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EFFECTIVENESS OF GOODS AND SERVICES ELECTRONICS PROCUREMENT IN PT SARANA MULTI INFRA-STRUKTUR (PERSERO)

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ABSTRACT
This research aims to measure procurement principles and procurement maturity level, which was allegedly influential as the successful implementation of the e-Procurement system. Background Problems: The urgency to develop a system for the procurement to become electronically in Business Entities is a significant increase in the frequency and value of procurement, and measuring effectiveness is the first step in identifying continuous improvements. Novelty: This study undertakes a comprehensive analysis, as it will discuss both the procurement principles and procurement maturity level simultaneously. Research Methods: This research uses a verification research method that seeks the impact between variables in this research. The statistical software used Smart PLS version 3.0. Data obtained through questionnaires, respondents are suppliers/vendors who have transactions during the 2018 and Procurement Service Units (Procurement Division) at PT SMI. Finding/Results: The results obtained, that partially and simultaneously all success determinants such as procurement principles and procurement maturity level significantly and positively influence the successful implementation of the e-Procurement system. Conclusion: To increase the effectiveness of the implementation of e-Procurement at PT SMI, first improve the principles of procurement, then increase the procurement maturity level.

KEY WORDS
E-procurement system effectiveness, procurement maturity level, procurement principles.

The era of technological disruption that phenomenon of the Internet of Things, big data, cloud computing, and artificial intelligence has become a part of supporting our activities. Procurement of government goods/services is increasingly encouraged to provide speedier fulfillment & value for money towards the results of goods/services procurement by not making the lowest price the only measure of the effectiveness of goods/services procurement. All actors in the value chain can communicate and cooperate in real-time supported by systems connected via the internet. These are the main characteristics of the 4.0 industrial revolutions. That requires procurement people to play an essential role in increasing the value of the supply chain benefits.

One form of bureaucratic reform policy in the field of government procurement is by implementing a process of procurement that utilize information technology through electronic procurement system applications. Digitization support in the work process for the procurement can be a primary need for business continuity. As the underlying of the procurement, the government of the Republic of Indonesia has issued the Republic of Indonesia Presidential Regulation (Perpres) number 80 of 2003 concerning the procurement of government goods and services. No less this Perpres has changed up to eight times for approximately seven years of validity and starting in 2018 replaced with Presidential Regulation number 16 of 2018. In the Presidential Decree, the possibility of the procurement of goods and services is electronic or e-Procurement.

The urgency to develop a system for the procurement to become electronically in Business Entities is a significant increase in the frequency and value of procurement. PT SMI is a state-owned enterprise under Ministry of Finance Republic of Indonesia with value and frequency of growth that grew five years ago and the estimated average value of procurement that grows in the next five years is as follows:

Table 1 – The average value of procurement growth at PT SMI 2012-2016 by procurement method

Year[1]	Limited Auction/Selection	Direct appointment	Direct Selection	Direct Purchases
2012	Rp543,950,166	Rp53,290,601	Rp57,841,449	Rp12,246,131
2013	Rp2,438.292,667	Rp47,958,866	Rp66,415,122	Rp5,663,475
2014	Rp800,536,080	Rp188,752,841	Rp91,544,790	Rp8,122,466
2015	Rp15,615,384,615	Rp97,482,412	Rp29,913,907	Rp19,095,238
2016	Rp1,937,500,000	Rp71,767,810	Rp81,761,006	Rp8,673,469
Annual growth[2]	37.4%	7.7%	9.0%	-8.3%
Estimated next 5 years[2]	489.3%	145.1%	154.1%	65.0%

Source: PT SMI internal data (2018). Note: 1 PT SMI internal data; 2 Historical CAGR of average procurement value during 2012-2016; 3. Estimates based on extrapolation on the historical 5-year growth average behind.

Table 2 – Total frequency of procurement at PT SMI 2012-2016 by procurement method

Year[1]	Limited Auction/Selection	Direct appointment	Direct Selection	Direct Purchases
2012	6	163	60	84
2013	3	144	27	99
2014	6	190	64	145
2015	26	199	151	63
2016	32	379	159	196
Annual growth [2]	52.0%	23.5%	27.6%	23.6%
Estimated next 5 years [3]	810.5%	287.1%	338.1%	288.4%

Source: PT SMI internal data (2018). Note: 1 PT SMI internal data; 2 Historical CAGR of average procurement value during 2012-2016; 3. Estimates based on extrapolation on the historical 5-year growth average behind.

The need to measure the effectiveness of e-procurement and the maturity of procurement is essential because the maturity of procurement is a prerequisite to be considered a strategic function (Keough, 1993). As an effort to solve problems and understand the symptoms (phenomena) that explained in the background, the objectives are arranged, among others:

- Analyze the application procurement principles of goods/services at PT SMI;
- Analyze the maturity level of goods/services procurement at PT SMI;
- Analyze the effectiveness of e-Procurement implementation at PT SMI;
- Analyze the effect both of procurement principles and procurement maturity level on the effectiveness of PT SMI e-Procurement.

E-Procurement is the procurement of goods and services carried out using information technology and electronic transactions by the procurement principles and the provisions of applicable guidelines. Procurement principles of goods/services are regulated based on Perpres 16 of 2018, namely:

- Efficient; less cost & less time (Asian Development Bank 2004);
- Effective; according to your needs and goals (Perpres 16 of 2018);
- Transparent; information availability & clarity (clarity) (Bappenas 2002);
- Open; can be followed by all vendors (Perpres 16 of 2018);
- Competing; commercial incentives that encourage productivity (ADB 2004);
- Fair; equal treatment for vendors (Perpres 16 of 2018);
- Accountable; following applicable regulations (Perpres 16 of 2018).

To create excellence quality procurement for all stakeholders requires strong commitment in the organization to develop towards better maturity levels. Henry Mintzberg (1983) mentions that "If you can measure it, you can understand it. If we cannot understand it, we will not control it. If we cannot control it, we cannot improve it. That shows measurements are the first thing that is done to make changes. The purpose of measuring maturity level is a road map or reference framework for goals achieving and measurement system development. The National Procurement Board (LKPP/Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah) developed Indonesia Procurement Maturity Model (IPM2). The maturity level, according to IPM2, introduces five levels, namely; Reactive, Compliance, Proactive, Performed, and Sustained. Referring to the IPM2 developed by LKPP to maturity level measurement in Ministries/Institutions/Work Units of Regional

Apparatuses/other Institutions, the researcher will make adjustments at the five levels of maturity using terms/definitions that better describe the organizational functions of the business entity.

Table 3 – Operational definitions and research variables

Variable	Operational Definition	Sub-Variable and Indicators	Symbol
Procurement Principles (X1)	Framework thinking and acting guidelines in the procurement process of goods/services (Perpres RI No. 16 tahun 2018)	1 Efficient	
		1.1 Time	X1_11
		1.2 Cost	X1_12
		1.3 Owner Estimate Price	X1_13
		2 Effective	
		2.1 Process Information	X1_21
		2.2 Term of Reference	X1_22
		2.3 On Time Deliverable	X1_23
		3 Transparent Vendors Requirements	
		3.2 Process Publication	X1_31
		3.3 Evaluation Methods	X1_32
		4 Open	X1_33
		4.1 Opportunity to participate	
		4.2 Record of Implementation	X1_41
		4.3 General Procurement Plan	X1_42
		5 Compete	X1_43
		5.1 Competitive Prices	
		5.2 Vendors Participation	X1_51
		5.3 A Market Mechanism is Created	X1_52
		6 Fair	X1_53
		6.1 Equal Treatment	
		6.2 Aanwijzing Process	X1_61
		6.3 Aanwijzing Minutes	X1_62
		7 Accountable	X1_63
		7.1 Reach the Target	
		7.2 Monitoring System	X1_71
		7.3 Evaluation Mechanism	X1_72
			X1_73
Procurement Maturity level (X2)	The description process activities in the organization aim to measure the organization's ability to carry out the production process (Darmapramita 2015)	1 Organization	
		1.1 Organizational Structure	X2_11
		1.2 Duties & Functions	X2_12
		1.3 Culture	X2_13
		2 Human Resources	
		1.1 Employment Status	X2_21
		2.2 Competence	X2_22
		2.3 Employee Performance	X2_23
		2.4 Organizational Performance	X2_24
		3 Governance	
		3.1 Vendors Selection	X2_31
		3.2 Retention of Original Document for Vendors Selection	X2_32
		3.3 Service Vendors Selection Implementation	X2_33
		3.4 Preparation of Report on the Implementation of Vendors Selection	X2_34
		4 Management	X2_41
		4.1 Risk Management	X2_42
		4.2 Information Management	X2_43
		4.3 Activity Monitoring	X2_44
		4.4 Infrastructure Facilities	
E-Procurement Effectiveness (Y)	Success in achieving optimal levels of e-Procurement processes and systems, (Torkzadeh and Doll 1991)	1 Content	
		1.1. Information	Y1_11
		1.2. Needs	Y1_12
		1.3. Report	Y1_13
		1.4. Adequacy	Y1_14
		2 Accuracy	
		1.1. Accurate	Y1_21
		1.2. Satisfaction	Y1_22
		3 Format	
		3.1. Useful	Y1_31
		3.2. Clear	Y1_32
		4 Ease of use	
		4.1. User-Friendly	Y1_41
		4.2. Easy to Use	Y1_42
		5 Timeliness	
		5.1. On-Time	Y1_51
		5.2. Up to Date	Y1_52

E-Procurement effectiveness measurements system in this research used a model developed by Torkzadeh and Doll (1991) that assessed system success factors through perceptions between users. Torkzadeh and Doll (1991) assess user satisfaction of a system by using measurements in the form of content, accuracy, the format of ease of use, and

timeliness. The construct used covers various dimensions that are often used by several studies (Nightisabha et al. 2009).

A research framework (Figure 1) was developed to illustrate the determining factors that procurement principles and procurement maturity level, which in turn influence attitude towards effectiveness of e-Procurement. So through the results of this research, procurement practitioners can determine policies to create a function of procurement of goods and services that are highly competitive in developing contributions to business entities.

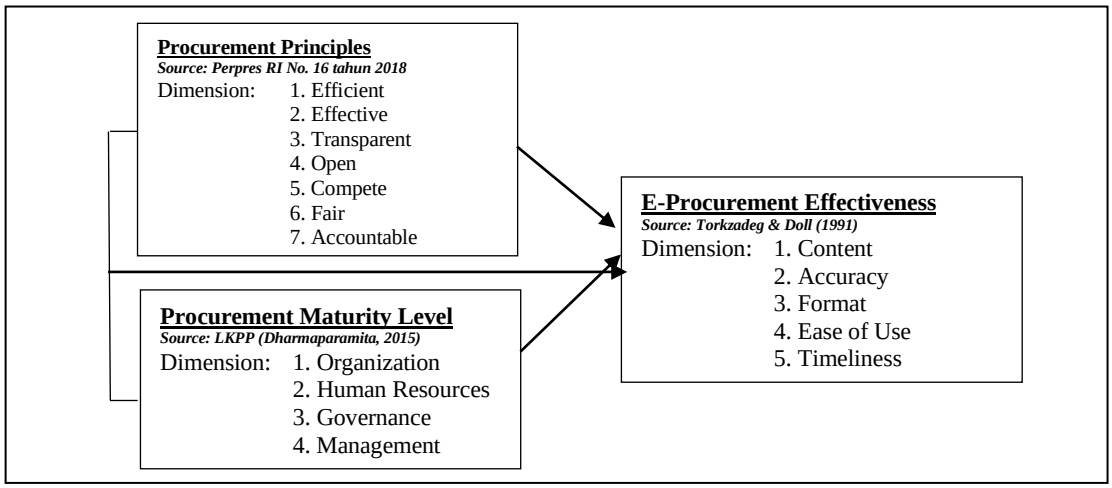

Figure 1 – Research framework

Based on the background, theoretical basis, and framework research, the authors develop several aspects that later will become the basis for evaluating the successful implementation of an e-Procurement system. That supported by several previous studies related to the evaluation of the success of the technology system and technical aspects that support the success of an e-Procurement system. In this research partially & simultaneously answer statistical hypotheses as follows:

H1: The procurement principle has a significant effect on the successful implementation of PT SMI's e-Procurement system;

H2: The procurement maturity level has a significant effect on the successful implementation of PT SMI's e-Procurement system;

H3: Procurement principles and procurement maturity level simultaneous together have a significant effect on the successful implementation of PT SMI's e-Procurement system.

METHODS OF RESEARCH

This research was conducted at PT SMI by considering the line of business diversity, which reflects types of procurement variety. Dynamic growth of value and frequency with exponent makes a business entity representative as an organization with comprehensive and complex procurement functions. The criteria of respondents used in this research were the committee and vendors of PT SMI. Data and information collecting through interviews and surveys by questionnaires. The data collection activities are carried out in March-April 2019. The sampling method used is random sampling. Besides, it uses a purposive sampling technique for some other data. The population in this research was 12 Procurement committees and 294 vendors who had transactions during 2018 after the e-Procurement system developed.

Respondents' attitude is qualitative data that will be measured on a scale so that the results are in the form of numbers which are then processed by a statistical method. Collected data will be further processed so that it has meaning to solve the problem under research. Data processing to analyze the effect of procurement principles and procurement

maturity level on the effectiveness of e-Procurement at PT SMI using the SEM PLS method with Smart PLS Software version 3.0. Rejection and acceptance of the hypothesis using a significance level of 5% (α = 0.05).

This analysis contains a detailed discussion of the respondent's questionnaire feedback. Data were analyzed descriptively to see the characteristics of respondents and the categories of each variable. The weighting in the questionnaire between 1 to 5 made a range of scales. The scale range made with the formula:

$$\text{Scale Range} = \frac{\text{Maximum Score} - \text{Minimum Score}}{\text{Large Scale}} \quad (1)$$

Based on the calculation of the results, the scale range = 0.8 obtained which will later be included in the category as shown in Table 4.

Table 4 – Scale range category

Scale range	Statement of Answer Categories
1.00 – 1.80	Very Low
1.81 – 2.60	Low
2.61 – 3.40	Medium
3.41 – 4.20	High
4.21 – 5.00	Very high

To analyze quantitative data in this research will use structural equation modeling (SEM) data analysis techniques with partial least square (PLS) methods, the use of PLS in this research is useful to explain the presence or absence of relationships between latent variables (Hair et al. 2014). SEM for researchers also has a high degree of flexibility to link theory with data (Ghozali 2008) and examine a series of relationships simultaneously (Bag 2015).

SEM analysis uses measurements made on two variables, namely latent variables and manifest variables. Latent variables are variables that cannot be measured directly, which must be measured using indicators or manifests (Sholihin and Ratmono 2013). Meanwhile, manifest variables are measurable indicators (Ghozali 2008). Latent variables divided into two, namely: 1) exogenous, is a latent variable whose value is determined by other variables outside the model, and 2). Endogenous, is a latent variable whose value is determined by other variables in the model (Sholihin and Ratmono 2013).

The latent variable path analysis model in PLS consists of two-step (Sarwono and Narimawati 2015), namely outer model and inner model.

Step 1- Outer Model, according to Hair et al. (2011), outer models are models that build relationships between a set of indicators and their latent variables. Outer models are sometimes also called outer relations or measurement models. Outer models are assessed using reliability and validity (Sarwono and Narimawati 2015). Validity is the degree of accuracy between the data that occurs in the object of research with data that can be reported by the researcher (Sugiyono 2013). Two types of validity in SEM PLS, namely convergent validity, and discriminant validity.

Convergent validity means that a set of indicators represents one latent variable and which underlies the latent variable. The representative can be demonstrated using the average value of the extracted variant (Average Variance Extracted/AVE). The AVE value is at least 0.50. Meanwhile, the convergent value is to measure the amount of loading factor for each indicator of the construct Ghozali (2008). Loading factors above 0.70 are highly recommended, however loading factors 0.50 - 0.60 can still tolerable as long as the model is still in the development stage (Ghozali 2008).

Step 2: Inner Model, the inner model or structural model evaluated by looking at the percentage of variance explained, namely by looking at the value of R2 for the dependent latent construct by looking at the magnitude of the structural path coefficient. The stability of this estimate is evaluated using the t-statistic test obtained through the bootstrapping

procedure. Analysis of variable relationships using Smart PLS software. The steps of SEM analysis with PLS (Yamin and Kurniawan 2011) are:

1. Designing a structural model (inner model);
2. The nature of interchangeability between indicators;
3. Make a path diagram;
4. Convert the path diagram to the equation system;
5. Estimated model;
6. Evaluation of models, including evaluation of measurement models and structural models;
7. Model interpretation.

Hypothesis testing performed by looking at the value of T-Statistics (| O / STERR |) (T-count) on the results of calculations through SMART PLS and comparing it with the value T-Table. To answer the research hypothesis simultaneously, look at the results of the F-calculated value and compare it with the F-table value.

$$F_{hit} = \frac{R^2 (n - k - 1)}{(1 - R^2) k} \quad (2)$$

Where: R^2 = Coefficient of determination; k = The number of independent variables; n = Sample size.

RESULTS AND DISCUSSION

The research conducted by distributing an electronic questionnaire to the entire population of 306, while the feedback obtained was 154 respondents. Average results, middle values, and values that often arise from respondents answers to the principles of procurement, procurement maturity level, and e-Procurement effectiveness shown in Table 5.

Table 5 – Results of respondents' answers

Variable	Mean	Median	Mode	Category
Procurement principle	4.049	4	4	High
Procurement maturity level	3.965	4	4	High
Effectiveness of e-Procurement	4.001	4	4	High

Based on Table 5, the average implementation of the procurement principles is on a high category (mean score 4,049 and the mode score 4). Respondents agree on framework thinking, and acting guidelines PT SMI's procurement process carried out accordingly. The procurement maturity level owned by PT SMI is a high category (mean score 3,965 and mode score 4). Respondents agree on procurement maturity level implementing at the level of performing that support procurement PT SMI organization's ability to conduct production process (Darmapramita 2015). The e-Procurement effectiveness has a high category (mean score 4,001 and mode score 4). Respondents agree on the e-Procurement process and systematically carried out with success reaching optimal levels. Continuously develop and focused on content, accuracy, format, ease of use, timeliness is critical to achieving the optimal level of e-Procurement processes itself.

Coefficient values evaluation in the reflective model has been carried out by issuing indicators with a coefficient value more significant than the recommended critical value of 0.5. After that, the process repeated without the indicators that have been issued to obtain the best model. The final model obtained is presented in Figure 2.

In addition to the cross-loading criteria, discriminant validity can also be measured based on the Fornell-Larcker criteria. This criterion compares the correlation of latent variables with their latent variables with AVE roots. The results show that the AVE root value in each of the procurement principle latent variables, procurement maturity level, and e-Procurement effectiveness has a higher value than the correlation value between the latent

variable and other latent variables. The most significant correlation between latent variables is owned by procurement principles (X1) to the effectiveness of e-Procurement (Y), which is 0.758, but still smaller than its AVE roots. That indicates Fornell Lacker's discriminant validity criteria in this research met so that all evaluation results on the above criteria prove and reflective outer model on this research is valid.

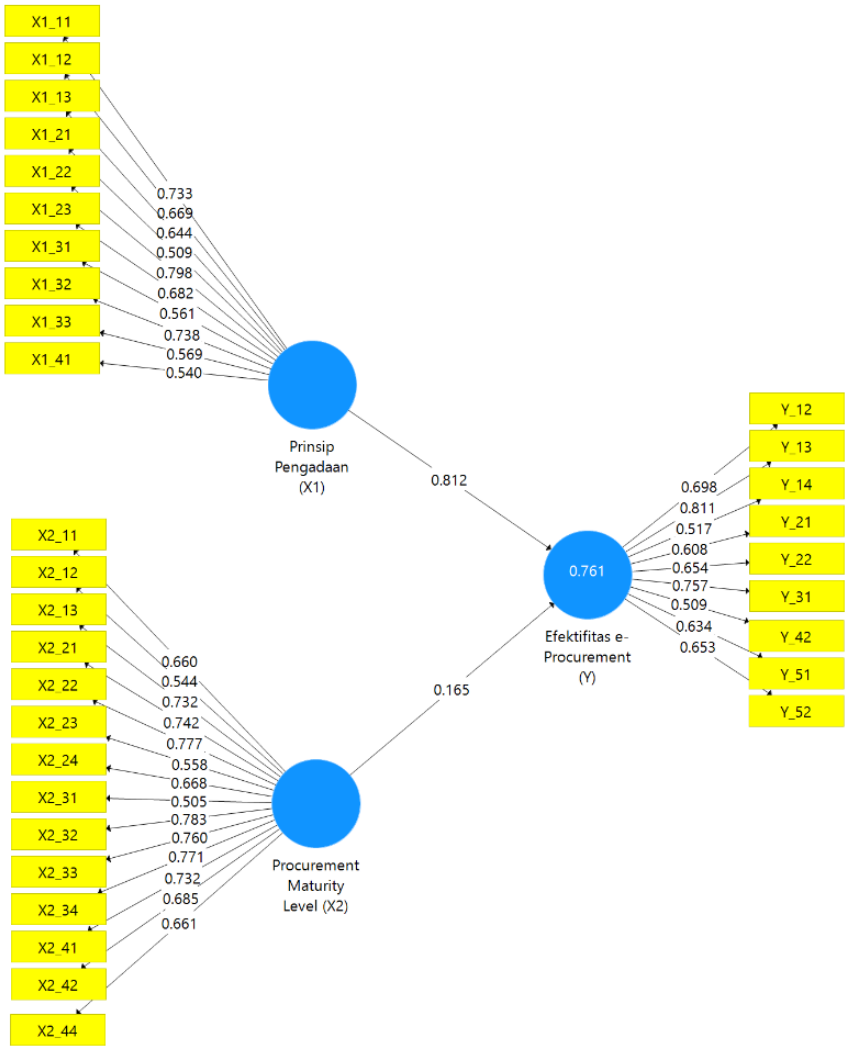

Figure 2 – Results of the final model analysis

Table 6 – Results of assessment of criteria and standard values

No	Criteria	Value of research results
1	Composite Reliability (ρc)	ρc Procurement Principle = 0.878; ρc Procurement Maturity Level = 0.926; and ρc The effectiveness of e-Procurement = 0.869 has a value of ρc> 0.7 which represents internal consistency because it is above 0.7 (Ghozali 2008).
2	Cronbach's alpha	Cronbach's alpha Procurement Principle = 0.844, Procurement Maturity Level = 0.914 and Effectiveness of e-Procurement = 0.829. Similarly, composite reliability, that a good model if it has a value above 0.7, which shows that the construct is reliable.
3	Indicator reliability	Indicators that have a loading factor <0.5 need to be excluded from the model because this indicator does not reflect latent variables consistently and stably.
4	*Average Variance Extracted* (AVE)	AVE procurement principles are 0.530, procurement maturity level 0.523 and e-Procurement effectiveness 0.576. The three latent variables have values> 0.5 so that it can be stated that the model is valid.
5	Discriminant validity of cross-loading criteria	All indicator correlations of each latent variable to its latent variable have a value higher than the correlation to other latent variables. That illustrates validity has fulfilled.
6	The discriminant validity of the Fornell-Larcker criteria	The correlation of each latent variable X1, X2, and Y with other latent variables has a smaller value than the root value of AVE, which presented in Table 7.

Table 7 – Fornell-Larcker's criterion, AVE and √AVE

Variable Latent	X1	X2	Y	AVE	√AVE
X1	0,651			0,530	0,728
X2	0,277	0,690		0,523	0,723
Y	0,758	0,390	0,656	0,576	0,759

Note: Source: Primary data, processed (2019), X1(Procurement Principle), X2 (Procurement maturity level), Y (Effectiveness of e-Procurement).

The inner model (structural model) is a model that connects between latent variables. Inner Model measurements shown in Table 8.

Table 8 – Value of inner model analysis

NoCriteria	Value of Research Results
1 R^2 endogenous latent variable	R2 value from the results of the research: • R^2 for Effectiveness of e-Procurement (Y) = 0.761 (categorized as substantial) • Grouping the value of R^2 (Ghozali 2008) is substantial (0.67), moderate (0.33), and weak (0.19)
2 Estimated path coefficient	Values estimated for path relationships in the inner model must be evaluated in the perspective of the strength and significance of the relationship (Sarwono and Narimawati 2015).
3 Goodness of fit (GoF)	The GoF index is used to measure validation between measurement and structural models. GoF values consist of 3 categories, namely: small (0.1), moderate (0.25) and large (0.36). The GoF value in this research is 0.643, which means it is included in the large category.
4 F2 endogenous latent variable	The effect size (effective size) to know the goodness of the model can be seen in the value of f-Square. F2 value from the results of the research follows: • F2 for the Procurement Principle (X1) = 2,542 • F2 for Procurement Maturity Level (X2) = 0,165 The grouping of F^2 values (Ghozali 2008) is weak influence (0.02), moderate (0.15), and strong (0.35) latent predictor variable (exogenous latent variable) at the structural level.

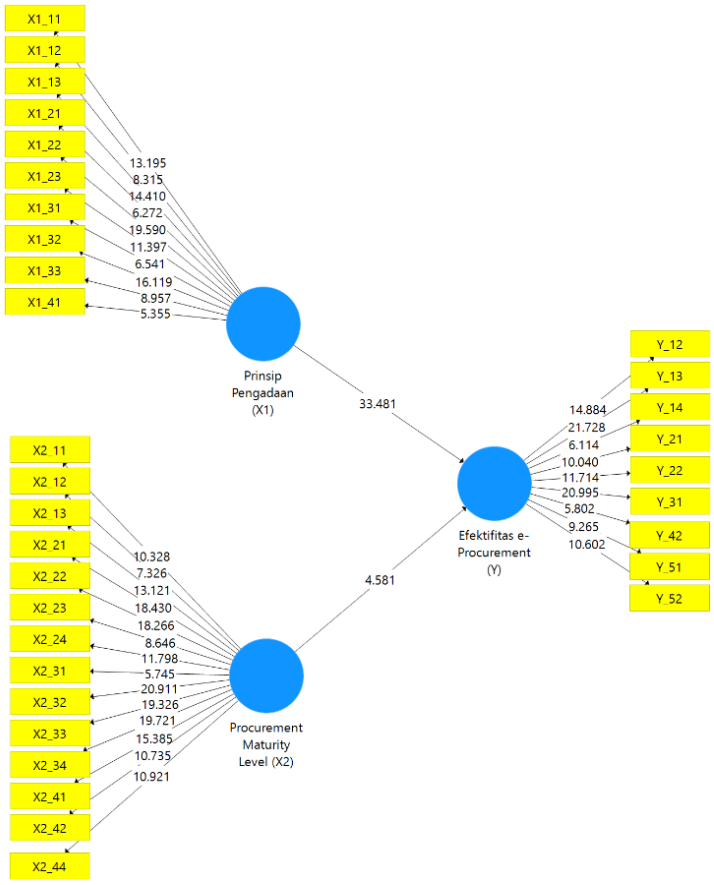

Figure 3 – PLS *Bootstraping* Mode

The R^2 criteria of endogenous latent variables indicate how exogenous variables can explain much diversity of endogenous variables. The endogenous variable in this research is the effectiveness of e-Procurement (Y). The effectiveness of e-procurement can be explained by 76.1% by procurement principles and procurement maturity level. The remaining 23.9% is the amount of influence contribution from other factors not examined. Path coefficient estimation is an evaluation of the coefficient value, the real effect of the bootstrapping value, and the magnitude of the coefficient value. The bootstrapping technique is a random data recalculation technique to obtain T-statistic values. Hypothesis testing done by comparing the value of t-count with t-table. Tests with a significance level of 5% if the t-statistic value> 1.96, then the null hypothesis (H0) is rejected. The t-statistic coefficient of the influence of latent variables obtained from PLS Bootstrapping. The results of the PLS Bootstrapping Model of the effectiveness of PT SMI e-Procurement shown in Figure 3.

The coefficient values parameter can be seen in the path coefficient values presented in Table 9 as follows:

Table 9 – Path coefficient value

Variable	*Original Sample (O)*	*Standard Deviation (STDEV)*	*Standard Error (STERR)*	*T Statistics (|O/STERR|)*
Effect of X1 on Y	0,812	0,813	0,024	33,481
Effect of X2 on Y	0,165	0,167	0,036	4,581

Note: Source: Primary data, processed (2019), X1(Procurement Principle), X2 (Procurement maturity level), Y (Effectiveness of e-Procurement).

To analyze the significance of influence each exogenous latent variable on endogenous latent variables, then testing the hypothesis with the description as in table 10 below:

Table 10 – Hypothesis test

Influence Model	Calculate value	Alpha table	Alpha	Conclusion	Decision
Effect of X_1 on Y	33,481*	1,96*	0,05	Ho rejected	Significant
Effect of X_2 on Y	4,581*	1,96*	0,05	Ho rejected	Significant
Effect of X_1 and X_2 on Y	239,867**	3,055**	0,05	Ho rejected	Significant

*Note: Source: Primary data, processed (2019), *T-value, **F-value, X1(Procurement Principle), X2 (Procurement maturity level), Y (Effectiveness of e-Procurement).*

Managerial Implications. Based on the above research results, it known that all research variables proposed based on the hypothesis can be accepted, and all are significantly positive. Next, several efforts made in order to increase the effectiveness of PT SMI e-Procurement, by looking at the dimensions and indicators that have the highest loading factor (LF) of each research variable based on the outer loading results table.

1. In order to improve the effectiveness of PT SMI's e-Procurement, management can be looking at the correlation coefficients of the two independent variables, which are procurement principles and procurement maturity level. Based on research results, procurement principles has the most significant coefficient with a calculated coefficient of 33.481 and P of 0.000, compared to the procurement maturity level, which has at the value of 4.581 and P of 0.000. That explains the effort to increase procurement principles can be the priority, then procurement maturity level at PT SMI;
2. The use of SEM PLS provides insights on improving the application of procurement principles at PT SMI. It can see from most significant loading factor (LF) dimensions and indicators, which is "Effective Principles" with indicators X1_22 with the statement "Implementation of goods/services conducted following to specifications (term of reference)," with coefficient value 0.798. That explains the implementation of procurement at PT SMI expected to receive goods/services bring the highest benefit value. The benefits can consist of; the best quality, timely delivery, quantity fulfilled,

able to synergize with other goods/services, and the program embodies the optimal evaluation program. By applying the principle of effectiveness, the procurement process determined and following the objectives fulfilled;

3. In order to increase the procurement maturity level at PT SMI, management can see the most significant loading factor coefficient from dimensions and indicators. "Human Resources" dimension indicator X2_32 with the statement "Competency Development," which has a coefficient of 0.783. That explains to balance the performance of the procurement organization/service following the demands faced, the competency development program of each procurement implementer must be carried out through needs-based education and training.

CONCLUSION

Research results indicate procurement principles affect the effectiveness of e-Procurement. The procurement maturity level affects the effectiveness of e-Procurement. Both of procurement principles and procurement maturity level together affect the effectiveness of e-Procurement.

Increasing the effectiveness is needed to further optimize the performance achievement of the PT SMI's procurement goods/services. Future research should add the analytical approach, for example, the analytical hierarchy process (AHP) to get priority factors, actor priorities, and alternative priority strategies to improve procurement principles, procurement maturity levels, and e-Procurement effectiveness for the aiming. That is tailored to the challenges and needs of the research object and broadening the scope of research is not limited to only one work unit. In addition, the use of Key Performance Indicators (KPIs) should be carried out to reflect objective measurements of the effective performance itself better.

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