

Conference Paper

Financial Analysis of Airlines As Air Cargo Terminal Operator (The Case of Garuda Indonesia)

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Abstract

PT. Garuda Indonesia Tbk is the only one of the airlines in Indonesia that operates as non-integrated cargo services and manages air cargo terminal service. This study aims to assess and evaluate the business model of airlines as an air cargo terminal operator. Correspondingly, to analyze the business model, the airline is run as an air cargo terminal operator on its own compared to if the cargo services outsourced to other parties at the terminal. The analysis will conduct by performing financial analysis and comparative study analysis. After that, scenario analysis will lead and decided the priority of air cargo business. The result is when the company decides to outsource the business to the other party is better than if they run by themselves. From scenario analysis results, it shows that all the scenarios of the outsourced still better compared to if they run their business by themselves.

Keywords: Air Cargo, Terminal Operator, Financial Analysis, Warehouse Revenue, Comparative Study, Scenario Analysis

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1. Introduction

The claim for air cargo delivered by airfreight increase meaningfully from 2016 until 2018. In 2019, cargo involvement in airlines revenue remains to steady. However, still, the cargo business made a significant contribution in the past three years to airlines revenue. From the IATA Cargo Strategy 2018, expected volumes were growing by 4.5 % in 2018 (it decreased from the 9.3% growth of 2017). The rapid development of technologies has changed many aspects of consumer's lives. It was also part of technological improvement which established much e-commerce and directly impacted the logistics industry. Thus, cargo delivered by air freight has significantly increased, resulting in a rise in the volume of shipping product. Because of the demand for rapid

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delivery has increased, the airline must continue to improve the services and business, especially in the air cargo industry.

Managing the air cargo operation efficiently for airlines are challenged because they must develop strategic plans especially operation and it will allow to punctually adapt and respond to changes in the competitive global environment (Nobert & Roy, 1998). According to the previous research from Joao Silva & Vasco Reis in 2016, they were identifying the combination airlines' air cargo strategies and describe the business model. However, they tend to focus on a business model which applied in the carriers. It was not specific up to the business in the terminal operator. The air cargo business topic in the research have less notice from the academic side. Responding to increase study about air cargo itself, this research specifies that surrounds it.

Concerning to this business model, airlines as an air cargo terminal operator, there was a doubt whether this condition is enough to optimize and support air cargo business or not. Alternatively, maybe there is a third way to maximizing the business through third alternative option. Commonly, the operation of the air cargo terminal operator was running by the warehouse operator company

Based on that concern, in this research, it was analysing and do study comparison of the business model if Garuda Indonesia self operates its cargo warehouse business or they do a partnership with the third party. Garuda Indonesia as the context of this research because of it is the only airline in Indonesia that have a license as an air cargo terminal operator. This research will examine some factors that have an impact on the air cargo terminal' business model. focusing on exploring will be done to support the analysis the airlines as air cargo terminal operator from the financial analysis result as a comparison data, and it will undoubtedly be compared to third data result such as interview result and literature review including the business model that consider partnership the services with the other party.

2. Literature Review

2.1. Air cargo industry

Air cargo transportation includes several services to the corresponding carrier, road transporter (or camper), airline (or carrier), and consignor to transportation, from source to destination. (Derigs et al., 2009).

Airlines (or carriers) providing transit and shipping facilities, including consulting, booking capacity, pick-up, receiving, packaging, sorting, loading, shipping, tracking and

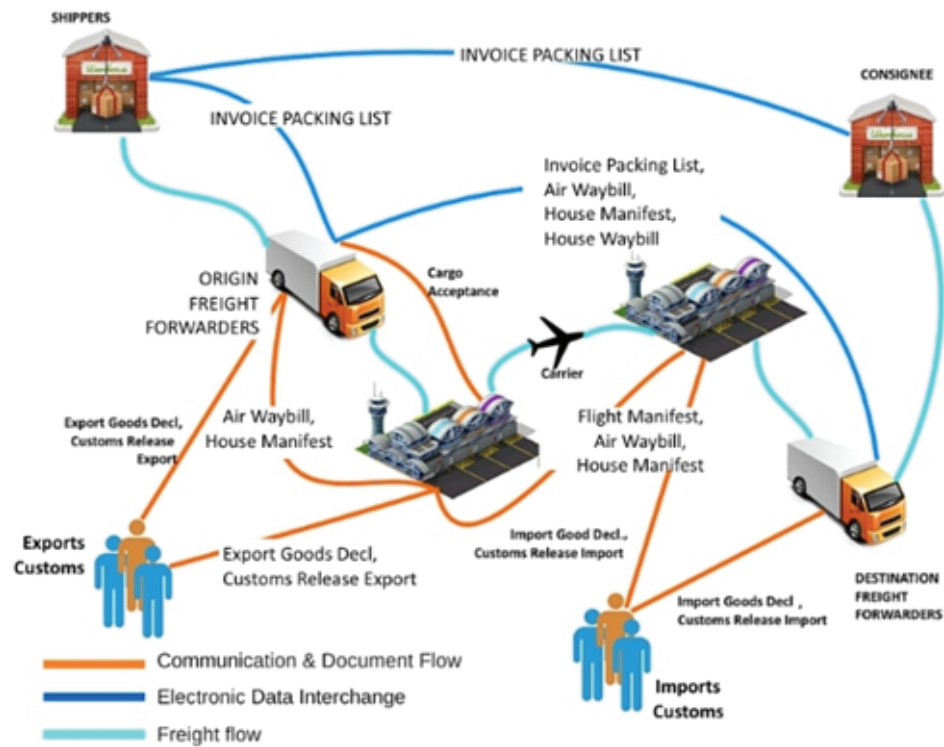


Figure 1: Airfreight process (Source: (<http://www.transcocargo.com.au>)).

tracing of freight. Air cargo service classify into different levels (e.g., speed and reliability) required by the shipper. Tariffs differ by priority service and freight type, Examples of dangerous goods, live animals, perishable foods, and valuable goods (Nobert and Roy, 1998).

2.2. Air cargo operation

It starts when the cargo is delivered cargo terminal in containers or as bulk freights to the airport of origin by forwarders (or the shippers themselves). The freight is unloaded and sorted by destination and other transport documents such as weight, dimensions, number of parts, and freight type. The airline calculates tariffs and prepares a flight ticket to check the items to be handled subsequently. Bulk cargo is stacked or consolidated in a pallet covered container and straps. For each destination, direct flights are not always accessible, enabling the cargo to be delivered to an airport hub and then discharged, sorted and rebuilt to the cargo terminal before being shipped to the destination airport. Once it reaches its destination airport, it is confirmed and transferred by local freight forwarders to a warehouse for shipment or pick-up by consignors. (Feng, Li, & Shen, 2015).

It is the responsibility of the air cargo supply chain to articulate airfreight flows, both physical and documentary. One of the air freight features is the impossibility of associating the products directly as consumers. The user of air freight transport is therefore understood as anyone requiring air freight transportation. The loader represents the user at the source and the consignee at the destination for nomenclature purposes (Larrodeé, Muerza, & Villagrasa, 2018).

2.3. Airline Diversification Strategy

Strategies for airline diversification included cargo, maintenance repair, and overhaul (MRO), catering, IT and recreation/travel organizations (Jenkins et al., 2012; O'Connell, 2007; Suen, 2002). About diversification in the airport sector, the passenger operation is carried out by the company unit for service alignment. Unused belly-hold capacity was seeking as a direct product of the airline with some diversifying such as cargo. Diversification of the airline group is the reasons tightly connected with strategic market placement and development. The strategic advantages of diversification advantages can be officially broken down into financial risk mitigation, power of commercialization, and gaining expertise (Redpath, O'Connell, & Warnock-Smith, 2017).

Airline company models and passenger and cargo typologies are generally addressed separately. Passenger business models recognize that, about their passenger activities, some carriers can carry cargo. At the same moment, combination carriers merge cargo with passenger activities as a sort of air cargo carrier. There is thus an interface between the business models of air passenger and air cargo airline. A business model's description must capture all appropriate from operations that affect its competitive market position. (Lange, 2019).

2.4. Air Cargo Terminal

The airport terminals are provided with trucks before cargo is transferred to the aircraft and then for inspection unloaded, data verification, sorting and packing. This method includes decision-making issues related to plan and schedule of workforces, cargo handling, and truck arrival, as well as air cargo terminal unloading management, all interdependent. Sometimes airlines need the services of other terminal operators, such as Hong Kong Air Cargo Terminals and Singapore Airport Terminal Services Limited, in particular for global freight. (Feng et al., 2015).

Airports are a significant connection in the air freight system, providing an interface between surface transport and aircraft operations. Airports provide the connection between ground transport and activity and aircraft operations to a significant link within the air cargo system. ((Morrell, 2012).

2.5. Airport and Airline Revenue-Sharing

Fu and Zhang (2010) evaluate different types of provisions for airports and airlines share income. They discover that the impacts of such vertical interactions on competition and welfare rely on the airline market structure. One of their results is that the incentive to co-operate with this dominant airline at the expense of other air carriers exists when an airline is of significant competitive advantage over other airlines.

The concept is to have a competitive advantage in terms of concession sales for a share that can internalize the external demand and profit between air services and concession from the growth of manufacturing by earning more revenue from concessions. Concession services are also a competitive advantage. Because dominant airlines are better able to take advantage of airports are more likely to cooperate with such a competitive advantage. Overall, Fu and Zhang discover that a source of welfare benefits can be revenue sharing and other types of collaboration between airlines and airports. This can, however, have an adverse impact on competition from airlines.

2.6. Capital Budgeting

Capital Budgeting, or investment evaluation, is the scheduling method used to establish if long-term investments for an organization such as new equipment, replacement equipment, new crops, new products, and research development initiatives are worth money financing through the company's capitalization framework. It is the method of allocating significant capital or investment resources to spend. One of the main goals of capital budgeting investment is to raise the value of the firm to shareholders.

Net Present Value (NPV) and Internal Rate of Return (IRR) are two of the most significant criteria for selecting between capital investment projects. In many conditions, both approaches rank a selection of investment project in the same order. However, under certain circumstances, the two methods provide distinct rankings. If mutually exclusive projects, a distinction between the rankings means recommendations for the best project being inconsistent.

The Net Present Value (NPV) method calculates the net currency benefit or project loss anticipated by using the required return rate to discount all expected future cash inflows and cash outflows to the present time point. The project NPV is the total of the Present Value (PV) of all the inflows of cash and outflows of cash from the development to production phases of a project. NPV from a project is calculated by calculating the present value from the net cash flow obtained from the operation using the desired advantage level and then reducing it with initial cash expenditure (Ross, Westerfield & Jaffe, 2015).

The fundamental reason behind the IRR is that it attempts to discover a number that sums up the value of a project. This figure does not rely on the capital market interest rate. It is why it is called the Internal Return Rate; the amount is inner or intrinsic to the project and depends on nothing, but the project's money flows. The IRR is usually the speed at which the NPV of the project is zero. (Ross, Westerfield & Jaffe, 2015).

2.7. Scenario Analysis

Damodaran (2002) states that in all probable circumstances or the most probable, the anticipated cash flows can be predicted to value risk by a weighted average probability. The expected cash flows are evaluated under different scenarios in scenario analysis, to gain a better sense of the effect of uncertainty on value.

Ross, Westerfield, and Jaffe (2015) also point to scenario analysis as a variant of sensitivity analysis. While sensitivity analysis is likely the most commonly used method of risk analysis, there are limits. Under this situation, the probability would be zero for high or low sales and input expenses. Also, to see the combined impact of modifications, more than one variable is helpful now. These extensions are provided by the scenario assessment—it offers the chance of changes in essential factors. In the scenario analysis, the evaluation starts with the fundamental situation or most probably set of values of input factors.

3. Methodological Approach

The research framework of this study is shown in Figure 2. The idea of the design of exploratory research is adopted in this study. The objective of exploratory research design, based on Malhotra (2007), is developing original ideas and provide guidance for further studies with goals/data to be approached through further studies while obtaining

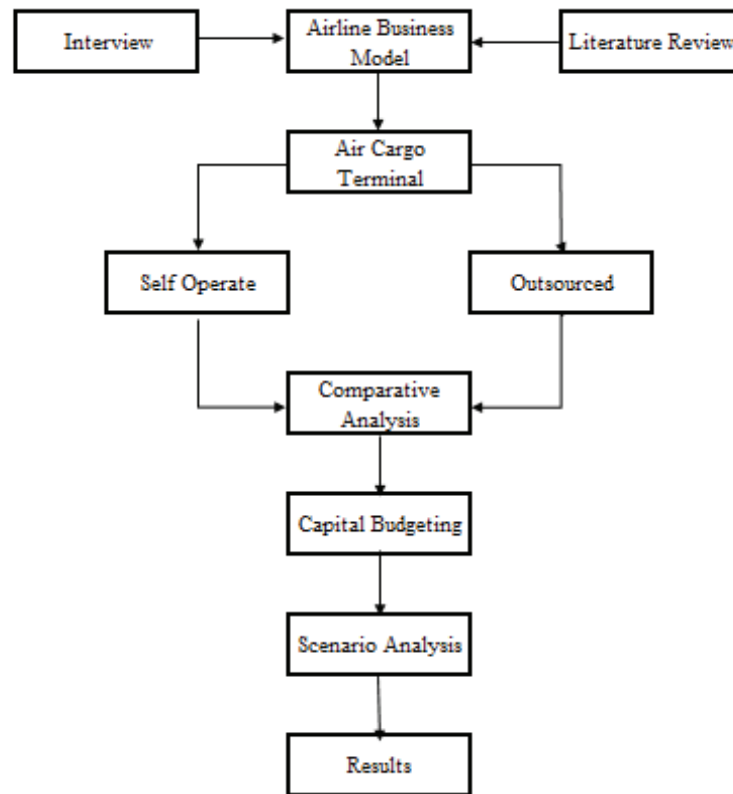


Figure 2: Research framework (Source: Author's Work).

views and measuring variables within the study is the aim of descriptive research. Before the topic is selected, the exploratory research design is used by arranging some interview sessions with employees to identify the existing problem and followed by some supported literature review.

Comparative analysis done to supported between two scenarios that are self-operate and outsource to the third party with financial analysis method. Capital budgeting, followed by scenario analysis, will help us for the financial method. And after that, simulate scenario methods has to be done to find the best options to be chosen.

The data collection that can be earned during the research such as interview with the expert, literature review, financial data, and other supporting data. The general steps that will be done in this research are financial analysis, comparative study, and scenario analysis.

Concession sharing is the portion of revenue sharing from the total of warehouse revenue that the company gets from the handling activity. The concession is also a replacement cost for rental fees charged by the airport regulator. From the internal data, concession sharing will be determined early when the contract will be made.

Concession sharing scenario is also the revenue sharing scheme between airlines and airport regulator.

The assumptions used to create a projection for both conditions that are existing and if the business model outsources to the third party — the financial projection, including the projection of revenue and cost. The projection for warehouse revenue in both conditions will be based on growth on labor plus the inflation rate which is summed of the growing traffic plus inflation rate. For both conditions, the projection will provide for the next five years. The growth of traffic data was coming from the internal data of the airport regulator. From the perspective of the cost, the projection will be based on the increase of labor rate, utility rate, and maintenance rate that already determined. The fixed asset's market price is identical to the book value.

The assumption on growth labor was created based on the growth of the traffic per year. The same premise applied to growth utility, raw material, and another cost that is used an increase in traffic. The inflation rate itself was an average inflation rate. Cost of Capital obtained from the average interest rate from bank financing using foreign currency. For the percentage of tax, it refers to the applicable provisions. In terms of depreciation, the economic value of an investment in this project was five years, and it will use the straight-line method. Therefore, it shows the percentage of depreciation expense.

Talking about the warehouse business in air cargo terminal operator, the main business of the activity is to provide services of cargo handling. The services are including providing area and building to storing the cargo, handling process, which is acceptance and movement, and document handling. Each of these activities will be a charge to the shipper or consignee. In this research, warehouse revenue will be focused whereabouts to provide a storage area for the cargo.

To calculate the warehouse revenue, first, calculate the volume of the cargo. The amount itself is the quantity of three-dimensional space from the multiplied calculation of length, width, and height. The second step is to count the days settled in the warehouse. And for the result, it will be multiplied by the rate per volume kilograms. The rate to be used is progressive depends on the days spent in the warehouse.

Apart from that general assumption, these assumptions used as well for the outsourced condition. When the activities are outsourced to the third party, it should be giving the portion of revenue sharing to the third party. In this research, scheme used for determining the proportion of revenue sharing to the third parties within the next five years. The scenario is 50% of the total warehouse revenue. The net revenue that

gains from the warehouse activity, revenue sharing will be deducted from the total warehouse revenue after it has deducted from the concession sharing. In this study, this assumption will be applied to calculate all the revenue sharing scheme if the business will be outsourced to the third party.

Financial analysis will be conducted to support and reassure conformity of the business models. Financial analysis is undertaken in stages as follows:

1. Provide the financial statement from historical data of warehouse business, which is an existing condition.
2. Create a financial projection of the existing condition for the next five years
3. Create a financial projection of airline if the business outsources to the third party
4. Put the initial investment cost for the existing and outsource condition.
5. Create the project cash flow for both situations.
6. The estimated cash flow is evaluated by calculating the Net Present Value (NPV) and Interest Rate of Return (IRR).
7. Analyze the result.

After the result arising from the calculation of financial analysis. Comparing for both situations and decide which is the situation that should pick. The comparison of cost and benefit analysis between an existing business model with an alternative business model which is outsourced to the third party will be made.

Three main scenarios will be used to analyze the sensitivity that is pessimistic, base, and optimistic. In this section, the four variables will be changed, which are traffic, price, the variable cost, and fixed cost. Herewith the assumptions which will be used for scenario analysis.

TABLE 1: Assumptions for scenario analysis

Range of Value +/-	10%		
Variable	Pessimistic	Base	Optimistic
Traffic (Kg)	232.036.603	257.818.448	283.600.293
Price (IDR)	1.134	1.260	1.386
Variable Cost (IDR)	844	767	690
Fixed Cost (IDR)	49.217.558.324	44.743.234.840	40.268.911.356

(Source: Author's Work)

4. Result and Analysis

4.1. Analysis of business model

Garuda Indonesia is one of the airline's companies that has a license to do cargo operation activities. It provides delivery services, including managing cargo receive from the shipper and process it to destination. Also, management of the arrival shipment from origin station which will be processed by the consignee. All the process is located on an air cargo terminal or can be reported as a warehouse. Garuda Indonesia was managing its warehouse specifically in Cengkareng station, including import, export, rush handling, transit activity.

In every business, to get profit as the bottom line, revenue can be produced by lower price, the same concept applies for this study. Income can be generated by the calculation of warehouse revenue obtained from how many days the shipment stays in GA warehouse multiplied by volume weight and the rate per each kilogram. The tonnage calculated based on volume weight, so not only considering the gross weight but also the scale of the shipment. It was necessary because the volume will consume space in the warehouse.

4.2. The outcome of data processing

4.2.1. Financial data in existing condition

1. Revenue dynamic

Revenue can be generated by the calculation of warehouse revenue obtained from how many days the shipment stays in GA warehouse multiplied by volume weight and the rate per each kilogram. The tonnage calculated based on volume weight, so not only considering the gross weight but also the scale of the shipment. It was necessary because the volume will consume our space in the warehouse.

2. Cost dynamic

There was a significant impact of decreasing user charges cost because there is a contract with another party but only in human resource management. Contract only including domestic import transaction, which is part of the whole process.

4.2.2. Financial projection of existing condition

1. Revenue projection

With the assumption of traffic growth per each year and calculated the projection for the next consecutive five years. After that, calculated based on that data. The company will fully recognize the revenue.

2. Cost projection

The expenses will be expected based on growth utility, raw material, and another cost. For the depreciation, the expense will be expected based on the assumption table. The simulation that already calculated with the same cost structure will be represented as the result.

3. Investment

If Garuda Indonesia self-operate the business with all expenditure borne by Garuda Indonesia. The initial investment and the estimation investment that will be used in projection are needed.

4. The calculation of NPV and IRR projection

After done the calculation the calculation of NPV and IRR will begin for the data of projection. From the result, it shows NPV IDR 34.185.867.375 means the project was accepted and IRR 17% that higher than the cost of capital which is 10%. In this situation, the project was profitable.

4.2.3. Financial projection if the Business outsource to third party

1. Revenue scheme

With the same premise of traffic growth per each year, calculate the projection for the next consecutive five years. With the same premise, if partnership has been done in this business to the third party, this part was not included in the associated revenue. In this condition, scenario will be used in terms of portion revenue sharing to the third party.

2. Cost scheme

If the business was outsourced to another party, the cost will be shared with the partner. The cost structure will not be the same as the existing condition. Recalculate is needed in case to get the cost more accurate data based on the responsibility cost.

3. Investment

Estimation of investment in outsource condition will use the same assumption as the existing condition.

4. The calculation of NPV and IRR

After the calculation is done, the next step is to work out the calculation of NPV and IRR of data projection. From the result, it shows NPV IDR 150.685.802.278 means the project was accepted and IRR 36% that higher than the cost of capital which is 10% and the IRR from the projection of existing condition. So, the project was profitable and better than the current situation.

4.3. Comparative study analysis

To solve the research problem mentioned above and to further prove the benefit of an alternative business model, here are comparative analysis on both business models applied with the existing condition and after it outsources to the third party.

At first, Garuda Indonesia has managed all the process by themselves, including cargo handling process. From the organization reason, Garuda wants to be focused on the core business in cargo, which is to deliver the shipment by the aircraft. Organizations that are too broad and complex tend to be challenging to control. By transforming the organization on the third party, the company can increase the value of services and customer satisfaction. So that operational activities can be more focused and increase effectivity. Other than that, by issuing ineffective actions if done by the company itself, the company can improve operational performance, acquire expertise, capabilities, and technology that cannot be obtained by itself, to improve business management and control, improve risk management, and finally improve credibility and improve company image.

If activities can be transferred to third parties, the investment of new assets can be reduced and moved to the recipient of the job. Corporate cooperation with other parties makes the company have access to markets and business opportunities through its network by other parties. Outsourcing is also a medium for companies to learn and control themselves, for example, by being involved in the capacities, processes, and systems that have been developed in the company. By outsourcing, all activities that are not the company's core activities will not be a burden anymore. All available resources can be mobilized for the core business, such as doing better services to customers and so on.

If the company shifts its activities, the costs incurred can be reduced by controlling the performance of superior service providers and cheaper cost structures, and by diverting fixed costs into variable costs. The use of the third party with a more reasonable cost structure is one of the short-term benefits that can reduce and control the operational costs of the company.

Outsourcing will reduce the need for funds for investments outside of core businesses. It makes capital funds can only be targeted at the core area. Other than that, the results of measuring financial aspects can be improved.

By transferring work to providers of outsourcing services, companies can provide definite career paths to their employees and increase commitment and energy to jobs that do not core work areas. Outsourcing enables companies to focus on their core business on a broader scale. by outsourcing, the company does not have to bother managing administrative and labor issues that arise and can concentrate on the core business that it engages

Outsourcing service provider companies will provide distribution channels to increase company revenue or create new market shares. Also, possible to gain access to the latest technology, tools, and techniques that have never been used before. Companies outsource because they do not have access to resources in their organizations. The inability may be caused by the number of funds that must be spent.

There are often risks faced by companies; outsourcing companies can be more flexible, dynamic, and better. all operational risks faced will be the sole responsibility of the service provider Outsourcing can change the entire relationship between the third party and companies. The relationship that occurs is no longer a short-term relationship but has become an integrated relationship. Outsourcing enables changes and significantly increases the company's business to outperform competitors.

4.4. Scenario analysis

The basis of the scenario analysis that will be run in this section is the variable that will be changed are four variables instead of one variable. The assumption which will be used is the same as the sensitivity analysis. And after that calculate for both condition, which is existing and outsource, so the result will come and create the comparison analysis.

4.4.1. Scenario analysis for existing condition

With the assumption provided, calculate the changes in four variables at once. Thus, analyze the result after that. From the results, only in the pessimistic scenarios, the NPV was a negative value. But for the rest, the NPV have exact values; in case of optimistic scenario, the NPV was very high. They should try to implement it to get more benefit from the business.

4.4.2. Scenario analysis for outsourced condition

With the same assumption provided, calculate once more if the business was outsourced to the third party. Besides, add the portion of revenue sharing and different cost structure. From the conclusion that all the scenarios have a positive value of NPV. The benefit indeed if the business was outsourced to the third party is much better.

4.5. Evaluate business process for outsource

After some financial, comparative, and scenario analysis, the business model that outsource to the third party, gives a specific benefit to the company. Hereafter the evaluation of the business process of outsourced and try to understand the whole business from the risk perspective.

There are some risks category to be faced and can be impacted by losing potential cargo revenue if Garuda Indonesia outsourced the business to the third party as follow: loss on revenue because the service provider cannot meet the procedure, percentage of concession that must be given to the airport regulator can be changed, percentage of revenue sharing to the third party can be changed, failed to achieve the target of reducing time and costs caused the third party unable to meet the Service Level Agreement.

There is a third risk category that must be faced in terms of compliance, such as: contract dispute appears if there are details of work that are not required in the agreement, but suddenly it will be needed when the collaboration takes place; warehouse operators that collaborate with Garuda Indonesia violate the agreement or do not meet the requirements that have been agreed upon in the collaboration resulting in default for them; audit findings exist if there are some contents of the cooperation agreement are not by the Request for Proposal, contract, Service Level Agreement, and business processes

Third risk category was from the quality perspective, such as: loss of ability to exploit new technology because it is less exposed to technological developments and work systems; low quality of activity results; failure of companies to establish collaborative relationships with service providers

From the risk category above, Garuda Indonesia must do risk mitigation as follow: intensely coordinating to make sure they fulfill the obligations.; intensely coordinating so they can earlier detect the possibility of the emergence of factors that can lead to disputes; including some detailed scope of work on the agreement; add dispute settlement clauses in cooperation agreements; maintain the requirements are required from the beginning; make sure all documents that support business process are complete and valid if one day there is an investigation, the records are there; performing routine control with existing human resources to maintain the service and prevent fraud; and scheduling routine internal inspections are a must to maintain the quality and quantity of services.

5. Conclusion and Recommendation

Based on the result of this research, several conclusions can be drawn:

1. In the existing condition, the result for the project all part that will have the NPV shows the positive outcome which is IDR 34.185.867.375 and the IRR is 17% means this business model still give positive impact to the company's profitability.
2. When the projection did if the business outsources to the third party, the result from the condition is the NPV shows the positive outcome which is IDR 150.685.802.278 and the IRR for this condition gives the result 36%. It was higher than the result from the existing situation.
3. Comparing the result of the analysis with the result from the comparative analysis, that if the business were outsourced to the third party gives more benefits from the financial and non-financial perspective.
4. From the result of sensitivity and scenario analysis, for both conditions, business model that outsourced situation has a better value from the existing state.
5. This research utilized the current situation is if Garuda is running the business by themselves and if the company outsourced to the third party. From the positive NPV indicated and the higher IRR comparing to the cost of capital, the business model is financially profitable.

From the result of this research, PT. Garuda Indonesia should consider using out-source scheme in terms of the business model. Also, to increase more benefits from the business model, PT. Garuda Indonesia must add the network from another warehouse operator. So, they can expand the market share through the third party. For the next research, analyze the business model from the operation and marketing perspective can be done. So, it will help to enrich the literature of air cargo business.

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