International Journal of Information System Modeling and Design
Volume 13 • Issue 1

Determinants of ERP Adoption, User Satisfaction, and User Engagement

Pankaj Kumar Mohanty, IBS Hyderabad, a Constituent of IFHE, Deemed to be University, India*
S. F. Chandra Sekhar, Siva Sivani Institute of Management, Secunderabad, India
P. Shahaida, Administrative Staff College of India, Hyderabad, India

ABSTRACT

Based on the theory of reasoned action (TRA) and the diffusion of innovation framework, this study examines the key determinants and outcomes of enterprise resource planning (ERP) adoption. The study specifically investigated the impact of system quality and user training on ERP adoption intention. Further, the impacts of ERP adoption intention and personal innovativeness on ERP adoption were also studied. User satisfaction with ERP and user engagement were considered as the two outcomes of ERP adoption. To achieve these objectives, an online survey was conducted, and data was collected from 180 ERP users across multiple industries in India to understand their perception of such matters. Structural equation modeling using the partial least square approach was used to test the proposed hypotheses. The results of SEM analysis supported all the hypotheses under investigation. These results provide relevant evidence that may encourage organizations to understand the key determinants of successful ERP adoption and its significant impacts on user satisfaction with ERP and user engagement.

KEYWORDS

ERP Adoption, ERP Adoption Intention, System Quality, User Engagement, User Satisfaction, User Training

INTRODUCTION

Over the last few decades, business organisations around the world have changed dramatically due to the growing phenomenon of globalisation and the revolution in information technology. The effective implementation of new technological software has played a vital role in improving business performance, productivity, and user satisfaction. (Schaffers et al., 2011; Webster, 2014). Enterprise resource planning (ERP) is one such technical tool that helps the organisation manage its day-to-day business operations and ease the decision-making process. (Klaus et al., 2000). The concept of ERP was first introduced in the early1970s by the Gartner Group (Jacobs & Weston, 2007). The term enterprise resource planning (ERP) is conceptualised as a "comprehensive, packaged software solution that seeks to integrate the complete range of a business's processes and functions to present a holistic view of the business from a single information and IT architecture" (Klaus et al., 2000; p. 141). ERP enables the flow of information sharing across multiple business functions (e.g. operations, marketing, and finance) and strategic business units (SBUs) of an enterprise (Aljawarneh & Alomari, 2018; Gupta & Kohli, 2006). According to Biel (2020), the global The ERP market has witnessed a rapid expansion due to digital transformation, data reconciliation, a vast amount of data storage, tracking,

DOI: 10.4018/IJISMD.297044 *Corresponding Author

and activities undertaken. Approximately, half of the companies in the global market are rapidly procuring, upgrading, or planning to upgrade their existing ERP systems. However, the penetration of the ERP software market in India is still in its nascent stage and is expected to increase at a CAGR of 8% to reach $78.4 billion by 2026. The ERP software market revenue in India was estimated to be approximately $ 6.13 billion in 2020. It is further expected to grow rapidly at a CAGR of 25.5% during the years 2019-2025 (Market Research Engine, 2020).

ERP implementation improves the business processes, allowing the company to be more competitive, profitable, and efficient by capturing real-time consumer information (Banerjee, 2018). ERP streamlines data processing, allowing firms to make better strategic decisions and boost productivity (Jenab et al., 2019). It has been observed that user acquisition is the most important indicator for measuring the success of an ERP (Verville et al., 2005). On the other hand, high user adoption rate during the initial stage of ERP implementation will have no value for the firm if the employees do not continue. Brands are paying a lot of money to get the users trained, but this is just the beginning. The value is in engaging and maintaining users after the acquisition or adoption of them. Understanding how interested and devoted users are to a specific ERP is of cardinal concern for the investors and vendors as well. Therefore, the most crucial goal is to keep users engaged and encourage them to use regularly. Such assessment will provide ample evidence of the effectiveness of such process, like on boarding experience, guiding users at every crucial stage of using, important notifications for the users regarding the current state of their work, promoting two-way communication, the ambiance of the design, and other appealing features that encourage pleasant experience for the users.

Studies have also suggested that a successful implementation of ERP systems facilitates organisations' ability to achieve sustainable competitive advantages in a dynamic environment and helps employees engage with their work (Lutfi, 2020; M. Soliman & Karia, 2015). However, despite such numerous organisational advantages, prior studies have documented many instances where the adoption rate of ERP is very low, and failure of implementation is high (Ali & Miller, 2017; Salim & Jaffar, 2020). Many ERP implementation projects in the organisation failed before the realisation of their actual potential (Costa et al., 2020; Lee et al., 2020). Therefore, it is necessary to understand the factors which may affect the successful implementation of ERP in the organisation. Literature indicates that the intention of ERP adoption depends on the level of user training, and system quality (Costa et al., 2020; Varasteh et al., 2018) (Costa et al., 2016; Varasteh et al., 2018). It was also suggested that personal innovativeness plays a vital role in the adoption of new technology (Lu, 2014).

While prior studies on ERP adoption have looked at various areas of changes in business processes, scant research exists on the individual employees' behaviour in response to the adoption and implementation of information technologies, or on the factors that influence resistance, or on the effects of process change on employees of informational technological solutions like ERP. Thus, this study aims to empirically investigate the role of user training, system quality on ERP adoption intention and which in turn leads to ERP adoption. Further, the critical role of personal innovativeness in the ERP adoption process has also been studied. The study also examined the effects of ERP adoption on user satisfaction and user engagement. A partial least square (PLS) modelling approach was used to test all the hypothesised relationships. The findings of the study will increase the understanding of the factors which may affect the successful adoption of the ERP program meme by the organisation. The findings will also offer meaningful insights for managers to understand the practical benefits of ERP adoption.

THEORETICAL BACKGROUND

The present study explained user behaviour in ERP environments of various Indian organisations using the crucial elements from Fishbein & Ajzen's (1975) theory of reasoned action (TRA). According to TRA, an individual's behaviour is influenced by both the individual's attitude toward a particular

behaviour and the social factors and norms that surround it. Thus, it is so pragmatic that people prefer to perceive the quality of systems that promise real benefits when adopting a specific technology that claims to put their intentions into action (Syafiera et al., 2019). They are also eager to devote time and energy to get training in such technologies, which will equip them with the necessary knowledge and abilities. Such training assists them in becoming more innovative in their daily work processes and, as a result, develops plans to use them (Ash & Bates, 2005). The study also looks at factors affecting users' adoption and use of high technology using Rogers' (2010) diffusion of innovations (DOI) theory to turn their work plans into actionable initiatives. Such use of advanced technologies, such as ERP, aids user adoption by easing critical workplace demands and improving personal and work performance, resulting in the development of their affective orientation toward technology and their work. User engagement is triggered by such consistent and persistent experiences, which are defined by their visibility, exposure to a variety of tasks, and protection from their competitors (Benders et al., 2006).

User engagement is characterized by their involvement in their work, exposure to the variety of innovations at work, and protection from their superiors for being highly involved, as a result of such consistent and persistent experiences (Alcivar & Abad, 2016). The operationalization of these aspects in corporations from various sectors of the Indian business environment would aid executives in strategic planning for ERP implementation, including the design and planning of business activities; resource planning for ERP and infrastructure; and the design of enhanced methods of ERP evaluation and assessment (Alcivar & Abad, 2016).

Hypotheses Development

The studies related to the drivers of the ERP adoption intention (i.e. user training, and system quality), ERP adoption, user satisfaction, personal innovativeness, and user engagement have been discussed in this section and are presented in Figure-1.

System Quality

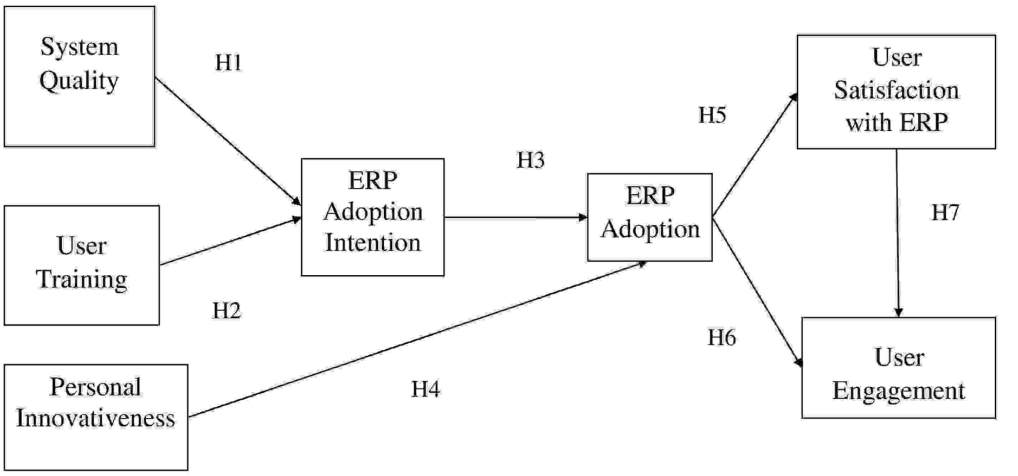
The term system quality is defined as "the degree to which the system is easy to use and complies with functionality, reliability, flexibility, data quality and integration need to accomplish some task" (Costa et al., 2016). Studies on ERP have highlighted the importance of system quality in the actual usage and implementation of ERP systems (Costa et al., 2016; Das & Dayal, 2016). Using the framework of TAM (technology acceptance model), studies have found a significant and positive impact of perceived ease of use on ERP usage intention (Habahbeh & Obidat, 2021; Mayeh et al., 2016). An empirical investigation by Ram et al. (2013) has found a significant positive impact of perceived system quality (PSQ) in the successful implementation of ERP projects. A similar study by Aljawarneh & Alomari (2018) has also mentioned a positive impact of system quality on the CRM module of the ERP programme. An unreliable ERP system could cause delays and problems in the configuration of systems at the implementation stage (Ali & Miller, 2017; Ram et al., 2013). Therefore, based on the above arguments, the following null and alternative hypotheses have been formulated.

$H_0$1: System quality has no impact on ERP adoption intention
H1: System quality has a positive impact on ERP adoption intention

User Training

The term user training refers to "a measure of how easy it is for users to be trained on the system, to understand the content material, and to navigate through topics applied to daily tasks". The absence of proper user training may lead to the development of a negative attitude towards the adoption of new system (ERP) usage among the users (Soliman et al., 2019). Past studies on ERP have acknowledged the impact of user training on behavioural intention (Costa et al., 2020) and the adoption of ERP

Figure 1. Conceptual Model



systems (Abu-Shehab et al., 2015; Das & Dayal, 2016). Therefore, without appropriate training on ERP, users will find it difficult to use the system (Nah et al., 2004; M. S. M. Soliman et al., 2019). According to Nah et al. (2004), user training plays an important role in the successful implementation and use of ERP systems. For an ERP system to be perceived as useful and easy to use, training must be provided to the end-users. Thus, the following hypotheses (both null and alternative) have been framed to examine the impact of user training on ERP adoption intention.

$H_0$2: User training has no impact on ERP adoption intention
H2: User training has a positive impact on ERP adoption intention

Personal Innovativeness

The term personal innovativeness is defined as the "willingness of an individual to try out an innovation" (Flynn & Goldsmith, 1993). Therefore, the intensity of personal innovativeness lies in the extent to which an individual is ready to experience or try out new things (Patil et al., 2020). The information systems literature has highlighted the critical role of personal innovativeness in the adoption of new technology, which represents an individual's inherent risk-taking tendency (Hancerliogullari Koksalmis & Damar, 2021; Soliman et al., 2019; Mezghani, 2018; Lu, 2014). Based on Rogers' diffusion of innovation theory, Agarwal & Prasad (1998) have stated that people with a higher level of personal innovativeness have a higher probability of adopting new technological innovations earlier. According to Lu (2014), personal innovativeness acts as an internal source of an individual's motivation to develop a positive perception about technology-driven innovation and also has a positive impact on the adoption intention. An empirical investigation by Jackson et al. (2013) has found a positive impact of personal innovativeness on acceptance of technology. Therefore, based on the above arguments, the following two hypotheses (both null and alternative) have been formulated.

$H_0$3: Personal innovativeness has no impact on ERP adoption.
H3: Personal innovativeness has a positive impact on ERP adoption.

ERP Adoption Intention

ERP adoption intention is considered to be the behavioural intention of the actual users towards a new ERP technology in an organisation Soliman et al. (2019). Several studies on information technology literature have acknowledged the relationship between adoption intention and actual adoption, which indicates that adoption intention is a key determinant of actual usage (Alam & Uddin, 2019; Costa et al., 2016; Sternad & Bobek, 2013). Empirical investigation results have also revealed a significant positive relationship between behavioural intention to use ERP and the actual usage of ERP (Alam & Uddin, 2019; Sternad Zabukovšek et al., 2019). Based on these above arguments, the following null and alternative hypotheses have been proposed.

$H_0$4: ERP adoption intention has no impact on ERP adoption/ Actual Use
H4: ERP adoption intention has a positive impact on ERP adoption/ Actual Use

User Satisfaction with ERP

Somers et al.(2003) have conceptualized user satisfaction as the extent to which an information system meets the user's information requirements. The present study conceptualized user satisfaction with ERP as the "recipient response to the use of the output of an information system" (Costa et al., 2016). Literature on the information system or ERP, in particular, has considered user satisfaction as a major indicator of the success of an ERP solution (Costa et al., 2016; Kanellou & Spathis, 2013). Saatçioğlu (2009) has posited that the benefits, barriers, and risks of ERP have an impact on user satisfaction. Empirical investigation findings have also revealed a significant positive relationship between ERP usage and user satisfaction (Costa et al., 2020; Varasteh et al., 2018). Therefore, based on the above arguments, the following hypotheses have been formulated.

$H_0$5: ERP adoption has no impact on user satisfaction with ERP.
H5: ERP adoption has a positive impact on user satisfaction with ERP.

User Engagement with ERP

Following the conceptualisation of user engagement by Suh et al. (2018) and Schaufeli et al. (2006), the present study considered user engagement as a multidimensional concept which consists of vigour, dedication, and absorption. The term, "vigour" refers to the extent to which an ERP user is willing to invest his or her continuous effort when engaging with an ERP programme. Dedication describes the users' sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption refers to the level of user concentration and is deeply engrossed with ERP programmes. The role of user engagement in technology adoption has been highlighted in past studies (Kim et al., 2013; O'Brien & Toms, 2008; Suh et al., 2018). According to Laurel (2013), user engagement is defined as "a desirable even essential human response to computer-mediated activities". In human-computer interaction, interactivity plays a vital role in making users engaged with information technology (Liu Fan et al., 2017; O'Brien & Toms, 2008; Sundar et al., 2016). According to O'Brien & Toms (2008), engagement is considered to be an outcome of user interaction with the technology. Therefore, when users are more involved while using the ERP technology, they become more engaged. Based on the above arguments, the following hypotheses (both null and alternative) have been formulated.

$H_0$6: ERP adoption has no impact on user engagement.
H6: ERP adoption has a positive impact on user engagement.

User Satisfaction and User Engagement with ERP

According to Alcivar & Abad (2016) gamification applied by the firm in ERP implementation helps the firm to engage users with the system. The frequent usage of the ERP system in the organisation as a tool kit measure for decision-making would improve the performance of workers in the organisation (Alcivar & Abad, 2016). Prior research has also suggested that users satisfied with ERP systems are more willing to continue the usage of ERP systems (Cheng, 2018, 2019; Rezvani et al., 2017); and display a higher level of engagement (Rezvani et al., 2017). Therefore, based on the above arguments, the following null and alternative hypotheses have been formulated.

$H_0$7: User Satisfaction with ERP has no impact on user engagement.
H7: User Satisfaction with ERP has a positive impact on user engagement.

METHODOLOGY

Design

A survey-based research design approach has been followed to empirically examine the hypothesised relationships among the proposed constructs. The study used a two-step approach for empirical examination of the proposed relationships. In the first stage of the data analysis, a preliminary analysis was performed to check the scale reliability, and construct validity for all the constructs used in the model. Finally, the partial least square (PLS) modelling approach was used to test the hypothesised relationships.

Sample and Data Collection

Organisations that have implemented ERP were identified. The client lists of SAP, Oracle, and Ramco systems were used to compile a list of firms that have installed ERPs. The study area excluded organisations that had installed ERP five years ago. Further, only those personnel who use ERP regularly were sampled as end-users. An online survey based approach was used to collect the responses from the targeted sampling frame. Following the sample size criterion suggested by Bagozzi & Edwards (1998), Bentler & Chou (1987), and Bollen, (1989), the study collected a minimum of five observations per estimated parameter. A screening question was used to check whether the respondent is an active user of ERP software in the organisation. A structured questionnaire was randomly administered to the qualified respondents to collect the responses. Finally, a usable sample size of 180 was received from the online survey after removing the incomplete responses. The responses of users to all constructs were recorded on a five-point scale of 1 to 5, with 1 indicating "strongly disagree" and 5 indicating "strongly agree."

Measures

The present study adopted validated scales from prior literature. A six-item scale of system developed by Urbach et al. (2010) was adopted. A sample item includes: 'our ERP is easy to use. Three items scale of user training developed by Ruivo et al. (2014) was adopted. A sample item includes: 'according to programme training, please rate the degree of how was training on the system'. ERP adoption intention was measured using a three-items scale adopted from Lin & Hsieh (2006) and (Lam et al., 2007). A sample item includes: I intend to use ERP technology in the future. Adoption of ERP was measured using five-items scale (Eid & Abbas, 2017). A sample item includes: 'I always think of requesting changes to ERP features when necessary to accomplish my work tasks'. A three- items scale to measure personal innovativeness developed by Agarwal & Prasad (1998) was adopted. A sample item includes: 'I generally like to experiment with new technology. User engagement was measured using a nine-item scale developed by Schaufeli et al. (2006) and Suh et al. (2018) was adopted. A sample item includes: 'while working with ERP programmes, I feel bursting with energy'.

A four items scale to measure user satisfaction was adopted from Urbach et al. (2010). A sample item includes: 'the ERP satisfies me on the whole.'

Sample Characteristics

User participation in the online survey was completely voluntary. Before the data collection, the respondents were informed about the confidentiality and anonymity of their responses. The sample consists of various organisations in India that use ERP software from any of the service providers: SAP, Oracle, and Ramco Systems. The majority of the respondents were male (64%), compared to females (36%). The average experience of the respondents with ERP was above three years. A large number (45%) of the respondents were from the banking industry, followed by retail (20%), manufacturing (15%), hospitals (12.2%), and education (7.8%). The majority of the respondents (46.66%) were from middle-level executives, 38.90% were from lower-level executives, and the rest, 14.44% were from top-level executives.

Data Analysis

Before performing any analysis, the study checked the possible impact of the common method bias (CMB) problem using Harman's single factor test. Mainly, the data analysis of the study was divided into two parts. First, a preliminary data analysis was conducted to assess the reliability and validity of the constructs. The value of Cronbach's Alpha (α) was used to test the construct reliability. Construct validity was checked using the (Fornell & Larcker, 1981) procedure. Second, the study empirically investigated all the seven proposed hypotheses using a partial least squares (PLS) modelling approach. Specifically, two hypotheses (H1, H2) were tested related to the impact of antecedents (system quality, user training) on ERP adoption intention, one hypothesis (H3) was related to the impact of ERP adoption intention and actual ERP adoption, one hypothesis (H4) was related to the personal innovativeness and the actual adoption of the ERP programme, two hypotheses (H5, and H6) were framed to measure the effect of ERP adoption on user satisfaction, and user engagement. Finally, the last hypothesis, H7 was related to the impact of user satisfaction on user engagement.

RESULTS

Common Method Bias

Before conducting any analysis, the study checked for common method bias using Harman's single factor test. The result indicated that the single factor solution accounted for 29.15% of the total variance, which is lower than the cut-off limit of 50% (Malhotra et al., 2006; Podsakoff et al., 2003). Therefore, the result supported the absence of common method bias in the data.

Reliability and Validity

The results of the reliability analysis presented in Table 1 indicated that the Cronbach's alpha (α) values of all the latent constructs were above the cut-off limit of 0.70 (Hair et al., 2006). Hence, the reliability of all the latent constructs was established. Additionally, convergent reliability was measured using a composite reliability (CR) score. Results presented in Table 1 indicated that the CR values of all the latent constructs were above the cut off limit of 0.80 (Fornell & Larcker, 1981). Following Fornell & Larcker (1981), construct validity of all the latent constructs was also established using both convergent validity and discriminant validity. The results presented in Table 2 indicated that the square root of the average variance extracted (AVE) presented on the diagonal of the table were greater than the inter constructs correlations listed on the off-diagonal elements of the same row and column. Therefore, the discriminant validity of the constructs was established. The convergent validity of all the constructs was assessed using the AVE score and outer loading of the model. The AVE scores of all the constructs were above 0.5 providing support for convergent validity (Fornell &

Larcker, 1981). Additionally, the outer loading of all the construct items was above 0.5, thus providing support for convergent validity (Refer Table 1).

Structural Model

PLS was used to compute the path coefficients (β), since the main importance of the study was the prediction. For each path analysis, β-values and the corresponding t-values were reported using the bootstrapping procedure of 500 subsamples (Chin, 1998). The study used the standardised root mean square residual (SRMR) for checking the model fit. Results indicated that the value of SRMR was below the recommended threshold value of 0.08, indicating an acceptable model fit (Henseler et al., 2016; Hu & Bentler, 1999). The results of the PLS structural equation modelling analysis presented in Table 3 rejected all the seven proposed null hypotheses ($H_0$1-$H_0$7). In other words, the study has found support for all the proposed alternative hypotheses (H1-H7) under investigation. Specifically, system quality has a significant positive effect on ERP adoption intention (β =0.46; t-statistics = 4.99; p £ 0.001); User training has a positive impact on ERP adoption intention (β = 0.37; t-statistics = 5.30; p £ 0.001); ERP adoption intention has a significant positive impact on ERP adoption (β = 0.36; t-statistics = 4.65; p £ 0.001); the path coefficient between personal innovativeness and ERP adoption was also found significant (β = 0.19; t-statistics = 2.20; p £ 0.05). Thus the results presented in Table 3 supported the alternative hypotheses H1, H2, H3, and H4. The results of the structural model further suggested that the path between ERP adoption and the outcome variables, i.e. user satisfaction with ERP (β =0.32; t-statistics=4.29; p £ 0.001), and user engagement (β =0.43; t-statistics=6.31; p £ 0.001) have also found significant. Further, the positive impact of user satisfaction with ERP on user engagement has found to be significant (β =0.33; t-statistics=4.58; p £ 0.001), thus supporting alternative hypotheses H5, H6, and H7. In order to examine the power of individual constructs, the study has also computed the effect size value of each latent construct. Results indicated that both user training and system quality have moderate effects (F-Square > 0.15) on the ERP adoption intention (Cohen, 2013). Similarly, ERP adoption was also found a moderate effect size on user engagement and user satisfaction with ERP.

DISCUSSION

The study explored how system quality and user training with the ERP system impact the ERP adoption intention; the impact of ERP adoption intention on ERP adoptions and which in turn impacts user satisfaction and user engagement. Further, the study has also investigated the impact of personal innovativeness on ERP adoption, and finally, the impact of ERP user satisfaction on user engagement. All the presented hypotheses were empirically supported by the data. The result of system quality on ERP adoption is in line with the prior studies conducted by Ram et al. (2013). The significant result of user training is in line with the findings of Al-Ghofaili & Al-Mashari (2014). Positive relationships were also obtained between ERP adoption and user satisfaction with ERP, and user engagement. Prior studies (Costa et al., 2016; Kanellou & Spathis, 2013) have also obtained similar results to explain a positive relationship between ERP adoption and user satisfaction. The result also indicated that, when users are more satisfied with their ERP usage, they tend to be more engaged with the ERP programme. Moreover, the study found a moderate effect of system quality and training on ERP adoption intention. Similar results were also obtained while measuring the two effect sizes (ERP adoption and user satisfaction with ERP; ERP adoption and user engagement).

Implications

Theoretical Implications

Moore & Benbasat (1991) also suggest that when users find the relative advantage of adopting and using technologies that are compatible, improving their image due to innovativeness, coupled with

Table 1. PLS Outer Model

Construct	Item	Outer loadings	Cronbach's Alpha	CR	AVE
ERP Adoption Intention	Item 1	0.93	0.90	0.94	0.83
	Item 2	0.89			
	Item 3	0.91			
User Engagement	Item 1	0.83	0.95	0.95	0.69
	Item 2	0.83			
	Item 3	0.83			
	Item 4	0.83			
	Item 5	0.85			
	Item 6	0.85			
	Item 7	0.86			
	Item 8	0.81			
	Item 9	0.81			
ERP Adoption	Item 1	0.85	0.90	0.93	0.72
	Item 2	0.84			
	Item 3	0.86			
	Item 4	0.85			
	Item 5	0.83			
Personal Innovativeness	Item 1	0.86	0.78	0.87	0.69
	Item 2	0.84			
	Item 3	0.79			
System Quality	Item 1	0.79	0.90	0.92	0.66
	Item 2	0.85			
	Item 3	0.83			
	Item 4	0.81			
	Item 5	0.80			
	Item 6	0.80			
User Satisfaction with ERP	Item 1	0.85	0.87	0.91	0.72
	Item 2	0.86			
	Item 3	0.85			
	Item 4	0.84			
User Training	Item 1	0.86	0.81	0.89	0.72
	Item 2	0.84			
	Item 3	0.84			

the ease of use, resulting in outcomes demonstrability, visibility, and trialability of the technologies. Results reported in this study address such an area of concern. That is, when users recognise the ERP as a high-quality system, they create a desire to embrace, disseminate, and utilise it regularly to raise their visibility among their peers and to execute their tasks to their satisfaction as well as the satisfaction of other stakeholders. The study offers five major contributions to the existing knowledge of ERP adoption-related drivers and outcomes by providing empirical support to the hypothesised relationships. First, drawing inputs from Fishbein & Ajzen (1975), theory of reasoned action, the

Table 2. Discriminate Validity

	1	2	3	4	5	6	7
1. ERP Adoption	**0.846**						
2. ERP Adoption Intention	0.359	**0.911**					
3. Personal Innovativeness	0.184	-0.012	**0.829**				
4. System Quality	0.222	0.456	-0.001	**0.813**			
5. User Training	0.141	0.356	0.023	-0.021	**0.849**		
6. User Engagement	0.538	0.252	0.291	0.048	0.077	**0.833**	
7. User Satisfaction with ERP	0.321	0.379	0.142	0.274	0.136	0.466	**0.849**

Note: *Diagonal value of the table represents the square root of AVE score for the latent constructs, Off-diagonal value represents the inter construct correlation.*

Table 3. PLS Model Results

Hypothesis	Path	β-Value	t-Statistics	p-value	Hypothesis Status
H1	System Quality → ERP Adoption Intention	0.46***	4.99	0.000	Supported
H2	User Training → ERP Adoption Intention	0.37***	5.30	0.000	Supported
H3	ERP Adoption Intention → ERP Adoption	0.36***	4.65	0.000	Supported
H4	Personal Innovativeness → ERP Adoption	0.19*	2.20	0.028	Supported
H5	ERP Adoption → User Satisfaction with ERP	0.32***	4.29	0.000	Supported
H6	ERP Adoption → User Engagement	0.43***	6.31	0.000	Supported
H7	User Satisfaction with ERP → User Engagement	0.33***	4.58	0.000	Supported

*Note: Significant at * $p < .05$; *** $p < .001$.*

present study investigated the role of system quality, user training, and personal innovativeness on an individual's adoption of ERP programmes. . In addition, the study applied Rogers' (1995) diffusion of innovation framework to comprehend the outcome of ERP adoption. Second, the study also empirically investigated the impact of personal innovativeness on ERP adoption. Third, even though prior studies on ERP have focused on the drivers of ERP adoption and user satisfaction as an outcome, the present research added to the existing knowledge of ERP adoption outcomes by empirically examining the impact of ERP adoption on user engagement. The fourth contribution was made by examining the

role of user satisfaction with ERP in building user engagement. Finally, the study also provides a contextual contribution by testing the conceptual model in India.

Managerial Implications

The results of the study provide several relevant pieces of evidence which may encourage the organisation to understand the key determinants of successful ERP implementation and its significant impact on user satisfaction and user engagement with their work. Managers or organizations, in particular, should prioritise their preference for user training programmes in order to foster a positive attitude toward ERP adoption intentions., the organisation should make the ERP package simpler to use and compliant with functionality, reliability, and flexibility. Before the implementation of ERP package, it is also necessary for the firm to understand the individual's willingness to try out an innovation. Finally, the firms must encourage their employees to adopt the ERP programme which may lead to user satisfaction and user engagement at large.

Limitations and Future Research Directions

Despite the fact that our research setting and survey design allowed us to investigate the effects of system quality and user training on ERP adoption intention, as well as the subsequent effects of ERP adoption on user satisfaction with ERP and user engagement, this study has limitations. The small sample size could be an issue for deciding the behavioural aspect of technology adoption (Fan et al., 2019). Further, the research findings are more confined to the Indian setting. Therefore, to generalize the findings of the study, future research may test the hypotheses across other countries. It would be interesting to compare and contrast the findings of the results across the different sizes of organisations. Moderating variable (e.g. past experience with ERP) might play a significant role in examining the relationship between the antecedents of ERP adoption and the consequences. The study did not include all the possible drivers of ERP adoption and its outcomes.

REFERENCES

Abu-Shehab, E., Abu-Shehab, R., & Khairallah, M. (2015). Critical Success Factors for ERP Implementation: The Case of Jordan. *The International Arab Journal of E-Technology*, *4*(1), 1–7.

Agarwal, R., & Prasad, J. (1998). A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology. *Information Systems Research*, *9*(2), 204–215. doi:10.1287/isre.9.2.204

Al-Ghofaili, A. A., & Al-Mashari, M. A. (2014). ERP system adoption traditional ERP systems vs. cloud-based ERP systems. *Fourth Edition of the International Conference on the Innovative Computing Technology (INTECH 2014)*. doi:10.1109/INTECH.2014.6927770

Alam, M. S., & Uddin, M. A. (2019). Adoption and Implementation of Enterprise Resource Planning (ERP): An Empirical Study Mohammad Sarwar Alam 1 Md. Aftab Uddin 2. *Adoption and Implementation of ERP*, *6*(1), 118–150.

Alcivar, I., & Abad, A. G. (2016). Design and evaluation of a gamified system for ERP training. *Computers in Human Behavior*, *58*, 109–118. doi:10.1016/j.chb.2015.12.018

Ali, M., & Miller, L. (2017). ERP system implementation in large enterprises – a systematic literature review. *Journal of Enterprise Information Management*, *30*(4), 666–692. doi:10.1108/JEIM-07-2014-0071

Aljawarneh, N., & Alomari, Z. S. (2018). The Role of Enterprise Resource Planning Systems ERP in Improving Customer Relationship Management CRM: An Empirical Study of Safeway Company of Jordan. *International Journal of Business and Management*, *13*(8), 86. doi:10.5539/ijbm.v13n8p86

Ash, J. S., & Bates, D. W. (2005). Factors and forces affecting EHR system adoption: Report of a 2004 ACMI discussion. *Journal of the American Medical Informatics Association: JAMIA*, *12*(1), 8–12. doi:10.1197/jamia.M1684 PMID:15492027

Bagozzi, R. P., & Edwards, J. R. (1998). A General Approach for Representing Constructs in Organizational Research. *Organizational Research Methods*, *1*(1), 45–87. doi:10.1177/109442819800100104

Banerjee, A. (2018). Blockchain Technology: Supply Chain Insights from ERP. *Advances in Computers*, *111*, 69–98. doi:10.1016/bs.adcom.2018.03.007

Benders, J., Batenburg, R., & Van Der Blonk, H. (2006). Sticking to standards; Technical and other isomorphic pressures in deploying ERP-systems. *Information & Management*, *43*(2), 194–203. doi:10.1016/j.im.2005.06.002

Bentler, P. M., & Chou, C. P. (1987). Practical Issues in Structural Modeling. *Sociological Methods & Research*, *16*(1), 78–117. doi:10.1177/0049124187016001004

Biel, J. (2020). *50 Critical ERP Statistics: 2020 Market Trends, Data and Analysis*. https://www.netsuite.com/portal/resource/articles/erp/erp-statistics.shtml

Bollen, K. A. (1989). *Structural equations with latent variables* (Vol. 210). John Wiley & Sons.

Cheng, Y. M. (2018). What drives cloud ERP continuance? An integrated view. *Journal of Enterprise Information Management*, *31*(5), 724–750. doi:10.1108/JEIM-02-2018-0043

Cheng, Y. M. (2019). A hybrid model for exploring the antecedents of cloud ERP continuance: Roles of quality determinants and task-technology fit. *International Journal of Web Information Systems*, *15*(2), 215–235. doi:10.1108/IJWIS-07-2018-0056

Chin, W. W. (1998). The partial least squares approach for structural equation modeling. *Modern Methods for Business Research,* 295–336.

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences.* Academic Press. doi:10.4324/9780203771587

Costa, C. J., Aparicio, M., & Raposo, J. (2020). Determinants of the management learning performance in ERP context. In Heliyon (Vol. 6, Issue 4). doi:10.1016/j.heliyon.2020.e03689

Costa, C. J., Ferreira, E., Bento, F., & Aparicio, M. (2016). Enterprise resource planning adoption and satisfaction determinants. *Computers in Human Behavior*, *63*, 659–671. doi:10.1016/j.chb.2016.05.090

Das, S., & Dayal, M. (2016). Exploring determinants of cloud-based enterprise resource planning (ERP) selection and adoption: A qualitative study in the Indian education sector. *Journal of Information Technology Case and Application Research*, *18*(1), 11–36. doi:10.1080/15228053.2016.1160733

Eid, M. I. M., & Abbas, H. I. (2017). User adaptation and ERP benefits: Moderation analysis of user experience with ERP. *Kybernetes*, *46*(3), 530–549. doi:10.1108/K-08-2015-0212

Fan, L., Liu, X., Wang, B., & Wang, L. (2017). Interactivity, engagement, and technology dependence: Understanding users' technology utilisation behaviour. *Behaviour & Information Technology*, *36*(2), 113–124. doi:10.1080/0144929X.2016.1199051

Fan, L., Mahmood, M., & Uddin, M. A. (2019). Supportive Chinese supervisor, innovative international students: A social exchange theory perspective. *Asia Pacific Education Review*, *20*(1), 101–115. doi:10.1007/s12564-018-9572-3

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy & Rhetoric*, *10*(2).

Flynn, L. R., & Goldsmith, R. E. (1993). A validation of the goldsmith and hofacker innovativeness scale. *Educational and Psychological Measurement*, *53*(4), 1105–1116. doi:10.1177/0013164493053004023

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *JMR, Journal of Marketing Research*, *18*(1), 39–50. doi:10.1177/002224378101800104

Gupta, M., & Kohli, A. (2006). Enterprise resource planning systems and its implications for operations function. *Technovation*, *26*(5–6), 687–696. doi:10.1016/j.technovation.2004.10.005

Habahbeh, A. I., & Obidat, A. H. (2021). Examining the Factors Influencing the Intention to Adopt Cloud ERP Systems by SMEs in Jordan. *International Journal of E-Services and Mobile Applications*, *13*(3), 1–27. doi:10.4018/IJESMA.2021070101

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate Data Analysis*. Pearson.

Hancerliogullari Koksalmis, G., & Damar, S. (2021). An Empirical Evaluation of a Modified Technology Acceptance Model for SAP ERP System. *Engineering Management Journal*, *00*(00), 1–16. doi:10.1080/10429247.2020.1860415

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20. doi:10.1108/IMDS-09-2015-0382

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55. doi:10.1080/10705519909540118

Jackson, J. D., Yi, M. Y., & Park, J. S. (2013). An empirical test of three mediation models for the relationship between personal innovativeness and user acceptance of technology. *Information & Management*, *50*(4), 154–161. doi:10.1016/j.im.2013.02.006

Jenab, K., Staub, S., Moslehpour, S., & Wu, C. (2019). Company performance improvement by quality based intelligent-ERP. *Decision Science Letters*, *8*(2), 151–162. doi:10.5267/j.dsl.2018.7.003

Kanellou, A., & Spathis, C. (2013). Accounting benefits and satisfaction in an ERP environment. In International Journal of Accounting Information Systems (Vol. 14, Issue 3, pp. 209–234). doi:10.1016/j.accinf.2012.12.002

Kim, Y. H., Kim, D. J., & Wachter, K. (2013). A study of mobile user engagement (MoEN): Engagement motivations, perceived value, satisfaction, and continued engagement intention. In Decision Support Systems (Vol. 56, Issue 1, pp. 361–370). doi:10.1016/j.dss.2013.07.002

Klaus, H., Rosemann, M., & Gable, G. G. (2000). 2000 What is ERP? Information Systems Management Research Center, 1–22.

Lam, T., Cho, V., & Qu, H. (2007). A study of hotel employee behavioral intentionstowards adoption of information technology. *Hospital Management*, *26*(1), 49–65. doi:10.1016/j.ijhm.2005.09.002

Laurel, B. (2013). *Computers as theatre*. Addison-Wesley.

Lee, A. H. I., Chen, S. C., & Kang, H. Y. (2020). A decision-making framework for evaluating enterprise resource planning systems in a high-tech industry. *Quality Technology & Quantitative Management*, *17*(3), 319–336. doi:10.1080/16843703.2019.1626073

Lin, J. S. C., & Hsieh, P. L. (2006). The role of technology readiness in customers' perception and adoption of self-service technologies. *International Journal of Service Industry Management*, *17*(5), 497–517. doi:10.1108/09564230610689795

Lu, J. (2014). Are personal innovativeness and social influence critical to continue with mobile commerce? *Internet Research*, *24*(2), 134–159. doi:10.1108/IntR-05-2012-0100

Lutfi, A. (2020). Investigating the moderating role of environmental uncertainty between institutional pressures and ERP adoption in Jordanian SMEs. *Journal of Open Innovation*, *6*(3), 91. Advance online publication. doi:10.3390/joitmc6030091

Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research. *Management Science*, *52*(12), 1865–1883. doi:10.1287/mnsc.1060.0597

Market Research Engine. (2020). *Cloud ERP Market in India by Deployment (Public, Private, Hybrid) By Enterprise Type (Small & Medium Enterprises, Large Enterprises – Trends & Forecast, 2020-2025*. https://www.marketresearchengine.com/reportdetails/cloud-erp-market-india

Mayeh, M., Ramayah, T., & Mishra, A. (2016). The role of absorptive capacity, communication and trust in ERP adoption. *Journal of Systems and Software*, *119*, 58–69. doi:10.1016/j.jss.2016.05.025

Mezghani, K. (2018). Effects of Personal Innovativeness on IS Managers ' Intentions to Switch Toward Cloud ERP in Saudi SMEs. *The Electronic Journal Information Systems Evaluation*, *21*(1), 46–61.

Moore, G. C., & Benbasat, I. (1991). Moore and Benbasat.pdf. *Information Systems Research*, *2*, 192–222. doi:10.1287/isre.2.3.192

Nah, F. F. H., Tan, X., & Teh, S. H. (2004). An empirical investigation on end-users' acceptance of enterprise systems. *Information Resources Management Journal*, *17*(3), 32–53. doi:10.4018/irmj.2004070103

O'Brien, H. L., & Toms, E. G. (2008). What is user engagement? A conceptual framework for defining user engagement with technology. *Journal of the American Society for Information Science and Technology*, *59*(6), 938–955. doi:10.1002/asi.20801

Patil, P., Tamilmani, K., Rana, N. P., & Raghavan, V. (2020). Understanding consumer adoption of mobile payment in India: ExtendingMeta-UTAUT model with personal innovativeness, anxiety, trust, andgrievance redressal. *International Journal of Information Management*, *54*, 102144. doi:10.1016/j.ijinfomgt.2020.102144

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *The Journal of Applied Psychology*, *88*(5), 879–903. doi:10.1037/0021-9010.88.5.879 PMID:14516251

Ram, J., Corkindale, D., & Wu, M. L. (2013). Enterprise resource planning adoption: Structural equation modeling analysis of antecdants. *Journal of Computer Information Systems*, *54*(1), 53–65. doi:10.1080/08874417.2013.11645671

Rezvani, A., Khosravi, P., & Dong, L. (2017). Motivating users toward continued usage of information systems: Self-determination theory perspective. *Computers in Human Behavior*, *76*, 263–275. doi:10.1016/j.chb.2017.07.032

Robert Jacobs, F., & 'Ted' Weston, F. C. Jr. (2007). Enterprise resource planning (ERP)-A brief history. *Journal of Operations Management*, *25*(2), 357–363. doi:10.1016/j.jom.2006.11.005

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). Simon & Schuster.

Saatçioğlu, Ö. Y. (2009). What determines user satisfaction in ERP projects: Benefits, barriers or risks? *Journal of Enterprise Information Management*, *22*(6), 690–708. doi:10.1108/17410390910999585

Salim, S. A., & Jaffar, S. (2020). A Review of Cloud-Based ERP Systems in SMEs. *International Journal of Integrated Engineering*, *12*(7), 113–120. doi:10.30880/ijie.2020.12.07.013

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, *66*(4), 701–716. doi:10.1177/0013164405282471

Soliman, M., & Karia, N. (2015). Higher Education Competitive Advantage : Enterprise Resource Planning Systems. *International Journal of Research in Management & Technology, 5*(October), 2249–9563.

Soliman, M. S. M., Karia, N., Moeinzadeh, S., Islam, M. S., & Mahmud, I. (2019). Modelling intention to use ERP systems among higher education institutions in Egypt: UTAUT perspective. *International Journal of Supply Chain Management*, *8*(2), 429–440.

Somers, T. M., Nelson, K., & Karimi, J. (2003). Confirmatory Factor Analysis of the End-User Computing Satisfaction Instrument: Replication within an ERP Domain. *Decision Sciences*, *34*(3), 595–621. doi:10.1111/j.1540-5414.2003.02428.x

Sternad, S., & Bobek, S. (2013). Impacts of TAM-based External Factors on ERP Acceptance. *Procedia Technology*, *9*, 33–42. doi:10.1016/j.protcy.2013.12.004

Sternad Zabukovšek, S., Shah Bharadwaj, S., Bobek, S., & Štrukelj, T. (2019). Technology acceptance model-based research on differences of enterprise resources planning systems use in India and the European Union. *The Engineering Economist*, *30*(3), 326–338. doi:10.5755/j01.ee.30.3.21211

Suh, A., Wagner, C., & Liu, L. (2018). Enhancing User Engagement through Gamification. *Journal of Computer Information Systems*, *58*(3), 204–213. doi:10.1080/08874417.2016.1229143

Sundar, S. S., Bellur, S., Oh, J., Jia, H., & Kim, H. S. (2016). Theoretical Importance of Contingency in Human-Computer Interaction: Effects of Message Interactivity on User Engagement. *Communication Research*, *43*(5), 595–625. doi:10.1177/0093650214534962

Syafiera, T., Lubis, M., Witjaksono, R. W., & Anggana, H. D. (2019). The Means of Engagement (MOE) Model of the Agreement towards the Enterprise Resource Planning (ERP) Implementation. *Proceedings of 2019 4th International Conference on Informatics and Computing, ICIC 2019*. doi:10.1109/ICIC47613.2019.8985900

Urbach, N., Smolnik, S., & Riempp, G. (2010). An empirical investigation of employee portal success. In Journal of Strategic Information Systems (Vol. 19, Issue 3, pp. 184–206). doi:10.1016/j.jsis.2010.06.002

Varasteh, Z., Mirabolghasemi, M., & Hosseinikhah, S. (2018). A Proposed Model for Assessing the Determinants of Enterprise Resource Planning Adoption and Satisfaction. *International Journal of Information*. *Security and Systems Management*, *7*(2), 851–859.

Verville, J., Bernadas, C., & Halingten, A. (2005). So you're thinking of buying an ERP? Ten critical factors for successful acquisitions. *Journal of Enterprise Information Management*, *18*(6), 665–677. doi:10.1108/17410390510628373

Pankaj Kumar Mohanty is an Assistant Professor at ICFAI Business School (a constituent of IFHE University), Hyderabad. He has published papers in the Australasian Journal of Information Systems (AJIS), Journal of Electronic Commerce in Organizations (JECO), and Advances in Developing Human Resources (ADHR). He has also presented papers at conferences of national and international repute. His research areas include Customer Engagement, Customer Experience, and Customer Relationship Management.

S. F. Chandra Sekhar is Professor and Head – Research and Publications at the Siva Sivani Institute of Management. He has 30+ years of experience equally in corporations and academics. He is triple post-graduate with an MSW, M.Div, and MBA with a PhD in social work from Osmania University, Hyderabad. His PhD is on the work systems interdependence and quality of work experience in large hospitals. His interests include service management, HR and OB, health care systems, human resource research, data analytics, behavioural services, performance management and high-performance work systems, and spirituality in the workplace. He held assignments at the College of Social Work, the Apollo Institute of Hospital Administration. He also held freelance teaching, training and research assignments at various institutions of national repute. 20 PhDs and one M.Phil were awarded under his supervision. He has published eleven books titled "Nextgen entrepreneurship, Cases in HRM, New Tools in Performance Appraisal, Knowledge Management in Indian Organizations, Emerging Trends in Corporate Communications, Creating Enduring Indian Corporations: Lessons, Models, and Challenges Ahead" and on the social work profession. Around 90 of his publications are in popular peer-reviewed journals. He worked on seven government of India research projects and three reports to corporate bodies. Besides, he participated and presented over 40 papers in various national and international seminars on human aspects of management. During the last 30 years, he served as a resource person in FDPs of universities and colleges, as well as MDPs at several PSUs and private sector companies in India and abroad.He has been active in podcasting more than 1000 hours of lectures covering history, geopolitics, spirituality, research, and behavioural sciences, 24/7, on the internet for the last eight years. All of his lectures are made available online and can be accessed, downloaded using Google search.

Shahaida P. is a Professor in the Centre for Managerial Communication and Marketing at ASCI since December 2011. She holds a Ph. D. in the Services Marketing Area from University of Mysore. She has an M. Phil degree in Management from Alagappa University. She is a Master in Business Administration (Marketing) from Kuvempu University. She holds a Graduate degree in Pharmacy, Government College of Pharmacy, Bangalore University. She has 22 years of industry, teaching, training, research and consulting experience. She has served as a faculty in reputed management institutes in Bangalore and Hyderabad. Her core areas in training are brand management, services marketing, marketing research, sales management, strategic marketing and tourism marketing. She has worked with multinational companies in the areas of sales, sales training and product management. She has published research papers and case studies in many national and international journals in the areas of services marketing, branding, retail etc including South Asian Journal of Management, International Journal of Commerce and Management and International Journal of Mobile Marketing. She has designed and developed training programs in Sales and Brand Management, Thinking Differently, Coping with Difficult People at Work: Employees and Customers, Fostering Core Values and Corporate Social Responsibility. She has conducted more than 40 training programmes at ASCI in General Management and Marketing areas for UCO bank, PGCIL, NCL, BCCL, Goodricke Ltd, Orient Cements, Sun Pharma, MSIL, MMTC, Federal Bank, IOCL, Ministry of Tourism, MDONER etc. She has conducted sessions on Brand building and Customer Relationship Management for the Certified Petroleum Management Program for HPCL, BPCL and IOCL. She has lead Consulting Assignments in the following: Business Plan Development for Pawan Hans Ltd, Measuring Service Quality of Hyderabad Police for National Police Academy, Formulation of Incentive Plans for Sales Executives for Goodricke Group Ltd, Customer Satisfaction Measurement for Midhani and Pawan Hans Ltd, Brand Positioning and Audit Study for Orient Cements. In 2019, She has conducted a customized research and training assignment on Accelerating Sales Performance for Asian Paints Ltd.