Evaluation of the Success of Enterprise Resource Planning in A Company Engaged in the Pharmaceutical Distribution with the Information System Success Model

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Abstract

The purpose of this study is to identify the elements that affect user satisfaction and the effectiveness of the implementation of the ERP system at PT Indofarma Global Medika as well as the elements that require improvement in order to boost the effectiveness of the ERP applications at PT Indofarma Global Medika. Information Quality, System Quality, and Service Quality are used as independent variables in this research. Use, user satisfaction, and net benefits are the dependent variables. The study's sample consists of actual users who are employed by PT Indofarma Global Medika in the departments of sales, purchasing, warehouse management, and financial accounting. The sample was taken using the purposive sampling technique. One hundred surveys were given directly to users who were actively collecting data using the questionnaire method. With statistical test hypothesis testing, the statistical approach employs multiple linear regression analysis. The validity test results demonstrate that the Cronbach's Alpha value is more than 0,7 indicating that the variable is legitimate for further testing. The p-values test findings reveal that system quality, information quality, service quality, and user happiness all significantly influence net benefits, whereas use has a less significant impact.

Keywords: Information system success, delone & mclean model, Enterprise Resource Planning, Key Successful Factor, erp-sap implementation

1. Introduction

The progress of information technology is crucial, particularly in businesses, given the recent fast technological and scientific developments. According to Romney and Steinbart (2015)[1], the application of information technology within a company that enables efficient information filtration and simplification for decision-makers. The development and application of information technology inside a firm may streamline operational procedures, boosting revenue and propelling corporate expansion. A system that makes the same flow of information easily accessible to all managers at all levels is the result of an investment in information technology. Indofarma Global Medika (IGM) is a distributor of pharmaceuticals and medical devices in Indonesia. IGM aims to become a leading healthcare distribution company and a market leader in medical devices in Indonesia with continued growth in sales and profits. To achieve the goal of efficient distribution of pharmaceuticals and medical devices, IGM needed to develop a system designed to support the flow of materials from the first supplier through multiple logistical processes to the final customer. ERP is IT-based combines relevant apps into all company processes [2].

Numerous businesses in Indonesia have used this SAP ERP system. Some manage to implement them in the best possible way, some don't. The success of a company As the introduction of an ERP SAP system is not without risk, it depends on the system's readiness and all of its components.

The discussion of the findings from this review study will be separated into numerous discussion sections, including Introduction, literature review, Research

Methodology, Result & Finding and ends with conclusions and research plans that will do:

2. Research methodology

In this section, the author describes a literature review about neural network for forecasting stock price from related research:

a) Previous Studies

In research conducted by Fadlilah & Utama (2018)[3] to evaluate the effectiveness of PT. Gresik Petrochemicals' implementation of the ERP-SAP system, a qualitative descriptive study methodology was utilized. These findings show that the three independent variables of information quality, system quality, and service quality have a positive influence on system utilization and user satisfaction. Due to the system's high-quality output, users will be encouraged to use it more frequently in their work. The net benefits for system users will grow as long as the ERP-SAP system is used and appreciated continuously.

In research conducted by Syahriah, Suroso & Pahan (2016)[4] where the researchers used the information system success model of DeLone & McLean (2003[5] as a research framework in the Indonesian oil industry. Information Quality, System Quality, Service Quality, User Satisfaction, Use, and Net Benefit are the factors that are used to determine whether or not information systems are successful. The result of this research is that the ERP implementation in the company is still not effective from the perspective of its users.

b) ERP

An organization's strategy, operations, management analysis, and decision-making are supported by the user interface known as Enterprise Resource Planning (ERP). Because it includes all functions, the deployment of an ERP system has an impact on users at all organizational levels [6].

An integrated cross-functional software system called enterprise resource planning (ERP) redesigns the manufacturing, distribution, financial, human resources, and other business operations inside an organization with the goal of boosting its profitability, agility, and efficiency. ERP systems are necessary to help businesses attain the effectiveness, adaptability, and responsiveness required to thrive in a changing business environment [7].

Enterprise resource planning (ERP) benefits include higher productivity, effectiveness, and lower operating expenses; nevertheless, ERP drawbacks include the expense of ongoing system upkeep and enhancement, ongoing staff monitoring or control, and reliance on ERP providers [8].

c) Evaluation Model

The Information Systems (IS) Success Model created by William H. DeLone and Ephraim R. McLean will be adopted as the evaluation theory. Systems Quality, Information Quality, Service Quality, User Satisfaction, System Use and Intention to Use, and Net Benefits are some of the characteristics that make up the IS Success Model [9]. These variables are interconnected and crucial to evaluating the effectiveness of information systems. It is believed that the Information Systems (IS) Success Model is the primary crucial framework for analyzes IS [10]. Other models include the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT), according to Aldholay et al (2018)[11], Despite the existence of the Information Systems (IS) Success Model, which analyzes the use of IT by analyzing the impact of overall quality (system, information, and service quality) on user satisfaction and actual utilization, these models have generally overlooked the evaluation of the use of information technology. that have an influence on performance, and the IS Success Model is a popular tool for gauging an information system's success.

Based on Suroso et al (2018)[12], The Mclean & DeLone model may be used to test information systems, and the findings can be deemed successful. The performance of corporate employees is positively impacted by nearly all of the Mclean & DeLone model's elements, including system quality and ERP information quality. The Mclean and DeLone model's factors, such as system quality, information quality, system utilization, and ERP user happiness, have an indirectly beneficial effect on individual performance. These variables also have an indirect beneficial effect on individual performance.

Using the theoretical underpinnings and the findings of the literature review of prior research, regarding the measurement of the success rate of ERP system implementation in various fields. PT. Indofarma Global Medika's implementation of the ERP system met with success, and it can be inferred that the Delone & McLean Information Systems (IS) Success Model is a suitable model to assess this success. All variables in this research model will be developed, based on the Delone & McLean information system success model framework, to explain the connection between the measurable variables.

Furthermore, the study model has been modified to reflect the current problem conditions, namely by using and adding indicators to measure the current problem conditions. In the information quality variable, indicators of information content accuracy, format suitability, completeness, usability, relevance and ease of understanding are used. The system quality variables used indicators of system reliability, response time, precision, ease of use, flexibility and system features. The service quality variable used indicators of availability, reliability, assurance, and responsive/proactive. In the usability variable, indicators of usage frequency, usage time, report usage, number of transactions are used. In the user satisfaction variable used indicators of satisfaction with the system, satisfaction with information, satisfaction with services, satisfaction with ERP projects. In the net benefit variable used indicators of operational benefits, strategic benefits, organizational benefits, coordination.

In this study, 100 respondents participated in a survey that used the SAP system to gather information from the target company's sample population. The SmartPLS application, which divides the data processing in the PLS model into two stages, is used in this study's analytic technique. First, the investigation of the measuring technique covers the convergent validity, internal consistency, and discriminant validity. In addition, path coefficients and t-statistics are included in structural model analysis. The researchers suggest the following presumptions based on The Information Systems (IS) Success Model:

H^1: Use is significantly affected by System Quality.

H^2: User satisfaction is significantly affected by System Quality.

H^3: Use is significantly affected by Information Quality.

H^4: User satisfaction is significantly affected by Information Quality.

H^5: Use is significantly affected by Service Quality.

H^6: User satisfaction is significantly affected by service quality.

H^7: User satisfaction is significantly affected by use.

H^8: Net Benefit is significantly affected by use.

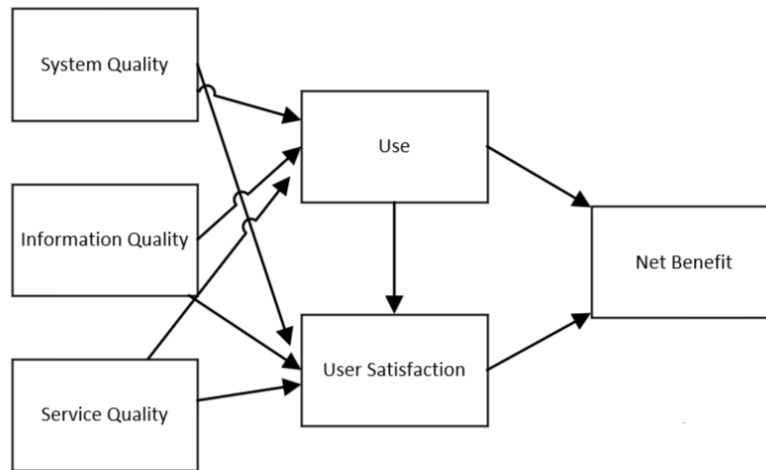H^9: Net Benefit is significantly affected by User satisfaction.

Figure 1. Research Framework

According to the research framework and model, proper indicators are required to effectively evaluate ERP system information performance metrics using factor analysis of research variables in order to assess each variable in the DeLone & McLean model. Indicators for each variable in this study model include the following:

Table 1. Variable Measurement

No	Variable	Indicator	Description	Reference
1	*System Quality (SQ)*	Features	System functionality can adapt to business processes.	1. Syahrial et al (2016) 2. Gable, et al (2003)
		Flexibility	Users must follow guidelines for changing views, reports, and business procedures.	1. Syahrial et al (2016)
		Response time	This system generates reports and is utilized for transactions and responsiveness.	1. Syahrial et al (2016) 2. Tsai, et al (2009)
		System performance	Chance that system functions will be carried out successfully.	1. Syahrial et al (2016)
2	Information Quality (IQ)	Enlightening	displays all necessary data.	1. Syahrial et al (2016)
		Simple to understand	The information provided has an instant meaning for the users.	1. Syahrial et al., (2016) 2. Gable, et al (2003) 3. Tsai, et al (2009)
		Relevance	A data connection exists for the information displayed	1. Syahrial et al., (2016) 2. Gable, et al (2003) 3. Tsai, et al (2009)
		Punctuality	Display the pertinent data when it is appropriate.	Syahrial et al., (2016)
3	Service Quality (SQ)	Availability	IT Helpdesk accessibility to assist users of the system with system services as needed	1. Chan & Sin, (2010)
		Reliability	The outcomes of the IT Helpdesk's services are trustworthy.	1. Tsai, et al (2009)
		Guarantee	The IT Helpdesk and the system user have an agreement that each	1. Tsai, et al (2009)

No	Variable	Indicator	Description	Reference
			issue or problem will be handled with a ticket until it has been resolved in accordance with that agreement	
		Responsive/proactive	The IT Helpdesk's proactivity and responsiveness in offering assistance for problems or requests that need to be handled.	1. Delone, W. H., & McLean, (2003) 2. Tsai et al., (2009)
4	Use	Frequency of Use	the frequency with which users use the ERP system.	1. Syahrial et al.,(2016) 2. Tsai et al., (2009)
		Use period and duration	how much time users spend interacting with the ERP system on a daily basis	1. Tsai et al., (2009)
		Usage Report	how many users use the reports that the ERP system produces.	1. Tsai et al., (2009)
		Number of Transactions	how many users make use of the ERP system on a regular basis.	1. Delone, W. H., & McLean, (2003)
5	User Satiscation	Satisfaction with System	how satisfied users are with the current ERP system	1. Tsai et al., (2009)
		Satisfaction with Information	How satisfied are system users with the information the ERP system produces	1. Tsai et al., (2009)
		Satisfaction with Service	System users' satisfaction with IT Helpdesk services	1. Tsai et al., (2009)
		Satisfaction with ERP project	how satisfied users are with the final ERP project.	1. Tsai et al., (2009)
6	Net Benefit	Operational Benefits	How many advantages the ERP system offers to improve day-to-day business operations.	1. Eckartz et al., (2009)
		Strategic Benefits	how many advantages an ERP system has for business strategy.	1. Eckartz et al., (2009)
		Organizational Benefits	How much of a benefit does an ERP system offer businesses	1. Eckartz et al., (2009)
		Coordination	How well corporate functions can coordinate activities or processes using the ERP system	1. Wei et al., (2009)

3. Results And Discussion

Respondent identities were 100 respondents, including name, Branch, major, educational background, job title, duration of ERP usage, and frequency of ERP usage. All respondents were active users of ERP, with no fewer than 100 respondents. Based on time spent using ERP, most respondents or 63% (60 people) have used ERP for 1 to 2 years, 22% (21 people) have only used ERP for less than 1 year, 9% (9 people) have used ERP for more than 3 years, and 5% (5 people) have used ERP for 2 to 3 years . All the respondents use the ERP system fairly frequently within 5 working days of executing the company's business process, accounting for about 89% of the use of the system every working day, which is enough to show that the respondents have rich technology use in implementation system. This means that respondents were considered fairly effective in this study on the use of technological systems.

Table 2. An overview of the respondents' demographics

Usage Period	Frequency	Percentage
Fewer than one year	23	23%
From one to two years	5	5%
From two to three years	11	11%
over three years	61	61%
Total	100	100%
Frequency of Use	**Frequency**	**Percentage**
one time a week	3	3%
two times a week	3	3%
Every working day	94	94%
Total	100	100%
Position	**Frequency**	**Percentage**
Staff	72	72%
Supervision	19	19%
Assistant Manager	6	6%
Manager	3	3%
Total	**100**	**100%**

3.1. Validity

The validity test findings are also displayed in Table 2, where each indicator variable evaluated produced an outer loading value that was equal to or higher than 0.5. As a result, the indicator variables used in this study can be considered to be reliable, and the study model satisfies the requirements for convergent validity.

Table 3. Results of validity tests

Variable	Average Variance Extracted (AVE)
System Quality(SQ)	**0,694**
Information Quality(IQ)	**0,700**
Service Quality(SvQ)	**0,736**
Use(U)	**0,724**
User Satisfaction(US)	**0,739**
Net Benefit(NB)	**0,800**

3.2. Reability

An alpha test was used in this section of the study to evaluate the validity of each questionnaire question. This test is mostly used to assess the instrument's consistency. The reliability of each study instrument was determined using Cronbach's internal consistency alpha equation. The table below displays the outcomes.

Table 4. Results of reability tests

Variable	Cronbach's Alpha
System Quality(SQ)	0,856
Information Quality(IQ)	0,853
Service Quality(SvQ)	0,880
Use(U)	0,875
User Satisfaction(US)	0,881
Net Benefit(NB)	0,916

Table 4 shows that the composite Cronbach α > 0.7 for each variable, therefore it may be concluded that the study's variables are very reliable.

3.3. Hypothesis Testing

Hypotheses are tested by looking at the bootstrapping on coefficient paths and contrasting the T-count with the T-table value. If the T-count number is greater than the T-table value of 1,98 the statement of the hypothesis is accepted.

Table 5. Results of hypothesis

Variable		Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
SQ	-> Use	-0,391	-0,393	0,159	2,670	0,007
SQ	-> US	0,224	0,225	0,085	2,718	0,006
IQ	-> Use	0,236	0,251	0,174	1,385	0,145
IQ -> US		0,471	0,466	0,073	6,326	0,000
SvQ	-> Use	0,341	0,340	0,141	2,495	0,012
SvQ	-> US	0,322	0,328	0,069	4,635	0,000
Use	-> US	0,007	0,003	0,045	0,151	0,879
Use	-> NB	0,036	0,037	0,078	0,441	0,654
US	-> NB	0,787	0,786	0,050	16,496	0,000

a) **Use is significantly affected by System Quality**

System quality is shown to have a considerable beneficial influence on use of the ERP system when the effects of system quality characteristics on use variables are examined, with a t-statistic of 2,464 > 1,96 and a p-value of 0,007 < 0,05, so the hypothesis is accepted. This indicates that system quality affects use as indicated by the positive direction of the path coefficient.

According to the study's findings, the use of the SAP ERP system was significantly influenced by the system's quality. This is because users of SAP ERP are obliged or mandated to utilize it, and as a result, the system quality variable indicators have an impact on how this system is used.

b) **User satisfaction is significantly affected by System Quality**

An analysis of the connection between system quality characteristics and user satisfaction factors reveals that system quality has a significant positive impact on user satisfaction with the ERP system., with a t-statistic of 2,761 > 1,96 and a p-value of 0,006 < 0,05, so the hypothesis is accepted. This indicates that system quality affects user satisfaction as indicated by the path coefficient's positive direction.

The study findings demonstrate that the dependent variables of system quality and user satisfaction have a significant positive correlation. Users of SAP ERP are typically happy with the system since it is simple to use, has a fast reaction time, and seldom has disruptions.

c) **Use is significantly affected by Information Quality**

With a t-statistic of 1,461 < 1,96 and a p-value of 0,145 > 0,05, the analysis of the relationship between the information quality variable and the usage variable indicated that information quality had a less significant and adverse influence on the utilization of the ERP system, rejecting the hypothesis.. As a result, the negative direction of the path coefficient indicates that the system's use is unaffected by the system's information quality.

The study's findings indicate a negative connection between the dependent variables of information quality and system use. This happens because the report format generated

by the SAP ERP system differs from the format that the majority of SAP users prefer. Because the output of the generated reports is frequently used by superiors to make decisions, system users frequently have to reprocess them by combining several reports from the SAP ERP system with Microsoft Excel software. This report processing process is quite time-consuming and requires caution. They frequently believe that SAP still cannot be completely utilized in decision-making because of this.

d) User satisfaction is significantly affected by Information Quality

Information quality greatly affected the user satisfaction of the ERP system in a good way, according to research on the connection between the factors, the statistic was $7,043 > 1,96$, and the p value was $0,000 < 0,05$. The hypothesis was accepted. As a result, the positive direction of the path coefficient indicates that user satisfaction is effected by the system's information quality.

According to the study's findings, there is a significant relationship between the variables affecting information quality and users' satisfaction with the SAP ERP system. Since the majority of users with system access permissions are required to utilize this system, the information quality, such as timeliness, informativeness, and clarity, as well as information outputs that are pertinent and helpful to support efficient work, are highly significant.

e) Use is significantly affected by Service Quality

Service quality is shown to have a considerable beneficial influence on use of the ERP system when the effects of system quality characteristics on use variables are examined, with a t-statistic of $2,513 > 1,96$ and a p-value of $0,012 < 0,05$, so the hypothesis is accepted. This indicates that service quality affects use as indicated by the path coefficient's positive direction.

The study's study showed that the support team's level of service has a big impact on how well the SAP ERP system is used. This may be explained by the fact that most system users depend on the SAP ERP system to support and accelerate their everyday tasks, therefore if they run into problems with transactions, they will lean heavily on the support staff for assistance. Therefore, having a dependable, responsive support team, offering proper training, and performing system maintenance tasks all significantly improve how well the system is used.

f) User satisfaction is significantly affected by service quality

In the ERP system, service quality has a considerable positive influence on user happiness, according to an analysis of the connection between service quality factors and user satisfaction variables, the t statistic is $4.564 > 1.96$, and the p value is $0.000 < 0.05$, so the assumption is accepted. As a result, service quality influences user satisfaction, as indicated by the path coefficient's positive direction.

According to the study's findings, the dependent variable of service quality strongly affects the dependent variable of user satisfaction in a favorable way. This demonstrates how high-quality services like dependability, responsiveness, and proactiveness, as well as sufficient training and planned system maintenance, can give SAP ERP system users comfort and happiness.

g) User satisfaction is significantly affected by Use

Testing the effects of system usage variables on user satisfaction showed that system usage had both significant and negative effects on user satisfaction with the ERP system, with a t-statistic of $0.153 < 1.96$ and a p-value of $0.879 > 0.05$ indicating that the hypothesis was rejected. This indicates that the system user satisfaction is unaffected by use, as indicated by the path coefficient's negative sign.

According to the study's findings, the dependent variable of user satisfaction is significantly negatively affected by the dependent variable of system use. This is due to the fact that the corporation still only uses the SAP ERP system to address operational demands. In terms of information technology, this is demonstrated by the fact that the system is only used for administration; higher-ups do not require a

dashboard or automatic reporting for decision-making. Therefore, from the perspective of utilizing the SAP ERP system within the organization, it has absolutely no bearing on how satisfied users are with the system.

h) **Net Benefit is significantly affected by Use**

Testing the impact of system usage variables on net profit showed that system usage had a small and negative impact on the net profit of the ERP system, with a t-statistic of 0.448 < 1.96 and a p-value of 0.654 > 0.938, so the hypothesis was rejected. This means that the direction of the negative path coefficient indicates that if the system is used (Use), it will not affect the Net Benefit.

The study's results indicate that the net benefit variable has not significantly been affected by the system use variable. This proves that the current use of the SAP ERP system still does not offer significant benefits from the implementation of the SAP ERP system, so it is necessary to optimize and increase usage and continuous improvement of the SAP ERP system in order to provide the maximum benefit for the development of the company.

i) **Net Benefit is significantly affected by User satisfaction**

Examining the impact of user satisfaction variables on net benefit shows that under the condition that the t statistic is 17.101 > 1.96 and the p value is 0.000 < 0.05, user satisfaction has a significant positive impact on the net profit of the ERP system, so the hypothesis is accept. This means that the positive direction of the path coefficient indicates that the user satisfaction of the system affects its net profit.

The study's results indicate that the net benefit variable is significantly positively affected by the user satisfaction variable. This explains why the net benefits of the ERP system in the organization are strongly influenced by user satisfaction with the SAP ERP system. This indicates that the SAP ERP deployment in the business has given its users satisfaction and advantages.

4. Conclusion

The main objective of this study was to assess the ERP-SAP implementations of the IS success model hypothesis proposed by DeLone and McLean. Therefore, a framework was created to test this distribution company's employee data with reference to the Information Systems (IS) Success Model. The results obtained in this study are the model proposed in this study based on the data and conditions of this distribution company. Then, from of the 12 hypotheses presented, 8 variables have a significant relationship with personal utility. Therefore, it can be seen from this study that companies, especially the companies under study, must pay attention to the quality of information, system quality, service quality and use in order to satisfy the individual to increase net benefit and ultimately bring benefits to the organization, which is the main goal of management with this SAP ERP system. The study's conclusions have some implications for information systems, particularly for management, managers, and other researchers. First and importantly, the findings of this study may serve as a management guide. A competent SAP ERP system can raise earnings, indirectly raising company profits. In addition, managers who want to improve the individual interests of their staff in order to maximize the operational and strategic efficacy of the deployed ERP system might utilize this modified D&M model. Third, the findings of this study may provide a foundation for future research into industries or ideas that are comparable to those studied in this area.

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