

## Managers Perceptions towards the Success of E-performance Reporting System

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### Abstract

Managers are the key informants in the information system (IS) success measurements. In fact, besides the determinant agents are rarely involved in the assessments, most of the measurements are also often performed by the technical stakeholders of the systems. Therefore, the results may be questionable. This study was carried out to explain the factors that influence the success of an e-performance reporting system in an Indonesian university by involving ± 70% of the managers (n=66) in the sampled institution. The DeLone and McLean model was adopted and adapted here following the suggestions of the previous meta-analysis studies. The collected data was analyzed using the partial least squares-structural equation modelling (PLS-SEM) for examining the four hypotheses. Despite the findings revealed acceptances of the overall hypotheses, the weak explanation of the user satisfaction variable towards the net benefit one had been the highlighted point. Besides the study limitations, the point may also be the practical and theoretical considerations for the next studies, especially for the IS success studies in Indonesia

**Keywords:** IS success, manager perspectives, e-performance reporting system, PLS-SEM

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### 1. Introduction

One of the parameters for assessing the IS success is the manager perspectives [1-4], in respect of their key informant roles [5-7] across the system development life cycle [8-10]. It is reasonable why the popular IS success model adopted the issue within the system use dimension [11-14] by emerging the use and its user satisfaction constructs in particular. On the other side, most systems practically tended to be implemented by ignoring this issue. Despite the fact that the people are involved in the pre-implementation assessments, the works are carried out by the system developers themselves. Not unsurprisingly, the results may have presented the questionable indications [15]. Besides the preliminary literature review indicated that the similar studies are still rare to be found in the context of e-performance reporting system [16] as one of the e-government applications in developing countries [17, 18], this study was also performed for responding to the mentioned issues.

The study was employed to know what factors that affected the performance of the e-performance reporting system based on the manager perspectives in an Indonesian university. The system has been used by the internal auditor unit of the institution since 2013, in regard to implement the Government Regulation No. 46/2011 on "Assessment of the civil servant performance," as an evaluation system of the employee performances. The DeLone and McLean's [11] IS success model was adopted, excluding the use construct because of the mandatory issue [19, 20]. It was conducted based on recommendations of several meta-analysis studies [4], [10], [12], [14]. The four relational research questions and its hypotheses were then formulated in regard to reaching the above-mentioned purpose by considering the instrument, data, and its analysis method using PLS-SEM method.

This article is structured following its six main sections, including the background, problem, purpose, and

objective of the research. The second one elucidates the literature review, including the theoretical framework and its hypothesis development. It is then followed by the research method section. The fourth section presents the results of the descriptive and its inferential analyses. The fifth section discusses the findings, contributions, limitations, and the recommendations of the study. Lastly, the paper is closed by the conclusion section.

## 2. Literature Review

An expensive price may have paid by many institutions which failed to implement IS in their businesses [21, 22]. The failures can even jeopardize the business, as it was reported by the previous studies [9], [23, 24]. This may be why many scholars [25] revealed that IS has been a competitive weapon in business, not only the business tools since the early 1980s. Referring to the IS definition of [26], it is not only about a technological entities, IS is also about the managerial and organizational domains. DeLone and McLean [11] clearly described that, their reputed model is developed referring to the three dimensions of its processional and causal model, that is the system creation, system usage, and the system impact dimensions. In the context of the similar logic, the creation dimension is related to the technological domains, that is the products of the IS development project [27]. Further dimensions are the managerial and organizational domains, in respect of the project management parts [27]. On the other word, despite the fact that many IS are revealed technologically as the success one, they may present the failures, in regard with the management, organization, and human issues [27].

In this study, the popular IS success model [11] was adopted by following the suggestions of the previous meta-analysis studies [12-14], which described the comprehensiveness and validity of the model. In respect of both points, the researchers adopted the overall variables of the model, excluded the system use variable. It is related to the compulsory concept of the variable use, as it was previously indicated by Davis [19] and Seddon and Kiew [20]. Table 1 shows list of the used indicators referring to a number of the prior similar studies [3], [12-14], [28, 29]. In term of the linear processional and causal model of the adopted model [11] and considering also the sample number of the study [30]. Four hypotheses about the relationships among the five variables of the model (Figure 1) are determined , that is:

H1: Information Quality significantly affects User Satisfaction.

H2: System Quality significantly affects User Satisfaction.

H3: Service Quality significantly affects User Satisfaction.

H4: User Satisfaction significantly affects Net Benefits.

Tabel 1. The Used Indicators

Indicators	References
INQ1 Accuracy	[3, 12-14, 27, 28]
INQ2 Timeliness	[3, 12-14, 27, 28]
INQ3 Completeness	[3, 12-14, 27, 28]
INQ4 Consistency	[3, 12-14, 27, 28]
INQ5 Relevance	[3, 12-14, 27, 28]
NBF1 User Satisfaction	[12-14, 27, 28]
NBF2 Productivity	[12-14, 27, 28]
NBF3 Competitiveness	[12-14, 27, 28]
SVQ1 Responsiveness	[3, 12-14, 27, 28]
SVQ2 Flexibility	[3, 12-14, 27, 28]
SVQ3 Appropriateness	[3, 12-14, 27, 28]
SVQ4 Empathy	[3, 12-14, 27, 28]
SYQ1 Ease of use	[3, 12-14, 27, 28]
SYQ2 Response time	[3, 12-14, 27, 28]
SYQ3 Functionality	[3, 12-14, 27, 28]
SYQ4 Security	[3, 12-14, 27, 28]
USF1 Efficiency	[3, 12-14, 27, 28]
USF2 Effectiveness	[3, 12-14, 27, 28]
USF3 Adequacy	[3, 12-14, 27, 28]
USF4 Overall Satisfaction	[3, 12-14, 27, 28]

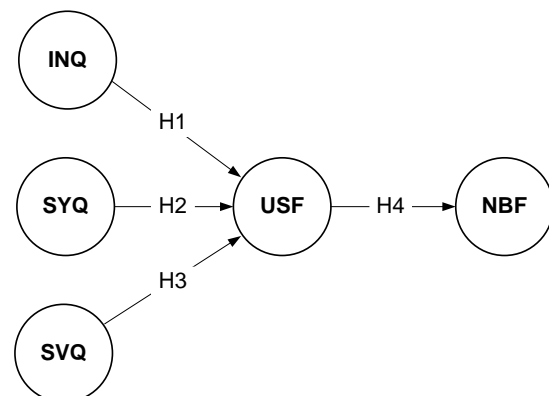


Figure 1. The Research Model

The first three hypotheses demonstrate the path assessments between variables of the system creation dimension and variable of the system utilization one. Further, the last hypothesis describes the path examination between variables of the product utilization and its impact dimensions [12-14]. Here, the system is assumed as the product of the project development. In short, besides the adoption of the comprehensive and valid model following to the recommendations of above mentioned studies [12-14], the involvements of the key users as the research respondents are hoped for reaching the quality of the research findings. As it is indicated by Eddy et al [31] and Putra et al [10], besides the findings themselves, the research process points are also essential consideration for ensuring the quality of a research.

### 3. Research Method

This study was performed across its eight gradual stages, from the literature review in the first step into the report writing in the last one. Figure 2 presents the sequential implementation of the procedure, including the output of each one. Referring to Eddy, Hollingworth [31] and Putra, Subiyakto [10] around the clarity process of the research method; besides the result validity, the transparency of the implementation can be used to justify the research quality.

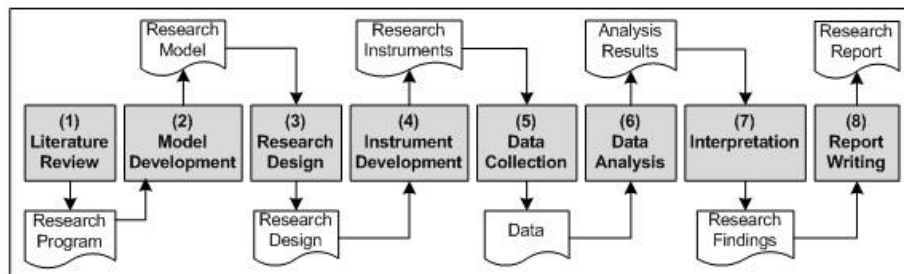


Figure 2. The Research Procedure

The data of the managerial positions ( $N = \pm 130$ ) were identified based on the human resource department database of the year 2016 in the sampled institution. Around 66 ( $\pm 70\%$ ) valid answers were then collected by employing the direct invitation survey. The survey was conducted by using a purposive sampling technique following the recommendation and permission of the internal auditor unit, which directly operates the system. It was in respect of the key informant aspect of the used sample [5-7]. The instrument of the data collection technique was a questionnaire set, which was consisted of its two main parts, i.e. the invitation letter page and its question pages. The question part was consisted of the five demographic questions and its 28 five-point likert scale questionnaires [32]. Sequentially, the researchers mainly analysed the processed data by using the PLS-SEM method with the SmartPLS 2.0, is used by many previous studies [33-38]. In the descriptive part of the analysis stage, the researchers analysed the demographic data by using the Microsoft Excel 2007 in order to looking the dissemination of the collected data, in regard to the estimation of the data [39] rather than its examination. In addition, the inferential analysis was then performed through two assessments; that is the measurement and the structural model assessments following the above mentioned the PLS-SEM studies. The first assessment was carried out by employing the indicator reliability, internal consistency reliability, convergent validity, and discriminant validity evaluations, in order to assess the psychometric properties of the outer model. On the other side, the second one was performed by implementing the path coefficient ( $\beta$ ), coefficient of determination ( $R^2$ ),  $t$ -test, effect size ( $f^2$ ), predictive relevance ( $Q^2$ ), and the relative impact ( $q^2$ ) assessments for evaluating its inner model.

Furthermore, the hypothetical assessment was the main focus of the interpretation stage among the six above mentioned assessments following the determined research programs. Moreover, besides the results of the descriptive analysis, the previous findings of the similar studies were also discussed in the stage.

## 4. Analysis Results

### 4.1. The Demography Information

Table 2 shows the three parts of the information, including the gender, unit, and the managerial position of the sampled people. First, most of them (40 people, ±61%) were the female respondents and the rest were the male ones. Second, the distribution of the used sample spread out evenly across the faculties of the institution, within around six percentages (±9.09%) each faculty. Lastly, despite the involvement number of the administration unit supervisors was the highest one among the five managerial positions sampled in this study, the data distribution tended evenly within the listed positions.

Table 2. Demographic Information

Data	Name	Σ	%	Data	Name	Σ	%
Gender	Male	26	39	Faculty	Education	6	9.09
	Female	40	61		Law	6	9.09
Job Position	Vice-Dean	11	16.67		Philosophy	6	9.09
	Head of the Department	11	16.67		Humaniora	6	9.09
	Head of the Administration Unit.	11	16.67		Communication	6	9.09
	Head of Library	11	16.67		Islamic Studies	6	9.09
	Supervisor of the Administration Unit	22	33.33		Social and Political Science	6	9.09
					Psychology	6	9.09
					Economy and Bussiness	6	9.09
					Science and Technology	6	9.09
					Medicine	6	9.09

### 4.2. Results of the Inferential Analysis

In the statistical analysis, the outer and inner model assessments were carried out referring to the prior PLS-SEM literature [33-38].

First, across the four assessments of the outer model the results revealed that the model part statistically demonstrates its psychometric properties without any the indicator deletions (Table 3, Table 4, and Figure 3). Table 3 and Figure 3 present that, overall loading values of the used indicators fulfilled the required threshold (>0.4) of the indicator reliability assessment. Results of the internal consistency reliability assessment revealed that, the CR values of the variables meet the determined threshold value (>0.7), as it is presented by Table 3. Results of the convergent validity assessment have also showed the similar tendency with the previous assessment. The AVE values of the five variables (Table 3) were higher than the minimum requirement value (>0.5). Table 4 shows results of the discriminant validity assessment, which fulfilled the Fornell and Larcker's [40] "square root" formula.

Table 3. Results of the Outer Model Assessments

Items	Cross Loadings					AVE	CR
	INQ	NBF	SVQ	SYQ	USF		
INQ1	<b>0.66</b>	0.24	0.45	0.36	0.40	0.53	0.85
INQ2	<b>0.79</b>	0.21	0.46	0.34	0.40		
INQ3	<b>0.59</b>	0.21	0.17	0.23	0.23		
INQ4	<b>0.76</b>	0.30	0.57	0.44	0.46		
INQ5	<b>0.80</b>	0.36	0.46	0.31	0.50		
NBF1	0.30	<b>0.82</b>	0.37	0.23	0.47	0.76	0.91
NBF2	0.31	<b>0.88</b>	0.34	0.38	0.45		
NBF3	0.37	<b>0.91</b>	0.33	0.36	0.49		
SVQ1	0.49	0.16	<b>0.64</b>	0.52	0.41	0.53	0.82
SVQ2	0.46	0.39	<b>0.72</b>	0.27	0.46		
SVQ3	0.40	0.33	<b>0.80</b>	0.45	0.47		
SVQ4	0.44	0.26	<b>0.76</b>	0.47	0.49		
SYQ1	0.35	0.28	0.37	<b>0.71</b>	0.44	0.58	0.85
SYQ2	0.42	0.26	0.44	<b>0.81</b>	0.43		
SYQ3	0.31	0.14	0.52	<b>0.71</b>	0.46		
SYQ4	0.36	0.44	0.43	<b>0.79</b>	0.47		
USF1	0.54	0.45	0.56	0.48	<b>0.89</b>	0.75	0.92
USF2	0.53	0.51	0.48	0.59	<b>0.90</b>		
USF3	0.52	0.47	0.60	0.41	<b>0.82</b>		
USF4	0.39	0.46	0.53	0.53	<b>0.86</b>		

Notes: 1) AVE: average variance extracted, 2) CR: composite reliability

Table 4. Fornell-Larcker Criterion

Items	INQ	SSC	SVQ	SYQ	USF
INQ	1.00				
NBF	0.37	1.00			
SVQ	0.61	0.40	1.00		
SYQ	0.47	0.37	0.58	1.00	
USF	0.57	0.54	0.62	0.59	1.00

Second, Table 5 shows the inner model assessment results by using the path modelling, bootstrapping, and the blindfolding procedures [33-38].

- 1) The significance of the path coefficient were accounted using the path modelling procedure based on value of exceed 0.1 as the significant path and the results revealed that, the overall paths are the significant ones.
- 2) The hypothesis test was conducted using bootstrapping procedure and the results showed acceptances of the overall hypotheses with two-tailed and 5% standard error.
- 3) R<sup>2</sup> was considered substantially around 0.67, averagely about 0.33, and weakly approximately 0.19 and lower. Figure 3 shows that, INQ, SYQ, and SVQ explained averagely (50.8%) of the USF variance and USF described weakly (29.5%) of the NBF variance.
- 4) The effect size of each path was calculated using the Cohen's formula with thresholds of 0.02, 0.15, or 0.35 for the small, medium, or the large sizes. The results presented that, among the four paths, it was only USF→NBF which has the large effect size.
- 5) In the predictive relevance examination, the positive values used for confirming the predictive relevance of a path. The results indicated that, overall paths are predictive relevance.
- 6) Similar to the effect size, the relative impact of the predictive relevance was calculated by using values of 0.02, 0.15, or 0.35 for the small, medium, or the large sizes. The results showed that, the first three paths have the small impacts and the last one has medium impact.

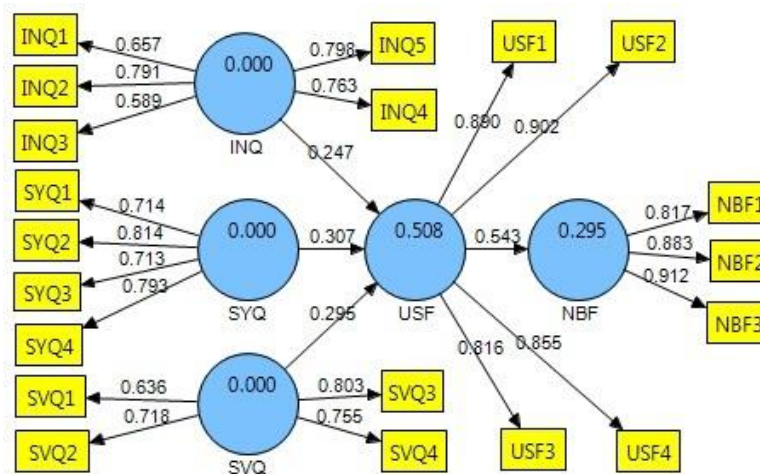


Figure 3. Results of the Outer Model Assessment

Table 5. Results of the Structural Model Assessments

H	β	t-test	R <sup>2</sup> (R <sup>2</sup> in)	f <sup>2</sup>		Q <sup>2</sup>		q <sup>2</sup>		Analyses				
				R <sup>2</sup> ex	∑ f <sup>2</sup>	(Q <sup>2</sup> in)	Q <sup>2</sup> ex	∑ q <sup>2</sup>	β	t-test	R <sup>2</sup>	f <sup>2</sup>	Q <sup>2</sup>	q <sup>2</sup>
H1	0.28	2.67	0.51	0.47	0.08	0.37	0.36	0.02	Sign.	Acc.	Mid.	Small	PR	Small
H2	0.31	2.55	0.51	0.45	0.12	0.37	0.36	0.06	Sign.	Acc.	Mid.	Small	PR	Small
H3	0.30	2.72	0.51	0.46	0.09	0.37	0.34	0.04	Sign.	Acc.	Mid.	Small	PR	Small
H4	0.54	2.72	0.30	0.00	0.42	0.21	0.00	0.27	Sign.	Acc.	Weak	Large	PR	Med

## 5. Discussions

First, although the demography information of the study was only described within its three data entities, but its consistency and the even distribution of the data with the existing phenomena of the sampled institution may have been the highlighted point of the this study. For example, the presented information of the gender and job compositions tended to represent the real data. Besides the number of the woman employees is bigger than the man ones, the total of the supervisor position is also the biggest one among the managerial positions in the sampled institution. On the other part, the even tendency of the sample distribution has also referred to the number of faculty unit of the institution. Referring to Christopher et al [29], despite the fact that the information was only limited within its three data entities, the representation can be used to estimate the findings of the study. Thus, it is recommended for the future studies to use the more data in the demographic part. The more data types may be more helpful for estimating the research findings.

Second, the psychometric properties of the measurement model supported structural model assessments [33-38]. In the second inferential analysis part, the two tendencies of these assessments are relate to the similar indications among the first three paths of the model in the six assessments and the contradiction results of the fourth path (Table 5). Besides their coefficients were significant, the hypotheses were accepted, coefficient of the determinations were average, the effect sizes were small, and the predictive relevance were predictable, the relative impacts of the paths were also small. Like the first three paths, the path coefficient, its hypothesis, and the predictive relevance of the fourth path have also presented the similar indication. But, it was different in the rest explanation results. Although the effect size was large and its relative impact was also medium, but the coefficient of its determination was weak. In term of the hypothetical results, despite the acceptance of the four paths are confirmed by the prior three meta-analysis studies [11, 12], [41], but two of the paths (i.e. SYQ→USF and USF→NBF) are inversely confirmed by the previous researches [1, 29].

Besides the psychometric status, the zero deletion is also not unsurprisingly. It may relate to the used research model, which was adopted from the previous popular model [11, 12], [41], in the term of IS success measurement studies. As it is indicated by the tendencies of the structural model measurement results, the relationship may also happen to the measurement part. However, the different impact may have revealed by the fourth path, as it is presented by the weak coefficient of the path determination and the two prior studies [1, 33]. The researchers hypothesize that; it may in regard to the instrument and data used in this study. Another possibility, this may also relate to the phenomena of the sampled institution. It can be seen that, these study limitations may be one of the consideration of the future study implementation.

Despite the fact that, the research findings may not theoretically contribute to the IS success model development, but the findings are still interesting how to see the IS success perspective, especially from the perspectives of e-performance reporting system in the developing countries, like Indonesia. Practically, referring to the presented research findings, stakeholders of the sampled institution can consider that; although the INQ, SYQ, and SVQ variables effect together toward the variable of USF, but the explanations are only around 50.8% of the dependent variable. The rest explanations are not yet to be presented here. Moreover, it is also happen on the influence of the USF variable towards the NBF one. It is 69.5% of the NBF explanations, which are also yet presented by the research finding. Therefore, the next studies are needed to be conducted in order to explain the matter.

## 6. Conclusion

As it is elucidated by the research background, the three highlighted points of this study were in respect of the use of the manager perspectives as the key informant of the study, the dependency and its rarity of the research implementation, in the context of the e-performance success measurement. The findings explained the impacts of the selected factors towards the system performance from one of the study cases in Indonesia. Besides the limitations, the above mentioned issues may contribute theoretically to the field, in term of its comprehensive consideration point within the adoptions of the technical, operational, and the managerial aspects. It can be also practically seen that, the weak explanation of the USF variable in the NBF one ( $\pm 29.5\%$ ) may the essential point for considering the other variables, which influence the system success.

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