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The impact of monopoly power, and asymmetric information to adopt E-procurement

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Abstract

Information and Communication Technology (ICT) offers a new approach for private organizations, governments and other institutions. This study aims to determine the effect of monopoly power, asymmetric information, transparency and accountability on the intention to adopt E-Procurement. The results suggest that e-procurement has the potential to limit the risk of corruption by reducing the monopoly power of public officials, reducing asymmetric information in the process of procurement of public goods and services electronically and increasing transparency and accountability in the process of procurement of goods and services, thus affecting the intention to adopt e-procurement at state universities in Surabaya.

Keywords: E-procurement, Asymmetric information, Monopoly power, Good governance.

El impacto del poder de monopolio, e información asimétrica para adoptar la contratación electrónica

Resumen

La tecnología de la información y la comunicación (TIC) ofrece un nuevo enfoque para organizaciones privadas, gobiernos y otras instituciones. Este estudio tiene como objetivo determinar el efecto del poder de monopolio, la información asimétrica, la transparencia y la responsabilidad en la intención de adoptar la contratación electrónica. Los resultados sugieren que la contratación electrónica tiene el potencial de limitar el riesgo de corrupción al reducir el poder de monopolio de los funcionarios públicos, reducir la información asimétrica en el proceso de adquisición de bienes y servicios públicos por vía electrónica y aumentar

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la transparencia y la rendición de cuentas en el proceso de adquisición de bienes y servicios, lo que afecta la intención de adoptar la contratación electrónica en las universidades estatales de Surabaya.

Palabras clave: Contratación electrónica, Información asimétrica, Poder de monopolio, Buen gobierno.

1. INTRODUCTION

The World Bank has defined corruption as one of the biggest problems in social and economic development, distorting the rule of law and weakening the institutional foundation on which economic growth depends. Corruption is a threat to the stability and security of the society. It damages institutions, democratic values, ethical values and justice; it also endangers sustainable development and the rule of law (1). Corruption is an abuse of public power for personal gain, including for obtaining monetary and non-monetary benefits (2). Procurement of goods/services is one of the biggest sources of corruption in the public financial sector. Factors that provide the opportunities for corruption in the procurement of government goods/services include public officials who have an absolute authority to impose regulations and policies (monopoly power), the existence of information gaps (asymmetric information) that can lead to opportunistic behavior, where actors can utilize asymmetric information for personal gain, and the lack of transparency and accountability (3) (4) (5).

In the agency relationship, a harmonious relationship between principals and agents is difficult to create because principals and agents tend to maximize their own interests. When the principals maximize their own interests, the principals use their power to procure

goods/services and use their monopoly power to regulate procurement. Contractual relationships between principals and agents can also lead to opportunistic behavior. The condition where one party has certain information will lead to information asymmetry (6). Principals/agents tend to exploit the situation for the exchange of information because of their respective interests (7). In short-term contractual relationships, asymetric information between principals and agents tends to be larger, whereas in long-term contractual relationships, asymetric information tends to be smaller (8). The problem of accountability often emerges when there is a delegation of authority from principals to agents including in decision making. When an agent makes a decision on behalf of the principal, the agent tends to maximize his own interests than the interests of the principal. Therefore, each time the agent acts in the interests of the principal, the agent will be at a lower level of business (9). This lack of transparency and accountability will create opportunities for public officials such as government officials and politicians to abuse their position and authority for personal gain.

Information and Communication Technology (ICT) offers a new approach for private organizations, government organizations and other institutions to create transparency and encourage anti-corruption. Through e-procurement, the direct contact between suppliers of goods/services and the procurement committee becomes smaller, more transparent; it saves time and costs, and makes it easy to ensure financial accountability in its implementation. The use of e-procurement can limit the role of middlemen such as brokers, and can

directly connect the government to vendors/providers without intermediaries. In addition, with e-procurement, access to information becomes easier because services are open 24 hours, reducing face-to-face contacts between vendors and public officials, limiting certain agreements between recipients of works and vendors, providing broader integration and supervision of procurement processes by the society. This system selects the best value from all contracts, and can limit or stop political and economic pressures which intervenes the procurement process. As one of ICT products, e-procurement technology has the potential to be used as a tool to prevent and reduce the risk of corruption in the procurement of government goods and services.

Based on Presidential Regulation Number 54 of 2010 concerning Procurement of Government Goods/Services, state universities as one of government institutions in the education sector must also carry out the procurement of goods/services through e-procurement (10). Every year, the Government of Indonesia allocates a large portion of the National Budget (APBN) and Regional Budget (APBD) Budget for the education sector. Therefore, this study was conducted to examine the effect of monopoly power, asymmetric information, transparency and accountability on the intention to adopt e-procurement in the procurement of goods/services at state universities in Surabaya.

2. METHODOLOGY

This quantitative research is classified as associative research. The research was conducted to examine the effect of independent

variables on the dependent variable. This study used three independent variables, consisting of monopoly power, asymmetric information, transparency and accountability, and one dependent variable which is the intention to adopt e-procurement. Total sampling technique was employed to select the 70 respondents, consisting of Budget Authorities (KPA), Commitment Officers (PPK) and Procurement Service Units (ULP). This study used descriptive statistical data analysis method using WarpPLS version 5.0 software. PLS (Partial Least Square).

3. RESULTS and DISCUSSION

From the 70 questionnaires distributed in seven state universities, 33 copies were returned, representing 47.14% of the total population. So, the total questionnaires used for data processing were 33 copies of the seven universities. The distribution of the questionnaires is presented in Table 1.

Table 1: State universities involved in the study

State University	Distributed	Returned
Institut Teknologi Sepuluh Nopember	9	5
Politeknik Elektronika Negeri Surabaya	7	5
Politeknik Perkapalan Negeri Surabaya	7	2
Universitas Airlangga	25	7
Universitas Islam Negeri Sunan Ampel	7	4
Universitas Negeri Surabaya	7	2

Universitas Pembangunan Nasional "Veteran" Jawa Timur	8	8
Total	70	33

Most of the participants from the seven state universities had a master's degree, 16 individuals or 48.48% of the respondents. The rest of the participants had a bachelor degree, 11 people with a percentage of 33.33%. Two people had a doctorate degree, representing 6.06% of the participants; three people had a three-year diploma degree, representing 9.09% of the participants, and one participant had a two-year diploma degree, 3.03% of the total participants. Most of the respondents were ULP staff (29 people or 87.87 %.) The rest were PPK staff (3 people or 9.09%) and KPA staff (1 person or 3.03%).

Table 2: average responses for each variable

Variable	Mean	Category
Monopoly Power (X1)		
KM1	3.15	S
KM2	3.42	SS
KM3	3.09	S
KM4	2.81	S
KM5	3.42	SS
Mean score	3.17	S
Asymetric Information (X2)		
IA1	3.03	S
IA2	3.09	S
IA3	2.75	S
IA4	2.24	TS
IA5	2.66	S
Mean score	2.75	S
Transparency and Accountability (X3)		
TA1	3.54	SS
TA2	3.33	SS

TA3	3.57	SS
TA4	3.48	SS
TA5	3.42	SS
TA6	3.54	SS
TA7	3.69	SS
TA8	3.69	SS
Mean score	3.53	SS
Intention to adopt *E-Procurement* (Y)		
NME1	3.69	SS
NME2	3.60	SS
NME3	3.48	SS
NME4	3.60	SS
NME5	3.63	SS
NME6	3.48	SS
Mean score	3.58	SS

Table 2 indicates that the means score for the monopoly power variable is 3.17 in the agree category. This indicates that the respondents believe that e-procurement technology can reduce monopoly power. The KM2 and KM5 indicators have the highest mean score of 3.42 in the strongly agree category. Based on that value, it can be said that most of the respondents agreed that e-procurement technology is able to reduce monopoly or tendency to choose certain vendors, as well as contracts with fixed prices equal for all tender participants.

On average, the respondents' answers to the asymmetric information variable is 2.75 in the agree category. The average respondents' answers were for question IA1, IA2, IA3, and IA5 with the mean of 3.03, 3.09, 2.75, and 2.66. This indicates that the respondents regarded e-procurement technology as being able to

reduce asymemetric information by increasing the competition in the process of procurement of goods and services, providing up to date information regarding procurement, helping track and supervise the procurement process, and providing consistency in the procurement process with the same regulation for all tender participants.

On average, the respondents' answers to the transparency and accountability variable was 3.53 in the strongly agree category. In addition, in all question categories, the respondents answered strongly agree. This means that the respondents believe that e-procurement is able to increase transparency and accountability in the process of procuring public goods and services.

The average respondents' responses to the variable of the intention to adopt e-procurement was 3.58 in the strongly agree category. In addition, in all question categories, most respondents answered strongly agree. This means that the respondents strongly agree that the intention to adopt e-procurement is to increase transparency, non-discrimination, equality of access, and open competition in the provision of public goods and services.

Table 3: The effect of each variable on the intention to adopt e-procurement

Variable	Original Sample (O)	P Values
Monopoly Power	0.301	0.027
Asymmetric Information	0.269	0.045
Transparency and Accountability	0.300	0.028

Based on Table 3 above, it can be concluded that monopoly power influences the intention to adopt e-procurement. This can be seen f rom the P value of 0.027 below 0.05. Based on the estimated value of the regression coefficient obtained, which is equal to 0.301, it can be concluded that monopoly power has a positive effect on the intention to adopt e-procurement. A positive regression coefficient indicates a unidirectional relationship between monopoly power and the intention to adopt e-procurement; if monopoly power increases, then the intention to adopt e-procurement will increase by 0.301 times. Using P values and regression coefficients to see the effect of monopoly power on the intention to adopt e-procurement, it can be concluded that monopoly power has a positive effect and is proven to be significant towards the intention to adopt e-procurement.

Asymmetric information also affects the intention to adopt e-procurement. This can be seen from the P value of 0.045 below 0.05. Based on the estimated value of the regression coefficient obtained, which is equal to 0.269, it can be concluded that asymmetric information has a positive effect on the intention to adopt e-procurement. The positive regression coefficient indicates a unidirectional relationship between asymmetric information and intention to adopt e-procurement. If asymmetric information increases, then the intention to adopt e-procurement will increase by 0.269 times. Based on P values and regression coefficients, it be concluded that asymmetric information has a positive effect and is proven to be significant towards the intention to adopt e-procurement.

Transparency and accountability influence the intention to adopt e-procurement. This can be seen from the P value of 0.028 below 0.05. Based on the estimated value of the regression coefficient obtained, which is equal to 0.300, it can be concluded that transparency and accountability have a positive effect on the intention to adopt e-procurement. A positive regression coefficient indicates a unidirectional relationship between transparency and accountability and the intention to adopt e-procurement. If transparency and accountability increase, then the intention to adopt e-procurement will increase by 0.300 times. Based on the P values and regression coefficients, it can be concluded that transparency and accountability have a positive effect and are proven to be significant towards the intention to adopt e-procurement.

The results of statistical tests show that there is a positive relationship between the monopoly power and the intention to adopt e-procurement ($\beta = 0.30$, $P = 0.03$). E-procurement can limit the influence of politics and economics, as well as regulate offers and prevent intervention from third parties (11). The use of e-procurement can prevent corruption and reduce the monopoly power of public officials (12). The reduced monopoly power of public officials on goods and services through the implementation of e-procurement in the principal-agent relations influences the intention to adopt e-procurement. Public officials play an important role in providing goods and services efficiently and transparently.

Corruption will emerge when public officials use monopoly power for personal gain, for example, giving projects to certain privileged contractors or bidders (13). Monopoly power is an

important factor that provides opportunities for corruption. This study emphasizes that the monopoly power of public officials is an important factor of corruption in the principal-agent relationship and e-procurement can be considered the best choice to eliminate the monopoly of public officials in the process of procurement of goods and services (3).

From the five indicators used to measure monopoly power, there are two indicators that are considered significant, namely providing real time information and reducing monopoly or the selection of privileged bidders (vendor / supplier) in the contract process. Real time procurement information automatically facilitates accounting control over the entire procurement process and with real time procurement information, the public can participate in monitoring the procurement process through the internet anytime and anywhere. Providing open access to the public can reduce the monopoly of public officials. The e-procurement system is proven to be impartial to certain groups because this system requires the provider to enter all relevant information. If the provider is unable to meet certain requirements in the procurement process, the system will automatically abort the application from the provider / bidder. This system can also limit or stop the political and economic pressures which intervene the procurement process. There is no compromise in this system; each bidder is required and obliged to provide legal evidence of their competence (for example, evidence of experience, qualification certificate) (11). The remaining three indicators that are considered insignificant are: e-procurement increases internal efficiency in the

entire procurement process, e-procurement reduces the possibility of fraud or accounting errors (errors), and e-procurement helps provide contracts at fixed prices. All indicators of monopoly power have a loading a factor value above 0.5. So, it can be said that all indicators are significant and valid (5). The different results of the loading factor values in this study can be caused by variations in data that are less varied or evenly distributed.

The asymmetric information variable also has a positive effect on the intention to adopt e-procurement ($\beta = 0.27$, $P = 0.04$). Asymmetric information is an important factor in the principal-agent relation that can lead to information gaps, incomplete contracts, and supervision issues between both parties, both government and bidder. When principals and agents are involved in long-term contractual relationships, principals will more easily assess agent behavior.

Conversely, in short-term contractual relationships, asymmetric information between principals and agents tends to be greater (14). Asymmetric information can increase the likelihood of opportunistic behavior (7) (15). E-procurement will reduce asymmetric information when it contributes to expanding competition, openness and fairness in the contracting process, providing up-to-date information, consistency in the procurement process, and more transparent than conventional procurement systems (paper based procurement system) (5). E-procurement automates the entire procurement process and provides information throughout the supply chain. This results in reduced asymmetric information; it also prevents opportunistic behavior,

decreases total costs, increases fulfillment, shortens cycle times, and reduces information distortion (bullwhip effect) in the entire supply chain (16).

From the five indicators used to measure asymmetric information, there are four indicators that are considered valid and significant, namely providing up-to-date information, helping to track and supervise the entire procurement process, reducing discretion and consistency in the procurement process. E-procurement provides easy access and information because services are open for 24 hours, such as information about auction announcements, auction winners, regulations and procedures, and question and answer section (1).

With easy access to this information, asymmetric information will also be reduced. Automation of the procurement process through e-procurement also makes it easier for bidders to participate in overseeing the procurement process such as tracking the procurement process and getting all information related to procurement, because in e-procurement each bidder gets the same information. The more projects, assets, or auction products that are unique and specific, the higher the risk of corruption, because the scope for discretion is higher (17). In addition, corruption can also appear on complex contracts where the obscurity of the initial offer will open the way for discretion.

However, this e-procurement discretion can be avoided because the information and requirements regarding the offer have been clearly defined in the system and are open to all bidders. The rules and

regulations that have been set apply to all registered bidders. All of these items help reduce asymmetric information in public contracts. One remaining indicator that is considered insignificant is that e-procurement helps increase competition in terms of quantity (participation) and quality (openness and fairness) between all participants in the tender process.

The variable of transparency and accountability also has a positive effect on the intention to adopt e-procurement ($\beta = 0.30$, $P = 0.03$). Lack of transparency will create opportunities for public officials such as government officials and politicians to abuse their position and authority for personal gain. This indicates a weak accountability mechanism and tends to facilitate corruption (5) (18). Transparency and accountability have been recognized as key factors for promoting integrity and preventing corruption in public procurement (13). E-procurement offers a new approach for the government to increase transparency. All procurement processes including purchase requests, announcements of tenders / offers, contracts, inspections, and payments have all been digitalized and disclosed in real time (1). The use of e-procurement means encouraging efficiency and transparency at the same time (19).

From the eight indicators used to measure transparency and accountability, there are four indicators that are considered valid and significant, including e-procurement technology that makes the procurement process more transparent and accountable, where e-procurement offers wider transparency, for example information

disclosure, access to information easier, wider and fairer competition, and the community which can run a supervisory function. All government procurement policies, processes, and guidelines are available online on e-procurement portals. Unlike the paper-based procurement system, e-procurement provides various information in the procurement portal.

E-procurement provides better relations between public officials and bidders because the e-procurement system reduces face-to-face interactions between public officials and providers; through the e-procurement system, this interaction is reduced because the entire procurement process - from registration, evaluation, and announcements – is carried out electronically through the system to prevent corruption, build public trust and increase transparency and accountability. Last, e-procurement improves the public information transmission. All of these factors are important for government/public officials to increase transparency and accountability, and reduce corruption.

The remaining four indicators are considered insignificant; e-procurement helps reduce human error, e-procurement service makes it more convenient to obtain information, e-procurement increases the availability of public information such as offers and other processes, and e-procurement can improve the accuracy of orders.

4. CONCLUSION

The results of the testing and analysis show that monopoly power, asymmetric information, and transparency and accountability

have a positive effect on the intention to adopt e-procurement; they are proved to be significant. These results suggest that e-procurement can prevent corruption by reducing the monopoly power of public officials, reducing asymmetric information in the process of procurement of public goods and services electronically, and increasing transparency and accountability in the process of procurement of goods and services electronically, which influence the intention to adopt e-procurement at State Universities in Surabaya.

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