Role of Resource-based View in Predicting ERP Perceived Value: Higher Education Perceptions

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Abstract: Higher education institutions (HEIs) nowadays focus on using strategic information systems as part of their digital strategy. An Enterprise Resource Planning (ERP) system can help HEIs manage their resources and operations effectively to meet this challenge. Based on reviews, this study conceptualises the influential ERP factors into the resource-capability configuration. A preliminary study on ERP among 40 HEIs in Egypt was carried out for the Egyptian HEIs to explore their perception of the ERP system as a new integrating tool for their value and advantage. The results revealed that a high percentage of HEIs had not yet adopted these systems, despite their positive attitude towards the value of ERP systems. They are still at the developing level because these systems have not yet been adopted. This study also helps to advance ERP concepts and provides practical verification in the context of higher education. Finally, this research guide HEIs to understand the ERP system's necessity as a strategic system proposing them to adopt ERP systems for their competitiveness.

Keywords: Higher education, HEIs, enterprise resource planning, ERP adoption, RBV, Egypt.

1. Introduction

ERP provides an integration of all business operations leading to an effective decision-making process (Feldman, Shah, Chapman, Pärn, & Edwards, 2017; Soliman & Karia, 2015b). Such a vital ERP system is critical for competition if it meaningfully produces a competitive advantage (Bett, 2018; Débrosse-Bruno, 2017; Soliman & Karia, 2017). This assumption implies that the ERP system is a valuable resource-capability just for a temporary competitive advantage. Therefore, the research concerning ERP value is crucial for ERP adoption (Soliman & Karia, 2020). Recently, there have been many changes to the higher education (HE) scene that might redesign their administrative practices. The competitive educational environment, the rise of advanced technologies, and the stakeholders' expectations force HEIs to improve their overall performance (Khalid et al., 2018).

The reviews indicate that the ERP systems perceived value is inconsistent and inconclusive that delays the ERP adoption. The ERP success rate was relatively low among the manufacturing, education, and distribution institutions (Panorama Consulting Solutions, 2018). Organisations are not convinced of the ERP because 70% of ERP implementation has failed to provide the expected values (Soliman, Karia, Moeinzadeh, Fauzi, & Islam, 2017). This finding explains why the ERP adoption is albeit slow. Correspondingly, HEIs still are not convinced with the ERP system that improves their service quality and performance (Soliman, Karia, Moeinzadeh, Islam, & Mahmud, 2019). HEIs' leaders need tangible evidence of ERP perceived value for justifying the ERP adoption (Seo, 2013).

Egypt's setting lacks an empirical ERP understanding with low attention to the higher education context (Abdellatif, 2014). However, the pharmaceutical sector is a significant ERP market because of its financial capacity and complicated manufacturing procedure (El Sawah, Tharwat, & Rasmy, 2008). HEIs in Egypt suffered from the absence of ERP systems. They had a flawed decision-making process, inefficient resource allocation, and information security concerns. They are still reliant on manual procedures and paperwork, leading to work duplications (Soliman &

Karia, 2016). The Egyptian Cabinet's Information and Decision Support Center (IDSC) called for an ERP initiative among Egyptian HEIs (IDSC, 2017).

To conclude, this study has attempted to shed light on three weaknesses in ERP research. First, there remain untimely and limited explanations on the ERP investigation among HEIs. Second, there is still insufficient knowledge of ERP outcomes in the literature. Third, it is essential to draw a theoretical framework that depicts a new ERP model's holistic view, especially in higher education.

2. ERP Previous Studies

ERP literature shows evidence that ERP systems predominantly in multinational corporations (El Sayed et al., 2013; Supramaniam & Kuppusamy, 2010; Zhu et al., 2010). Some ERP scholars focus on a mixture of firm sizes (Abdelghaffar, 2012) and different industries (Débrosse-Bruno, 2017; Haberli Jr, Oliveira, & Yanaze, 2017; Pan & Jang, 2008), and small and medium enterprises (SMEs) (Haddara & Elragal, 2013; Ruivo et al., 2014; Shahawai, Hashim, & Idrus, 2014). Therefore, many ERP studies involve the post-implementation success and the causal effect on user satisfaction (Zhu, Li, Wang, & Chen, 2010) and ERP post-implementation value (Ruivo, Oliveira, & Neto, 2014; Ruivo, Rodrigues, Johansson, Oliveira, & Rebelo, 2016). Other studies concentrate on the implementation phase of the ERP lifecycle since many organisations are in the implementation phase (Nazemi, Tarokh, & Djavanshir, 2012). Hence, the ERP studies call for ERP adoption at the pre-implementation stage (El Sayed, 2008; El Sayed, Hubbard, & Tipi, 2013).

The factors of ERP adoption and performance effects of ERP adoption have been widely studying, but there are inconsistent findings (e.g., Haberli Jr et al., 2017; Awa et al., 2016; Ruivo et al., 2016). Technology, organisational and environmental (TOE) framework (Tornatzky, 1990) explains the technology adoption and implementation and found to be significant factors to the ERP success (Bradford & Florin, 2003; Abdelghaffar & Azim, 2010) and ERP's business performance (Elragal & Al-Serafi, 2011). Note that different factors are required for different contexts to determine ERP adoption. These inconsistent findings call for research to identify potential factors.

Despite many ERP studies, the literature lacks clarity on ERP perceived value for HEIs to create sustainable performance and competitive advantage. Previous studies failed to understand how the ERP affected the competitive advantage, especially in the higher education context (Soliman & Karia, 2015c). Consequently, the ERP study has limited research on the ERP perceived value (Abdellatif, 2014) and ERP system in HEIs (Al Kilani, Adlouni, Al Ahbabi, & Al Yahyaei, 2012; Soliman et al., 2019).

3. ERP Resource-based View in HEIs

The reviews revealed the theory-driven empirical evidence for the insight ERP competitive advantage is imperfect (Kalling, 2003). Only a few studies discussed ERP competitiveness through RBV (Soliman & Karia, 2015c). RBV defined capabilities as bundles of individual skills, assets, and accumulated knowledge exercised through organisational processes (Amit & Schoemaker, 1993). Competitive advantage is enhanced when combined with valuable, rare, inimitable, non-substitutable, and complementary resources.

In general, HEIs performance results from organisational capability or innovation capability manifesting within competitive bundle factors. ERP perceived value is benefits from HEIs investing in ERP systems causing by competitive bundle ERP factors. The resource-based view theory recognizes such competitive factors are organisation competencies in tangible and intangible resource and capability that stimulate more positive impacts on innovation capability (Penrose, 1959; Barney 1991). ERP factors are a function of ERP perceive value or a set of ERP system factors that influences the tendency to adopt.

From a strategic perspective, without adequate firm inputs (e.g., perceived value, readiness, knowledge, learning), other resources cannot be deployed for competitive advantage (Glenn & Autry, 2009). Meanwhile, a firm's innovation capability depends on a firm's resources and capabilities to cause superior performance (Ray, Barney, & Muhanna, 2004). Based on reviews, this study conceptualizes the influential ERP factors into the resource-capability configuration. It proposes an ERP resource-based model (Figure 1) signifying an ERP as HEI's tangible and intangible resources leading to competencies that impact HEI's competitive advantage positively. An effective ERP system, hence, enhances innovation capability. ERP systems' perceived value is an innovation capability enabler for automating business processes and subsequently determining HEI's competitive advantage (Soliman & Karia, 2020). It may be the source of a sustained competitive advantage (Barney & Clark, 2007). Precisely, ERP is the HEI's resource-capability configuration that enables data processing efficiency competencies, which is essential to support the business process. ERP can provide strategic benefits to HEIs. It can advance their images, internal efficiency, educational service quality, and the relationship between stakeholders.
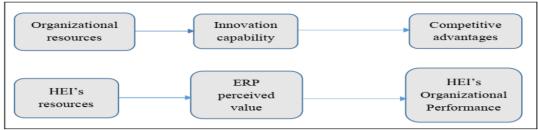
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Fig. 1 - Resource-based ERP

To conclude, this research views the ERP from the resource-based view (RBV) perspective as an emerging innovation capability that influences HEI's competitiveness (Karia & Asaari, 2016). The ERP system and its capability in HEIs are crucial for their sustainability. Sustainable HEIs depend on its innovation capability that creates value and competitive advantage.

4. Methodology

The list of 231 HEIs drawn from the Egyptian Ministry of Higher Education includes 28 public universities, 36 private universities, 143 private higher institutions, ten public technical colleges, and 14 public technical health institutions. A random sample of 40 HEIs is gained from each proportionate.

The study conducted preliminary study applied a self-administered questionnaire to collect the data where the respondents read the survey questions and record their responses without a trained interviewer. This method allows the respondents to complete the questionnaire at their own time and look for further information when necessary. Also, it helps the respondents stimulate their interest in completing the questionnaire through interaction between the researcher and respondents (Hair Jr & Lukas, 2014). 40 HEIs' IT managers were given the questionnaire, and all of them returned the completed questionnaire. The questionnaire of closed format questions (2 questions) was applied (e.g., "Does your organisation use an ERP system?"). Previous studies have used this type of question format to determine the availability of new technology usage and its value (Taharim, Lokman, Isa, & Noor, 2015).

To initially investigate the Egyptian HEIs' perception towards the ERP system as a new integrating tool for its value and benefits, a preliminary study of ERP among sample of 40 HEIs in Egypt was conducted first. The unit of analysis of this study is the IT manager for each HEI. That is due to IT managers' awareness of their HEIs' strategies, needs, and challenges that can determine their ERP value perception. Also, IT managers are aware of their institutions' technical resources plus the issues of their current systems (legacy or standalone systems), and the expected benefits and the potentials of implementing the new systems (Zhu et al., 2010). Therefore, they are more likely to show their institutions' readiness to employ a strategic information system like an ERP system (Boonstra, 2013). Moreover, their technical background, high level of education, IT knowledge, IT work experience, IT status of the competitors locally or globally, and IT market advancements make them the best informants to perceive the ERP system's value.

Moreover, literature (Table 1) indicates that IT managers are the most informants of any IT adoption, implementation, and evaluation. This study used the IBM Statistical Package for Social Science (SPSS) Version 26 to code and analyzed the gathered data.

Table 1 - IT managers as respondents of IT innovation studies

Reference	Industry	IT innovation
Rabaa'i, Bandara, and Gable (2009)	Higher education	ERP
de Castro Silva and de Oliveira (2015)	Higher education	ERP
Arthur (2016)	Higher education	ERP
Teo, Ranganathan, and Dhaliwal (2006)	Service & Manufacturing	B2B E-Commerce
El Sawah et al. (2008)	Manufacturing	ERP
Dwivedi, Papazafeiropoulo, Ramdani, Kawalek, and Lorenzo (2009)	SMEs	ERP
Zhu et al. (2010)	Retail	ERP
Haddara and Paivarinta (2011)	SMEs	ERP
Tsai and Tang (2012)	Logistics	RFID
Kinuthia (2014)	Service & Manufacturing	Cloud ERP
Oliveira, Thomas, and Espadanal (2014)	Service & Manufacturing	Cloud Computing
Lin (2014)	Service & Manufacturing	E-SCM
Yeh, Lee, and Pai (2015)	Large-scale businesses	E-business

Haddara and Elragal (2015)	SMEs	ERP
Mohamed (2015)	Hotel	ERP
Azab, El Sheikh, Moharram, Ibrahim, and Yehia (2016)	Telecom	ERP
Albar and Hoque (2017)	Service & Manufacturing	Cloud ERP
Mohtaramzadeh, Ramayah, and Jun-Hwa (2017)	Manufacturing	B2B E-Commerce
Haddara (2018)	SMEs	ERP
AL-Shboul (2018)	SMEs	Cloud ERP
Puklavec, Oliveira, and Popovič (2018)	SMEs	Business Intelligence

5. Research Preliminary Findings

The real-world problem of ERP adoption in Egyptian HEIs is unclear due to the lack of facts and statistics. Therefore, the current study conducted a preliminary study to investigate the Egyptian HEIs' perception of the ERP system as a new integrating tool for its value and benefits. Reviews show a lack of evidence about ERP adoption among HEIs in Egypt (Abdellatif, H. J., 2014; Al Kilani et al., 2012). Overall, the study discovers that almost all HEIs have yet to implement ERP systems but have a positive intention to adopt ERP systems.

Figure 2 revealed that the majority (92.5%) of HEIs had not used the ERP system yet. These results are in line with Abdellatif (2014) and Al Kilani et al. (2012). The researchers need to consider this issue to determine the ERP adoption factors that may affect HEIs' decision to use these systems, particularly in the pre-implementation stage.
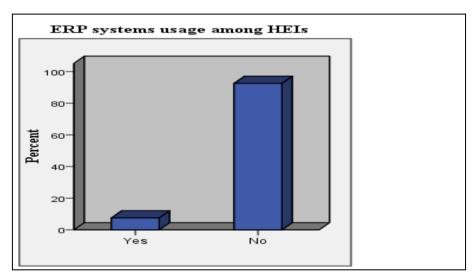

Fig. 2 - ERP usage among Egyptian HEIs

Furthermore, figure 3 (see Table 2, Appendix A) shows that the results about HEIs' opinion of ERP system as 75% of the IT managers believed that an ERP system is ("a good idea and they would like to use it"). However, 17.5% considered ("it is a good idea, but they would not like to use it"). Only 7.5% thought that ("do not think it is a good idea"). These results are in line with Badewi, Shehab, Zeng, & Mohamad (2018), Almahamid & Awsi (2015), Seo (2013), Soliman & Karia (2015a), Abugabah & Sanzogni (2010), and Bologa, Bologa, & Sabau (2009).
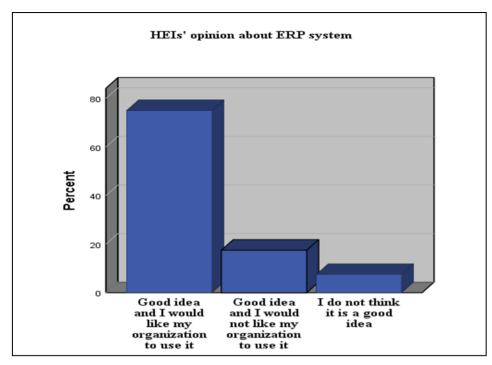
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Fig. 3 - Egyptian HEIs' opinion about ERP systems

Overall, the results reveal that most of them had a positive attitude about the ERP system as integrated systems. Although the positive attitude towards the value of ERP systems, a high percentage of HEIs have not adopted these systems yet. Therefore, Egyptian HEIs and ERP vendors should take steps to remove any barriers and accelerate the adoption process of these new systems because of the value and benefits that HEIs can perceive.

6. Discussion

The aim of studying ERP is to improve its understanding of higher education. The ERP adoption relies on HEIs' ability to comprehend its perceived value. HEIs are also encouraged to adopt ERP systems by the perception of values and benefits. The study results showed that most HEIs take a complimentary view of ERP systems. To remain competitive, they need to adopt ERP systems. With significant challenges facing HEIs, the ERP system introduces new techniques and tools to offer tailored solutions to these problems. The ERP system is a keyword for integration to ensure an integrated solution to all HEI problems. However, the results elaborated a high percentage of HEIs had not yet deployed ERP systems. The reason for this could be that other ERP adopters in various contexts had high failure ratios. Many HEIs were thus not persuaded by the ERP system because the expected targets were not met. That is why the adoption of the ERP among HEIs is slow.

In addition, the literature on tangible evidence of the anticipated value of ERP systems in HEIs is immature. Researchers need to consider this issue to determine the factors that could influence the decision to adopt ERP technology for competitiveness. This research aimed to study the actual impact of ERP systems on competitive advantages by referring to RBV Insight to understand further its effect on HEIs. This concept should be given substantial consideration to understand ERP technologies and develop competitive advantages fully.

7. Conclusion

Three novel contributions are made in the current study. The first contribution, the study is the leading light in the ERP, which influences the ERP's outcomes. A new ERP resource-based model for HEIs was also presented in the study. The third contribution is an insight into the influence of the ERP competitiveness factors. With HEIs to stay competitive, this study explored the insights of 40 HEIs in Egypt in terms of their potential perception of ERP systems as modern technologies for their digital transformation. The study showed a positive attitude towards the value of the ERP. They supported ERP systems because they integrate their business functions to allocate their resources and make decisions efficiently. However, most HEIs have not yet adopted ERP systems. Therefore, more efforts are necessary to determine the ERP adoption factors, particularly in the early adoption phase that may influence their decision to take these systems.

Also, this study promotes HEI's perceived value and competitive advantage by its theoretical ERP system. This study gives HEIs' leaders an insight into the perceived value of a new system. As a practical contribution, IT managers can take the necessary steps by providing an earlier illumination of the ERP platform for implementation. Before

implementing these systems, ERP vendors can also detect the readiness and possible problems of their customers. This research was one of the first efforts about a theoretical contribution that advances ERP's knowledge of value perceived primarily from the RBV perspective at the firm level. Besides, this research showed the history of ERP's competitive advantage in higher education by embracing the RBV theory. Overall, the study advocated the ERP adoption and contributed mainly to IT adoption in Egypt as HEIs have not investigated ERP systems' perceived value to date.

8. Future Directions

ERP technology is critical to its competitiveness in the higher education sector, as ERP's successful implementation can positively influence stakeholders' service quality. It is increasingly vital that ERP outcomes of HEIs are evaluated from both the perspective of the user and the organisation. In a further study, the fit between ERP and its yields among HEIs since there are critical requests for validated measurements. This finding might help HEIs and practitioners find meaningful answers and clarifications about the history of ERP failures. Any future study will enable HEIs to focus on more critical adoption factors and how these factors can increase ERP's potential benefits, particularly during the ERP's grounding stage. The sample size of the study is insufficient, limiting the generalization of results. In the future, a large-scale replication of this study can be done using any probability sampling technique to achieve a more representative sample of Egyptian HEIs. This study suggests that researchers must concentrate on more critical ERP adoption drivers, which generate value and results at the pre-implementation stage. Finally, future research suggests that the impact on HEI's organisational performance, the perception of ERP's value and competitive advantages will be empirically investigated at an early stage.

Acknowledgement

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