

## Open Innovation in E-Procurement Implementation at PT AL

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### Abstract

*PT AL is a leading company in Indonesia in the field of Datacom, Telecommunications, and ICT for more than 30 years. Companies in this field prefer external parties compared to internal parties in developing e-procurement systems. This study reveals how open innovation is implemented in an e-procurement system and how open innovation in e-procurement implementation must be adjusted by the organization's internal regulations. The purpose of this study is to provide an in-depth analysis of how private companies use e-procurement implementation and how open innovation is carried out on the e-procurement system. This research was conducted with a qualitative approach and the type of research was ethnography, the authors made observations, field notes, and in-depth interviews with company structures and partners who helped develop the system. The results of this study indicate that open innovation can affect the company's operational performance. Furthermore, open innovation is an internal consideration for developing the system because it becomes more practical and there is an exchange of knowledge between the two parties. This research can provide benefits to the academic and practical world, especially the theme of open innovation of e-procurement systems in private companies.*

### Keywords

open innovation; e-procurement; technology implementation; ethnography



## I. Introduction

Internet era (Interconnection Networking) is the first sign of the era of information disclosure for various parties, ranging from individuals, companies, and government parties. At present, many small to large-scale companies are increasingly creative in utilizing their business lines through the internet and encouraging the export sector to various foreign countries and helping to increase company revenues, and boosting state revenues through taxes. The procurement of goods and services sector is currently developing towards electronic, where the government and the private sector have their systems. United Nation Development Program e-government is the implementation of information and communication technology (Information and Communication Technology) (United Nations Development Programme, 1997). Using information technology in the boosting procurement process is an efficient step in terms of transaction costs and risks associated with procurement.

Electronic procurement or e-procurement is one of the most widely used e-businesses among organizations. E-procurement systems allow organizations to automate transactions with multiple vendors when searching for goods and services which leads to reduced transaction times and increased productivity for both parties (Gunasekaran and Ngai, 2008).

The function of e-government procurement lies in its ability to minimize corruption related to government procurement. In developing countries, corruption and misuse of public resources are often high. The Corruption Eradication Commission commented on e-

procurement, although the procurement was carried out through the auction method via the e-procurement system, it did not guarantee that it was free from corruption. E-procurement is an electronic communication system that is integrated into all stages of the process of purchasing goods and services (Croom and Brandon-Jones, 2005). In addition, e-procurement is the procurement of goods and services based on information technology which includes searching, negotiating, sourcing, ordering, receiving, and evaluating (Croom and Brandon-Jones, 2004). All procurement processes have been carried out digitally and are no longer in traditional forms such as on-site procurement, collecting bids in paper form, and so on. E-procurement will also provide a sense of security and comfort in access (Udoyono, 2012). A sense of security for the electronic procurement process so that it is regulated by encouraging transparency and accountability aspects, the winner is the provider of goods and services that it has to compete fairly and openly. In electronic transactions, with the procurement procedure until the end and being accountable to participating vendors, the system can prevent or minimize unwanted practices by the government (Rahman and Almoawi, 2011).

Communication is the process of delivering messages by someone to other people to tell, change attitudes, opinions or behavior either directly orally or indirectly through the media. (Hasbullah, et al: 2018). E-procurement refers to the use of Internet-based (integrated) information and communication technology (ICT) to carry out procurement. In the process of the information system, there is the implementation of the technology applied. As one of the core proponents of the e-Business supply chain, e-Procurement in this article is conceptualized as part of e-Commerce. While the e-Commerce side is simply a transaction carried out electronically, e-Procurement is the automation of many procurement processes through electronic systems, especially the Internet. System implementation is best described as a process of organizational change that extends over a fairly long period (Chan and Swatman, 1999). A more recent definition of the term comes from the diffusion-based innovation adoption model to e-Commerce/e-Business (Srinivasan and Rangaswamy, 2002).

Today, innovation is not just a process in doing business. However, it can be a new set of components with the contents of regulatory requirements, production processes, industry, and market changes, and cognitive. Innovation is one of the tools used by most companies in gaining competitive advantage in addition to low cost, differentiation, and focus strategies. Innovation separates into two types; open innovation as the ability of companies to commercialize their ideas and projects or accept other innovations for the benefit of their organizations, and closed innovation as the classic concept of vertical integration or internal research and development of the company. Furthermore, Chesbrough refines the understanding of open innovation as the use of inflows and flows of knowledge aimed at accelerating internal innovation and expanding the market for the use of external innovations. Several corporate behaviors describe indicators of the open innovation paradigm, namely networking, cooperation, corporate entrepreneurship, intellectual property management, and research and design (R&D) activities. The need to consider internal actors within the company involved in open innovation with the ability to manage supplier relationships and develop the ability to manage internal cross-functional relationships.

Open innovation also has a considerable impact on practice. Managers are increasingly recognizing the importance of certain organizational and managerial skills to effectively manage external collaboration. They have begun to understand how the key role of management is in managing internally and externally, it is equally important to support internal functions in creating culture, initiative, and legality.

Based on data from the 2020 Global Innovation Index, Indonesia is in position 85 out of 131 countries [15]. The data has not changed from 2018, meaning that innovation is stagnant in ranking. Based on the scoring, Indonesia experienced a setback because the score obtained in 2020 decreased by 26.49 points. Whereas in 2019 Indonesia scored 29.72 points. In Southeast Asia, Indonesia is ranked seventh. Singapore is in first place with a score of 56.61 points, Malaysia is in second place with 43.42 points, and Vietnam is in third place with 37.12 points. Based on the index displayed is a ranking of the ability of innovation and the results of the world economy. It measures innovation based on indicators spanning from the institutional sector, human resources and research, infrastructure, credit, investment, linkages; creation, absorption and dissemination of knowledge, and creative output. The economic condition of the population is a condition that describes human life that has economic score (Shah et al, 2020). Economic growth is still an important goal in a country's economy, especially for developing countries like Indonesia (Magdalena and Suhatman, 2020).

The Information Technology implementation process adds one more time to adoption and new technologies have to be implemented. In other words, it has been absorbed by the organizations involved in its implementation process. Two key variables characterize the technology implementation process: the organization involved in the process and the technology implemented. Therefore, implementing new technology means intervening in both aspects.

The literature on how supplier integration and innovation practices are open, implemented, and managed is scarce. Previous studies that have come close are: (1) At the overall strategic level, describe the choice of appropriate governance modes (e.g., joint ventures, licensing agreements, equity alliances, non-equity alliances, etc.), thus lacking in detail on how to manage supplier integration, or (2) At an overly detailed level, describe one or more specific procurement-related procedures such as partner selection. Furthermore, this research will fill the gap regarding open innovation in the application of e-procurement systems and those in private companies.

This research focuses on the case study of the analysis of open innovation in the application of e-procurement at PT AL. This company is engaged in the field of Information and Communication Technology which has been established in 1988 and until now. The development of E-Procurement at PT AL has been quite rapid in the past 3 years because the implementation has been adapted to the organization and needs of the Supply Chain Management division. The implementation involves several parties from internal and external sources. The involvement of external parties is a question because PT AL is a technology company, but prefers the involvement of other parties. In addition, previous research has not discussed much open innovation e-procurement in private companies. Departing from this, the researchers took two questions, namely how to implement e-procurement at PT AL and how to analyze open innovation in e-procurement implementation at PT AL. The purpose of this study is expected to provide an in-depth explanation and analysis related to the implementation of e-procurement and analysis of open innovation in the implementation of e-procurement at PT AL.

## **II. Research Method**

This study uses primary and secondary data. This research approach uses qualitative and the type of research uses ethnography. The qualitative method is a research procedure that produces descriptive data in the form of written and spoken words from people and observable behavior. Later, he added the definition of the qualitative method as a tradition

in science that relies on one's observations. Two reasons are considered by researchers to use qualitative research methods. First, this research is the best in its field of study. Second, based on the nature of the problem to be studied. Furthermore, this research will be more appropriate to use qualitative, because the data obtained are based on facts in the field, not from systematic calculations, so that this study it can describe and analyze in-depth and clearly.

Ethnography can provide an overview of the steps. In addition, ethnography is not only a research method in the social sciences but can be used by other sciences. Ethnography is a qualitative research strategy and it can investigate within a certain period in the main data collection, observation data, field notes, and interviews. Furthermore, explains how ethnographic research occurs as a process, and emphasizes understanding the way of life of the group being studied.

The primary data used are data from observations, field notes and in-depth interviews with structural and functional officials at PT AL and partners involved in the e-procurement development process. In addition, the authors involve library research techniques by looking at previous research, journals, and relevant books.

The author carried out the data collection process from September 28, 2021 - to October 20, 2021. The research location was carried out at the PT AL head office which was carried out offline and online due to limited access and government regulations during the covid-19 pandemic. In this study, the author uses triangulation techniques in the data processing process. The source technique is a data collection technique where researchers use the same technique to obtain the same source.

### **III. Results and Discussion**

#### **3.1 Implementation of E-Procurement**

The development of the E-Procurement System at PT AL is relatively young. However, this system has been used well in running the company's line of business. For example in the process of purchasing devices from distributors for internal use or in supporting projects. The Co-Project Manager of E-Proc, Mr. HWU, said that it took a long time to build this system, moreover, this system tends to be new compared to the previous one. The following is an interview with Mr. HWU, namely:

“The E-Proc at PT AL is relatively new compared to the previous system. The previous system was called IIPS, it was still traditional and it didn't look like this. If the leadership approval is still via email and the tender is still manual. Building this system took about 2 years and only started in 2018. When it started, it didn't set up right away, you had to train many times with the new system.”

Based on information from an interview with Pak HWU that it took time to build this system and adapt it to the organization. who use it. System implementation cannot be done quickly but requires a long prototype and approval from the organization and the existing rules in the company. The following are field notes and interviews with Mr. HWU, namely:

“For this system, it is not easy, May, maybe this is a company that becomes more rigid and structural. It's different from the previous companies that were startups, this can be done quickly. If here it needs approval from the bottom to the top, and not to mention that between these divisions. At that time I also presented to the leadership so that this project could run. In the past, procurement often printed, it was still very manual, now it's just online, it's like e-commerce.”

Based on the author's observations, this system can indeed be said to be improving every year. At the beginning of the release of this system, there were still many errors that caused doubts. However, over time, several fast response actions by the IT team and the helpdesk minimized the occurrence of these errors.

Mr. DWJ, as the Junior Manager of SCM Control and Planning, said that this system is more efficient than the previous system. The IIPS system, at that time it was already quite sophisticated. However, as time goes by and there is no development, the system is lagging and requires a new, better system. Each system has its pluses and minuses, but we still control and initiate to add features without compromising the quality of e-procurement. The following is the author's interview and field notes with Pak DWJ, namely:

“You could say this system is better than the previous system (IIPS). Although we can see there are pluses and minuses. For example, the system used to still print manual signatures, now you can sign in the application. The old IIPS has no improvement, so it's not suitable for today's technology.”

Implementation of new technology in organizations takes time to be used and supports operations because users still feel unfamiliar with this system and are more worried about misclicking the system. One of the reasons for this problem is that several times a month, a special class for training on the use of e-procurement is needed. The training is not only centralized but can also go to several PT AL regional areas. However, during the current pandemic, it is quite advantageous because the training process can be done online and is quite efficient. The following is an excerpt from an interview with Mr. HWU, namely:

“Users need time to use this e-proc, this user is internal, right. Can be from PM or buyer. In the beginning, it was quite *crowded*, I had to teach my friends how to use the new system and had to help the IT team to help if something went wrong. I've also helped regional training teams like this, for example to Palembang or Makassar. I was there for a few days teaching them how to operate the e-proc and asking what their problems were so that they could be answered right away. When there is a pandemic, it's better, if there is an error or *dispute*, you can just call the teams directly.”

The development of E-proc from year to year always has developments planned. The goal of this application can be used more easily by its users. In addition, existing services such as the helpdesk are improved by providing a response time of less than 3fewernutes. Several features have been upgraded and added and integrated with other systems in other divisions. It is hoped that the implementation of each added feature can help users and make it easier for other divisions to get valid data. The following are excerpts from interviews and field notes with Mr. HWU, namely:

“Every year we plan for the improvement of this e-proc. Starting from the helpdesk lead time which becomes faster so that users and suppliers feel helped by the presence of the helpdesk. In addition, we and the leadership always discuss in meetings the development of e-proc, starting from improving the system so it doesn't slow down, adding features, and the security of the system. The problem is that many of the suppliers are wondering if the registration here is safe or not the confidentiality of the data. This year we have an improvement for the catalog, hopefully, it can be realized well.”

The new system that is implemented, of course, initially requires references or references from several systems available on the website as comparison material. This E-Proc is not only supported by PT AL internally. However, assisted by suppliers who already have experience in implementation. In addition, organizations and leaders need prototypes or simulations before the system is successfully built and operational. When



this system can run, of course, there must be a legal umbrella or clear rules so that users and suppliers who use this e-proc can be given a sense of security. The following is an excerpt from an interview with Mr. DWJ, namely:

“The implementation process can be considered quite long because it requires coordination between divisions. As I recall, the beginning was in 2016. For a long time, there were many factors, we discussed with the QPR team, then we saw how the business process was still by company rules. Additional features are also submitted to them so that they can be evaluated, if they are not appropriate, they are requested to be revised according to the directions. In the past, for example, PrivyID's digital signature was still very new. We proposed that feature because it would be useful for PO signatures. At that time it was still new and fortunately, there was a license from the Ministry of Communication and Information that was official and legal in the eyes of the law. We explain it to the leadership and other divisions. Thank God, like this pandemic, you don't have to worry about getting a wet signature, just live on your smartphone or tablet.

The author had the opportunity to interview buyers who use e-proc and IIPS applications, he said that the IIPS applications have very different features. When using the e-proc application, there is no need for offline tenders because all online features are available. The IIPS application does not support this feature and it looks old so it is less attractive to use for a long time. The implementation of e-proc is carried out in stages and training is carried out repeatedly to buyers because they are the main users of the application. The following is an excerpt from an interview with Mr. Danang, namely:

“IIPS is very different from e-proc, I have experienced using IIPS. If the tender is not online at the time of bidding, but offline in the room or via email. If it's like that, it's less efficient and it looks less attractive using IIPS. Fortunately, in 2018 there was an e-proc application and it was very useful for the procurement process. I and the buyer team were trained many times with Mas Hudi until finally, I was able to. If there are problems, just email the helpdesk. You could say the implementation is quite good and always progressing.”

Based on the results of in-depth interviews with several structures, it shows that the implementation of new technology in terms of e-procurement takes a long time because it involves various divisions to provide recommendations and evaluations with the company's organizational rules. This application is in line with the explanation above with the theory expressed by Orlikowski & Gash that the variables that influence the process of implementing new technology are the organizations involved and the technology applied [16]. In this case, the technology used is still new, namely e-procurement, in contrast to the previous technology which is still less efficient and does not support electronic procurement.

### **3.2 Open Innovation in the implementation of PT AL's E-procurement**

Open innovation is the latest innovation in recent decades. Many private companies carry out this activity to support their company's operational business needs. In making the e-proc system at PT AL already using the concept of open innovation. This is because PT AL is looking for partners or suppliers who are experienced with a portfolio of e-procurement applications. In addition to experience, the organization ensures that the supplier does not have problems with human resources. The following is an excerpt from an interview with Pak DWJ, namely:

“At that time, we filtered which vendors could support and had a lot of experience. Because we lacked knowledge of electronic procurement at that time. Some of our vendors approach to see if their portfolio is suitable for our business. In addition, the relationship

between vendors should be seen as well. Finally, we appointed Triklin as a vendor after selecting several candidates to help make this project a success and on time. The selection is not only technical and price but there are other aspects such as good communication, they are flexible and not rich in other structured vendors.”

Based on the explanation of the data above that there is partner involvement in the development of e-procurement applications. These considerations are based on minimal knowledge within the internal organization. Furthermore, the internal party took the initiative to seek additional knowledge by cooperating with partners to carry out this project. Based on this explanation, it is in line with the understanding of Open innovation according to which is "*describes an innovation paradigm shift from a closed to an open model*". There is a paradigm shift that was previously closed to open. This is in line with organizations that collaborate with external parties to develop innovations internally.

The collaboration between the two companies will have a positive impact if it is driven by intense and scheduled communication. This is intended to strengthen the relationship between the two companies and to know more about the technical direction of the project. In addition, forming a project team consisting of internal and external parties will enrich the discussion and knowledge gained by both parties. The project team can be called the Research and Design (R&D) team which regularly meets together every week to discuss project progress. Therefore, this intense communication and fast response duration can describe the relationship between the two companies in good condition. The following is an excerpt from an interview with Mr. HWU, namely:

“There are quite a several teams involved in the e-proc development project. From the PT AL side, then there are IT teams, legal, business processes, and partners. We schedule meetings together sometimes once a week or twice if the conditions are close to the project target. The routine of this joint meeting is to monitor the progress of work and the hope is not to exceed the target because there will be a penalty. This team discussed ideas from internal friends and friklin as partners. If we look at their portfolio of experience for e-proc SOEs, it's also a benefit for us to ask for opinions and inputs that can be implemented here. Examples include tiered approval, design, or integration features. In addition, we also have a cooperation contract and scope of work regarding this work so that there is a legal umbrella "Based on the description above reveals that the activity of a meeting to discuss the idea, the progress of work and the problem shows the activity of Research and Design (R & D) conducted by both parties between PT AL and Trillin. Then, in carrying out the work carried out by Triklin, it is stated in the contract and the scope of work where the company agrees with the user on technical matters. This is in line with the Chesbrough concept which includes indicators of open innovation, namely the existence of Research and Design activities and collaborations. In line with the previous, in open innovation, there are three mechanisms, namely behavior, predetermined goals, and the existence of a formal contract to overcome technical work and minimize tension due to value creation. Furthermore, in open innovation that includes Research and Design (R&D), it is better to use contracts to reconcile tensions and review the applicable legal rights.

Intellectual Property becomes one of the important things in the output of building a system. In the future, the system will be owned by whom, whether it belongs to the customer or the provider. PT AL at the time of building this system did not buy it directly but used the rental method to make it more efficient. Then, the database server system is located by PT AL so that it is well maintained and company rules. After being used for more than two years, it is planned to buy it in full because users already feel comfortable and handled by the internal team. Coupled with the richer knowledge obtained from partners, knowledge from outside that enters internally and vice versa. However, some

obstacles still exist internally, where further studies are needed before buying it in full and becoming the ownership of PT AL by management directives, and a large budget is required. It is intended that the value of the investment issued will be useful for a long time. The following are excerpts from interviews and field notes with Mr. HWU, namely:

“We did lease the conditions first, to see how influential and important this application is in supporting the operations and performance of the division. Investments in purchasing applications must be calculated so that they are not wasted when later buying this application. In addition, during the rental period, there is a maintenance helpdesk and the data server is in Tekno so that everything is monitored safely internal. So far with their trickling, my friends at internal as well the more knowledge, the sharing of knowledge e-proc from trickling too often we do to the user.”

"Based on the description of the interview data and field notes above shows that correspond with those expressed by Chesbrough agreement intellectual which the mechanism is mutually agreed upon. In addition, PT AL benefits from the transfer of knowledge from external to internal and vice versa. Therefore, there is an alignment based on Wu's findings that the depth of open innovation will be beneficial to the innovation performance of the company, but the advancement of open innovation, franklin will hinder innovation internally. However, the internal hole is covered by the knowledge network structure obtained from external parties so that it is more optimal. Meanwhile, according to Moradi based on the results of his research showing positive results of organizations using open innovation, he emphasizes the positive effect of open innovation on business model innovation, the positive effect of open innovation on company performance, and the positive influence of business model innovation on company performance.

The author had the opportunity to discuss with Triklin, one of the teams involved with PT AL. This collaboration has been going on for a long time and communication with stakeholders is quite intense and flexible. Discussions between leaders and not being rigid are bistros point to find a win-win solution. At the beginning of the Triklin implementation, they already had a portfolio of making similar applications in the private sector and state-owned enterprises (BUMN). When the presentation before PT AL became interesting because the experience was very good and open to be modified as needed with ideas from both parties. The following are excerpts from interviews and field notes with Mr. Ary, namely:

“I have had quite a lot of experience, the big one is making the e-proc system at Pelindo. That great experience can be said as initial capital if Triklin offers it to PT AL. In addition, we often have meetings with the leadership and the time is flexible. If there is an e-proc development project, almost every week there is a sprint meeting, to update progress and listen to input from the team. We also conveyed some ideas that have been worked on before at the meeting, to make an idea that PT AL was in line with bispro or not. Our team, if appointed at that time, is ready, mixed with experience and young ones.”

Based on the explanation above, it shows that the portfolio of partner experiences is a consideration in exploring a project. In addition, partner staff can support if selected to be project implementers. The addition of staff is considered considering the financial condition and scope of work of a project. Based on the data above, it is in line with external conditions in Open Innovation by considering indicators of the large stock of capabilities, educated and mobile staff and good access to finance.



## IV. Conclusion

Based on the data described above, shows that PT AL has implemented the indicators of Open Innovation. The implementation of technology can not be directly adopted by an organization. However, it requires internal support from the organization and the technology used. The implementation process takes a long time, there is an adaptation process with assistance from internal and external parties by providing regular socialization and training. Open innovation does not only come from internal sources but also listens to ideas or ideas from external sources that can enter the scope of the organization, then is implemented through a system to support the commercial and operational scope. The selection of partners in supporting the project is highly considered by bringing work experience, a ready, flexible team, and good coordination.

The author provides recommendations to PT AL and supplier partners to continue exploring ideas by looking at comparisons with other companies that implement open innovation. If necessary, look at references from international companies which, according to the author, are more dynamic in responding to a change with open innovation. For PT AL, the existence of open innovation can be an example for other divisions and can be packaged into products that can be commercialized as company income. In addition, the recommendations and suggestions of Triklin and other suppliers, with this open innovation, can periodically improve competencies, knowledge, and portfolios so that they are competitive and have healthy competition.

Further research is still very open with the theme of open innovation, especially in the field of government, private companies, and private companies that have been on the stock exchange. From these three categories, you can see the differences in the open innovation approach in product service, the company's internal strategy, bistros' and the company's performance improvement.

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