest organizations were often driven by more than one category of motive when moving to new IS systems (e.g., Alsaad et al., 2019; Shahzad et al., 2020).

Four main challenges were identified from the data. Our study identified change management as the most frequently reported challenge for Cloud ERP implementation. Most existing research emphasizes user habits as the main reason for having change management challenges for the business sectors (e.g., Sørheller et al., 2018). We found that HEIs with a very complex delegation of authority construct also contribute to this challenge. Implementing Cloud ERP requires creating a standardized and centralized process of working throughout the entire organization (Carlsson-Wall et al., 2022), whereas departments and faculties can

operate as independent kingdoms in HEIs with their own working processes. Less flexibility is another challenge of Cloud ERP implementation frequently reported in the existing literature (e.g., Abd Elmonem et al., 2016; Appandairajan et al., 2012), which is consistent with our findings. Unique organizational requirements in HEIs, such as supporting academic promotion processes and building the payment model, provided some challenges for Cloud ERP systems with very limited customization capability.

Previous research reports inconsistent findings around the integration challenge. Our findings suggest more work is required to optimize the integration interface between on-premise and Cloud systems. According to Goel et al. (2011), Cloud ERP is built for use over the Internet and is enhanced with the ability for integration. However, our findings suggest that integration is a challenge for U1 when considering integrating Cloud ERP with existing on-premise systems. This is consistent with the study of Abd Elmonem et al. (2016) and Gupta et al. (2017). For example, Abd Elmonem et al. (2016) suggest Cloud ERP is built to facilitate integration with other Cloud systems, but is difficult to integrate with on-premise systems since the users have less control over the system.

Seven key benefits were identified. Most of the expected benefits (i.e., motives) were realized through Cloud ERP implementation. For example, U1 succeeded in having an integrated and user-friendly system (motive: *Cloud ERP offers solutions to diversified business IT complexity*) through Cloud ERP implementation. This is because Cloud ERP is a centralized system that includes commercial software packages that integrate business processes and transaction-oriented data throughout the organization (Salim, 2015). Cloud ERP also provides high quality and robust system dependency (Mughal et al., 2019). Furthermore, Cloud ERP solves many security concerns from U1 in terms of three perspectives: a) All data is stored in a secure environment in Australia which follows Australian data security policy; b) Cloud ERP employs secure encrypted connections or virtual private network (VPN) connections for particularly sensitive information; c) Several levels of security measures are built to solve remote access (Weng & Hung, 2014). As a result, U1 benefits from having a reliable system (i.e., *Cloud ERP vendors provide high technical reliability*).

However, our study suggests not all motives were realized by Cloud ERP implementation, which is consistent with findings reporting in the existing literature (e.g., Hawking et al., 2004; Schubert & Williams, 2009). Although Cloud ERP implementation helped U1 to successfully adapt to COVID-19 by allowing staff and students to access information any time and everywhere, it is challenging to satisfy all requirements of U1 and totally adapt its organizational structure. This is because the ownership of Cloud ERP rests with the system vendors; thus, the customization (flexibility) level of Cloud ERP is low for client organizations (Huang, Oliver, et al., 2021). Because of this challenge (i.e., *less flexibility of Cloud ERP*), this specific motive (i.e., *Cloud ERP provides flexibility for business innovation*) could not be fully realized in U1. This finding is consistent with Huang, Oliver, and Anwar (2022) and Ranjan et al. (2016) who suggest the challenges of Cloud ERP implementation could hinder achieving benefits. Cloud ERP vendors tend to keep customization at the lower level for it to be standardized for more customers. U1 could only partially solve this challenge through integration (e.g., payroll solution) and configuration (e.g., professional position workflow). For other requirements or the organization structure in U1, which could not be solved in a technical way, U1 mitigated them from the users' perspectives. For example, in order to reduce customization, U1 tried to standardize the business processes by convincing people from different departments and faculties to change their working processes. This resulted in a change management challenge. The change management challenge was addressed in two ways: a) U1 invested in training programs; b) People from different backgrounds participated in every important decision-making associated with Cloud ERP implementation. Success in mitigating change management was helpful in improving user acceptance and realizing other benefits (Shatat & Shatat, 2021). Three unexpected realized benefits were identified in this case, which is consistent with the findings of Hawking et al. (2004) and Matre and

Harackiewicz (2021). According to them, due to the maturity of client organizations, the experience of using Cloud ERP and the availability of industry benchmarks, organizations usually realize some unexpected benefits associated with Cloud ERP implementation (Hawking et al., 2004).

COVID-19 is considered an opportunity and a challenge to Cloud ERP adoption in this case. First, COVID-19 was a major and unexpected challenge that occurred during implementation, causing financial stress as well as communication/coordination issues with stakeholders. The focus of the organization had to change in order to continue operations, so the allocation of resources was changed as well. COVID-19 also forced people to work remotely and necessitated the development of new business processes. ERP adoption is often impacted by environmental uncertainty (Chen & Chou, 2009). Second, COVID-19 was an opportunity for Cloud ERP to show its power to deliver value in places that a traditional on-premise ERP cannot. This is a benefit that, given the implementation was already in progress, may even have allowed U1 to adapt to COVID-19 faster than expected. Cloud ERP has been highly recommended in the COVID-19 environment as people (e.g., staff, students) could continue their work activities remotely on an online platform. Cloud ERP could also enhance the operational performance of the organization through bringing and accessing all information from different locations in one place. Similar findings were reported in Ahn and Ahn (2020) and Tongsuksai et al. (2021) studies.

This research can be further enhanced in four ways: first, the main limitation of this study is that the results are based on one single case study, thus conducting multiple case studies would provide more insight into this topic and ensure the generalization of this research finding; second, a survey of decision-makers in Australian HEIs that have not yet implemented Cloud ERP could be deployed to provide insights into why the HEI adoption rate of Cloud ERP is low; third, undertaking a longitudinal study with a case organization to investigate whether the motives and realized benefits for initial Cloud ERP systems adoption may change over time for the sustained use of such systems; last, a study to investigate which country and industry factors are the key factors that cause the low adoption rate of Cloud ERP in Australian HEIs could be conducted.

Conclusion

Notwithstanding an expanding market for IT adoption in the Australian HEIs context, the adoption of Cloud ERP in this setting still represents a recent phenomenon about which our understanding remains limited. In this study, we have explored Cloud ERP adoption by conducting interviews in the Australian HEI sector. The adoption of Cloud ERP is driven by strategic (e.g., Cloud ERP provides flexibility for business innovation), operational (e.g., Cloud ERP is scalable on demand), technical (e.g. Cloud ERP vendors provide high technical reliability) and financial types (e.g., reduced IT costs for the enterprise) of motives in the Australian HEIs context. The notion of “locus of motive” is found to be compatible with the Australian HEIs context as well (e.g., internal motive: university expansion; external motive: enhance student experience). Most expected benefits (i.e., motives) were realized after Cloud ERP implementation except for one motive (i.e., providing flexibility for business innovation). For example, an integrated and user-friendly system was realized through Cloud ERP adoption. U1 also experienced three unexpected benefits. Four Cloud ERP implementation challenges were identified. Given the characteristics of U1 and the Cloud ERP system, change management becomes the dominant challenge for this case. This study also suggests some motives could not be realized because of the challenges of Cloud ERP implementation.

An important contribution of this research is to provide rich insights into understanding the Cloud ERP adoption for the Australian HEIs context. The results represent a contribution to the existing Cloud ERP literature in several ways. First, Cloud ES adoption is primarily focused

on private organizations. A lack of studies explicitly focuses on Cloud ERP adoption in HEIs. This research explored Cloud ERP adoption in HEIs in the Asia-Pacific context, i.e., motives of Cloud ERP adoption, the challenges of Cloud ERP implementation and the realized benefits of Cloud ERP implementation. Second, the findings would be fruitful to clients and vendors interested in developing measures or optimizing their products by taking into account the specific characteristics and requirements in different industries to increase the adoption rate, especially HEIs in the Asia-Pacific region. Third, understanding the motives, challenges and benefits of IT adoption in HEIs facilitates judicious decision-making prior to selection and minimizes the possibility of failure. For example, it will assist intending adopters from the HEI sector to produce reasonable estimates of expected benefits and help them to decide the most appropriate adoption decision. The challenges identified in this study will also provide a guideline for the intending adopters from the HEI sector to understand the significant challenges they may potentially encounter during implementation and the corresponding solutions for them, which could improve the success rate of Cloud ERP adoption. Findings aid understanding of how (i.e., challenges) and why (i.e., reasonable estimates of expected benefits) Australian HEIs adopt Cloud ERP.

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Appendix

The interview protocol:

Basic information about the respondent:

- 1) What is your position in this Cloud ERP project?
- 2) How long have you been in this position?

Questions related to the Cloud ERP system:

- 3) What kind of Cloud ERP system are you using?
- 4) What kind of business areas are you using (e.g., for HR, finance)?

Questions related to Cloud ERP adoption and implementation:

- 5) What are the motives for Cloud ERP adoption?
- 6) What were the challenges related to Cloud ERP you met during the system implementation?
- 7) What benefits has the organization received from Cloud ERP implementation? Are these motives realized? Any unexpected benefits?

Some information for further possible interviews:

- 8) Who are the key stakeholders in Cloud ERP adoption and implementation?

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