



JPPI Vol 10 No 1 (2020) 1 - 14

Jurnal Penelitian Pos dan Informatika

32a/E/KPT/2017

e-ISSN 2476-9266

p-ISSN: 2088-9402



[Doi:10.17933/jppi.2020.100101](https://doi.org/10.17933/jppi.2020.100101)

Information Technology Enables Extended Organization in the Integrated Trade Licensing System

Teknologi Informasi Memungkinkan Extended Organization dalam Sistem Perizinan Perdagangan Terintegrasi

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Received : 31 December 2019 ; Received in revised from : 2 September 2020; Accepted: 4 September 2020

Abstract

In order to improve the business climate, the Indonesian government focuses on carrying out a fundamental reform program. One part of the program is issuing online business licenses. As a form of compliance, the Ministry of Trade (MoT) needs to implement the Integrated Trade Licensing System (ITLS), where the system's values will be made possible through a collaboration between government agencies. This condition illustrates a self-organizing network of organizations where each agency will be able to contribute its values and result in a new set of values. This concept is aligned with the extended organization. This paper aims to examine how ITLS can successfully work through government agencies' collaboration in an extended organization. The research methodology used a qualitative approach by collecting data through documentation study, observation, and interviews. The study found that trade licenses can only be issued if the value given by the extended organization is sent to ITLS with the assistance of information technology (IT). This research is expected to be a lesson learned of extended organization concept in government agencies.

Keywords: extended organization, trade licensing system, ministry of trade, integration

INTRODUCTION

During the 2009-2019 period, the Indonesian government has succeeded in bringing the ease of doing business (EODB) index in Indonesia closer to the best-performing countries from rank 122 to 73 (Trading Economics, n.d.). To speed up and increase business climate, the Indonesian government has consistently made improvements to the EODB and focused on carrying out a fundamental reform program (Pemerintah Indonesia, 2017). One part of the reform program is issuing online business licenses using Online Single Submission (OSS) (Pemerintah Indonesia, 2017). In this regard, government agencies and local governments need to implement an integrated licensing system with the OSS (Pemerintah Indonesia, 2018). This integration system requires cross-domain administrative collaboration processes (Mayasari, 2018; Priantari & Kurniawan, 2018).

MoT, the ministry responsible for issuing licenses in the trade sector, needs to conduct a simplified process and redefine service standards to carry out business activities and maximize IT use to create a competitive advantage (Mayasari, 2018). In addition, MoT also needs to re-evaluate existing collaboration with other government agencies and develop an entry door as a means of integration. ITLS consists of some trade licensing information systems integrated with the OSS, such as information systems for domestic trade, national export development, consumer protection and orderly trading, commodity futures trading, and foreign trade (Kementerian Perdagangan, 2018). Other than the OSS, it is also necessary to integrate ITLS with other government agency information systems for it to work.

ITLS will have great impacts on MoT's business processes and IT. In addition to shifting to much simpler business processes, MoT needs to adjust the licensing procedure to adapt to it. On the IT side, MoT developed a gateway system using web services that functions as a service requestor on behalf of ITLS to access external systems' data and send it back. By using the gateway as a transparent communication hub, internal systems can integrate business processes and information required to validate trade licensing requests. Some trade licensing information systems are also integrated directly with other government agencies' information systems using web services. These services are necessary to manage data integration (Priantari & Kurniawan, 2018), execution flow, and data exchange (Braglia & Frosolini, 2013). All these processes and the value given are made possible by a collaboration between government agencies.

The collaboration between MoT and other government agencies is aligned with the concept of an extended organization while enabling the MoT to use their functions to improve business processes in issuing trade licenses. Some studies reveal that extended organization concept is not only used in supply chain area where participants gain benefit from the collaboration (Bobbink et al., 2016; Braziotis et al., 2017; Spekman & Davis, 2016; Taifa et al., 2020) but also implemented in Jakarta Smart City (JSC) where the value is provided by the participants (Setyowati et al., 2019). In line with it, this study aims to explain this concept's implementation, driving e-Government success.

This study will present how ITLS can successfully work through a collaboration of government agencies as participants in an extended organization.

Extended Organization

An extended organization composed of organizations which collaborate to sharing resources to provide a new value (product and service) given to the market is made possible by a self-organizing network of organizations (Al Hadidi & Baghdadi, 2019; Applegate et al., 2009; Braglia & Frosolini, 2013; Dahirou Gueye et al., 2014). This concept arose as an impact of organizational change due to the use of IT (Applegate et al., 2009). The extended organization concept is used recently to represent the high level of cooperation between different organizations by sharing resources in order to increase competitiveness and enhance existing capabilities (Al Hadidi & Baghdadi, 2019; Browne & Zhang, 1999; Dahirou Gueye et al., 2014). The characteristics of this concept are (Edson & Mansouri, 2016):

1. Structure/topology: configuration of the component organizations;
2. Dispersion/clustering: physical/virtual proximity of the component organizations;
3. Goal alignment: the degree of mission similarity between organizations;
4. Interaction dynamics: relationships between organizations;
5. Trust: characteristic of trust among members;
6. Formation: basis, requirement, and process that leads to formation;
7. Size: number of components;
8. Duration: length of operation.

Over the past two decades, the term extended organization was replaced by the term collaborative relationship, interagency, inter-organization, government extended enterprise, or public extended enterprise, whereby among members share a

common vision of gaining competitive advantage and achieving greater value (Edson & Mansouri, 2016; Putri et al., 2020; Spekman & Davis, 2016). Table 1 below shows an overview of a previous research conducted within the last 5 years regarding this term and its focus.

Collaboration is the essence of the concept of extended organization (Braziotis et al., 2017; Spekman & Davis, 2016). One way to collaborate using IT is integration, and it can be done by data integration and service integration (Putri et al., 2020). The required component to get the optimal result in integration is architecture and technology. Examples of integration platform architecture are Enterprise Application Integration (EAI), Enterprise Service Bus (ESB), and Service-Oriented Architecture (SOA). Integration platform technology layers are business, user interface, integration, service, and data (Priantari & Kurniawan, 2018), as shown in Figure 1.

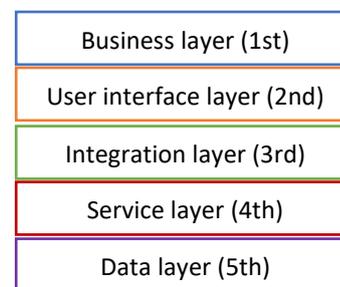


Figure 1. Optimal layer integration platform

The first layer is filled with layers of businesses and enterprises. The second layer is filled with layers of user interface and customer delivery. The third layer is filled with layers of integration and social collaboration. The fourth layer is filled with layers of application and service. And the fifth layer is filled with the data layer (Priantari & Kurniawan, 2018). The determining success factor on the business layer is the person in

charge, on the integration layer is interoperable standard, and on the service layer, is capable and compatible technology (Putri et al., 2020). Dependable IT support is the main requirement where the extended organization concept can be

carried out. The organization can share capabilities with other business entities, even though it does not have all capabilities. The purpose is to achieve a greater value (Setyowati et al., 2019).

Table 1. Previous research on extended organization

Author	Description	Focus
(Spekman & Davis, 2016)	New issues, developments, better define extended enterprise, and how they affected supply chain	Extended Enterprise thinking among global companies
(Edson & Mansouri, 2016)	Conceptual framework of Public Extended Enterprises (PEE), with each classifier, elaborated through a number of categories	Conceptual framework of PEE
(Bobbink et al., 2016)	Extended enterprise performance establishment by value co-creation	Extended enterprise value co-creation
(Braziotis et al., 2017)	Sharing risks and rewards result in effective collaboration among Extended Enterprise partners in aerospace industry	Extended Enterprise key strategic and operational results in aerospace industry
(Al Hadidi & Baghdadi, 2019)	Ontology to provide a smooth integration for enterprise interactions, specifically Extended Enterprise (EE) and Virtual Enterprise (VE)	Ontology for EE and VE
(Setyowati et al., 2019)	Extended organization implementation in Jakarta Smart City (JSC) presented in a map of capabilities and value provided by parties	Extended organization implementation in JSC
(Chen et al., 2019)	Sustaining performance of cross-boundary e-Government systems by identifying the determinants factors	Determinant factors for cross-boundary e-Government
(Putri et al., 2020)	Types and Success factors for e-Government inter-organizational integrations that promote efficient process, accurate information, and seamless services.	Types and success factors of e-Government inter-organization integration
(Taifa et al., 2020)	Identifies and ranks the manufacturers working as an Extended Enterprise	Conceptual framework of an Extended Enterprise in supply chain

Business Licenses in Trade Sector

In order to perform business activities in Indonesia, business must obtain business licenses. Business licenses are licenses or permits to perform business legally. Business licenses in Indonesia consist of business license and commercial or operational license (Mayasari, 2018). Business companies or individuals wanting to perform business-related activities are required specific licenses depending on the business that they are planning to perform. Each license is issued by a specific government institution based on their task

and responsibility, whether it is the central government or local government.

There are about 43 types of business licenses in the trade sector in Indonesia. These licenses are grouped into five categories. There are 1) Business licenses in domestic trade, 2) Business licenses in national export development, 3) Business licenses in consumer protection and Trade Compliance, 4) Business licenses in commodity of futures trading and 5) Business licenses in foreign trade. These business licenses in the trade sector are issued by MoT (Kementerian Perdagangan, 2018). These

trade licenses are issued using ITLS.

Since the year of 2018, these business licenses are only issued if requestors have their registered Single Business Number (Nomor Induk Berusaha, NIB) from the OSS and settled their tax obligations. In order to obtain NIB information from the OSS and send the issued license to the OSS, the MoT needs to collaborate with the Investment Coordinating Board.

MoT also need to collaborate with other government agencies, such as Indonesia National Single Window (INSW) regarding recommendations and license documents; directorate generals of the Ministry of Finance regarding tax, customs, and budget; the National Cyber and Chiper Agency regarding digital signature; Surveyor Agencies regarding surveyor report; and Ministry of Environment and Forestry regarding trade for wood commodities.

The framework of this research is shown in Figure 2. Theories are used to find out how ITLS works at the Ministry of Trade in this concept.

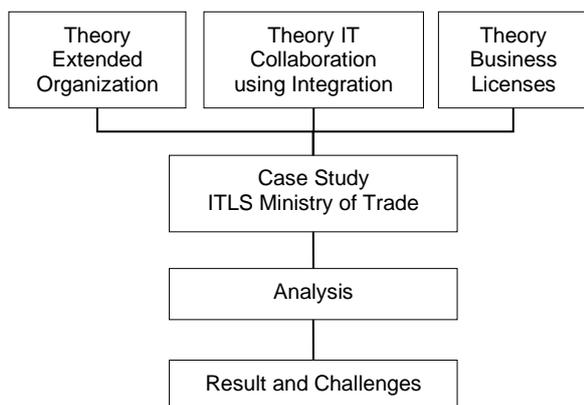


Figure 2. Research framework

METHODOLOGY

This study's research methodology is a qualitative approach with the stages of data collection and data analysis, as shown in Figure 3.

This research was conducted at the Center of Data and Information System in MoT. Data are collected through documentation study, observation, and interviews. Data analysis was performed by searching for patterns from the codification of the interview transcripts. Qualitative methods produce a holistic understanding of rich, contextual, non-numeric, and unstructured data by engaging in conversations with participants (Ponelis, 2015). This is a descriptive case study whose purpose is to describe an event in a real-world context (Yin, 2017).

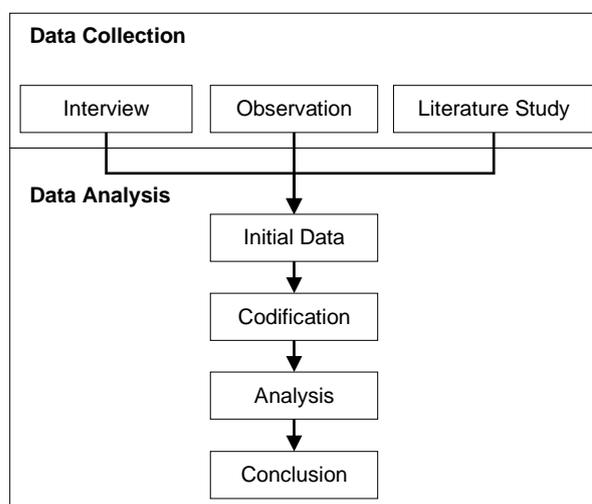


Figure 3. The phases of the research

Data Collection

Qualitative data are collected by documentation study, observation, and doing interviews with knowledgeable source people. The so-called source person has been chosen with expertise in the domain and direct involvement. In this study, the interview was conducted with the division head and subdivision head in the MoT Center of Data and Information System. The primary data collection in this research is from interviews with a representative of MoT. The interviewees are from the following positions:

1. Division Head of IT Planning and Compliance on 1st October 2019.
2. Division Head of IT Operational and Development on 17th October 2019.
3. Subdivision Head of IT Planning and Architecture on 29th October 2019
4. Programmer expert on 5th November 2019.

The interview questions are as follow:

1. How is the business process of ITLS?
2. How can IT support ITLS?
3. Is collaboration involved in ITLS, and how?
4. Who are the involving agencies?
5. What are the capabilities and values offered by agencies?
6. What are the challenges faced in ITLS?

This research's secondary data collection is obtained by reading documents thoroughly from official documents, regulations, standard operating procedures, and previous studies regarding the extended organization. In addition, an observation also took place in the Center of Data and Information System.

Data Analysis

The research is included in the interpretive paradigm. This paradigm is characterized by a need to seek a description from the participant reference rather than an objective observer and understand the world from a subjective view (Ponelis, 2015). In this section, transcripts were made from interview records. Content analysis was conducted to interpret the meaning of the transcripts using codification. The codification results are then analyzed using textual analysis and matched into certain themes according to its connection. A comparison of the grouping results and the literature review was

conducted in order to study how the implementation of extended organizations impacted ITLS in MoT.

RESULTS AND DISCUSSION

The 43 types of trade licenses are issued using ITLS. Basically, ITLS is an integrated collection of trade licensing systems. Each of these information systems is issuing licenses based on trade categories. In order to achieve the expected value, this information system required new capabilities by collaborating with other government agencies. Each collaboration provides its value to ITLS, where the value helps ITLS in issuing a trade license. Without this value, ITLS cannot work properly in delivering trade licensing services to the public. The capabilities are shared using an integration platform to overcome the non-uniform data format and differences technology. This integration between MoT and the other government agencies was done by involving multiple layers, such as business user interface, integration, services, and data.

According to the Division Head of IT Operational and Development, this collaboration is data exchange using services. The services provided are using web services, the most widely used technology (Priantari & Kurniawan, 2018). This service is mostly implemented in the gateway system that connects ITLS with the digital signature system, tax status system, and OSS. Other than the gateway system, the services are built in each trade licensing system and are directly connected to other government agency information systems, such as SIMPONI, customs system, INSW, surveyor reporting system, and SIPUHH. Therefore, even though the ITLS is integrated, its services are

scattered in many information systems. To resolve this, the Division Head of IT Planning and Compliance plan to build an ESB in the existing gateway system as the main integration service in 2020.

We will discuss more thoroughly about the extended organization formed at MoT, along with capabilities and values created by leveraging its functions. Then, we will explain how the integration platform is used to collaborate and what challenges faced by ITLS.

Extended Organization in ITLS

An extended organization is based on an advanced form of supply chain integration with external parties involved to maximize the value of output to the customer. The value of the product created depends on the collective coordination flow and information exchange across organizational boundaries, which increases user satisfaction (Bobbink et al., 2016; Putri et al., 2020). An extended organization formed in ITLS has a goal to create value for businessmen as customers, with trade licenses as the final product to be delivered. This value was obtained from the new capabilities delivered by collaborating with other government agencies using IT assistance. The characteristics of the extended organization in ITLS are explained in Table 2 using characteristics found in previous research (Edson & Mansouri, 2016).

Table 2. Extended organization characteristics in ITLS

Domains	Value	Extended Organization Characteristics In ITLS
Structure/topology	Hybrid	Different topologies and hierarchical structure among members.
Dispersion/clustering	Widely dispersed	Ministries are closely grouped geographically but do not have

Domains	Value	Extended Organization Characteristics In ITLS
		integrated communication. Surveyor agency locations are spread out geographically.
Goal alignment	Strong	Common objective in delivering service to citizens. ITLS objectives are issuing trade licenses for citizens so they can perform business in trade sector legally. This is product value-chain based, where the trade license is a product created from a set of values delivered in the system.
Interaction dynamics	Collaboration	Mutual relationships in order to provide value to citizens. All parties involved have a mutual goal to provide new capabilities so that licensing public services are always available and working. Joint planning and sharing of technology-enabled by accessing Web Services.
Trust	High density	Business process and system dependence based on trust. Data and information exchange in ITLS means other participants can view or even use MoT data. This poses some security challenges.
Formation	Mandate-based	The participants are stable government agencies and surveyor agency. Bilateral and Centralized, bound by government regulation.
Size	Medium	There are 9 major organizations in this collaboration, including MoT.
Duration	Long-term	Long term blurred boundaries. Extended organizations in ITLS depended on each participants, and resulted in non-clearly visible boundaries between the participants.

In domain structure/topology, the characteristic is hybrid. There are different topologies and hierarchical structures within each member. In domain dispersion/clustering, they are widely dispersed, although the ministries are closely grouped geographically but do not have integrated communication. The goal alignment is strong.

Participants of extended organization in ITLS are value-chain based government agencies that have a common objective in delivering respective available and working licensing services to the citizen, as its main product (see Table 3). In domain interaction dynamics, extended organizations form collaboration integration by providing web service on each participant’s side for communication through internet access. The high-density trust is applied in an integrated business process and system dependence. Data and information exchange in ITLS can be harmful to confidentiality, posing some security challenges. In domain formation, the value is mandate-based. The participants are stable government agencies performed with bilateral cooperation and centralized cooperation that support government function and activities, bound by regulation. Duration of the relationship among the participants is long-term and is sometimes mandatory with support or to comply with government regulations. Coordination with the participants is managed directly between parties involved or centralized based on regulation as a guide. The quality and efficiency issues extend well. Also, partnerships among participants are commonplace. ITLS depended on participants, causing the boundaries between the participants is not clearly visible from the user’s point of view.

According to Subdivision Head of IT Planning and Architecture and programmer expert, there are 8 organizations joining the network in the extended organization in ITLS, supporting the trade licensing issuing process with their specific capabilities and values (see Table 3). From these two interviewees, we describe what data exchange and how the participants connect to one or more information systems in ITLS, as described in Figure

4.

Table 3. Extended organization capability and value creation

Government Agencies	Capability & Value	Partner System in ITLS
Directorate General of Tax	Providing Tax Status Information of license requester	Gateway system then distributed to INATRADE, SIPT, API Online, BAPPEBTI, PKTN
Directorate General of Customs	Providing export realization for industrial and mining products	Post Border
Directorate General of Budget	Providing payment service	e-Form Payment
Indonesia National Single Window (INSW)	Providing import realization data, recommendation letters from other ministries	INATRADE, Post Border, e-SKA
Surveyor Agency	Providing surveyor report	INATRADE
National Cyber and Cipher Agency	Providing Digital Signature service for issuing trade license	Gateway system then distributed to INATRADE, SIPT
Investment Coordinating Board	Providing basic information and permits based on NIB	Gateway system then distributed to INATRADE, SIPT, API Online, BAPPEBTI, PKTN, SIPO
Ministry of Environment and Forestry	Report of trade for wood commodities	SIPT

ITLS functions depend on the value given by participants. In regard with issuing trade license, ITLS conduct more communication with the Investment Coordinating Board through OSS. The value given is businessmen’s basic information, including NIB and log of trade licenses process. Having OSS as a source of all basic information about businessmen, ITLS is no longer required to ask any basic information data to license requestors. ITLS will only ask for missing requirement documents, thus simplifying the process

significantly. The issuance of trade licenses cannot be processed in ITLS if businessmen do not have NIB from OSS. As part of regulatory compliance, only businessmen with no pending tax issues are allowed and granted permission to submit a request for a trade license (Kementerian Perdagangan, 2017). This tax status information is provided by the Directorate General of Tax. It is also the case when getting tax status from the Directorate General of Tax is a direct query to the institution with the specified authorities is much more dependable. Should the businessmen fail this screening process, businessmen should resolve their tax billing first and clear their status. Another requirement but limited to certain licenses, businessmen need to make payment. Payment service is connected with the Directorate General of Budget after payment verification succeeds, ITLS then continues issuing a trade license. In the last set of issuing, ITLS communicating with National Cyber and Cipher Agency to get digital signature validation, and then businessmen can get their trade

license. Therefore, without this collaboration, ITLS can not work properly.

In terms of realization of data, ITLS needs to communicate with the Directorate General of Customs, Indonesia National Single Window (INSW), and Surveyor Agency. This realization of data is needed in trade flows. The export realization for industrial and mining products sent to ITLS is used as a foreign trade recommendation material. Without this, businessmen can not request export or import license for industrial and mining products. An integration with INSW is also used to collect recommendation letters. Having documents sent from other ministries would also mean that the document received is more reliable compared to documents submitted by requestor, because it is collected from a credible source. Meanwhile, import realization data sent to ITLS is also needed for border and post border checking. If a businessman is reported for violation of regulations, their trade license would be revoked and the businessman will be placed on the ITLS blacklist.

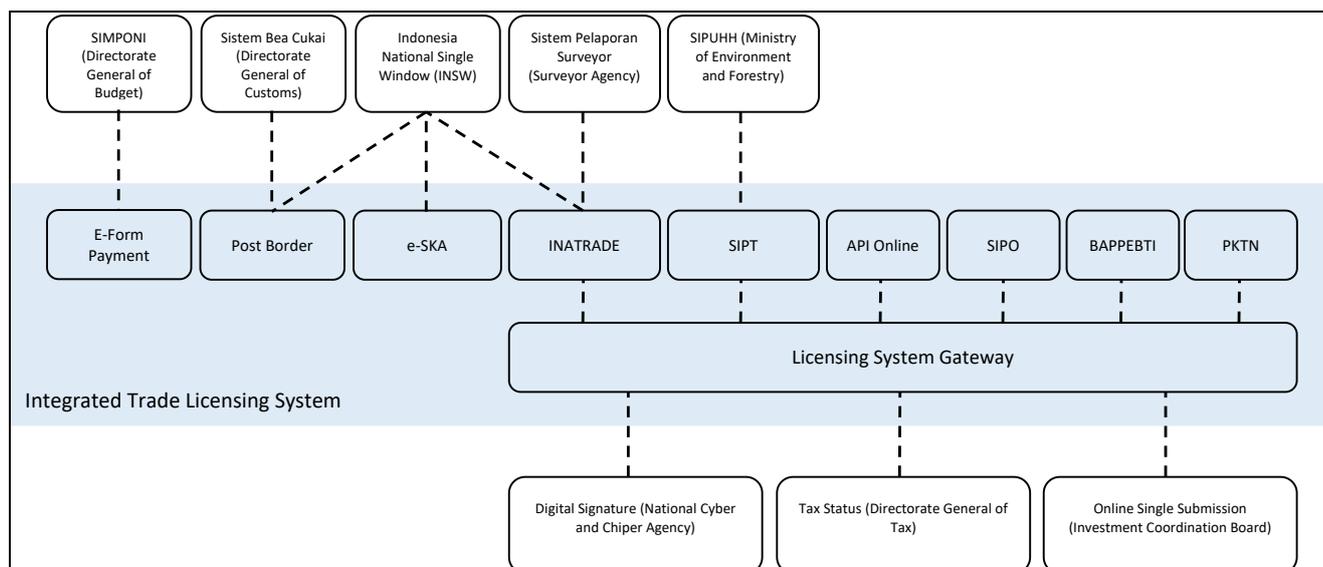


Figure 4. Extended organization overview in integrated trade licensing system

Lastly, in terms of wood commodities trade. According to the Division Head of IT Operational and Development, this collaboration will be executed in 2020, based on a memorandum of understanding (MoU) with the Ministry of Environment and Forestry. The information sent to ITLS is a trade report for wood commodities. Meanwhile, the license is not within the MoT’s domain. MoT will receive benefit from wood distribution information. Division Head of IT Operational and Development added that although discussion on the business process is still ongoing businessmen are still required to fill out the HS code information needed by the MoT to be able to obtain a license from the Ministry of Environment and Forestry.

An extended organization’s success as a network of interrelated stakeholders that create, sustain, and enhance its value is determined by the ability to establish and maintain relationships within the entire network (Post et al., 2002). By extending and trusting other government agencies in providing values based on their competencies, ITLS can focus

on validating, examining, and managing data related to trade subject.

Integration Platform

The way to collaborate between the extended organization participants is using integration, and it can be done by developing an integration platform technology. Explanation based on is described as follows, in accordance with the layers explained in the previous study (Priantari & Kurniawan, 2018):

1. Business

With the extended organization in ITLS, some previously performed capabilities by trade licensing systems are handed over to other agencies that have credibility and task to provide information. For example, as the national hub for all license-related activities, the OSS becomes a central repository for the businessmen database. In order to obtain basic trade licenses and NIB as a single identity number, every businessman must register with the OSS first. Because OSS already performs validation and confirmation of identity, when a

businessman submit an application for license using NIB as their identity, ITLS can collect data and information about the applicant from the OSS without having to perform validation or checking the integrity of the applicant. This significantly reduced processing time in issuing a trade license, thus making the process more efficient. This also applies to other collaborations in ITLS. By closely connecting the business process, each organization will have a bigger responsibility in providing a reliable service. When one service is failed in the business process, the overall process will be delayed and it will affect the service level agreed to the license applicant. In MoT, the person in charge of ITLS is the Head of the Center of Data and Information System.

2. User interface

The changes made to the information systems will not shift the value that should be delivered. The trade licensing system still provide trade licenses for businessmen. In terms of usage, businessmen will be presented with easier and faster user interface in the form of a web-based application.

3. Integration

There is no integration platform architecture referred by ITLS. The integration conducted by MoT usually is using the portal web as an entry door or web services. In this regards, integration point is scattered in various MoT information systems. To resolve this, the Head of IT Planning and Compliance plans to adopt the interoperable standard by building ESB in the existing gateway system as the main

integration service in 2020.

4. Services

Web services are popular technology for implementing application integration (Priantari & Kurniawan, 2018). Subdivision Head of IT Planning and Architecture stated that “The form of collaborations conducted at ITLS is data exchange through web services and FTP. Currently connected either through the gateway system or directly to the system.” Web services are used in exchanging data and information provided by Investment Coordinating Board, Directorate General of Tax, Directorate General of Budget, National Cyber and Cipher Agency, INSW, and Surveyor Agency. Another method used is direct file transfer using FTP, which is used to connect INSW to send reports of import realization and Directorate General of Customs to send export realization reports for industrial and mining products. The use of IT in the ITLS becomes a supporter of the business activities (Mayasari, 2018). The value given by each government agency is crucial for the issuance of trade licenses.

5. Data

Data exchange is crucial in this extended organization. As part of regulatory compliance, integrated business process, and system dependence based on trust. Data and information exchange in ITLS can be harmful to confidentiality so that it poses some security challenges. This data exchange can only be realized with an agreement between agencies. But sometimes, agreements are slowed down by bureaucracy, while data exchange must be

realized immediately. ITLS gets data from other agencies to be able to work, and ITLS also sends important data to external systems according to business process requirements or regulatory compliance.

Challenges faced in ITLS

The challenges faced in ITLS is explained as follow:

1. One of the great concern is security issue, either it is information security or technology security.
2. MoT does not have an integration platform architecture as a reference for collaboration with external systems regarding data exchange.
3. Limited IT experts in managing ITLS is a concern to the sustainability of ITLS.
4. Immediate data exchange implementation, but the agreement is not yet available.

CONCLUSIONS

Conclusions

MoT's trade licensing business process has been improved and simplified to meet the regulation. In order to adjust the need, MoT is collaborating with other government agencies and surveyor agencies using integration to exchange data. Each collaboration with other agencies provides its value to ITLS, where the value helps ITLS in issuing a trade license. Without this value, ITLS cannot work properly in delivering trade licensing services to the public.

MoT does not have a standard architecture for integration right now but will implement ESB in 2020. The technology used for integration is web services through a gateway system. The purpose of this integration is to exchange data and information without money involved (free of charge). Agreement between each participant is a must as a

part of regulatory compliance. The challenges faced in ITLS implementation is standard architecture and security, either it is information security or technology security. Unavailability of agreement and limited IT experts to manage ITLS also become a concern to the sustainability of ITLS.

It is proved that the extended organization concept can be implemented by enabling IT and drive e-Government success. This concept can be used not only in the supply chain or enterprise area but also in the e-Government area. The results are expected to be a lesson learned of extended organization concepts in a government agency.

For future research, it is suggested that the study would explore deeper the role of each organization in value co-creation in the extended organization of a national scope. In addition, future research may also investigate the latest technology that enable extended organizations, such as Cloud, Internet of Thing (IoT), or other latest technology.

Limitations

The limitation of this research is the scope of the studies. The scope of this study is limited only on ITLS in MoT. In addition, no standard of extended organization in IT areas and definition of diversity of extended organization are available.

ACKNOWLEDGEMENT

We would like to thank the Center of Data and Information System, Ministry of Trade, for supporting this research.

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