Impact And Sustainability Of Digital Transformation In Pelni Logistics

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Abstract. The purpose of this study is to examine benefits of digital application in logistics process and sustainable impact on implementation of digitalization in Pelni Logistics compared to manual system. Digitalization is an important device to create a reliable and sustainable transportation system and supply of goods. At present many companies are performing digitalization. The transformation concept of digitalization focus on production/service process. This study used a qualitative descriptive method. Data collection techniques were conducted by interviewing 4 informants. The study shows that the concept of digitalization can increase production/service, operational process can be well integrated, real-time information can provide more efficiency that will contribute to company profits and can create more varied products/services.

1. Introduction
In line with the development of the technology and information sector which continues to improve constantly, technology can be a weapon for a company to maintain the existence and sustainability of company including a logistics company which applies technology in all fields. [1]

A competitive and fast-growing environment is a result of connectivity and wealth of information [2]. Entering the era of digitalization, all industries face with uncertainty, complexity and ambiguity. With the increasing use of computer infrastructure, more information recorded has become digital. It is estimated that in 1993, only 3% of the information recorded in the world was digitally stored; this figure has increased to around 94% in 2007[3]. Digitalization aims to focus on personal needs and global challenges to gain competitive strength by considering market globalization. For this purpose, emerging information technology must be applied to every aspect of the industry[4]. Collaboration in all industries is the answer to the challenges that must be faced by all industry players, namely competition and speed. Supply chain and logistics sector is one of the many industries requiring to collaborate in using digitalization. The principle of collaboration here is a business process that is running and there are actors at every point. In general, every point has its own goods including IT (Information Technology) systems. The shipping company can no longer implement everything itself.

This ecosystem can work if there is a collaboration which each system must be able to communicate with each other to optimize performance, where logistics companies in transporting goods and shipping need other companies and warehousing might also need other companies.

PT. Sarana Bandar Nasional (PT SBN) was established on March 31 in 1986 which is one of the subsidiaries of PT (Persero) Pelayaran Nasional Indonesia. It is one of the leading state-owned
shipping companies in Indonesia which has metamorphosed into Pelni Logistics (Pelayaran Nasional Indonesia Logistics) and become PT Sarana Bandar Nasional at present that its group company and its subsidiaries have a vision of becoming a total logistics company.

Digitalization had been planned since 2006 by PT SBN (Sarana Bandar Nasional) and it was implemented in 2014. This company serves loading and unloading services, freight forwarding, transportation and distribution business, customs broker (PPJK), warehousing, container depots, retail businesses and trading through all of its business lines spreading throughout Indonesian archipelago, with 56 branch offices that have strategic business units (SBU), vessels of parent companies and its subsidiary that have fixed and regular schedules.

Another state-owned enterprise that has implemented digitalization is Pelindo. Indonesian port is managed by four companies, Pelindo I, Pelindo II, Pelindo III and Pelindo IV, while they are competing to implement digitalization. The effort of PT Pelabuhan Indonesia (Persero) or IPC carries out a digital system in each of its business services in order to make the international port of Indonesia in the era of digitalization packed by BUMN port headquartered in Tanjung Priok, North Jakarta in the spirit of transformation towards smart port or digital port.

Digitizing the information process provides a fairly high benefit in the form of being able to cut costs up to 90 percent and operating time can be further improved. The role of software that replaces the role of paper and manual processes by allowing companies to automatically collect processed data to better understand performance processes, drivers of costs, and causes of risk. Declining unemployment rates, improving quality of life, and increasing citizen access to public services are evidence of positive effect of digitalization. Finally, digitalization allows the governments to operate with greater transparency and efficiency [5].

The transition from manual system to digitalization will be commonly seen as a big obstacle. Companies that implement digitalization have an obstacle for their existing human resources that are unable to compete against the digital technology. That is why the company will sometimes hire some experts to train the staff so that it will cut down efficiencies of time and cost. The bureaucratic licensing problem from the surrounding environment is very difficult, and the internet service provider is not adequate. The purpose of this study is to examine the benefits of the digital application in the logistics process, whether digitalization plays a significant role in increasing production and service, and whether digitalization provides real-time information that facilitates the monitoring process and sustainable impact of digitalization in Pelni logistics compared to manual systems especially for company profit.

2. Research Methods
2.1 Data collection technique
This study used primary and secondary data collection methods. Primary data was obtained directly from a number of informants through observation and interview. The sources of information used in this study are 4 people, they were 1 Finance and Accounting Senior manager of PT Sarana Bandar Nasional; 1 Marketing Manager of PT Sarana Bandar Nasional; 1 Marketing Assistant Manager of PT Sarana Bandar Nasional 1 Operational Staff of PT Sarana Bandar Nasional. Secondary data is obtained from the documentation of the conversation.

2.2 Data analysis technique
This research used descriptive qualitative technique. Descriptive Research is a research that intends to make description of situations or events. Qualitative research is a descriptive research that tends to analyse and emphasize the process of object research[6]

3. Result and Discussion
3.1 Effect of digitalization on increasing the growth of Pelni Logistics production.
Based on the result of the interview from the informants, digital application plays an important role in increasing production. The implementation of digitalization in Pelni Logistics also provides a fairly good benefit in all lines of the company. In the past four years, since 2014, Pelni Logistics has implemented digitalization in every form of activities namely marketing, finance, warehouse management, HR management (in the form of pay slips, taxes & employment insurance, pension funds, claim and intensive), application to track goods delivery, ships and trucks, more optimal marketing, getting new customers, maintaining existing customers, and improving quality of service to customers. Pelni Logistics production has also increased, such as general cargo, container and freight transportation services; namely motorbikes, bus, cars or trucks, and even heavy equipments (heavy vehicles).

The acquisition of loading and unloading production from 2014-2018 can be compared through the data each year which illustrates a significant increase in production activities. It proves that the implementation of digitalization has a quite good impact on loading and unloading production activities.

Figure 1. 2014-2018 Load / Unload Production Chart (source from PT SBN)
The application of reservation system making it easier for customers to know real-time shipping costs & transparency, cargo position and carrier mode, time and delivery of goods, loading time and arrival of goods. Using an online reservation system for Pelni logistics itself is to minimize accounts received from shipper by having limited payment time within 1x24 hour. If the reservation is not paid within 1x24 hours, the reservation will be canceled automatically. On the other hand, this condition is inversely proportional to the implementation of digitalization where this is a source of receivables for Pelni Logistics because the shipper only pays 20% of the normal price and payments for the remainder are settled at different times, which will affect the cash flow Pelni Logistics. Such conditions do not occur again in captive activities (PELNI ship transportation)

3.2 Application of Digitization that Produces Real-time Information
Related to the interview, according to the information from informants, the implementation of digitalization that produces real-time information for the company, makes the company more responsive[7]. Through the company's official website, now all services provided by the company can be accessed by users to provide easy information about service that is available for users[8]. The available services such as estimated time of arrival and departure of ship, choice of shipping service (Door to Door or CY to CY), price of shipping service, information on availability of cargo space and port of loading and unloading, type of cargo that can be transported, availability of loading and unloading equipment and truck fleet are also be shown on the website. This important information services owned by the company make the users easier to choose the service which will be taken if it is compared to the manual system before the official website, the customer (shipper-shipper subscribers) only knew by word of mouth or from Pelni itself.

Liner service (fixed shipping) is a form of shipping company operation for permanent loading and unloading, fixed schedules, fixed shipping routes, predetermined and generally accepted as freight service[9]. Liner service can give an advantage of Pelni Logistics because the operational service combines digitalization which users can see real-time schedule and arrival of the ship. It can be said
that Pelni Logistics has a fixed schedule which is actually the main product of shipping and logistics companies if it is compared to the other companies that don’t give certain time and availability of adequate cargo space but they still ship goods.

Delivery with the most efficient and transparent service is the main key of the company in increasing competitiveness of the company with new responsiveness and high levels of resilience. Therefore the company must build a logistics network with digital technology so that there will be a good integration between the logistics process and ICT (Technology, Information and Communication) which is the main factor in improving quality and efficiency of the company[10].

Application of digitalization is useful at the level of service, especially to the users. In line with the benefits for the company, it can increase cost efficiency, security and internal control. Bureaucratic problems from the surrounding environment, the inefficiency of time and costs arising from training given to human resources due to limitations in accessing technology make some difficulties for the company to compete against the technological world. The limitations of internet service providers become some obstacles to technology adoption in the logistics industry [10].

The efficiency received from digitizing seen from customers is where service users allow for real-time cargo tracking on cargo goods transported, and make it easy to online orders and transactions that can be done 24 hours a day where and whenever any information Pelni Logistics included and received relevant and detailed information. The efficiency received from digitalization is see from service providers in the form of financial data integration so that top management can better see and control the company's financial performance, control operational activities in increasing productivity, minimize fraud committed by employees, improve efficiency and effectiveness of warehousing performance, with the support of the "Integrated System" application, decreased inefficiency and improved service quality, and standardized data and information through uniform reporting, especially for large companies that usually consisted of a large number of business units.

3.3 Digitizing As A Link To Company Activities That Provides Efficiency and Affects Company Profit.

Related to the discussion about digitalization as a liaison for all company activities that provide efficiency and influence the increase of company profits, digitizing with the use of ERP technology can connect all marketing, financial, operational, human resources, cargo tracking and reservation systems. The following is ERP (Enterprise Resource Planning) used by Pelni Logistics, which is an application that supports daily operational planning and controls things related to managing company resources such as finance, employee, machinery, time and production capacity; and this can only be accessed by Pelni logistics employees every time and every where using a smartphone or laptop connected to the internet network.

![ERP Forms in Pelni Logistics Company](source from PT SBN)

On this platform, there is HR (Human Resource) technology software for more productive business and employee management based on cloud computing (computer system resources as a data center). Management of employee performance which provides convenience in the form of direct supervision and is monitored by the head office via a HR manager to achieve more in work performance, promotion and evaluation activities on the human resources is more efficient and easily accessible. By digitizing the database, level for accuracy and real-time information from the database can be
evaluated by how employees’ performance for promotional activities. At present, after the implementation of digitalization, activities such as employee attendance, late attendance, receipt of basic salary, intensive, salary and insurance coverage have been carried out from the head office and have been integrated directly to branch offices, so branch offices only receive the results from the center. For example, if employees come late they will be subjects to get sanctions in the form of cutting wages from the intensive because the head office manager can easily monitor and know employees’ performance.

Tax in Pelni Logistics has been integrated with the tax system, likely in Article 21 about Income Tax (tax on income in the form of salary, wages, honorarium, allowances and other payments) where companies can pay on time without being a subject who has to be fined due to late payment and companies do not have to send representatives directly to the tax office for tax reporting, which will cause a waste of time, transport and energy.

Before applying digital technology, Pelni logistics used Microsoft Excel application carried out by staff from branches and central office and that manual ways had not been integrated between headquarters and branches. In the manual system, fraud is still possible happen when the supervision from the head office were uncontrollable and limited, the validity of the data was still uncertain and doubtful, and it was difficult to get close to the top leaders or supervisors or difficult to be promoted for some employees. At present, employees themselves with the digital software employees be able to know about attendance, payment slip, insurance and pension funds as well as cooperative loan, overtime, leave, claims etc.

In the financial aspect of digitalization, it helps the finance department in distributing salary for their employees. After the uses of Information Technology (IT) system in management, branch offices can only receive data from the head office and then branch offices make cash bank vouchers (every payment from the company must be made to spend money or can be called important documents usually handled by responsible employee). Efficiency in the workplace for employees in the head office can be more productive because it more savings energy and energy that saving can more utilied for made of vouchers, verificaiton and financial reports. By digitizing these processes, company can save time and energy if the financial processes spend less than an hour, so company’s time and energy can be utilized more optimally than using manual ways that need more costs to pay intensive money for accountants who oftens work overtime and need an estimated half a day to complete the financial process. For example if the SBN makes a pay slip that has 50 branches and it must be done by 50 employees, besides that the paper usage is not efficient due to the risk of lost or damaged data on it, but with using digital storage, the data is not easily lost or damaged and it also saves time.

With the use of digitization system in head office, financial managers can real-time know the information of each branch regarding the company’s profit, loss and business income, and they can simplify the audit process, where the audit is an evaluation material for the company to know the success of each branch and give a solution or suggestion for the branch offices which suffer losses.

In addition, digitalization can provide significant benefits, including increasing efficiency and security, increasing internal control, reducing costs; and last but not least increasing the revenue and profits of the company itself as the most important thing that can be seen in the diagram below.

![Figure 3. Opinions & Profits Obtained by Pelni Logistics from 2008-2018. (source from PT SBN)](image-url)
The diagram shows a comparison between manual systems (2008-2013) and digitization (2014-2018). 2014-2018 are the years of implementation of digitalization on Pelni Logistics and there is a significant increase in number of business income and profit (million in rupiahs). Based on the acquisition, the implementation of digitalization proves that there is a major effect on increasing production in Pelni Logistics.

4. Conclusion
Technological improvements, market developments, competition, and customer needs are the motivators for production and service industry to grow and to provide the best quality of products and services that are now very competitive to meet customer needs and to keep the company sustainable. Digitalization is the best solution in dealing with digital development because of provides some advantages, such as real-time information, transparency in the supply chain. By applying digital technology; accuracy, visibility, and efficiency will also increase production/services that will contribute to the company's profits so that products and services can be more diverse.

The efficiency get from digitalization is see from service providers that can have a quick data integration, increase productivity by controlling transparent operational activities, optimize of load factors, reduce inefficiencies, improve the quality of product/service, standardize data and information through similar reports, especially for large companies which usually consist of several business units, and provide a guarantee of safe delivery service.

The benefits of implementing a digital system also facilitate the service users to get real-time cargo tracking on cargo transported and 24 hours of booking and transaction wherever and whenever. The service users will also know the exact schedule of transportation or any detailed information about PT SBN

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