

**EVALUATION OF TECHNOLOGY ACCEPTANCE MODELS ON
ADMISSION OF E-PROCUREMENT INFORMATION SYSTEMS
(Case Study in The Office of Goods and Services Procurement Work Unit,
Jayawijaya Regency, Papua)**

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Abstract

With the existence of e-Procurement as part of e-Government, it is expected to be able to realize the efficiency and effectiveness of the procurement of goods and services at the Jayawijaya Regency UKPBJ Office. This system is expected to be able to help accelerate development in Jayawijaya Regency so that it does not lag far behind other regions. The aims of study is to evaluate the acceptance of the e-Procurement system by using the Technology Acceptance Model (TAM) at the Jayawijaya Regency UKPBJ office. By using a descriptive qualitative purposive sampling, and snowballing sampling approach with 16 informants, the researcher used triangulation, member checking, the audit trail, and prolonged engagement in the field as a test of credibility. The study shows that the implementation of e-Procurement at the UKPBJ Office is in accordance with existing regulations even though it has not run optimally because of the five principles of procurement of goods and services used, namely efficient, effective, transparent, open, competitive, fair and accountable, only the principle of efficiency, transparent, open and accountable achieved.

Keywords: Information Systems, TAM, E-Procurement.

INTRODUCTION

The development of an information system today is inevitable. Not only for personal users, but information systems also provide many benefits and conveniences for an organization. The benefit of information systems is to facilitate data processing and conveying information. According to Kang (1998), information technology systems will help companies improve performance only if companies use information technology systems in an efficient manner.

User factors are also very important in implementing a new system, because the readiness factor of the user in accepting a new system, will have a large influence on the success of the use of the system, which can later become a benchmark for an organization. information. This study uses the Technology Acceptance Model (TAM) which is used to evaluate what factors influence the user to accept new technology.

The Government Agency for Procurement of Goods and Services Policy (LKPP) forms a unit that serves the procurement of goods and services namely Electronic Procurement Services (LPSE) by facilitating Procurement Service Units (ULP) / Procurement Officials in carrying out electronic goods and services procurement activities. This LPSE is the first institution formed in the context of e-Procurement. According to Brandon-Jones & Carey (2011) e-Procurement is a procurement process that refers to the use of the internet as a means of information and communication.

The E-Procurement is expected to improve the purchasing process, which is there are five purchasing processes that want to be achieved, namely the right price, on-time delivery, the right quality, the right quantity from the right source. (Chaffey, 2009). While Brandon-Jones & Carey (2011) explained that e-Procurement is one of the tools in the efficiency of budget expenditures and facilitates the provision of goods and services. One of the objectives of e-Procurement is to increase effectiveness and efficiency in the management of government procurement of goods and services.

The Office of Goods and Services Procurement Unit (UKPBJ) in Jayawijaya Regency is one of the agencies that organize the e-Procurement system as stated in Presidential Regulation No. 16 of 2018. UKPBJ is a merger of LPSE and ULP based on Presidential Regulation No. 54 of 2010. ULP and LPSE are two work units that run individually considered to be difficult to become a strong organization because even though they handle different services, LPSE and ULP still have an independence that will

affect procurement performance. So it is very necessary to integrate the two work units as UKPBJ.

The aim of the UKPBJ is to facilitate efforts to optimize the implementation of services that cover all procurement functions in a structural and permanent institution. The presence of UKPBJ is expected to be able to execute auctions, as a service center electronically, and must be able to build e-Catalog in order to approach the market. However, e-Procurement generally still faces several obstacles in some previous studies, including: (1) The lack of more detailed technology and rules regarding digital signature rules so that it still needs to be done face-to-face when proving qualifications, (2) Still limited human resources and lack of competence, and (3) Inadequate facilities and infrastructure.

In the previous study, which was conducted by Santoso (2012), the perception of ease has a positive effect on perceived ease, significantly influencing user attitudes, perceived convenience has a positive effect on user attitudes, and perceived usefulness has a positive effect on technology acceptance. In research Putera, the acceptance of e-Procurement application users is influenced by perceived ease, perceived usefulness, and security and privacy. Whereas perceived enjoyment and attitude toward using did not prove to have an effect on user acceptance.

Based on several previous studies and existing literature, the study choose this theme to evaluate the acceptance of e-Procurement information systems at the Jayawijaya Regency UKPBJ Office using TAM.

ACCEPTANCE OF INFORMATION SYSTEMS

Chusing and Romney (2007) define the system as a collection of elements that interact to achieve certain goals. Whereas Wilkinson, et al. (2000) provides a definition of a system element is a group that interacts in a shared function to achieve its intended purpose. It is this system that coordinates the resources needed to convert input into an input.

Information itself is defined by Wilkinson, et al. (2000) as a set of data that has been transformed and designed to be more valuable or meaningful in a particular process. O'Brien (2003) defines information systems as a combination that starts from several people, software, hardware, communication networks, and resources that are tasked to collect, change, and disseminate information in an organization. There are several

components in the information system, including: hardware, software or programs, procedures, people, databases, and computer networks and data communications.

According to Jogiyanto (2003), who explained that there was a development that gave a new term to management information technology systems with the term information technology (information technology). This information system produces useful information. With the use of information technology in information systems, so-called information technology systems.

Information technology systems consist of three elements, namely system elements, technological elements, and information elements. The success of implementing an information system in an organization is influenced by several factors, namely: the involvement of end users; management support, clarity of application, competent human resources support, commitment and involvement of all parties in the information system adjustment process, suitability of information systems developed with organizational needs, and information system capabilities to address challenges and competition faced by organizations. The success of an information system can be measured by four types of measures such as user satisfaction, use of system performance decisions, and organizational performance.

It was proven in the study of Hartwick and Barki (1994), by using user satisfaction, and the use of information systems. Whereas in the study of Goodhue and Thomson (1995), the use of information technology systems shows the individual's decision to use information technology systems or not to use information systems in completing a series of tasks. To implement an information system, namely: (a) Dynamics of the organization, meaning that with the dynamics in carrying out business processes, the organization is required to make a change that is supported by the existence of system development, including rational planning and implementation; (b) completion of large-scale system projects, which have an influence on a number of organizational units and staff members, and require extensive information needs that are difficult to monitor, coordinate and plan; (c) Estimated time and costs for implementing information systems.

To evaluate information systems in an organization, several methods are used according to Surachman (2008) and Vaidya (2007), namely: (1) Technology Acceptance Model (TAM), from Davis in 1989 who adapted the Theory of Reasoned Action (TRA) model the aim is to explain what are the main factors in the behavior of information technology users towards the acceptance of information technology users; (2) End User

Computing (EUC) Satisfaction, an evaluation developed by Doll & Torkzadeh. This evaluation emphasizes end-user satisfaction with the use of the system; (3) Fit Technology Task (TTF) Analysis, which is the evaluation of information technology that is only used if functions and benefits are available to support user activities; (4) Human-Organization-Technology (HOT) Fit Model. This model places an important component in the information system namely Human (Organization), Organization (Organization) and Technology (Technology) and the relationship between them.

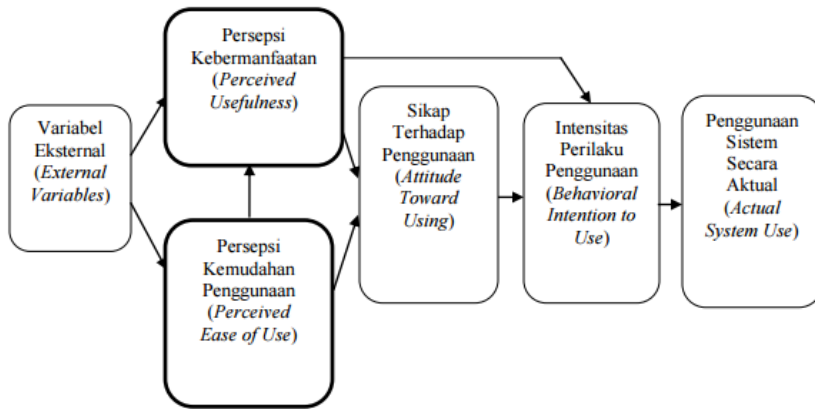
TAM is the first time used to provide a basis for tracking external influencing factors such as: user beliefs, attitudes, and goals. The two key variables of TAM are perceived usefulness and perceived ease of use, which have more relevance for predicting attitudes toward user acceptance of computer technology.

TECHNOLOGY ACCEPTANCE MODEL (TAM)

Before the TAM model emerged, the theory known as the Theory of Reasoned Action (TRA) developed by Martin Fishbein and Icek Ajzen (1975, 1980). Based on previous research that starts from attitude and behavior theory, so the emphasis of TRA is viewed from the attitude from a psychological point of view. Furthermore, in 1986, Davis carried out by adapting TRA in 1989, which gave rise to the TAM theory with an emphasis on the perception of ease of use and usefulness that had a relationship to predict attitudes in using information systems. The TAM model is clearly far more widespread when compared to the TRA model.

From several previous studies, TAM has been proven to be able to measure technology acceptance. For this reason, using this TAM the value will be able to evaluate why the e-Procurement information system can be accepted or not by the user. The TAM below is an unmodified model consisting of five main constructs, including perceived ease of use, perceived usefulness, attitude to use, behavioral intention to use (behavioral intention to use) and actual system usage.

FIGURE 1
Original Form of Technology Acceptance Model



Source : Davis (1986)

Perceived Ease of Use

Perceived ease of use is the degree to which a person believes that using a particular system would be free of physical and mental efforts. (Davis, 1989). That is, the perception of ease is the level at which someone will believe that using the system can reduce one's effort to do something. Ease of meaning without difficulty or no need for hard work. This perceived ease of use refers to the user's belief that the technology system used does not require a large amount of effort when used.

Perceived Usefulness

Perceived Usefulness Davis (1989:320) explains that perceptions of usability mean: "The degree to which a person believes that using a particular system would enhance his or her job performance," which means someone will believe that a particular system will improve work performance or user performance. the system.

Attitude Toward Using

There are many definitions of attitude, based on the work of Ajzen and Fishbein, an attitude scale has been developed regarding the use of spreadsheets. The attitude of use (attitude toward using) here refers to the general feeling of the person is beneficial or not

profitable for the use of spreadsheets (Ajzen and Fishbein, 1980). Davis, et al. (1989) defines the use attitude as "An individual's positive or negative feelings about performing the target behavior." This definition can be interpreted as the feelings of users both positive and negative to carry out predetermined behavior.

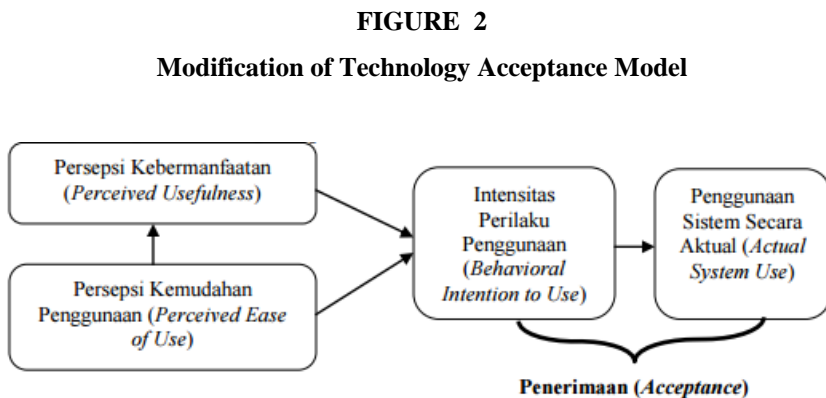
Behavioral Intention To Use

The intention of user behavior (behavioral intention to use) is a level of someone regarding his plan consciously to do or not do a behavior in the future that has been predetermined (Davis et al., 1989). User attitudes and behavior towards a technology system can predict the level of use of a technology system. A technology system that can meet reliability and optimize performance will be able to satisfy the users of the system, this can be shown from the behavior of users who will support the system.

Actual System Usage

The use of actual system usage is a real condition of system usage (Davis, 1989). A person will be satisfied using the system if the person believes that the system is easy to use and will increase the productivity of their performance, which is reflected in the real condition of the user (Tangke, 2005). Other researchers, Al-Gahtani (2001) also modified the TAM model by combining the behavioral intention to use an actual system use into acceptance variables.

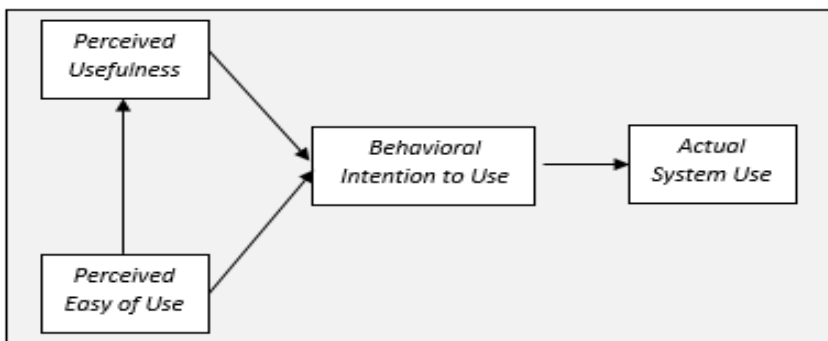
The changes are as shown in Figure 2 below:



Source: Chuttur (1996) and Al-Gahtani (2001)

This means that the intensity of use will be fulfilled if the information system used in e-Procurement is often used by users because of its ease so that it can fulfill aspects in its usefulness. The end result is actually the information system will be accepted by the user, if the ease of use and usefulness factors have been fulfilled. According to Davis in Portner and Donthu (2006) that TAM shows the perception of ease of use and usefulness is a belief in the existence of new technologies that affect user attitudes towards the use of technology.

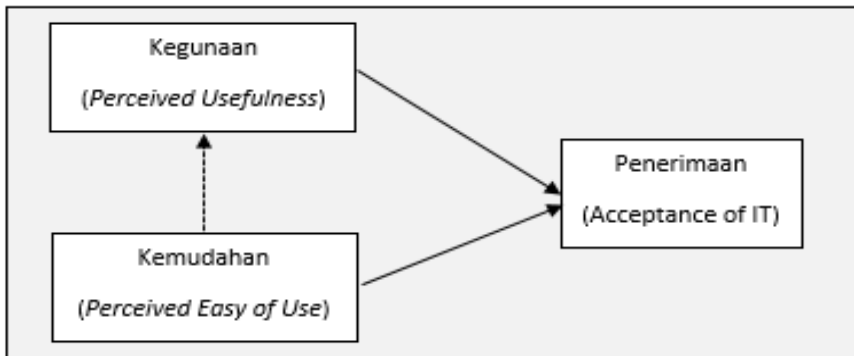
FIGURE 3
Technology Acceptance Model



Source: Davis, et al (1989)

(1) In the TAM scheme above, it can be seen that usefulness and ease of influencing actual system use through an intervening variable, namely the intensity of use (behavioral intention to use). But Al-Gahtani (2000) in Oktavianti (2007) states that the intensity of use and use of the system can be replaced by the acceptance variable of IT (Acceptance of IT), such: (1) Perceived Usefulness (Usability) is the level of someone's trust in the use of a particular subject that can provide benefits to people who use it (Davis, 1989 and Adams, Nelson, & Todd, 1992); (2) Perceived Ease Of Use in David (1989) defines perceived ease of use as a level of one's belief that computers can be easily understood; And (3) Acceptance of IT is how the attitude of a user towards information technology acceptance with the aim to find out if the technology ie e-Procurement system is truly accepted by the user, can be known from the indicator if the user always uses, always accesses, or creates satisfaction of its use.

FIGURE 4
Acceptance of IT Model



Source : Davis (1989) and Oktavianti (2007)

E-PROCUREMENT SYSTEMS

E-Procurement is a purchase or order communicated via the internet or an approved vendor's online catalog (Heizer and Render, 2006). There are several methods in implementing e-Procurement as mentioned by Willem (2012:81), including: (1) E-Tendering is a method of selecting suppliers that are carried out openly and can be followed by all suppliers registered in the procurement system electronically; (2) E-Bidding is the implementation of the procurement of goods and services by submitting information and/or procurement data from providers of goods and services, starting from announcements to announcements of procurement results, carried out through electronic media including using the internet, intranet and/or electronic data interchange media (EDI); (3) E-Catalog is an electronic information system that lists, types, technical specifications, and prices for certain items from various providers of goods and services; And (4) E-Purchasing is the procedure for purchasing goods and services through e-Catalog facilities. In the modules provided in the LPSE application there are e-Tendering, e-Bidding, e-Catalog, e-Purchasing. So that it can make it easier for people to take part in tenders in the procurement of goods and services.

Based on RI Presidential Regulation No. 54 of 2010, Procurement of goods and services electronically is done by e-Tendering or e-Purchasing. Whereas according to RI

Presidential Regulation No. 16 of 2018, Procurement of goods and services electronically by utilizing e-Marketplace. The purpose of e-Procurement in RI Presidential Regulation No. 54 of 2010 concerning Procurement of Government Goods and Services Chapter XIII Electronic procurement Article 107 is: (a) Increasing transparency and accountability; (b) Increasing market access and fair business competition; (c) Improving the efficiency of the Procurement process; (d) Support the monitoring and audit process; and (e) Meet real-time information access needs.

The perceived impact of the benefits of implementing e-Procurement on a macro basis based on a study report issued by the KPK entitled "Preventing Corruption through e-Procurement is (a) The occurrence of efficiency in the use of the Revenue and Expenditure Budget (APBN); (b) Procurement of goods and services using the e-Procurement method can be carried out in a faster period than in a conventional method; and (c) healthy competition among business actors so as to support a conducive investment climate nationally.

RESEARCH METHODOLOGY

The type of research used in this study is descriptive qualitative research, with the aim of exposing data and information that is more meaningfully descriptive, by not using numbers, because it explores the phenomena that occur, and prioritizes processes that occur in the field. The sampling technique was purposive sampling with 4 key informants from the UKPBJ section. Snowballing sampling was conducted to get 12 additional informants, namely 2 people from the POKJA, 8 people from providers (entrepreneurs), and 1 person from PPK. The focus of the study is to evaluate the acceptance of e-Procurement information systems by using TAM at The Office of Goods and Services Procurement Unit (UKPBJ), in Jayawijaya Regency.

The study instruments were interview guides, field notebooks, and voice recorders. The source of the data used comes from informants, and documents, with research methods using in-depth interviews, observation, and documentation. Data analysis methods use interactive models from Miles and Huberman, which consist of data collection, data reduction, data presentation, and conclusion drawing. While testing data validity and reliability is done through triangulation, member checking, the audit trail, and prolonged engagement in the field.

FINDINGS

Research result

Perceived Ease Of Use

The facilities obtained from this system both from the committee and the provider are: (1) Facilitating work for the committee, user, PPK because everything is done electronically; (2) Systems in e-Procurement, easy to learn, and use; (3) With the existence of this system, reduce face to face in finance; (4) This system is very user-friendly but needs precision; and (5) For providers, can see the opportunities that exist. As stated by the Chairperson of LPSE, Mr. Andi Cahyono, with e-Procurement, work is easy provided there is the internet, there is no need to make annotations (question and answer process between the Committee and the Provider) in finance, enough in the LPSE application.

Perceived Usefulness

The existence of an e-Procurement system can provide many benefits not only to the committee but also felt by the providers: (1) Can improve skills for the committee and providers in the field of technology; (2) Can improve insight and can obtain information quickly; (3) Can improve work performance and productivity; (4) This system makes the committee and provider more disciplined; (5) Providers feel the efficiency of time and energy; (6) There is a paperless; and (7) Can ease the workload. In accordance with what was revealed by As stated by the Chair of the Procurement Unit of Goods and Services, Mr. Mansyur Latif, namely the existence of this system can help work, the applications offered are also easy to operate, and all contracts have been carried out electronically even though the server is still unstable.

Attitude Toward Using

The attitude is shown by users in Jayawijaya Regency towards the e-Procurement system, pros and cons still arise. For those who are pro, there are still many who understand technology, while the contradictions are certainly from the majority of entrepreneurs who do not understand using computers, especially for indigenous Papuan entrepreneurs. The committee as a user certainly strongly supports the existence of e-Procurement, indicated by their willingness to learn and they feel the positive benefits of this system.

They say that this has an effective effect on those who participate in electronic auctions. Another case with some entrepreneurs who are indeed less interested in using the application because they do not understand technology, and have been spoiled by existing regulations. As stated by Mr. Safa'at as Chairperson of Working Group II, the acceptance of this system depends on the individual himself. Especially Papuan entrepreneurs who still feel less profitable for them because of lack of knowledge, and difficult to use the application, especially because many qualifications are difficult for them to fulfill.

Behavioral Intention To Use

The intention or interest shown by the user (committee) is very positive which is marked by the desire to continue to train themselves to improve their ability to use technology, especially the applications used in e-Procurement. Unlike the users (providers) who are mostly Papuan entrepreneurs who are still unable to operate computers and still do not want to use the new system. All of this is due not only to the lack of competent human resources but also the interest or intention shown is still lacking in using technology. In line with what was expressed by the Working Group Secretary Ms. Nur Azizah Ramlan, there were still those who lacked interest in using this system, especially the providers of Papuan entrepreneurs who actually still did not understand the use of technology.

Actual System Usage

For the committee, it is certain to apply this system at all times and in a very frequent frequency, especially at the time of the electronic auction process. For the committee, either the LPSE unit or the Working Group themselves feel that there are no difficulties that disturb them in carrying out their duties. Existing applications also help them a lot and provide a lot of conveniences. Their performance has increased which certainly increases their productivity.

From provider users, they still feel a little difficulty in using applications in the system. Although some of the entrepreneurs think that this system can improve their performance. However, there is no visible frequency usage more often among them. They do not yet understand the application in the system because of the lack of knowledge of technology.

One provider is Mr. Muh. Anas said that even though this system was well received by all parties, but due to the lack of understanding of providers, especially Papuan entrepreneurs and lack of understanding of computer usage, there are still many who use experts in the field of technology to assist their work.

DISCUSSION

Perceived Ease Of Use

The presence of technology in Papua, especially in the mountainous areas of Jayawijaya Regency which is difficult to reach, makes people shocked by the use of existing technology, especially when talking about e-Procurement that has a new system and is different from what was used previously by most people in general.

There are still not many providers who are competent and cannot use the application easily, so they need to hire experts in the IT field to conduct an electronic auction process. In contrast to the committee which is indeed the main user, who must understand its use, they also say that the applications used are easy to operate and many provide ease in completing work, including ease of work, and user-friendly applications.

Lee & Wan (2010) explained that indicators of perceived ease of use are: (1) Information technology is very easy to learn; (2) Easy to use information technology; and (3) Information technology is very easy to operate. In Santoso (2012) which found that perceptions of ease had a positive effect on perceived ease significantly affected user attitudes, perceptions of comfort had a positive effect on user attitudes, and perceptions of usability had a positive effect on technology acceptance. Likewise with the current research which supports several previous proven studies by evaluating information systems with TAM on the implementation of the e-Procurement system in Jayawijaya Regency, receiving information technology because of the ease of the system.

Perceived of Usefulness

The benefits of e-Procurement include not only saving money but also simplifying the whole process. For those who understand and can operate the application, given many conveniences and benefits. Whether it's from the efficiency of documents or ATK (paperless), the application is user-friendly, can improve productivity and performance, and motivate to learn again to improve skills and competencies. The provider does not

need to go to the LPSE office because all electronic auction processes are loaded on the website.

According to Lee & Wan (2010), perceived usefulness indicators are: (1) Can shorten time; (2) Can make it easier; and (3) Useful for users. The present study also proves that the perceived usefulness of supporting the reception of information systems in the Jayawijaya Regency UKPBJ Office is evidenced by the more efficient implementation of e-Procurement compared to using procurement in a conventional manner that requires a lot of time and is inefficient in paper use.

Attitude Toward Using

With the existence of this system, many of the benefits felt by the committee as direct users, namely, they can improve the efficiency of time, effort and cost. In addition, it can increase transparency and accountability. As for the providers, not all of them can be interested in using this application because there is still a lack of understanding of the use of the application, and the unwillingness to use the application.

Putera (2009) found that the acceptance of e-Procurement application users was influenced by perceived ease of use, perceived usefulness, and security and privacy, while perceived enjoyment and attitude toward using did not prove influential on user acceptance. In the present study, it was found that system users in Jayawijaya District were still indifferent to the use of e-Procurement systems, especially providers originating from indigenous Papuan entrepreneurs. This is because they are accustomed to the privileges that are always given by the government, especially with the existence of rules that prioritize indigenous Papuan entrepreneurs.

Behavioral Intention To Use

The presence of a new system in the Jayawijaya Regency area, of course, raises positive and negative interests in dealing with the new system. The committee also acts as an actor who at first feels strange, but in reality, does not require much time to adapt because they are mostly able to use technology. The interest or intention shown by the committee or the government in Jayawijaya District is very positive, which is indicated by the desire to continue to hone their skills.

They believe that the existence of this system can improve their performance and productivity in carrying out their duties. But this is not the case with providers who are

mostly local entrepreneurs (indigenous Papuans), who are not fluent in using technology. They still have limitations in applying it, and they don't want to learn, which makes them seem less interested in technology.

According to Davis in Portner and Donthu (2006), usefulness and ease of influencing system use through an intervening variable, namely the intensity of use (behavioral intention to use). In the present study that the actual use of a system of information is influenced by interest because of their belief in the ease and usefulness when using the e-Procurement system.

It is evident in the findings of research now that provider users still feel a little difficulty in using applications that are on the system. Although some of the entrepreneurs think that this system can improve their performance. However, there is no visible frequency usage more often among them. They do not yet understand the application in the system because of the lack of knowledge of technology.

Actual System Usage

The intensity of application usage that is so frequent with users (the Committee) makes them no longer foreign to e-Procurement. Although in reality many of them have not been too fluent in using the application. According to them, there is still a lack of competent personnel, lack of training.

From the committee, they are not difficult to adapt to the new system because it depends on their ability to use technology. They feel a lot of differences that are felt after using an electronic system. With this system, they become more disciplined, they can be able to work more productively than before.

According to Putri (2011), the TAM model was concluded to be generally accepted as a model of e-Procurement acceptance if its users have used it frequently, and it is not suitable to be applied to prospective users. It is evident in the current research that business people or providers have not felt a significant increase with the e-Procurement system its because many of them are ignorant of the use of technology, especially indigenous Papuan entrepreneurs.

Most of their companies use experts in the field of technology to take care of work related to e-auction. Another reason is that they do not miss every stage of the auction and some qualifications which they think make a headache. So that must be submitted to the experts.

LIMITATIONS AND RESEARCH IMPLICATIONS

This study has several limitations such as: First, researchers still seem objective in interpreting the results of research, which was obtained during interviews with informants; Finally, the study was conducted after the tender period was over, the informants who were obtained were lacking, especially the local operators.

The results of this study are used to strengthen and enrich existing theories and previous research related to the realization of the principle of procurement of goods and services. It is also used as input for the government, especially in the Jayawijaya Regency UKPBJ Office, so that in the future it can run optimally and the Technology Acceptance Model (TAM) model can be used as a framework in evaluating the implementation of information systems in Jayawijaya District to make e-Procurement successful.

CONCLUSION

The implementation has not been effective because it is constrained by human resources, as well as supporting facilities and infrastructure, especially networks. The implementation has been running efficiently by reducing the amount of paper use, costs for the e-Procurement process and the labor used is also lacking with the application. With this system, the government is more transparent, open, and accountable, because of the ease of access for the community.

The implementation of e-Procurement has not all received good, depending on the competency that is owned, especially for the provider. Even though fair competition and justice have not been achieved because there is still an element of Collusion, Corruption, and Nepotism, this system provides many benefits and conveniences for users, especially in terms of time, effort and cost efficiency, both from cost, energy, and time.

FUTURE RESEARCH

For further research, it should be examined from a broader perspective, with more informants in order to assist the government in improving the performance of the e-Procurement system in Jayawijaya Regency

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