

ON TIME DELIVERY IMPROVEMENT AT PT.POS INDONESIA

Pebi Yuda Pratama

pebi_yuda@sbm-itb.ac.id

School of Business and Management

Institut Teknologi Bandung

Indonesia

Abstract

Increasing e-commerce industry in Indonesia become a key-driver of growth for Indonesia's courier and delivery service sector. Despite the increasing revenue and sales of courier and delivery service industry, the competition in the sector is getting stiffer. The rising competitiveness in this industry also threaten PT. POS Indonesia, the oldest courier and delivery services in Indonesia. To rise in competition, they implemented KPI of the next-day delivery target of 97% for "pos kilat khusus" service. However, from 18th week to 31st week, the average on time delivery rate only reach approximately 69.2% from a total of 796,428 mail and packages. There are seven factors that was considered as reducing next-day delivery by PT. POS. Some of those factors represent a root cause such as no recipient, unclear address, recipient change address, and unknown recipient, while the others (wrong DC path, address still sought, in process) intercorelated with the root cause (no SOP/OPC/FPC, lack of employee competencies, outdated IT system, uncertain connectivity). From the observation, "no recipient" factor with 40.97% responsible for the unachieved next-day delivery target at that day. By focusing on root cause "no recipient" factor and uncertain connectivity, several alternatives solutions was created. From factor rating method, rescheduling and improving outgoing process suggested. From the suggested solution, the expected of next-day delivery target will increase by approximately 21.17% or could reach up to 90.37% average on time delivery.

Keywords: *courier, delivery, no recipient, on time delivery, uncertain connectivity*

1. Introduction

Indonesia, the world's 4th most populous country with over 261 million people have a total GDP of 1015.54 billion USD and GDP per capita of 4130.66 USD (World Bank, 2018) makes Indonesia a market of immense potential for retail sector. Increasing smartphone usage, internet penetration, intensive foreign investment in leading platforms, the growing Indonesian middle class, and the more recent overhaul of online payments have all contributes to market growth of Indonesia's e-commerce industry in the last three years, and still expected to grow until 2022 (Statista, Inc., 2018).

1.1 Courier and Delivery Service Provider in Indonesia

The rapid development of the country's e-commerce industry become a key-driver of growth for Indonesia's courier and delivery service sector which contributes up to 30%-40% to total revenue of the industry (Global Business Guide Indonesia, 2018). Despite the increasing revenue and sales of courier and delivery service industry, the competition in the sector is getting stiffer. Gojek and Grab for instance, the online transportation company, now offer express delivery services through GoSend and GrabExpress. Their extensive resources of thousands of drivers and millions of customers will surely pose a considerable threat to existing player. This fact can be seen by the recent partnership between Bukalapak and Tokopedia with GoJek for fast and same day delivery services (Purnama, 2016). Moreover, international and domestic app-based delivery startups are also emerging and offering cheaper rates and pick-up services with insurance coverage as well as real-time data and tracking. These new players include Ninja Express, Etobee, Deliveree, PopBox, JET express and many others.

The rising competitiveness in this industry also threaten PT. POS Indonesia, the oldest courier and delivery services in Indonesia. The advancement in technology in the late 2000's make PT.POS Indonesia suffer a rough period because of an emerging of SMS (Short Message Services) and internet replace the PT. POS Indonesia postal services which were mainly their business activities. In 2004-2008 period for example, PT. POS Indonesia suffer loss up to 605.5 billion rupiahs (Marketeers Inc, 2013). That's why, in 2009, a transformation were pursued by PT. POS Indonesia from the initial postal company to the real network company.

The first Top of Mind brand on courier service provider was occupied by JNE with 45.0% top brand index (tbi) followed by J&T with 13.9%, TiKi with 13.6% and Pos Indonesia with 11.6% (Top Brand Award, 2018). Based on marketing research by Ekaputra (2019) in his study, there are several factors why customer choose JNE and J&T among others as their courier service provider. Precise estimated delivery time, speed of delivery, and reliability become one of the reason why the customer prefer choose JNE and J&T. On top of that, J&T, the "newcomer" on this industry actually succeeded on taking the second place on Top of Mind brand being only started their business in the 2015. They introduce a live tracking system of the shipment so that the costumer can find out the current location of their shipment by using the J&T apps. It shows that the changes on this era of digitalization and e-commerce makes the industry have to innovate to survive in the industry.

1.2 Business Issue

PT. POS Indonesia in which business activities in the field of postal service on the annual report of 2017, the mail and packages services revenue have a declining growth of 1.45% while on 2016 they have a 13.83% growth. It can be said a drawback for the company since their business activities revolve in mail and packages business with 53% of its total activities. With the recent change of the management director, this year the company wants to implement KPI for their on-time delivery on "pos kilat khusus" service shipments in 8 regions (Bandung, Bogor, Jakarta, Malang, Surabaya, Solo, Semarang, and Yogyakarta) with the next-

day delivery target of 97%. However since the start of the implementation of the KPI, from 18th week to 31st week the actual next-day delivery rate only reach approximately 69.2% from a total of 796,428 mail and packages. The average on time delivery from each respective region can be seen in Figure 1.

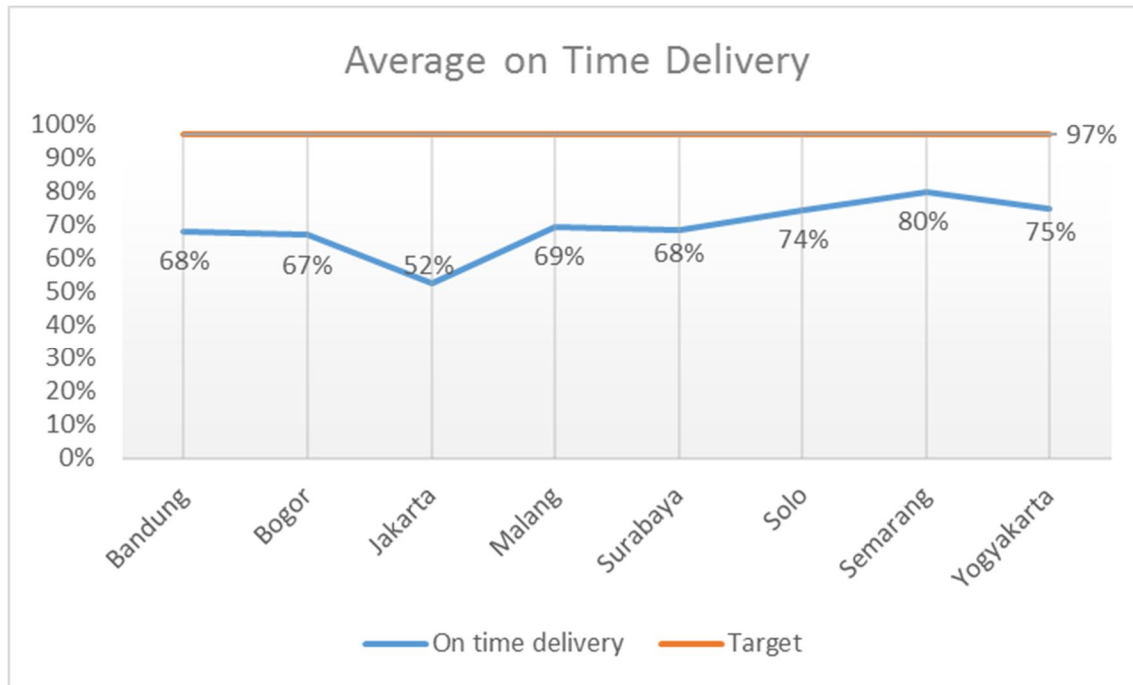


Figure 1. Average on time delivery, 18th to 31st week of 2018.

From the Figure 1 regarding average on time delivery on each respective region, there are a big difference between data in Jakarta region with 52% average on time delivery and Semarang region with 80% average on time delivery. This big difference comes from two factors. The first factor comes from the average shipment counts. Jakarta as a capital city have a total shipment counts of 223,788 items, while Semarang total shipment counts covers 44,987 items. Another factor affecting this difference come from the high street density in Jakarta region.

According to Leaver (2015) in his research, “*longer time of delivery of products to customers decreased customer satisfaction*”. Fornell (1992) consider that “*customer satisfaction as a potential determinant of customer loyalty during the past two decades*”. Many companies consider the importance of customer loyalty as its source of competitive advantage which gives a powerful impact on firm’s performance (Rust, Roland, & Richard, 1994). With the consequences of enhanced customer loyalty in service industry can leads to increase in revenue, reduce customer acquisition costs, and lower costs of serving repeat purchasers, leading to greater profitability (Reichheld, 1993).

With the current condition, the incomplete of next-day delivery target from the last 14 weeks can affect company in the long run. If it keeps going on, the mail and packages service revenue can be declining further with the increasing competition on the mail and packages service industry.

2. Methods

2.1 Research Methodology

This research adapts both qualitative and quantitative methods. The qualitative method covers direct observation, interview, and preliminary study. While the quantitative method covers the calculation of data by making Pareto Chart, making an impact estimation to increasing average on time delivery on cost and benefit analysis of plan alternatives, and using factor rating methods.

2.2 Conceptual Framework

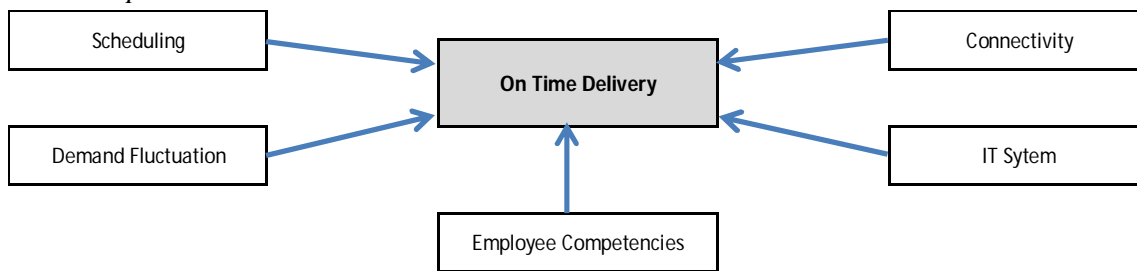


Figure 2. Conceptual Framework

Based on observation, a conceptual framework was created shown in Figure 2 shows factors associated with on time delivery. The term and measurement of on time delivery may differ to each organization. In this case, it refers to providing its services to end customers. For “Pos Kilat Khusus” service, the delivery qualified as on time if the shipment delivered two days after it is received. Factors affecting on time delivery based on observation were divided into five, which are scheduling, demand fluctuation, employee competencies, IT system, and connectivity. Some of these factors sometimes intercorrelated with each other.

2.3 Business Situation Analysis

A shipment value chain will differ depends on each firms resources and capabilities. Figure 3 shows a simple illustration of shipment value chain in PT. POS Indonesia. Mail and packages from customer will be received by post offices. At the designated time, one big pos office which act as distribution center will dispatch a truck to pick up the mail and packages from post offices around it and send it to Mail Processing Center (MPC origin). A sorting process then conducted in MPC (origin) before the mail and packages being sent to MPC (destination). Multiple modes of transportation being used to distribute those items, such as road-truck, train; sea-ship; air-plane. A sorting process then conducted again in MPC (destination) before the items was deliver to each DC and finally to the target recipient.

Mail processing center has the function of planning, organizing, implementing and controlling and responsible for the implementation of Collecting, Processing, Transporting, Delivery and Reporting (CPTD-R) policies effectively and efficiently in its working area and it cover end to end customer data processes. Outgoing process cover the first half of shipment value chain (from customer until MPC origin), while incoming process cover the latter half (from MPC destination to target recipient).

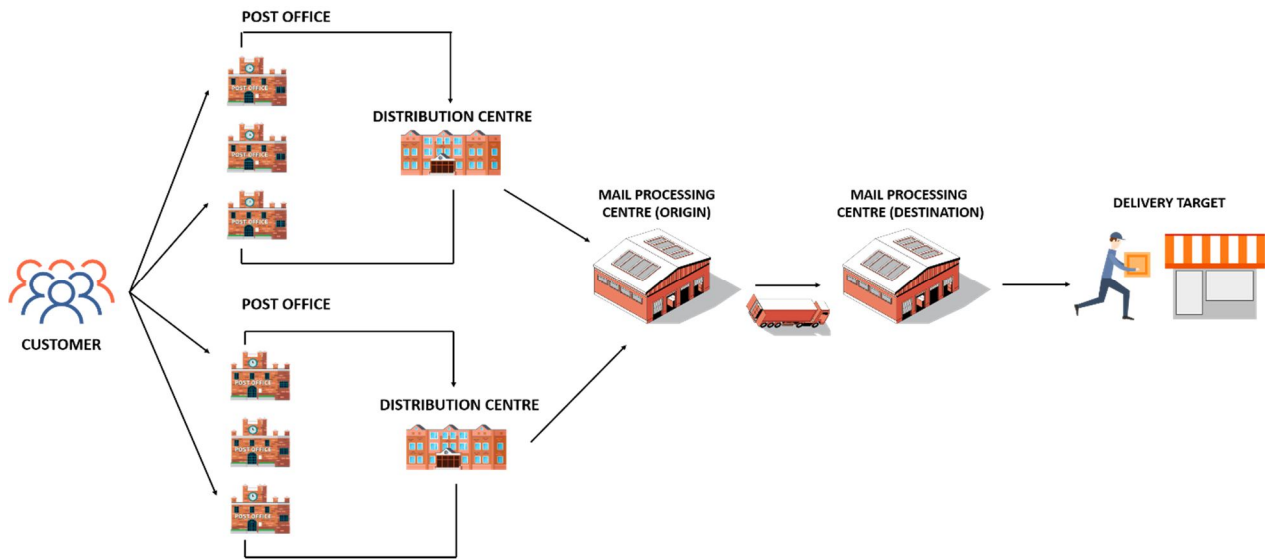


Figure 3. Shipment Value Chain in PT. POS Indonesia

By observing PT. POS MPC Bandung, the operation process could be divided to several main Process/Work which are:

1. Incoming

This division will process the PT. POS's Products which is *Pos Prioritas (Pos Express and Pos Kilat Khusus)*, that comes from all around Indonesia and will be delivered to Bandung Raya, Sumedang, Lembang, Padalarang, Garut, and Majalaya.

2. Outgoing

This division will process the PT. POS's Products which is *Pos Prioritas (Pos Express and Pos Kilat Khusus)*, that comes from Bandung and will be delivered all around Indonesia.

3. Distribution and Transportation

Responsible for the local delivery product of PT. POS in Bandung region.

4. International Post

This division will process the PT. POS's Products which is *International Post*.

2.4 Root Cause Analysis

Based on observation and an interview the root cause analysis for unachieved delivery target for PT. POS can be seen in Figure 4. Unachieved next-day delivery target is caused by three reasons, which are the shipment not delivered, final status error, and shipment are not processed. The reasons why shipment not delivered is because it is misdirect, delayed, and because of customer error. Customer error being one of the reason why the shipment not delivered is an interesting issue, as in every business customer is always right. However, in this case, as can be seen in Figure 16 no recipient, unclear address, unknown recipient, and the recipient has changed address is uncontrollable by the organization. No recipient means that at the time of delivery, there are no one to receive the mail/packages as there are no one home. Unclear address refer to the address cannot be found because of customer mistype or incorrectly address the target recipient. Unknown recipient is the same like unclear address, however, in this case the address is found but the recipient is not the right target.

Sorted incorrectly is secondary reason misdirect happened after wrong DC path. The occurring of wrong DC path is because of "grey area". Grey area refer to an unclear address that being falls in between two separate DC. There are two reasons why incorrect sorting is happening, there are no SOP, OPC, FPC and

lack of employee competencies. Employee competencies also the reason why the shipment being delayed as the address is still sought. The address is still sought refer to the ability of the deliverer to find the address.

In process one of the reason that a shipment being delayed refer to the item is still being transported, or the shipment is left behind in MPC (origin), or the shipment has been delivered but in the system not yet delivered.

IT system that was currently not in real time make information data in the cloud belated, as there is a time difference between the actual and when the data being uploaded to the server making the engine capture of the status system had a margin resulting in final status error. With uncertain connectivity such as traffic jam that lead to late shipment arrival will result in shipment being not processed because of tight scheduling and no shift currently at hand. For some cases such as for MPC Surabaya, being the coverage including small islands the connectivity will be harder as multiple nodes of transportation being used to transport the shipment.

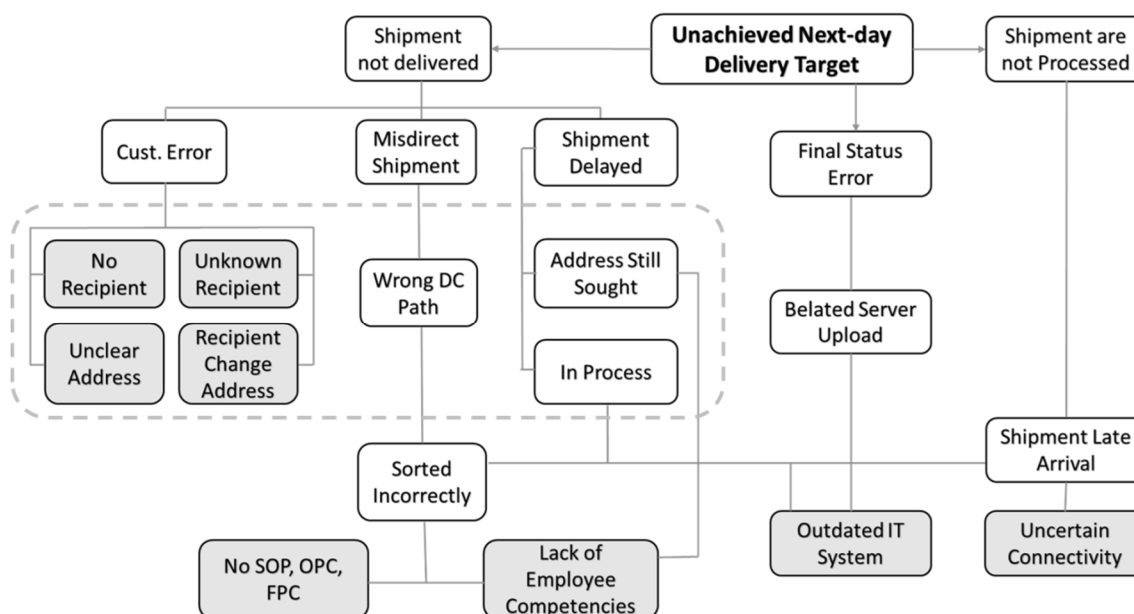


Figure 4. Root Cause Analysis

From the Figure 4 there are eight root causes shown in grey color and seven factors (grey dotted line) that was considered as reducing next-day delivery by PT. POS. Some of those factors represent a root cause such as no recipient, unclear address, recipient change address, and unknown recipient, while the others intercorrelated with the root cause.

3. Result and Discussion

From Figure 4, several root causes that causing the unachieved next-day delivery target are: no SOP, lack of employee competencies, outdated IT system, uncertain connectivity, no recipient, unclear address, recipient change address, and unknown recipient. However, seven factors that was considered as reducing next-day delivery by PT. POS was used (grey dotted line) for the analysis as not all the root cause have tangible impact. Such as by having “no SOP” as one of the factor which affect the whole operation yet vaguely contribute to the problem since the impact is not tangible. Hence, a Pareto Chart was created based on the observation comprising of seven factors.

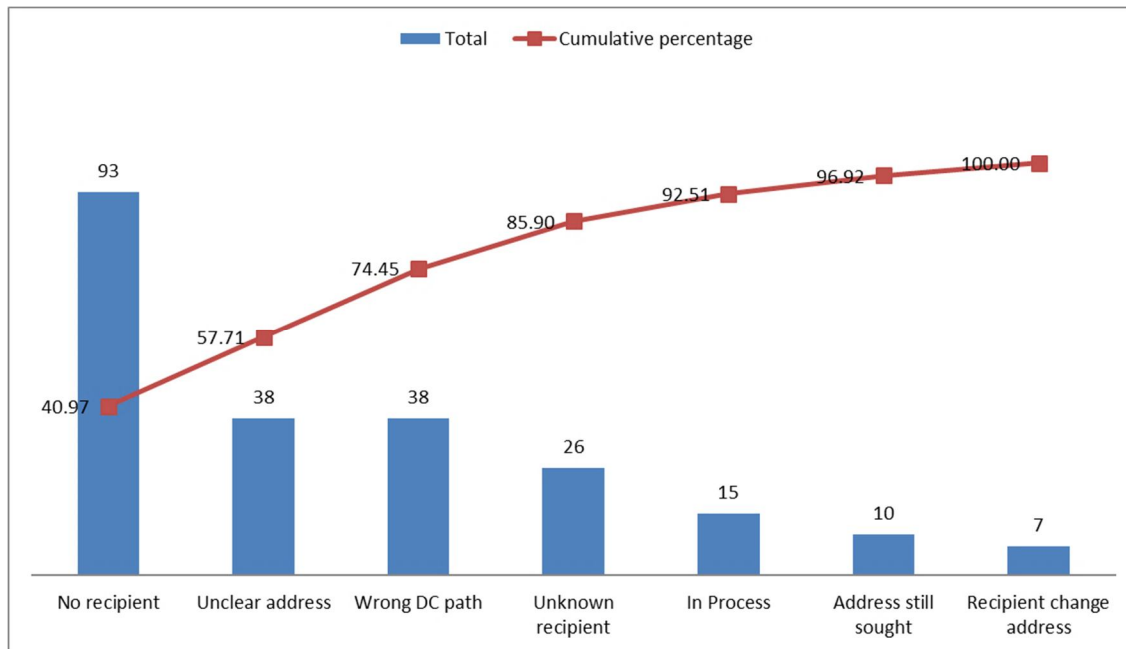


Figure 5. Pareto chart of causes of undelivered shipment

From the Figure 5, “no recipient” factor with 40.97% responsible for the unachieved next-day delivery target at that day. Therefore by focusing on creating a solving problem for “no recipient”, hopefully it can increase the next-day delivery target.

Even though it is a rare case, another concerning factor that affect unachieved next-day delivery target is the shipment are not processed, as when it happened, undelivered packages count will be one whole batch. The root cause of this factor is uncertain connectivity. Things like unpredictable road and traffic condition of uncertain connectivity become a threat for the delivery service industry especially if the modes of transportation that was being used is truck.

Based on competitor analysis, literature study, observation and interview, there are several alternatives solution. For overcoming “no recipient” factor, there are three alternatives, creating customer communication, rescheduling of final shipment delivery, and implementation of automated parcel locker. As for overcoming “uncertain connectivity” factor, the alternatives solution are, to change the modes of transportation, improving outgoing process, and rescheduling of outgoing process.

3.1 Customer Communication

To overcome “no recipient” factor, a notification system becomes one of the solution. A notification system is a combination of software and hardware that provides a means of delivering a message/information to a set of recipients. The notification can be sent through short message service or using mobile apps. Currently, PT. POS developing new tracking system called e-pos 2, this new tracking system providing customers with real-time visibility and control of their mail and package delivery services. The system utilize qr-code and mobile apps that can give real-time access for the customers. The implemented of the system still in its beta stage and only used in Jakarta region with standardize items. The lack of data regarding this system makes it hard to analyze.

Through the usage of the mobile apps, it can keep the customer in the loop with timely notifications throughout the delivery process. Notifications on dispatch, in transit and on delivery of their order also ensures that the customer is available at the time and place of delivery. Moreover, according to (Kumar, Kalwani, & Dada, 1998) “customer satisfaction is higher at firms that offer and meet time guarantees at

their services rather than firms that merely serve their customer within the uncertain expected time". By utilizing this communication system, it can also help PT. POS with the confirmation from the customer, whether the recipient is ready to receive the shipment throughout the delivery time.

To build this communication system, a thorough research procedure must be conducted, such as user requirement, design, implementation, system testing, system deployment, and maintenance. It requires high capital investment, the approximation of cost investment for the mobile apps alone in this case would take 2 billion rupiahs, not added with server for the database and hardware for courier. Rather than build a new whole notification system, PT. POS could utilize their new tracking system e-pos 2 and add a notification system for the customer. However, seeing that e-pos2 is still not ready even though the project has been in progress for almost 2 years means that the implementation will have to wait for the readiness of e-pos2.

3.2 Rescheduling Final Shipment Delivery

The work hour for employees in PT. POS is 7 hours. Current schedule for the final shipment delivery is 9.00 until 16.00 o'clock. Taking into fact that no recipient responsible for 40% unachieved next-day delivery target is a proof that with the current schedule a lot of people doing their activity outside their home, be it to work, to school, or do other activities. One of PT. POS competitor JNE has a final delivery time schedule that reaches 22.00 o'clock.

By extending the current schedule, PT. POS should reach the recipient which was out during the day time. Taking into account the people habit, usually people have gone home at 18.00, some of the reasons being daily work-hour ends in 16.00 or 17.00, the school has ended, and for an average household, they need to come home before night time to turn on the lamp as a sign that somebody's home (to keep away thief). So PT. POS should extend their schedule to more than 18.00 o'clock.

The approximation cost for rescheduling will differ, depends on which plan PT. POS will take, it ranges from no cost up to around 140 million rupiahs. The drawback of this rescheduling is, it is not a guarantee that the recipient is already at home at the most probable time the recipient is at home (18.00-22.00 o'clock).

3.3 New Type of Mailbox

This mailbox will be different from ordinary mailbox that was put in front of houses, as it was no longer used in Indonesia. This new type of mailbox will be a service similar to PopBox, an automated parcel locker. It will act as a safe locker where the sender or recipient can rent it so the recipient doesn't have to worry about their mail/packages if they're not home or the recipient address is empty because the customer can take their mail/packages in desired designated location. The purpose of using this mode of final delivery shipment is to give an option for the customer so that they can receive deliveries in a safe, secure manner, and provides a peace of mind for customer as it helps with their schedule needs or can be picked up as they're returning from their activities.

The location of this parcel locker can be appointed in accessible places such as malls and nearby pos offices. The problems for this parcel locker lies in its large investments in the facility and the localization of the units as it must be deployed in convenient and highly frequented public location. Moreover, According to Barclays (2013), "*a direct-to-home delivery yet is preferred by most e-shoppers*". The price of each locker ranges from 1300-2500 USD, not including the system operation. However, an investment in parcel locker will open up new opportunity for PT. POS as it can become a new source of income in the long run.

3.4 Changing Modes of Transportation

In conducting business, for "pos kilat khusus" PT. POS mainly utilize truck for their modes of transportation between MPC especially in Java Island. However, poor connectivity sometimes can lead to

late shipment arrival. To resolve those issue, PT. POS can change their modes of transportation which utilizing truck to airplane modes of transportation, as it can result to faster transportation time. However, changing the modes of transportation for the delivery between MPC to airplane resulting in a high costs (twice of delivery cost). Moreover, the uses of airplane modes of transportation is being used for “pos express”.

3.5 Improving Outgoing Process

Outgoing process was one of PT. POS shipment value chain. This process consist of sorting process for the shipment that will be deliver to MPC (destination). A long sorting process in the outgoing process can result in a late shipment departure, which can result in a late shipment arrival. When this issue happen, the shipment that arrive at MPC (destination) will not be processed. By fastening the outgoing process, it can minimize the late shipment departure from MPC (origin) and if uncertain connectivity happen the delivery still has a spare time to arrive at designated location.

Looking at the current condition of outgoing process in PT. POS MPC Bandung, there are several point that can be improve in order to fastening their outgoing process. Those are the improving the layout of the office, creating SOP, OPC, and/or FPC, reducing bottleneck, and increasing employee competencies.

A better layout or better methods on transporting packages can be resolve by machinery investment, a continuous flow would minimize the probability of a bottleneck happening and could save cost for the operational cost by not wasting any precious time in the process. Fasten sorting process by changing the label system or packaging system can help maximize its efficiency and effectivity.

Operation Process Chart can be a benchmark to know the machine needs and budgeting that will help PT. POS to give insight about machinery and budgeting of operational process without wasting more budget to finish the process. This will help PT POS to minimize the work time requirements of workers and machine so that PT POS did not waste any money to pay exceed wages and can save electricity cost.

Lacking employee competencies such as treating the packages as not it should be, like stepping on, throwing, slamming, and other mistakes which causes an error in the transportation process or against shipments. Without SOP, integrity and the desire to work well is highly needed. The company should instill the importance of integrity so that the operator know the importance of their work on company performance and feel responsible for it. Lack of integrity and lack the competence of workers can jeopardize the safety of the shipment. Damage to the shipment will cause the company to suffer losses due to the high cost of damage claims submitted by consumers and in a long term will cause damage to company image and trust consumers towards PT. POS. By making SOP it can act as a tool for work training, eliminate unnecessary activities, useful when combining or changing workplaces, combine or change work time or sequence, combine or change the number of people, and repair or simplify work methods.

By improving the outgoing process, such making SOP and increasing employee competencies, not only it can help the minimize the late shipment departure and giving a spare time when uncertain connectivity happen, it also answer the root cause of no SOP, FCP, OPC and lack employee competencies.

3.6 Extending Incoming Process Schedule

Incoming process was one of PT. POS business value chain. This process consist of sorting process for the shipment that was come from MPC (origin) that will be deliver to the target in respective city. When uncertain connectivity happen which resulting in a late shipment arrival will lead to the shipment not processed by the incoming process. The reason being when the late shipment arrival occur, a tight schedule and there are no shift that can handle those respective shipment.

The current schedule for incoming process is from 5.00 until 12.00 o'clock. Tight schedule coming from several constrain. The latest cut-off time that the shipment will be departed is at 12.00 o'clock, that's why the latest shipment that will be processed in incoming process of MPC at 11.00 o'clock with the consideration that there are still one hour before the shipment will be delivered to DC and distribute it to the recipient. The second constrain is the availability of the distribution center as final shipment deliverer. Office hour for the distribution center start from 8.00 until 17.00 o'clock with final shipment delivery schedule that start from 9.00 until 16.00 o'clock.

When the late shipment arrival occur, for example the shipment arrived to MPC (destination) at 12.00 o'clock. If the shipment was processed by MPC through incoming process, it will result in shipment will be departed at 14.00 o'clock at most. Taking an example of the farthest DC, it will take two hour for the delivery process. By the time that the shipment arrived to distribution center to be distributed, it will be too late as the final schedule delivery has ended.

To resolve the unprocessed shipment, PT. POS can extend their schedule of incoming process if the late shipment arrival occur. Taking into account, by doing so, it also means extending the final shipment delivery schedule. There two alternative of plan can be suggested. For plan 1, PT. POS can extend their incoming process time schedule by 2 hours. It also extend the latest cut-off time that the shipment will be departed to 14.00 o'clock, and the latest shipment that will be processed in incoming process of MPC to 13.00 o'clock. The extending of incoming process schedule also affect the final shipment delivery schedule to more than 16.00 o'clock. For plan 2, PT. POS can extend the incoming process by adding a new shift that specialize on covering the shipment late arrival regardless of the arrival time with the latest cut-off time that the shipment must be departed to 18.00 o'clock. To cover the final shipment delivery, PT. POS can create a team that specialize in delivering those shipment by skipping the distribution center from the value chain process. This new team of final delivery shipment will deliver the shipment straight from MPC to the target recipient.

3.7 Most Preferable Solution

To determine plan alternatives which provide the best approach and to provide a basis for comparing the plan alternatives a cost and benefit analysis of plan alternatives was created as can be seen in Table 1. Based on interview with operation division manager, as of the current situation of PT.POS that ongoing huge investment (800 billion) in e-pos 2 (live tracking system, automated sorting machine), M-box (parcel ATM, unmanned post office for shipment forwarding transaction) with current piloting project implemented in Jakarta. While a direct instruction from the president director to push the on time delivery target of 97% to be achieved in the tenth month of this year. Hence, the criteria in choosing the best solution will be related to least cost, and short implementation time.

Table 1. Cost and Benefit Analysis of Plan Alternatives

Alternative Solution	Cost Estimation	Implementation Time	Benefit	Opportunity	Risk	Impact estimation to increasing OTD (percentage)
Customer Communication	(hiring consultant, system research, server, hardware) 2 billion	1-2 years	Increase Customer Engagement and Satisfaction	Act as early notification system	n/a	18.47
Final Shipment Rescheduling	(added incentive and/or hiring new employee) 0-140 million	2-6 weeks	Cover 'most probable recipient at home' schedule	n/a	Employee resistance to changes	9.87 - 12.6
Parcel Locker	(hiring consultant, localization research, \$1300-2500 per locker installment, system operation) 3-4 billion for initial investment	1-2 years	New modes of end deliveries	New source of income	Customer prefer home deliveries	11.25 - 16.8
Change Modes of Transportation	twice delivery operational cost	1-2 weeks	Faster transportation time	n/a	Decrease profit	1.6
Improving Outgoing Process	(training, machinery investment) 40-200 million	4-12 weeks	Increase Productivity	Initial investment before implementation of e-pos 2	It takes a while before the employee could be adapt to the new improvement	6.68 - 8.54
Incoming Process Rescheduling	(added incentive and/or hiring new employee) 5-10 million	2-6 weeks	Cover 'shipment are not processed' when shipment late arrival occurred	n/a	Employee resistance to changes	2.03 - 10.76

By using factor rating method with least cost and short implementation time as the criteria, shown in Table 2.

Table 2. Factor rating of plan alternatives

Factor	Weight	Customer Communication	Final Shipment Rescheduling	Parcel Locker	Change Modes of Transportation	Improving Outgoing Process	Incoming Process Rescheduling
Least Cost	0.5	50	25	80	40	45	22.5
Short Implementation Time	0.5	55	27.5	85	42.5	50	25
Total	1	52.5	82.5	47.5	65	77	79

Thus there are two solution that can be implemented in PT. POS (score higher than 70) which are rescheduling of incoming and final delivery shipment process and improving outgoing process.

4. Conclusion

This research shows how an importance of on time delivery to courier and delivery industry, especially with the ever rising industry competitiveness in Indonesia. There are three research question in this research. For the first question, "What is the root cause of such low average on time delivery?" this was answered with root cause analysis consisting of eight factors which are no SOP, lack of employee competencies, outdated IT system, uncertain connectivity, no recipient, unclear address, recipient change address, and unknown recipient. However, seven factors that was considered as reducing next-day delivery by the firm was used for the analysis as not all the root cause have tangible impact. Such as by having "no SOP" as one of the factor which affect the whole operation yet vaguely contribute to the problem since the impact is not tangible. The second question is "What are the alternative solution to increase on time

delivery?" was answered based on competitor analysis, literature study, observation and interview. For overcoming "no recipient" factor, there are three alternatives, creating customer communication, rescheduling of final shipment delivery, and implementation of automated parcel locker. As for overcoming "uncertain connectivity" factor, the alternatives solution are, to change the modes of transportation, improving outgoing process, and rescheduling of outgoing process. As for the third question "How much improvement on average on time delivery service when the solution implemented?", from the suggested solution the expected of next-day delivery target will increase by approximately 21.17% or could reach up to 90.37% average on time delivery. If the alternative solution of the customer communication and parcel locker is implemented, the next-day delivery target will eventually reach above 97%.

Reference

- Barclays. (2013). *The Last Mile: Exploring the online purchasing and delivery journey*. [online] available: <https://www-uat-gem.barclayscorporate.com/content/dam/corppublic/corporate/Documents/research/The-last-mile-report.pdf> (April 15, 2019)
- Ekaputra, H. (2019). Proposed Marketing Strategy to Return Brand Images of PT. POS INDONESIA. 15-16.
- Fornell, C. (1992). A National Customer Satisfaction Barometer: The Swedish Experience. *Journal of Marketing* 56, 6-21.
- Global Business Guide Indonesia. [online] available: <http://www.gbgingonesia.com/en/pieddepage/disclaimer.php> (November 26, 2018)
- Kumar, P., Kalwani, M., & Dada, M. (1998). The Impack of Waiting Time Guarantees on Customers' Waiting Experience. 32.
- Leaver, D. R. (2015). *Business Strategies to Improve On-Time Deliveries and Profits in Southcentral Alaska*. Walden University.
- Marketeers Inc. *Marketeers Indonesia #1 Marketing Media & Mice*. [online] available: <http://marketeers.com/studi-kasus-turn-around-bumn-pt-pos-indonesia/> (March 7, 2019)
- Purnama, A. H. *techinasia*. [online] available: <https://id.techinasia.com/bukalapak-gandeng-go-jek-hadirkan-pengiriman-satu-hari?ref=related&pos=5> (September 24, 2018)
- Reichheld, F. (1993). Loyalty-Based Management. *Harvard Business Review* 71, 64-73.
- Rust, Roland, T., & Richard, O. L. (1994). *Service Quality: New Directions in Theory and Practice*. Thousand Oaks, CA: Sage.

Statista Inc. [online] available:

<https://www.statista.com/outlook/243/120/ecommerce/indonesia#market-driver>

(October 29, 2018)

<https://www.statista.com/statistics/280925/b2c-e-commerce-sales-in-indonesia/>

(November 20, 2018)

Suhendra. *tirto.id*. [online] available: <https://tirto.id/akhir-tidur-pak-pos-yang-dibangunkan-zaman-8PX> (May 31, 2019).

Top Brand Award. [online] available: http://www.topbrand-award.com/top-brand-survey/survey-result/top_brand_index_2018_fase_2 (December 23, 2018)

World Bank. [online] available: <https://tradingeconomics.com/indonesia/gdp> (September 13, 2018).