Information Systems Success: Empirical Evidence on Cloud-based ERP

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Abstract. Cloud-based ERP is one of the new trends of state-of-art information systems. This paper integrates the illustrious IS success model of DeLone and McLean and the related concepts of trust and perceived risk in an extending success model of cloud-based ERP. Data is collected from 182 participants who have used the cloud-based ERP in Vietnam. A structural equation modeling is effectuated by the maximum likelihood estimation for analysis and evidence. The findings manifest that the constructs of system quality, information quality, IT service quality, perceived risk, trust, and intention to use which have the structural relationships with the net benefit. The research model accounts for 37% of the success of cloud-based ERP.

Keywords: Cloud-based ERP · IS success · Perceived risk · Trust

1 Introduction

Information Technology (IT) is renovating the relationships among the organizational stakeholders and taking an important role in the sustainable growth in GDP of the countries in the world [4]. Cloud-based ERP can support organizations achieve the ERP benefits with little regard about IT infrastructure [22]. Cloud-based ERP solutions also help the organizations reduce the pressure on IT departments, requiring only a cost for ERP software [23]. For instance, the cost of cloud-based ERP is 15% which lower than traditional ERP and implementation time has fallen around 50 to 70% [2]. Hence, the organizations only choose a standard software package or a custom software package to suit their business needs from a supplier. However, the solutions are highly dependent on suppliers, so choosing the right supplier is very important [33]. Several organizations around the world have deployed or are currently in the process of deploying the cloud-based ERP, the market share of ERP systems rose from 11 to 27% in just one year [40]. In Vietnam, there are only 1.1% of organizations using ERP solutions, of which most the ERP projects in these organizations do not achieve as the desired target [38]. Although cloud-based ERP solutions are being considered by many organizations, whether they are accepted or not depends on a variety of factors [1, 2, 22].

Regardless of how the economy, organizations need to consolidate that the investments in Information Systems (IS) are successful. The selection of successful elements depends on the feature and purpose of the IS [13]. Hence, in order to measure the success

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of IS, which is necessary to base on the specific context of IS (e.g., e-commerce, ERP…). The purpose of this study that approaches the background of cloud-based ERP, the literature reviews of the IS success theory of DeLone and McLean [10–13], and other IS theories such as the technology adoption such as TAM of Davis [9], UTAUT of Venkatesh et al. [55], perceived risk and trust in e-CAM of Park et al. [41] and of Bauer [6], Pavlou [42], and the related works. This study proposes and investigates an empirical evidence of the success of IS in the context of ERP in cloud computing. Data is collected from the respondents who have used the cloud-based ERP in Vietnam. A structural model is analyzed by SEM (Structural Equation Modeling). Research results provide the information for organizations in developing the ERP system in cloud computing, and also grant the knowledge of the IS theories. There are five parts of this study: (1) introduction, including the research problem; (2) background, including introduction about cloud-based ERP, literature review about the IS success and related works; (3) research model, including the theoretical framework and hypotheses, and the research method; (4) research result, including the analyses of exploratory factor, confirmatory factor, structural equation modeling, and the discussion; (5) conclusion and future work.

2 Background

2.1 Cloud-Based ERP

Cloud Computing

Cloud Computing (cloud) is becoming more and more popular in the global and it is the growing trend in modern IT [39]. Nevertheless, cloud computing is not completely new technology, it is the combination among the constituents of existing IT services [18]. Some researchers believed that the cloud represents the future for the IT use. In particular, the power of cloud computing has a profound impact on the IT industry, organizations do not need to install software on their systems and not need to buy the hardware or software, which simply hires the IT service from the vendor [54]. Thus, the services of cloud-based can excommunicate the hardware and software cost, it countenances the organizations focus more on business than IT [5].

Enterprise Resource Planning

Enterprise Resource Planning (ERP) is also a new trend of IS, this is an IS that helps organizations manage their resources and operations, ERP integrates different modules into one system, that supports the core functions of the organization [29]. Enterprise resource planning combines single activities into the multi-function and integrates the whole of the activities of the organization into one system [45]. ERP brings many benefits, such as improving business efficiency by keeping the business process running smoothly, supporting management in providing decision-making information, enabling the operation of the organization or business more flexible [46].

ERP in Cloud Computing

ERP in Cloud Computing (cloud-based ERP) is the enterprise resource planning system has been stored in the cloud computing environment [35]. Cloud-based ERP has

deputized a model variation in the possessions of IS, it accommodates flexibility, adaptability, scalability, availability, cost efficiency, and configurable for the corporation [2], it also enraptured presto growth global [36].

Cloud-Based ERP Infrastructures. Three main kinds of cloud-based ERP services are described in detail in Fig. 1: (1) IaaS for ERP: organizations use IaaS for their ERP operations, they can typically lease servers from cloud computing providers. Accordingly, the organizations can still choose the ERP vendors and purchase ERP licenses [47]. (2) PaaS for ERP: platform services at this level are used for software development, software testing, software distribution, the PaaS for ERP is not for an integrated system and packaging software of the ERP system [47]. (3) SaaS for ERP: the role of providers of cloud-based ERP service are linked together, which allows the organizations to choose their preferred model, such as the operating ERP system on the internal or external cloud [47].

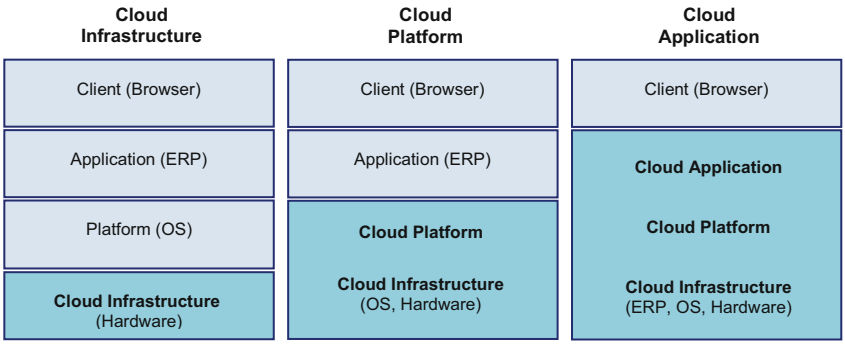

Fig. 1. The framework of cloud-based ERP (Source: Johnson [25])

Cloud-Based ERP Benefits and Drawbacks. Some benefits of the cloud-based ERP (Fig. 2): (1) Lower cost: Instead of being purchased entirely, cloud-based ERP deployments are paid for through a model of subscription, which typically includes not only software but also storage and support costs [53]. Hence, the initial capital cost required for deployment is significantly lower cost than for corny systems and operating costs. (2) Less staff: it needs less IT staffs and business analysis specialists as most of the ERP services including technical support, which is handled by the organizational outside experts [51]. (3) Increased innovation: it conducts through the open source software usage, all functions of ERP have benefited from the innovation acceleration that can be brought from cloud [47]. (4) Mobility and usability: the cloud allows users to access the ERP service through mobile devices [20], it increases the cloud-based ERP use inside and outside the corporation [15]. (5) Rapid deployment: A major limitation for both in-house and cloud-based ERP systems is that the system integrators and the vendors who regularly use existing templates must be configured and customized to accommodate the process and specific practice of the corporation [39]. (6) Flexibility and scalability: cloud-based ERP can be easily customized and expanded [15], it develops new solutions for the corporation to acquire functions and additional software without going through the delivery process of usual forbidden software [53].

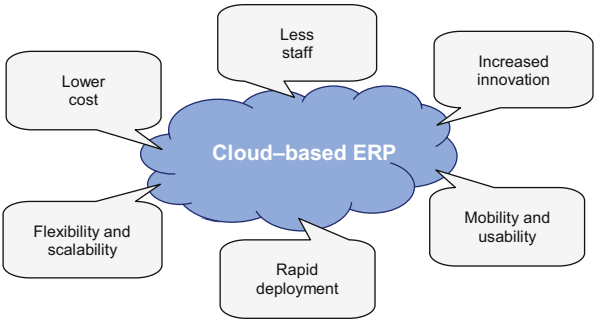

Fig. 2. Some benefits of cloud-based ERP

Beside cloud-based ERP benefits, there are still the drawbacks of SaaS (Table 1). For example, SaaS uses a cloud application – the customer does not have the option to move the application to the different providers; SaaS uses a cloud platform – the vendor manages the application while the provider manages the infrastructure; SaaS uses a cloud infrastructure – some would argue this is nothing more than a hosted service with a slightly lower pricing structure [39].

Table 1. The drawbacks of SaaS

SaaS	Drawback
SaaS uses a cloud application	Vendor "lock–in", the customer does not have the option to move the application to the different provider
SaaS uses a cloud platform	Coordination drawbacks, the vendor manages the application while the provider manages the infrastructure
SaaS uses a cloud infrastructure	Some would argue this is nothing more than a hosted service with a slightly lower pricing structure

Source: Nguyen et al. [39]

IS security issues are a huge challenge for the cloud-based ERP. Nevertheless, both software and hardware are applied by many solutions of security for the Internet platform, and the cloud has higher security standards than the Internet [31]. In addition, deliberate the relation between security risks and benefits, the enterprise can fully nominate the secure cloud applications [39]. Thus, the service providers of cloud-based solutions must provide the latest technology with a commitment to security.

2.2 Related Work

IS Success

IS success does not have a unified definition [12, 43, 48]. A typical definition of the IS success as "*information systems success ultimately corresponds to what DeLone and McLean label individual impact or organizational impact*" [21, p. 213], another

definition with organizational perspective as "*information system-impact of an information system as a measure at a point in time of the stream of net benefits from the information systems, to date and anticipated, as perceived by all key user groups*" [17, p. 381]. Whereby, Keen [26] provided that the scientific basis of imperfection in the studies of IS and enunciated that the dependent variable should continue research and clarify on the IS theories. In measuring the success of IS, there are many ways for the measurement. Which considered "information" as an IS output or message in a "communication", that can be measured at three levels (technical level, semantic level, and effectiveness) [10]. Suitably, the technical level is the system accuracy and efficiency with information's procedures, the semantic level is the information success in conveying meaning, and the effectiveness level is the information effect on the recipient [50]. Then, Mason [34] investigated "effectiveness" as "influence" and defined the effectiveness level is "hierarchy of events which take place at the receiving end of an information system which may be used to identify the various approaches that might be used to measure output at the influence level" [34, p. 277].

The original IS success model (original D&M) was proposed by DeLone and McLean [10] at three levels with six factors, as (1) system initialization: "system quality" measures of the information processing system itself, and "information quality" measures of an IS output; (2) system use: "use" is understood as recipient consumption of an IS output and "user satisfaction" is understood as the recipient consumption of an IS output; (3) system effectiveness: "individual impact" is the information effectiveness on the recipient behavior, and "organizational impact" is the information effectiveness on the firm performance [10]. DeLone and McLean [11] updated the original IS success model and proposed a new model of IS success (updated D&M). The main differences with the original IS success model, as adding "service quality" factor to reflect the service and support importance in the IS success; adding "intention to use" factor to measure user attitudes as a substitute for "use". The updated IS success models consists of six factors: three quality factors (information quality, system quality, and service quality), intention to use, use, user satisfaction, and net benefits [11, 12]. The concept of "intention to use" relates to the theory of technology adoption in TAM of Davis [9], UTAUT of Venkatesh et al. [55]). In addition, "intention to use" can replace "use" in some contexts, "intention to use" is the attitude – "use" is the behavior, attitude and behavior can be linked [11]. Because of difficult to measure "use", so many studies propose the attitude scale for the behavior scale. There are some works used the term IS to be tantamount to the IS success, others have used the IS effectiveness to cover the concepts of individual impact and organizational impact or net benefits [10–12].

Meanwhile, there are still the gaps in the IS works, especially, the dependent variable of the IS models. Hence, scholars have rummaged to find new factors and new relationships for the contribution to the theory of IS success. Whereas there are many studies about cloud computing (e.g., Badi et al. [5]), also about ERP (e.g., Ngai et al. [37]). Little is known on the adoption model and IS success model in the context of the cloud computing, especially, cloud-based ERP (except, e.g., Albar and Hoque [2]). In short, most of the related studies have not provided the integration model between IS success, trust and perceived risk of cloud-based ERP.

Trust and Perceived Risk

The trust is thought to be an action, an attitude or a tendency, a relationship or an option [3], also the degree a consumer confides in a trustee and feels secure to take any transaction with that specific service provider [30]. Trust is ''*a defining feature of the major social and economic interactions in which uncertainty is present*'' [42, p. 106]. The trust is the subjective belief that a party will fulfill its obligations according to the expectations of stakeholders as the goodwill [42]. Declarations such as "trust me" or "cloud security" which do not help much to increase the trust level of consumer confidence, unless the information is presented with the products or services [27].

The perceived risk theory was proposed by Bauer [6] for consumer behavior of IT sector which has been aware of the risks. Perceived risk is ''*a combination of uncertainty plus seriousness of outcome involved*'' [6, p. 13]. Perceived risk includes two perceived risks negatively related to the product or service and online transaction [41]. In which, product or service risk is the overall account to uncertainty or discomposure observed by a user in a conspicuous product or service when used to e-commerce [41], and online transaction risk is a possible the transaction risk, users can face when disclosed to e-commerce [41]. Thus, e-commerce adoption model (e-CAM) of Park et al. [41] is a typical model of perceived risk. More and more personal information and companies are placed in the cloud. The concern is how to ensure a safe environment [52].

There are many related works perceived risk about the online purchase (e.g., Jarvenpaa et al. [24]), online process (e.g., Gefen et al. [19]), cloud-based ERP (e.g., Lim et al. [32]). The perceived risk in this study is known as the opportunistic behavior related to the disclosure of organizational information submitted by the cloud-based ERP adoption. The risks include that information is misused and available to unknown individuals, companies, or government agencies [14]. Interestingly, several scholars have worked on both of trust and perceived risk. For example, Gefen et al. [19], Park et al. [41], so empirical evidence on the cloud-based ERP with trust and perceived risk are the suitable theory.

3 Research Model

3.1 Theoretical Framework

Based on the background of cloud-based ERP, the literature review of the D&M models, other IS theories such as the technology adoption (TAM, UTAUT), the theories of trust and perceived risk, and the related works, a model for cloud-based ERP success is built in Fig. 3. In which, the elements of trust and perceived risk are based on Bauer [6], Pavlou [42], e-CAM of Park et al. [41], the elements of system quality and information quality are based on the original D&M model of DeLone and McLean [10], the elements of IT service quality and net benefit are based on the updated D&M models of DeLone and McLean [11, 12], and intention to use is based on the D&M models of DeLone and McLean [10–13], TAM of Davis [9], UTAUT of Venkatesh et al. [55]. All elements and the relationships among them are exculpated as below:

System Quality (SYQ): is a measure of the expected characteristics of an information system [10]. The concept of ease of use is an aspect of system quality in evaluating the models of IS [44], so system quality is similar to easy to use in TAM of Davis [9]. System quality is considered for the success of D&M models in DeLone and McLean [10–12], Gable et al. [17], Seddon [48], which is the most prominent concepts in the theoretical models for the IS success.

Information Quality (INQ): is a measure of the accuracy, timeliness, completeness, relevance, and consistency of an information system [10]. The concept of information quality may vary by systems, there may be major differences in practice, so this variance should be amounted to in the empirical IS study [49]. Along with system quality, information quality is one of the most factors in the conceptual frameworks of the IS success, both of them have DeLone and McLean [10] as the foundational theory.

IT Service Quality (ISQ): is known that system user is received the support of the IS and IT support staff [11, 12]. According to DeLone and McLean [11], the related works indicated that the IT service quality contributes to individual impact, should be considered as a concept in the D&M model, it is concerned as the service quality. Therefore, with the IS success model that can be added IT service quality as a new concept in the IS success model [13].

Perceived Risk (PER): is the customer perception of negative consequences and uncertainty or outcomes related to specific behavior [6], also as a structure that reverberates the customer uncertainty emotions about the possible negative effect on the using new technology [41]. Perceived risk can be caused by lack of ability, reputation, and concern to protect the user privacy, so high risk can ultimately result that users having a negative attitude [7].

Trust (TRU): is conceived as a belief in the ability, benevolence, integrity, and predictability of the e-provider [19]. Trust is also the belief of the individual that cannot be sure of the outcome, or the other act appropriately responsibly [43]. In addition, trust is formed by two components as a perceived component and a behavior component expressed as the willingness or desire to follow a specific action [8]. System quality and information quality are the antecedents of the original and updated D&M models as in DeLone and McLean [10–12] and service quality is an antecedent of the updated D&M models as in DeLone and McLean [11, 12]. Notwithstanding, DeLone and McLean [13] indicated that the antecedents of the D&M models can have the positive impact on trust. Moreover, Cabanillas et al. [8] evidenced these relationships. Hence, the under cloud-based ERP, we propose hypotheses H1, H2, and H3:

- *Hypothesis H1: System quality has a positive impact on the trust.*
- *Hypothesis H2: Information quality has a positive impact on the trust.*
- *Hypothesis H3: IT service quality has a positive impact on the trust.*

Some scholars argued that the relationships between perceived risk and trust are parallel as in Featherman and Pavlou [16], serial as in Cabanillas et al. [8], and trust is a function of perceived risk as in Pavlou [42]. Furthermore, Kim and Benbasat [28] mentioned that the lower level of perceived risk is related to the higher level of trust in the IS. Thus, under the cloud-based ERP, we propose a hypothesis H4:

– *Hypothesis H4: Perceived risk has a negative impact on the trust.*

Intention to Use (ITU): is the attitude and belief of the user about the ability to use the IS, using the multi-attribute tool to measure the intention of the user [11]. Several works envisage the intention to use as the success of IS variable based on the related theories, such as the TAM of Davis [9], UTAUT of Venkatesh et al. [55] for the theoretical illumination. Hence, most of the important elements for the intention to use are the individual characteristics of using the IS. The influence of the trust and the perceived risk as in Pavlou [42] on the intention to use or behavioral intention as in the theories of trust and perceived risk. In addition, Featherman and Pavlou [16], Gefen et al. [19] have also confirmed this relationship. Thus, under the cloud-based ERP, we propose hypotheses H5 and H6:

– *Hypothesis H5: Perceived risk has a negative impact on the intention to use.*
– *Hypothesis H6: Trust has a positive impact on the intention to use.*

Net Benefit (NEP): is the degree to which IS are contributing to the success of individuals, groups, organizations, industries, and nations [11]. DeLone and McLean [11] collapses two factors "individual impact" and "organizational impact" in the original D&M model into a single variable "net benefit" in the updated D&M model as an outcome of IS success, it does not act the problem go forth. Specifically, the original D&M model of DeLone and McLean [10] and the updated D&M model of DeLone and McLean [11] specified the positive impact of intention to use or use on net benefit. Furthermore, the related works have confirmed this path as in Petter et al. [43], Seddon [48]. Hence, under the cloud-based ERP, we propose a hypothesis H7:

– *Hypothesis H7: Intention to use has a positive impact on the net benefit.*

3.2 Research Method

Research Process

There are two phases in this work: (1) a preliminary research with the method of qualitative, and (2) a formal analysis of the method of quantitative. Firstly, from the well-known theory of IS success, the literature review and the related works such as the concepts of trust and perceived risk and other related studies, a draft scale is established. Then, discussions and focus groups with the experts who are the professional person on the topic of cloud-based ERP, the accuracy contents of the scale is consolidated. Next, the final measurement uses for the formal research. A 5-point Likert: 1 – strongly disagree; 2 – disagree; 3 – undecided; 4 – agree; 5 – strongly agree, which measures the item assessment levels. In the measurement scale, there are four items of the system quality element; four items of the information quality element; four items of the IT service quality element; five items of the perceived risk element; four items of the trust element; three items of the intention to use element; and four items of the net benefit element. A convenient sampling method of data is investigated, and the questionnaires are sent to participants who have used the system of cloud-based ERP. Finally, the collected data are analyzed with the structural equation modeling technique by AMOS and SPSS applications. In this work, there are 182 valid samples out of 200 samples of 28 items.

Data Description

Age: the age groups of 16–25 and 26–35 are the plurality with 29 and 54%, respectively, followed by the age group of 36–45 up to 14%, and age group of over 45 is the lowest roundly 3%. *Gender:* it has a small difference of 43% female and 57% male. *Education:* 87% of the university degree, intermediate/college and postgraduate amount to five and six percents, respectively, and two percent of high school. *Job Position:* staff is the highest percent of 54%, there are 24% of respondents are the team leader, and manager, director, and others account for 15, five and one percents, respectively. *Experience:* below three years has the most percent with 40%, followed by 4–6 years and 7–9 years accounts for 37 and 20%, and the experience of over ten years is the lowest roundly three percent.

Cloud based-ERP: most of the respondents use Bitrix cloud-ERP with 54%, Ecount ERP amounts to 25%, similarities exist between Infor cloud suite and Teamcrop cloud-ERP is roundly nine percent respondents, the other kinds of cloud based-ERP is only three percent, a lower rate. The data sample description is manifested details in Table 2.

Table 2. Data description

	Frequency	Percentage		Frequency	Percentage
– *Age*			– *Gender*		
Ages 16–25	52	29	Male	104	57
Ages 26–35	98	54	Female	78	43
Ages 36–45	26	14	– *Job Position*		
Over age 45	6	3	Staff	98	54
– *Education*			Team leader	43	24
High school	3	2	Manager	29	16
Inter./College	9	5	Director	10	5
University degree	158	87	Others	2	1
Postgraduate	12	6	– *Cloud based–ERP*		
– *Experience*			Bitrix cloud–ERP	98	54
Below 3 years	72	40	Ecount ERP	45	25
4–6 years	68	37	Infor cloud suite	17	9
7–9 years	37	20	Teamcrop cloud–ERP	17	9
Over 10 years	5	3	Others	5	3

4 Research Result

4.1 Exploratory and Confirmatory Factor Analyses

Firstly, eliminate an item of system quality factor (SYQ_1) and an item of information quality factor (INQ_3) in reliability analysis, because of the correlation-item value of these factors is less than 0.60. Secondly, eliminate an item of system quality factor (SYQ_4) in the first Exploratory Factor Analysis (EFA), because of the factor loading is less than 0.50. Then, in the second EFA with EFA's factor loading of all items is between

0.648 and 0.887. Finally, the Confirmatory Factor Analysis (CFA) is taken to refine and assess the measurement scales. CFA on the overall measurement model displays the following results: Chi-square (χ^2)/dF equal to 1.315; p-value equal to 0.003; GFI equal to 0.903; TLI equal to 0.960; CFI equal to 0.971; RMSEA equal to 0.042. The CFA's factor loading of all items ranges from 0.621 to 0.884. Besides, the Average Variance Extracted (AVE) values between 0.509 and 0.754 (Table 3), so the scale of measurement reaches the convergence value.

Table 3. Mean and confirmatory factor analysis results

	Mean	SD	SYQ	INQ	ITQ	PER	TRU	ITU	NEB
SYQ	3.792	0.821	0.754*						
INQ	3.865	0.703	0.256	0.618*					
ITQ	3.952	0.692	0.368	0.345	0.509*				
PER	3.431	0.965	0.062	0.003	0.032	0.557*			
TRU	3.885	0.663	0.250	0.159	0.381	0.003	0.536*		
ITU	3.910	0.607	0.478	0.441	0.254	0.094	0.425	0.518*	
NEB	3.861	0.609	0.185	0.336	0.295	0.002	0.254	0.276	0.546*

*SD: Standard Deviation; * Average Variance Extracted (AVE)*

In addition, the value of AVE for each element is larger than the square correlation coefficient (r^2), detail in Table 3, so the scale of measurement is the discriminant value. After the EFA and CFA, the data are the coincidence for the next analysis – structural equation modeling.

4.2 Structural Equation Modeling

The Structural Equation Modeling (SEM) is effectuated by the estimation of ML (Maximum Likelihood). The model indexes indicate adequate fit with the Chi-square (χ^2)/dF equal to 1.247; p-value equal to 0.018; CFI equal to 0.907; TLI equal to 0.967; CFI equal to 0.977; RMSEA equal to 0.037. The standardized path coefficients of the model are shown in Table 4. In which, there are the positive effect of system quality, information quality, and IT service quality on the trust with the γ coefficient equal to 0.304, 0.426, and 0.243 (p-value < 0.005), respectively, so that supports the hypotheses H1, H2, and H3. Besides, the path from perceived risk to the trust is not statistical significance (p-value > 0.05), so the hypothesis H4 is rejected. However, perceived risk has a negative effect on the trust with the γ coefficient equal to -0.179 (p-value < 0.05), which in turn the hypothesis H5 is supported. Trust has a positive effect on the intention to use with the γ coefficient equal to 0.672 (p-value < 0.001), so the hypothesis H6 is strongly supported. It has strongly supported the hypothesis H7 by showing the affecting of intention to use on the net benefit with the γ coefficient equal to 0.607 (p-value $<$ 0.001). The results of the SEM also provide the indexes of the Standard Error (SE) as the standard deviation of the sampling distribution of the paths, detail as in Table 4.

Table 4. Structural equation modeling results and hypothesis testing

H	Path	Estimate	SE	p–value	Result
H1	TRU ← SYQ	0.304	0.056	***	Supported
H2	TRU ← INQ	0.426	0.073	***	Supported
H3	TRU ← ITQ	0.243	0.048	0.002	Supported
H4	TRU ← PER	–0.028	0.035	0.728	Rejected
H5	ITU ← PER	–0.179	0.046	0.035	Supported
H6	ITU ← TRU	0.672	0.094	***	Supported
H7	NEP ← ITU	0.607	0.105	***	Supported

*SE: Standard Error; *** p–value < 0.001*

4.3 Discussion

The research results provide that all measurement scales of the variables of antecedents (system quality, information quality, IT service quality, perceived risk) – intermediates (trust, intention to use) – outcome (net benefit), which ensure reliability. The EFA and the CFA purvey that the measurement scale reaches the convergence value. Mainly, the SEM test and valid all paths and hypotheses. Specifically, the paths from system quality and information quality to the trust are relatively large, with the γ coefficients of 0.304 and 0.426, respectively, and the IT service quality has a positive impact on the trust with the γ coefficient of 0.243 which confirmed the work of DeLone and McLean [13]. Differently, under the cloud-based ERP, although a path from the perceived risk to the trust is not significant, because the data does not support this relationship, a negative path from the perceived risk to the intention to use is significant with the γ coefficient of –0.179 as in Pavlou [42]. Distinctly, the path of the trust with the intention to use is the largest coefficient (γ equal to 0.672) in the structural model. Which has strongly confirmed the works of Gefen et al. [19], Pavlou [42]. Finally, under the cloud-based ERP, the research model is accuracy with the original D&M model of DeLone and McLean [10], the updated D&M models of DeLone and McLean [11, 12], because the data has strongly supported the positive relationship between the intention to use and the net benefit with the γ coefficients of 0.607. In summary, six out of seven hypotheses are supported.

Interestingly, the results also externalize that when the trust is included, the factors of systems (system quality, information quality, IT service quality), the perceived risk are able to explain the intention to use nearly 79% (R^2 equal to 0.786). In the findings, they are comparable to the IT adoption model such as TAM of Davis [9] and UTAUT of Venkatesh et al. [55], and which explained about 45 and 56% of the variance in intention to use, respectively.

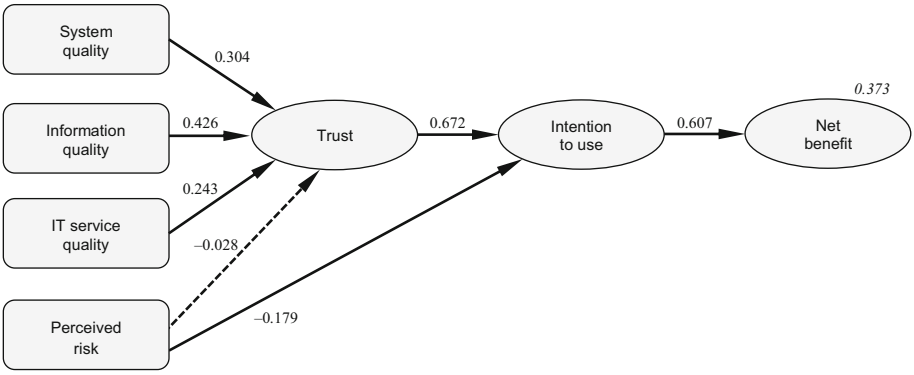

Fig. 3. The success model for cloud-based ERP

Besides, the antecedents and the intermediates are able to provide an overall determinant of the net benefit roughly 37% (R^2 equal to 0.372) in this empirical evidence on the context of cloud-based ERP. In which, did not concern on the related works of the IS success – the theory studies as in DeLone and McLean [10–12], or empirical studies as in Petter et al. [43], Seddon [48]. Interestingly, the predictors of IS success in the context of cloud-based ERP are empirically validated and theoretically significant. In Fig. 3, it illustrates the model for cloud-based ERP success, including the presentation of the paths of the model and also the hypotheses.

5 Conclusion and Future Work

This study approached the background of cloud-based ERP as the enterprise resource planning system in the cloud computing environment, including the infrastructures, and the benefits and drawbacks of cloud-based ERP. Distinctly, authors integrated the theoretical exploration and confirmation of perceived risk and trust with the IS success into one model, this work proposes and investigates an empirical evidence of the IS success in the context of ERP in cloud computing. The model for cloud-based ERP success was empirically validated basic. Specifically, the determinants of system quality, information quality, and IT service quality have positively impact on trust. Perceived risk is positively related to the intention to use, and trust negatively related to the intention to use of cloud-based ERP. Moreover, intention to use of cloud-based ERP directly influences the net benefit. Therefore, this work continues to contribute to the knowledge, exploring the theory of IS success and related theories as perceived risk and trust in the context of cloud-based ERP, and IS in general.

In future work, the authors may possible to add more the predictors of IS success for exculpating the net benefit, do literature the theory on the performance of IS with individual and organizational impacts. Furthermore, the demographics may be considered as moderating factors in the model of IS success.

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