Information Systems Success: The Project Management Information System for ERP Projects

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Abstract. Project Management Information System (PMIS) is a core stone for organizations to plan and implement successfully their projects. Hence, PMIS success is also a central topic for both academicians and practitioners. Based on well–known Information Systems Success model (DeLone & McLean), highly cited Technology Acceptance Model (TAM), and the related works, a success model of PMIS for ERP projects is proposed and validated. A survey study with path analysis of 160 participants who have used the PMIS for the ERP projects at FPT Information System – a member of the FPT Group that shows all hypotheses empirically supported. The findings indicate that ERP project's success is determined by PMIS user satisfaction that in turn is influenced by user ease of use, system quality, functional–information quality, and support–service quality.

Keywords: ERP · Information systems · PMIS · Project success

1 Introduction

Globalization and the internationalization of markets have increased competitive pressures on business enterprises [42]. PMIS are widely regarded as an important building block in project management [3, 49]. In the IT industry, Gartner provides that 75 % of projects managed with the support of the PMIS will succeed, while 75 % of projects without such support will fail [27]. The nature and role of a PMIS within a project management system, have been characterized as fundamentally "*subservient to the attainment of project goals and the implementation of project strategies*" [42]. Using PMIS to manage projects, while not sufficient to insure project success, has thus become a necessity [6, 42]. DeLone and McLean [9–11] models refer back to research conducted in the model theoretical foundation of Shannon and Weaver [46] communication theory as well as Mason [29] communication systems approach. However, several researchers had referenced the original model and made suggestions for improvement (e.g., Rai et al. [39]; Seddon [44, 45]). Consequently, the studies on the IS success are essential, it is evidenced by different research that several models have been proposed to determine and measure the IS success (e.g., DeLone and McLean

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[9, 11]; Seddon [44]; Nguyen [30]). Besides, there are several kinds of studies on PMIS (e.g., Ali et al. [4]; Raymond and Bergeron [42]; Kaiser and Ahlemann [23]). However, these studies are not entirely appropriate for measuring ERP project's success for several reasons, namely specificities, characteristics, implementation complexity [16].

Based on DeLone and McLean [9–11], TAM [8], and the related works (e.g., Seddon [44]; Kaiser and Ahlemann [23]; DeToni et al. [12]; Nwankpa [35] …), this work validates a model of the success of PMIS for ERP projects at FPT Information System (FPT IS). FPT IS is a member of the FPT Group. It includes 10 subsidiaries and a joint venture. FPT IS employs more than 2,700 engineers with in–depth expertise in application, IT and ERP services, systems integration, business process outsourcing, IT equipment provision [15]. This study addresses the following objectives: improving the understanding of the impacts of PMIS on performance for ERP projects. Specifically, one intends to ascertain the success of ERP systems (e.g., information quality, system quality, user satisfaction). The other one will also ascertain to what extent PMIS contribute to the successful completion of ERP projects through the individual and organizational impacts. Besides, verifying if user satisfaction is related to qualities (e.g., service quality, ease of use), and also influence on the ERP project's success. Accordingly, this work is structured as follows: (1) introduction indicates research problem. (2) Research model shows literature review and theoretical framework, including hypotheses, and research methods. (3) Research results provide data, and these analysis results with reliability analysis, exploratory factor analysis, regression analysis, path analysis, and result discussions. (4) Conclusions and future work.

2 Research Model

2.1 Literature Review

Project Management Information System. The theoretical and practical importance of PMIS to the project management field [42], there have been as of yet few studies on the actual use and impacts of these systems. Therefore, highlighting the need to extend project management theory with the developing practice [50]. The PMIS empirical works have been mostly limited to describing the project management software usage characteristics [26] and to evaluating specific applications of these systems to support project management tasks. For example, planning [5], managing risks [22], scheduling [19], estimating and controlling costs [28], managing documents [5]. Project management software usage has also been found to have many drawbacks and limitations, both in theory when compared to an ideal PMIS by scholars and in practice as perceived by project managers [22, 49].

There are several kinds of studies on PMIS. For instance, algorithms for operational problems related to project management [42]; new types of functionality [25]; project management software usage [23]. Besides, PMIS adoption and success have been worked by Ali et al. [4] provided the impact of organizational and project factors on the PMIS adoption and discovered that higher project complexity and the level of information quality explain PMIS usage. Raymond and Bergeron [42] confirmed the role of the information quality. Furthermore, these authors showed that positive impacts on the project manager will lead to higher project success [23]. Specifically, one intends to ascertain the success of these systems as determined by the PMIS quality and the information quality that provide. One will also determine to what extent PMIS contribute to the success of projects through their individual and organizational impacts [42].

Information Systems Success. In 1980, Keen [24] referred to the lack of the scientific basis in IS research and argued that mandatory variables (e.g., user satisfaction, usage) would continue to mislead researchers and dodge the information theory issue. In searching for the IS success, there are many studies have been shown. This is understandable when considers as "information", an output of IS or a message in communication systems, can be viewed at different levels (e.g., technical level, semantic level, and effectiveness level) [9]. In communication context, Shannon and Weaver [46] defined technical level as the propriety and efficiency of the system that effectiveness the information, semantic level as the intended the information in promulgate the intended meaning, and effectiveness level as the effect of the information to the receiver. Based on this basis, Mason [29] considered "*effectiveness*" as "*influence*" and defined information influence level as "*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*" [29, p. 227]. According to DeLone and McLean [9], the influence events include the receipt of the information, and the application of the information, leading to a change in recipient behavior and a change in system performance.

After the publication of the first IS success model [9], some scholars claimed that the IS success is incomplete and suggested that more dimensions should be included in the model or proposed the other models. For example, Seddon [44] argued that the IS success model gaps comprehensiveness and further respecified the original IS success model by differentiating actual and expected impacts, as well as by incorporating the additional perceived usefulness in TAM [8]. Then, Rai et al. [39] showed that both original D&M model and Seddon [44]'s model are adequately explained IS success. Therefore, DeLone and McLean [10, 11] added service quality in an updated IS success model. After that, several authors tried to test this model empirically. For example, Gable et al. [16] re–conceptualized the DeLone and McLean model and suggested new IS success model. Additionally, Sabherwal et al. [43] conducted a comprehensive analysis to validate the D&M model and highlighted the importance of contextual attributes in IS success. However, Gable et al. [16] evaluated that many measures in D&M model were inappropriate to measure the ERP success. Thus, Gable et al. [16] removed user satisfaction and proposed another model, including system quality, information quality, individual impact, and organizational impact. This model was also considered as a base for the IS success model [41]. After that, Petter et al. [37] reviewed research published from 1992 to 2007 and identified the variables that potentially can influence on IS success. Furthermore, other domains have been tested using the D&M model that integrated with technology adoption model, including ERP [14, 20, 21, 41], social network [32], cloud–based e–learning [33, 34], e–banking [31, 38], etc.

Moreover, technology adoption is examined extensively in IS research. First, TRA was investigated in psychosocial perspective to identify elements of the trend conscious behavior [2]. Then, TPB proposed from the TRA and add perceived behavioral control dimension [1]. Next, TAM based on the theoretical foundation of the TRA to establish relationships among variables to explain behavior regarding acceptance of IS [8]. The most extended of TAM (e.g., TAM2, TAM3) can be best understood by exploring the determinants to perceived usefulness and perceived ease of use [33, 34].

2.2 Theoretical Framework

According to DeLone and McLean [9–11], TAM [8], and the related studies. The conceptual model and measurement have been proposed that there are five independent variables – such as information quality [9, 11, 16, 23, 42]; system quality [7–11, 13, 16, 42]; service quality [11, 20, 23, 44, 45]; functional quality [23, 25]; ease of use [8, 12, 23]. One intermediate variable – called PMIS user satisfaction [7, 11, 13, 23, 27]. And one dependent variable, namely ERP project's success [11, 17, 21, 23, 40].

Similar to other IS, a successful PMIS should have individual impacts in terms of user satisfaction [7]. The success dimension PMIS for ERP projects should have organizational impacts (e.g., cost, schedule, time [42], quality [11]), and also satisfaction. The success dimension *PMIS user satisfaction* (PUS) constitutes the satisfaction level of the user when utilizing PMIS for ERP projects [11]. It is considered as one of the most important IS success measurement. Widely used user satisfaction instruments are the ones by Doll et al. [13]. However, these instruments also contain quality factors (system, information, and service) rather than measuring user satisfaction. Accordingly, other items have been developed to measure exclusively user satisfaction with an IS [47]. This dimension is referred by the D&M model of DeLone and McLean [10, 11]; research on PMIS on decision making of Caniels and Bakens [7], measuring PMIS success of Doll et al. [13]; Kaiser and Ahlemann [23], research on ERP success by Hsu et al. [20]; Nwankpa [35].

The success dimension *information quality* (INQ) constitutes the desirable characteristics of an IS's output [9, 11]. It subsumes measures the information quality that the system produces and its usefulness for the user [47]. Information quality is seen as a key antecedent of user satisfaction [16]. This dimension is referred by the D&M model of DeLone and McLean [10, 11], research on the extension of the D&M model of IS success of Seddon [44, 45], measuring PMIS success of Kaiser and Ahlemann [23], research on ERP success by Gupta and Naqvi [17]; Hsu et al. [20]; Ifinedo and Olsen [21]. Thus, with PMIS for ERP Projects, it hypothesizes that:

– *H1: Information quality has a positive effect on PMIS user satisfaction.*

The success dimension *system quality* (SYQ) constitutes the desirable characteristics of an IS and subsumes measures of the IS itself [9–11]. These measures typically focus on usability aspects and performance characteristics of the system under examination [47]. This dimension is referred by the D&M model of DeLone and McLean [9–11], TAM by Davis [8]; research on re–conceptualizing IS success of Gable et al. [16], PMIS on project performance of Raymond and Bergeron [42], research on ERP success by DeToni et al. [12]; Hsu et al. [20]; Ifinedo and Olsen [21]. Thus, with PMIS for ERP projects, it hypothesizes that:

– *H2: System quality has a positive effect on PMIS user satisfaction.*

The success dimension *service quality* (SEQ) represents the quality of the support that the users receive from the IS department and IT support personnel [10, 11]. This construct is an enhancement of the updated D&M model that was not part of the original model [47]. The inclusion of this success dimension is not indisputable since system quality is not seen as an important quality measure of a single system [44, 45]. In the PMIS context, this dimension covers the aspects responsiveness, reliability, empathy and competence [23, 48]. This dimension is referred by the D&M model of DeLone and McLean [10, 11]; research on the extension of the DeLone and McLean model of IS success of Seddon [44, 45], measuring PMIS success of Kaiser and Ahlemann [23], research on ERP success by Hsu et al. [20]. Thus, with PMIS for ERP projects, it hypothesizes that:

– *H3: Service quality has a positive effect on PMIS user satisfaction.*

The success dimension *functional quality* (FUQ) consist of measures describing the alignment of the PMIS functionality with the user requirements [23]. This construct is an exaltation of Kaiser and Ahlemann [23] that was not part of the D&M model. High functional quality means that the users find the functionality supports in project management [25]. This dimension is referred by research on measuring PMIS success of Kaiser and Ahlemann [23], the software project management system of Kurbel [25], research on ERP success by DeToni et al. [12]; Ifinedo and Olsen [21]; Nwankpa [35]. Thus, with PMIS for ERP projects, it hypothesizes that:

– *H4: Functional quality has a positive effect on PMIS user satisfaction.*

The success dimension *ease of use* (EOU) is defined as the degree to which customers believe that using PMIS for ERP projects do not require much effort [8]. A common measure is perceived ease of use caused by several of research related to the TAM [8]. This dimension is referred by TAM of Davis [8]; research on measuring PMIS success of Kaiser and Ahlemann [23], research on ERP success by DeToni et al. [12]. Thus, with PMIS for ERP projects, it hypothesizes that:

– *H5: Ease of use has a positive effect on PMIS user satisfaction.*

Besides, PMIS are increasingly used by project managers in all project types that contribute to ERP project's success [42]. In this research, *ERP project's success* is referred by the D&M model of DeLone and McLean [10, 11]; research on measuring PMIS success by Kaiser and Ahlemann [23], PMIS on project performance by Raymond and Bergeron [42], offshore IS project success by Rai et al. [40], research on ERP success by Gupta and Naqvi [17]; DeToni et al. [12]; Hsu et al. [20]; Ifinedo and Olsen [21]; Ravasan et al. [41]; Nwankpa [35]. Hence, the effecting of *PMIS user satisfaction* on *ERP project's success* is hypothesized that:

– *H6: PMIS user satisfaction has a positive effect on ERP project's success.*

2.3 Methodology

Multiple–item scales, closely following previous studies, were used to measure each construct. Data was collected by a survey using convenient sampling. The questionnaires were delivered using *Google docs* and hard copies to respondents who have been the members of project teams, and who have used the PMIS for ERP projects at FPT IS in Vietnam. A total of 175 respondents was obtained, 160 was finally usable (15 invalid respondents). All scales were scored on a 5–point Likert scale anchored with strongly disagree (1) and strongly agree (5), with 31 indicators. The data were then analyzed by reliability analysis (Cronbach alpha), exploratory factor analysis (EFA), and regression analysis with the *SPSS* application. Finally, the results of two–phase regression analysis are used for path analysis.

3 Research Results

3.1 Project Characteristics

(1) *Gender*: there is a sizable difference between 71.8 % male and 29.2 % female because most of the people who are members of project teams and PMIS users being male. (2) *Job position*: the majority of the respondents are users who have used the PMIS for ERP projects 30.4 %; then, the members of project teams: functional consultant accounted for 29.2 %, team leader 15.5 %, project manager or project director 12.5 %, technical consultant 9.3 %, only 3.1 % respondent is quality assurance. (3) *Experience*: as regards the more than 10–year experience, more than 6–year to 10–year, more than 3–year to 6–year, and 1–year to 3–year is by far the highest at roughly 38.5 %, followed by the latter at 28 %, 18 %, and 15.5 % respectively. (4) *ERP product*: SAP amounted to the highest percentage 38.1 %, Oracle amounted to 31.1 %, Oracle & SAP 9.3 %, others 3.1 %… The detail of project characteristics is presented in Table 1.

3.2 Model and Hypotheses Testing

Exploratory Factor Analysis. After eliminating 2 items that are INQ3 of *information quality* (INQ) and PUS2 of *PMIS user satisfaction* (PUS) dominants in reliability analysis (Cronbach alpha) due to the correlation–item of each factor < 0.60 [18]. The Cronbach alpha of constructs ranges between 0.723 and 0.933. Next, the exploratory factor analysis (EFA) with 29 indicators which are divided into groups of factors in a rotated component matrix according to each factor. There are 2 factors have been loaded from the other observed variations: (i) INQ and *functional quality* (FUQ) dominants group to a factor, thus, the authors propose a new name for this factor called "*functional–information quality*" (F–IQ), and (ii) SYQ4 of *system quality* (SYQ) dominant and *service quality* (SEQ) dominant group to a factor, thus, the authors propose a new name for this factor called "*support–service quality*" (S–SQ). For those reasons, *functional–information quality* and *support–service quality*

Table 1. Project characteristics

Characteristics	Frequency (*n = 160)*	Percentage (*%)*
Gender		
– Male – Female	115 45	71.8 29.2
Job position		
– Functional consultant	46	29.2
– Project manager/Project director	20	12.5
– Quality assurance	5	3.1
– Team leader	25	15.5
– Technical consultant	15	9.3
– Other users	49	30.4
Experience		
– 1–year to 3–year	28	18.0
– More than 3–year to 6–year	25	15.5
– More than 6–year to 10–year	45	28.0
– More than 10–year	62	38.5
ERP product		
– Oracle	49	31.1
– SAP	91	38.1
– Oracle & SAP	15	9.3
– Others	5	3.1

components mean that the impact on *PMIS user satisfaction* (PUS). Then, the Cronbach alpha coefficients for all items of F–IQ and S–SQ included in official measures are satisfactory, implying that they are proper measures with F–IQ (0.785) and S–SQ (0.818). The reliability analysis and EFA are presented in Table 2.

Consequently, these hypotheses *H1, H3,* and *H4* are restated:

- *H1.*$_4$*: Functional–information quality has a positive effect on user satisfaction.*
- *H3.*$_2$*: Support–service quality has a positive effect on user satisfaction.*

Besides, Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test with the coefficient KMO equal 0.794 (level of statistical significance, *p–value* = 0.000), implying that EFA of the independent components is appropriate. Total variance extracted (VE) of variables are 71.378 % where these components have eigenvalues > 1 (Table 2), which implies that they can explain 71.378 % of variation in data. Furthermore, with the coefficient KMO equal 0.865 (*p–value* = 0.000) and the VE of 79.275 %, *ERP project's success* (EPS) component can explain the variation in the data rather well. Hence, after EFA, the final measurement scales of the adjusted model include 6 components: F–IQ, S–SQ, SYQ, EOU, PUS, and EPS with 29 observed variables.

Table 2. The summary of reliability and exploratory factor analysis

Factors/Indicatiors			Analysis results		
			EFA loading	Cronbach alpha	Eigenvalues
	Functional–information quality			0.785	8.377
F–IQ	– FUQ1	Planning	0.834		
	– FUQ3	Auditing	0.814		
	– INQ1	Availability	0.793		
	– INQ2	Understandability	0.743		
	– FUQ4	Reporting	0.702		
	– FUQ2	Controlling	0.694		
	– INQ5	Security	0.661		
	– INQ4	Comprehensiveness	0.656		
	– FUQ5	Customizing	0.596		
	Support–service quality			0.818	4.062
S–SQ	– SEQ4	Empathy	0.883		
	– SEQ2	Responsiveness	0.858		
	– SEQ3	Assurance	0.844		
	– SYQ4	Maintainability	0.690		
	– SEQ1	Tangible	0.673		
	System quality			0.723	1.404
SYQ	– SYQ2	Adaptability	0.724		
	– SYQ1	Reliability	0.715		
	– SYQ3	Credibility	0.613		
	Ease of use			0.826	1.148
EOU	– EOU3	Overall	0.874		
	– EOU1	Ease of study	0.865		
	– EOU2	Self–efficiency	0.778		
	PMIS user satisfaction			0.907	3.669
PUS	– PUS5	Enjoyment	0.873		
	– PUS3	Effectiveness	0.858		
	– PUS4	User survey	0.851		
	– PUS1	Repeat use	0.850		
	ERP project's success			0.933	3.964
EPS	– EPS3	Quality	0.951		
	– EPS1	Schedule	0.911		
	– EPS5	Satisfaction	0.881		
	– EPS4	Scope	0.875		
	– EPS2	Cost	0.838		

Regression Analysis. The regression equation representing the relationship between the independent components and *PMIS user satisfaction* (PUS) is written by the following formula:

$$Y_{pus} = \beta_{p0} + \beta_{p1}X_{p1} + \beta_{p2}X_{p2} + \beta_{p3}X_{p3} + \beta_{p4}X_{p4} + \varepsilon_{pus} \qquad (1)$$

Y_{pus}: PUS value; X_{pi}: F–IQ, S–SQ, SYQ, EOU; β_{pi}: regression coefficient; ε_{pus}: random error.

The regression equation representing the relationship between PUS and *ERP project's success* (EPS) is written by the following formula:

$$Y_{eps} = \beta_{e0} + \beta_{e1}X_{e1} + \varepsilon_{eps} \tag{2}$$

Y_{eps}: EPS value; X_{e1}: PUS; β_{ej}: regression coefficient; ε_{eps}: random error.

The regression analysis results are presented in Table 3, with variable values of indicators based on point factor that is scored from EFA. According to Table 3. and formula (1), the regression analysis results show that these factors F–IQ, S–SQ, SYQ, and EOU have positive effect on PUS, with β equaling 0.716 (level of statistical significance, *p–value* = 0.000), 0.416 (*p–value* = 0.000), 0.177 (*p–value* = 0.000), and 0.364 (*p–value* = 0.000) respectively. Hence, *H1.4, H3.2, H2* and *H5* are supported. Hence, regression equation of PUS is written by the following:

$$PUS = 0.716(F - IQ) + 0.416(S - SQ) + 0.177(SYQ) + 0.364(EOU) + \varepsilon_{pus} \tag{3}$$

Table 3. The summary of regression analysis and hypothesis testing results

Model			β	SE	t	*p–value*	Result
(1)	*H1.4*	F–IQ → PUS	0.716	0.031	23.111	***	*Supported*
	H3.2	S–SQ → PUS	0.416	0.031	13.411	***	*Supported*
	H2	SYQ → PUS	0.177	0.031	5.715	***	*Supported*
	H5	EOU → PUS	0.364	0.031	11.751	***	*Supported*
(2)	*H6*	PUS → EPS	0.818	0.046	17.945	***	*Supported*
$R^2_{pus} = 0.850$; $R^2_{eps} = 0.669$							

*** $p = 0.000$

According to Table 3 and formula (2), the regression analysis results show that PUS has a positive effect on *ERP project's success* (EPS) with $\beta = 0.818$ (*p–value* = 0.000), leading to support of *H6*. Thus, regression equation of EPS is written by the following:

$$EPS = 0.818(PUS) + \varepsilon_{eps} \tag{4}$$

In addition, t test of PUS and EPS components are qualified (level of statistical significance, *p–value* = 0.000). The determination coefficient – adjusted R square of PUS (R^2_{pus}) and EPS (R^2_{eps}) are 0.850 and 0.669 respectively. F test with level statistically significant *p–value* = 0.000, so the regression equations, formulas (3) and (4), conform to the data that can be used. The adjusted model to explain the success of PMIS for ERP projects is depicted in Fig. 1.

Path Analysis. According to Pedhazur [36], path analysis is an extension of multivariate regression analysis, total determination coefficient – adjusted R square (R^2) of the model is calculated by following formula:

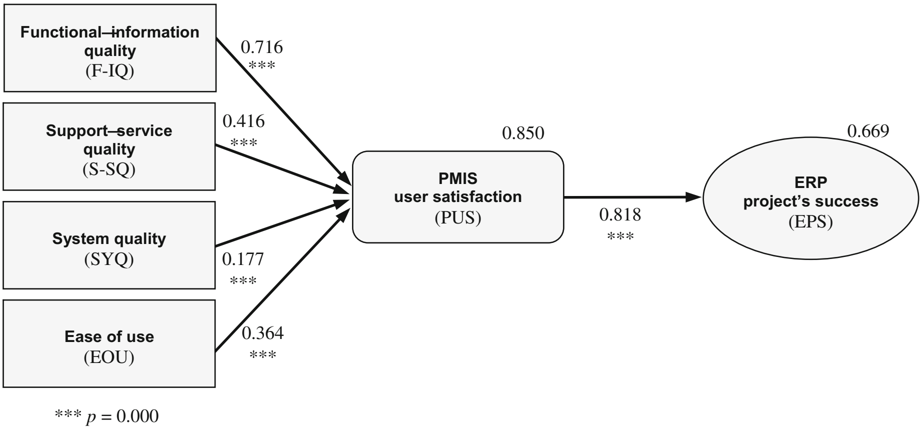

Fig. 1. The success of PMIS for ERP projects – adjusted model

$$R^2 = 1 - \left(1 - R^2_{pus}\right)\left(1 - R^2_{eps}\right) \quad (5)$$

Consequently, according to Table 3 and formula (5), path analysis result:

$$R^2 = 1 - (1 - 0.850)(1 - 0.669) = 0.950 \quad (6)$$

According to the formula (6), the path analysis result provides that total determination coefficient $R^2 = 0.950$, which means that the independent variables (F–IQ, S–SQ, SYQ, EOU) and the intermediate variable (PUS) can explain about 95 % of the variation in the dependent variable (EPS).

These factors, *functional–information quality* (F–IQ), *support–service quality* (S–SQ), *system quality* (SYQ), and *ease of use* (EOU) have impacts on *PMIS user satisfaction* (PUS). Specifically, the strongest influence is from F–IQ, the weakest one is from SYQ, and impact from S–SQ and EOU on PUS. *ERP project's success* (EPS) has been signed by PUS. Generally, the research results provide that five hypotheses ($H1._4$, $H3._2$, *H2, H5,* and *H6*) are supported. In summary, Fig. 1 demonstrates the adjusted model for the success of PMIS for ERP projects, the presentation of all paths of the model, and also all hypothesis testing results.

3.3 Discussions

The research results accommodate that all scales of independent variables, *PMIS user satisfaction*, and *ERP project's success* stabilize reliability. The EFA provides two elements, called *system quality*, and *ease of use* are extracted in accordance following the proposed model. Additionally, *information quality*, *service quality, functional quality elements,* and one item of *system quality* are extracted into two factors, which have been named *functional–system quality*, *support–service quality,* so research model is changed to adjust model, also changed and reduced the hypotheses – *H1, H3,* and *H4* are restated to $H1_{.4}$ and $H3_{.2}$.

Interestingly, the regression analysis results indicate that these factors, *functional–system quality, support–service quality, system quality,* and *ease of use have* the direct impact on *PMIS user satisfaction*. The determination coefficient – adjusted R square of *PMIS user satisfaction* R^2_{pus} = 0.850, so that the independent variables can explain about 85 % of the PMIS user satisfaction. Especially, it shows the results by strongly supporting the relationships between the quality factors ($\beta = 0.716$ of *functional–system quality*; $\beta = 0.416$ of *support–service quality*) and *PMIS user satisfaction*. Besides, *PMIS user satisfaction* has a positive effect on *ERP project's success*, and it also provides a result strongly supporting the relationship among them ($\beta = 0.818$). The determination coefficient – adjusted R square of *ERP project's success* R^2_{eps} = 0.699, so that the intermediate variable can explain roughly 69.9 % of the ERP project's success. Overall, total determination coefficient $R^2 = 0.950$ in the path analysis result, which means that the independent variables and the intermediate variable can explain about 95 % of the variation in the success of PMIS for ERP projects.

Some empirical studies exploring the DeLone and McLean [9–11] models have been provided in the literature and extended in the IS success models (e.g., Gable et al. [16]; Seddon [44, 45]), and the related works (e.g., Kaiser and Ahlemann [23]; DeToni et al. [12]; Nwankpa [35]). This study continues to contribute to the body of knowledge exploring the predictors of the IS success models, especially the success of PMIS for ERP projects. Besides, a common measure is perceived *ease of use* of the TAM [8] has been added to the research model. Generally, the research model explains about the ERP project's success being tantamount with Ravasan et al. [41], and better than some related works (e.g., DeToni et al. [12]; Ifinedo and Olsen [21]; Nwankpa [35]). Which is harmonized to the context of IS projects.

4 Conclusions and Future Work

Based on well–known IS success model, highly cited TAM, and the related works, a success model of PMIS for ERP projects is proposed. The findings indicate that ERP project's success is determined by the PMIS user satisfaction that in turn is influenced by the user ease of use, system quality, functional–information quality, and support–service quality. The research model was empirically tested and mainly supported. Moreover, the path analysis result also means that the independent variables and the PMIS user satisfaction can explain roughly 95 % of the variation in the success of PMIS for ERP projects. This study continues to contribute to the body of knowledge exploring the predictors of the IS success models, especially the success of PMIS for ERP projects. Interestingly, the research model explains the ERP project's success being tantamount with Ravasan et al. [41], and better than some related works (e.g., DeToni et al. [12]; Ifinedo and Olsen [21]; Nwankpa [35]). Which is harmonized to the context of IS project's success.

In the future work, the authors will work out for the combined effect of the factors, and also expand the research scope and object, add more variables and relationships among the elements of the research model. The measures will be revised more appropriate than with the development situation of the PMIS and the ERP project. Structural equation modeling (SEM) will be used for data analysis.

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