Implementation of Porter's Generic Strategy in Indonesian MRO Company Post COVID-19 Pandemic

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Abstract

All industrial sectors have been affected by the COVID-19 epidemic. It has a negative influence on the aircraft MRO industry, notably in the aviation industry. The goal of this research is to determine the strategy of aviation MRO companies in Indonesia prior to the COVID-19 epidemic, throughout the pandemic year, and when the pandemic cases started to fall, as well as to understand the influence of this strategy on corporate performance. This study was conducted by directly interviewing the company's Director of Operations. The analysis determined that the company employed a Cost Leadership strategy, and the company's success in winning tenders in 2015, 2018, and 2020 demonstrated that the approach was successful. Due to the dramatic drop in the number of flights in the commercial sector during the early years of the COVID-19 epidemic, the company's emphasis shifted changed from moving in both the commercial and government sectors to moving primarily in the government department. However, after the case of the COVID-19 pandemic has subsided, — for example, after 2021, the company will gradually resume work in the commercial and government sectors.

Keywords
COVID-19, MRO Company, Cost Leadership, SWOT Analysis, Porter's Strategy

1. Introduction

The COVID-19 pandemic in Indonesia is part of the ongoing 2019 coronavirus disease (COVID-19) pandemic worldwide. The first positive case of COVID-19 in Indonesia was detected in March 2020, when two people were confirmed to have contracted it from a Japanese citizen because the government has imposed lockdown measures to limit the spread of the COVID-19 virus. This virus is extremely deadly and can cause death in humans. It also affects numerous activities from various industrial sectors. Because the aviation industry plays such a significant social and commercial role in society today, demand for air transportation is likely to rise substantially as the global economic expansion continues. Even though demand for air transportation is typically seen to be closely related to GDP, the International Air Transport Association (IATA 2016) states that passenger traffic growth has outpaced global GDP over the last nine years(Azka and Nurcahyo 2018).

Indonesia is an archipelagic country with over 17,000 islands, it requires air transportation to facilitate the movement of products and people from one location to another. With the availability of air transportation modes that can be used to promote economic development, civil society, government, defense, and security, as well as corporate demands. According to data acquired from ATAG (Air Transport Action Group) in 2014, a country's GDP can improve by up to 3.5 percent as a direct or indirect result of the industry's existence (Administration 2021; Aviation 2018).

The control of spare parts availability is essential in a variety of industries, including aviation, freight services, and manufacturing. Spare parts are commodities that can be exchanged and maintained in an inventory to be used to replace broken goods or items that need to be replaced in the future. When it comes to spare parts inventory management, the issue is knowing when to deliver a sufficient and efficient supply to support operating and maintenance activities in those industries. Generally, spare parts are quite expensive and have a large expenditure impact when employed as reserve stock, yet they are essential when considering high expenditures such as aircraft cancellations, logistic shipping delays, or power plant shutdowns. Categorizing the sorts of spare parts (SKUs) that can improve spare parts management decisions is one of the most critical issues in spare parts management. The expense of the aviation industry and customer satisfaction are two factors that managers should consider in the aviation sector. One of the aircraft's operational plans is the spare parts component management strategy, which plays a

significant role in efficiency attempts to reduce aircraft operating expenses. A strategy that an aviation planner should consider is the efficiency of management and the availability of spare parts(Nurcahyo et al. 2018).

In Indonesia, MRO's management of airlines as its key clients is still based on tradition, with customers being considered as monarchs and with this philosophy. In Indonesia, MRO firms primarily focus on fulfilling customers using a reactive approach that focuses on customer-specific requests one at a time. As a result, customer happiness is unsatisfactory, as evidenced by the fact that the biggest Customer Satisfaction Index (CSI) MRO in Indonesia has yet to be met in 2016(Nurcahyo et al. 2019)

Maintenance is carried out in all industries with the aim of preventing or reducing the adverse effects that may occur due to failure, as well as maximizing system availability with minimum costs. Regardless of their strategic relevance, maintenance activities are often considered non-core activities in a process that is described by a series of activities that need to be carried out to keep the system functioning properly (Dinis et al., 2019). Can be interpreted that maintenance consists of all actions performed throughout the lifecycle of an item3 to retain it in a functioning state, or to restore it to such state.

Maintenance, Repair, and Overhaul (MRO) are complex, as various regulatory policies, varied customer portfolios, heavy reliance on parts supply chains, human reliance and tight time schedules make it challenging to capture and manage information effectively (Efthymiou et al. 2022). With tight standards defined by airworthiness authorities to ensure the safety of pilots and passengers, the need to trace and validate items in maintenance is of critical relevance for MRO. Based on Vieira and Laures (2016) billions of dollars are spent by airlines to meet specified requirements, which represent the relevant share of their total operating costs. Despite extensive knowledge of the market and processes, MRO services are a relatively unexplored area of aircraft original equipment manufacturers (OEMs).

In 2019 more than half of the demand for aircraft maintenance, repair, and overhaul (MRO) services for the Indonesian market will be met outside the country, an industry group says, pointing to resource constraints from human capital to available land. Indonesia's aircraft maintenance services association (IAMSA) estimated the country's MRO market at around US$1 billion. However, only 45 percent of this demand is handled by local players. The rest of the business goes to neighbors like Singapore, Malaysia, Thailand, and Taiwan. Several local players in the MRO service sector or workshops ensure the safety and feasibility of aircraft for passengers and cargo needs, such as GMF Aero Asia which is made by the government and PT. PEAR is privately owned and others (Mufti, 2019).

Failure to maintain the environmental effect can have a detrimental impact on the firm, such as tarnishing its image, reputation, and stock value, as well as causing boycotts and cancellation of orders from customers. Companies must also be meticulous in their environmental management because their duties do not stop with them; they must also consider the performance of their suppliers.As a result, improvements in business strategy are required to achieve a competitive edge and improve performance, and this has necessitated SCM integration with a new paradigm, particularly with regard to environmental issues (Kamili et al 2020)

The growth and competition of the Indonesian MRO aviation business will be discussed in this paper. The Indonesian MRO aviation company is the subject of this study. This study will not only look at how Porter's generic ideas were implemented but also how the corporation reacted to the COVID-19 outbreak impact and how they innovated.

1.1 Objectives

The following are the objectives of this study:

1. To study how an Indonesian MRO aviation company implements the strategies to ensure the company's success.
2. To determine the impact of COVID-19 on the MRO industry in Indonesia

2. Literature Review

2.1 Company Profile

PT. Putra Elang Angkasaraya is a MRO (Maintenance Repair Overhaul) company in the aviation industry that handles radio, instruments, accessories, airframes, and engines, also Aeronautical Products Distributor, thus enabling us to

supply competitively priced parts and components for commercial and military purposes. PT.PutraElang Angkasarayawas known as PT. PEAR, the company commenced its operation since 1997 to perform repairs for Avionics, Electrical, and Instrument components. For over 13 years this company has been serving the aviation industry with one goal in mind; to build a reputation of excellence in services.

The company has the AMO (Approved Maintenance Organization) certificate Number 145/43500 from DGCA of the Department of Transportation of the Republic of Indonesia, which means it can operate as an approved maintenance organization with the following ratings:

1. Limited Airframe
2. Limited Powerplants
3. Limited Propellers
4. Limited Radio Equipment
5. Limited Instrument
6. Limited Accessories

Another DGCA Approval empowers us to operate as an Aeronautical Products Distributor, thus enabling us to supply competitively priced parts and components for commercial and military purposes. Providing a range of services including repair, overhaul, modification, exchange, part sales, consignment, and rental. PT. PEAR now operates over more than 6,500-sq feet of combined workshops and office space with more than 30 employees.

Following our goal, we have developed into a multi-dimensional company providing a variety of services to meet our customers' needs. These services include providing quality radio and instrumentation to the general/ corporate aviation and helicopter markets through both outright and exchange sales as well as providing efficient, single-source management of component repairs and overhauls through our approved repair shop.

2.2 Maintenance, Repair and Overhaul (MRO)

Several organizations and individuals are accountable for an aircraft's flight performance in industrial aviation. The responsibility is not only on the operator's performance in flying the plane but also on how the plane's performance affects the safety of its passengers. Aircraft operators, aircraft manufacturers, aircraft spare parts providers (known as OEMs), and many partners selected to carry out maintenance, repair, and overhaul are among the primary stakeholders who play a vital role in executing a program (known as MRO). MRO is described as any activity aimed toward retaining or finding an object or identifying a location where a required job may be completed. As well as being referred to as a combination of administrative activities (Vieira and Laures 2016).

The aviation MRO industry, as the acronym implies, is a business that provides aircraft maintenance, repair, and overhaul services. With numerous intermediates and multiple parties sharing data, the maintenance sector is highly complex, requiring excellent data security. A big possibility for aircraft performance improvement is vastly enhanced data storage and communication technology. Furthermore, counterfeit parts in the airplane parts supply chain jeopardize safety. Maintenance is critical in ensuring product availability, reliability, and quality. It also addresses the standards for product safety. When an aircraft has been used multiple times, repairs are required because one or more components may have reached their end of service life. Some routine maintenance work carried out by aviation maintenance technicians are cleaning aircraft components, application of corrosion preventive compound, lubricating parts, etc. Table 1 represents different types of aircraft repairing.

Table 1. Types of Aircraft Repairing

Type of repair	Definition
Structural repairs	Repairs are made to aircraft that have sustained damage to the structure.
Component repairs	Repairs range from simple part replacement to an entire aircraft overhaul.
Systems repairs	Repairs are made to the aircraft systems, simply consist of replacing a part or component.
Engine repairs	Repairs are made to the engine, such a limited repair to the engine on the aircraft or a component replacement

Avionics repairs	Repairs are made for delicate circuit boards and small fragile electrical or electronic part on the aircraft.

Source: http://www.aviation-safety-bureau.com/

An overhaul is the process of disassembling the engine to have an insight into the problem. MRO business includes a varied range of services to customers. These can be divided into five sections. Line maintenance, Base maintenance, Engine maintenance, Spares, rotatable support, and aircraft modification. Aircraft end operators should be able to recognize which activities are the core business and on the other hand which activities can be outsourced to MRO companies (Dinis et al 2019**;** Sivusuo and Takala 2016). Based on Aviation Safety Bureau (ASB) explain there are several types of repairs that can be made, which can be seen in table 1.

2.3 Porter Generic Strategies: Cost Leadership

Strategy is an important factor for the success of any organization. It is defined as the relationship between goals and objectives and specific actions and means to achieve those planned goals. Michael Porter proposed three generic competitive strategies for outperforming other organizations in a particular industry. The strategies consist of cost leadership, differentiation, and focus. These strategies are called generic because they can be pursued by any type or size of a business firm, even by non-for-profit organizations (Porter 1985). This study will focus on a cost leadership strategy that is implemented by a MRO company in Indonesia.

Cost leadership strategy allows the company to earn higher than average profits because products can be sold at an average price but the profit margin at the lower costs is greater. When a company employs a cost leadership strategy, the company must be careful not to use aggressive price-cutting to reduce their profits losses due to low profits obtained. A successful cost leadership strategy typically permeates the entire company, as evidenced by the achievement of high efficiency, low overhead, limited facilities, waste intolerance, intensive budget screening request, a wide span of control, reward associated with cost control, and broad employee participation in cost control efforts. Some of the risks of pursuing a cost leadership strategy are that competitors may imitate the strategy, thereby lowering overall industry profits, or that buyer's interest may shift to a differentiating feature other than price (Wheelen and Hunger 2012; David 2011).

3.Methods

In this study, the methodology used consists of collecting data from scientific articles, websites, the latest company profiles, and interviews with related parties who represent the company. Based on the data obtained, a swot analysis was carried out to find out how the strength and weaknesses were in the company's internal, and opportunities and threats based on the company's external conditions. The research method used is a qualitative study method using the results of interviews to see the strategies implemented in the company before, during, and after COVID-19. The data obtained from interviews are also used as a basis for analyzing the company's industry and how its competitive environment is. This study also looks at how cost leadership performance is applied in the company to attract its customers. Various indicators can be identified clearly and placed in categories such as strength and weakness and opportunity and company threats, not only as indicators of the internal and external environment. Eventually, this study also sees how the strategies implemented by PT. PEAR before, during, and after the covid-19 outbreak.

4. Data Collection

To meet the data needs needed in writing the paper, a list of this company's customers and the services used are shown in Table 2. Figure 1 shows the operational areas of this company.

Table 2. Company Customers

No	Customer	Repairing	Procuring	Total
1.	Air Marshal	41	39	80
2.	PUSPENERBAD	28	15	43
3	BASARNAS	38	22	60
4.	PUSPENERBAL	48	17	65
5.	TNI AU	8	13	21
6.	Others	10	8	18

Source: Company data

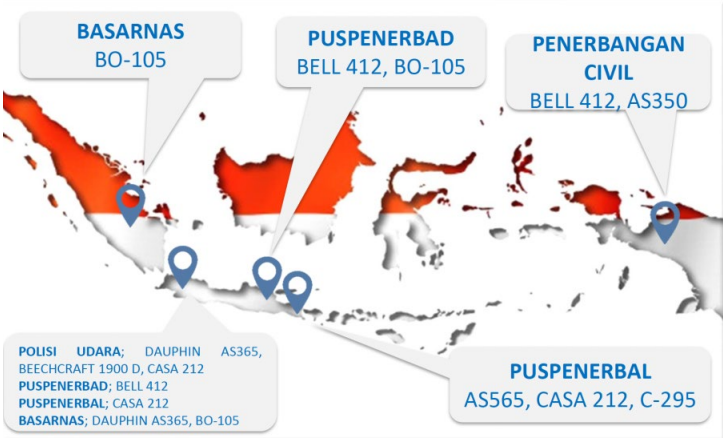

Figure 1. Company Operational Area

5. Results and Discussion

5.1 SWOT Analysis

SWOT analysis (strengths, weaknesses, opportunities, and threats) is a framework for assessing a company's competitive position and developing strategic plans. Internal and external elements, as well as existing and future possibilities, are all evaluated in a SWOT analysis.

A SWOT analysis is a tool for taking a realistic, fact-based, data-driven look at an organization's, initiative's, or industry's strengths and weaknesses. The organization must maintain the accuracy of the study by avoiding preconceived notions or gray zones and instead focus on real-world scenarios. It should be used as a recommendation rather than a prescription by businesses. The SWOT analysis data was obtained through direct interviews with the company, the following is the SWOT analysis data

Table 3. SWOT Analysis

Strength	Weakness
1. Employ certified employee	1. Require large capital

2. The cost of the service offered is affordable 3. Unlimited operational area 4. This company is under the auspices of a reputable group	2. Difficult to find suppliers because spare parts come from abroad 3. Haven't internationally certified 4. Limited ability (based on the certificate held)
Opportunity	Threat
1. Has a large market share 2. Indonesia is an archipelagic country where transportation mobility is faster using air transportation so the need for aircraft repairs is directly proportional 3. MRO is a growing business 4. MRO facilities in Indonesia are still limited	1. Spare parts depend on foreign manufacturers 2. Factory closed 3. Applicable regulations

As can be seen in Table 3, this company has four strengths, including internal strengths such as having a certified workforce to produce optimal product quality, the second being that the treatments offered by this company are equivalent with the price because the costs are reasonable, the third being that it has five operational areas spread across three Indonesian islands, and the fourth being that it is a subsidiary of a group. The four weaknesses in this company are that aircraft spare parts have a very high price, so it requires large capital to start this business, then the second is that apart from being expensive, these aircraft spare parts come from abroad so it is very difficult to obtain, then the third is that this company has not been able to repair aircraft outside Indonesia because it does not have an international certificate, and the last is that not all aircraft can be repaired, because repairing an aircraft requires a special license for the aircraft itself.

Since Indonesia is an archipelagic country with over 17,000 islands, the fastest mode of transportation is by air. Considering Indonesia's aviation MRO industry is still in its early stages, there are numerous potential business prospects or chances to be investigated. The last one is related to Indonesia's still-developing aircraft MRO business;therefore, these MRO facilities are still limited, allowing earnings to grow in tandem with the completeness of the aviation MRO facilities. This company does not produce its own spare parts; therefore, this company is very dependent on foreign manufacturers, which is where this poses a threat to this company, and also if the applicable regulations are not in accordance with the running of the company, then the factory is closed.

5.2 Porter Generic Strategy: Cost Leadership

Implementing a cost leadership strategy in a company aimed to achieve a competitive advantage over the competing companies. The use of cost leadership strategy in a company by offering valuable prices to attract a wider market. Based on the author's analysis, the implementation of cost leadership in PT PEAR enabled them to win several tenders for aircraft repair and maintenance held by government agencies. It happened because of PT. PEAR offers lower services fees than its competitors and has suitable characteristics proven by several certifications owned by the company. With high competition at the price level, if a company offers a slightly higher price, it will give consumers the possibility to substitute with another company that offers a lower price. About the price offered by PT. PEAR in participating in several tender activities can be seen in Table 4.

Table 4. Company Tender Activities

Project : Trainer aircraft overhaul	
Organizer : Transportation HR Management Agency	**Year :** 2015
Participant Name	Bid price
PT TRIBUANA AEROSPACE	Rp. 1.760.453.900,00
PT. PUTRA ELANG ANGKASARAYA	Rp. 1.802.562.800,00
Advanced Technology Facility	-
PT. BERURI PILAR PERSADA	-
Project :BEECHJET 400XP Aircraft Spare parts Repair	

Organizer : The police of the republic of Indonesia	Year : 2018
Participant Name	Bid Price
PT. PUTRA ELANG ANGKASARAYA	Rp. 354.167.000,00
PT. JACKRON CIPTA SAKINA	Rp. 358.391.000,00
Project : Periodic Inspection (PI) 300 Helicopter Type BO-105 No. Reg HR-1524	
Organizer : National Search and Rescue Agency	**Year :** 2020
Participant Name	Bid. Price
PT. PUTRA ELANG ANGKASARAYA	Rp. 3.090.802.000,00
PT. GUSTI SAKTI MANDIRI	Rp. 3.097.171.550,00
GOLAN JAYA TEKNIK	-
PT. BERURI PILAR PERSADA	-

Source: www.lpse.basarnas.go.id; http://lpse.polri.go.id/; https://lpse.dephub.go.id

5.3 Emerging Strategy Through the Change Due to Covid-19 Outbreaks

According to the findings of direct interviews with one of the firm's directors, the company was engaged in two segments before COVID-19, namely commercial and government, and after COVID-19 entered Indonesia in early 2020, the company focused only on the government sector. This is due to a reduction in commercial flights in Indonesia during the COVID-19 pandemic. As conditions improve, such as the state of the COVID-19 case beginning to deteriorate, this company is gradually moving into the commercial and corporate sectors at the same time.

6. Conclusion

According to the findings of this study, the company developed a cost leadership strategy prior to the pandemic, and there was no disruption phenomenon that required the company to adjust its approach. Market demand and trends are the primary drivers of this strategy.

PT PEAR survived the pandemic in the first year of COVID-19 in 2020, when other companies were struggling to live, by focusing solely on the government, and by executing this approach, the company was able to respond to the opportunities that presented itself. In 2021, PT Putra Elang Angkasaraya added maintenance and repair capabilities to Bell 429, AS 365 N Series, and Beechcraft 1900 D helicopters, demonstrating that this strategy can have a favorable impact on the company's business.

The Indonesian government's priority shift from handling the COVID-19 pandemic to efforts to recover the economy in 2022, when COVID-19 cases began to decline and the country's economy began to recover, had positive implications for companies and the Indonesian aviation industry sector as a whole, so that the aviation MRO industry began to improve. As before the COVID-19 epidemic, this collection of enterprises will gradually refocus on the commercial and government sectors.

This research adds to the existing knowledge base on developing strategies. Finally, this study's limitation is that it only looks at one firm in a group that works in the Indonesian aircraft MRO market. Another concern is that the method used only moderately interviews. As a result, more companies in the aviation MRO industry should be studied for future work.

References

Administration, I. T., *Indonesia-Country Commercial Guide*, Retrieved from International Trade Administration Official Website:https://www.trade.gov/country-commercial-guides/indonesia-aviation, Accessed on April 5, 2022.

Aviation, U., *Aviation Benefits: contributing to global economic prosperity the first of a two-part series sharing excerpts from the Industry High-Level Group (IHLG) report, Aviation Benefits 2017*, Retrieved from Uniting Aviation: https://unitingaviation.com/news/economic-development/aviation-benefits-for-a-better-future/, Accessed on April 5, 2022.

Azka, R., & Nurcahyo, R., Quality Management Strategy for Indonesian Aircraft MRO Companies Based on Kano Model, QFD Matrix, and AHP, *Proceedings of the International Conference on Industrial Engineering and Operations Management* Bandung: IEOM Society, pp. 1544 - 1555, 2018.

David, F. R., *Strategic Management CONCEPTS AND CASES: 13th Edition.* Upper Saddle River, New Jersey 07458: Prentice Hall, 2011.

Dinis, D., Barbosa-Póvoa, A. & Teixeira, Â. P., A supporting framework for maintenance capacity planning and scheduling: Development and application in the aircraft MRO industry, *International Journal of Production Economics*, 2019.

Efthymiou, M., McCarthy, K., Markou, C., & O'Connell, J. F., An Exploratory Research on Blockchain in Aviation: The Case of Maintenance, Repair and Overhaul (MRO) Organizations, *Sustainability*, vol. 14, no. 5, pp. 2643, 2022

Franciscus, F. Review Klaster MRO Di Indonesia dan Strategi Pengembangannya. *JurnalTeknologiKedirgantaraan,* vol. 4, no. 4, , 2019.

Indonesian Ministry of Transportation (Kemenhub), *LayananPengadaanSecaraElektronik*. Retrieved from LPSE Ministry of Transportation Republic of Indonesia: https://www.lpse.basarnas.go.id /eproc4/evaluasi/2483469/pemenang, Accessed on April 10, 2022.

Indonesian Ministry of Transportation (Kemenhub), *LayananPengadaanSecaraElektronik*. Retrieved from LPSE Ministry of Transportation Republic of Indonesia: http://lpse.polri.go.id /eproc4/evaluasi/8872044/pemenang, Accessed on April 10, 2022.

Indonesian Ministry of Transportation (Kemenhub), *LayananPengadaanSecaraElektronik*. Retrieved from LPSE Ministry of Transportation Republic of Indonesia: https://lpse.dephub.go.id/ eproc4/evaluasi/19197114/hasil, Accessed on April 10, 2022.

Kamili, U., Nurcahyo, R., & Farizal., Supply Chain Effect to Environment of Maintenance, Repair and Overhaul (MRO) Industry,*2020 IEEE 7th International Conference on Industrial Engineering and Applications, ICIEA 2020* Bangkok: Institute of Electrical and Electronics Engineers Inc, pp. 469 - 473, 2020

Mufti, R. R., *Neighbors Control Half of Indonesia's $1b Aircraft Maintenance Market*, Retrieved from The Jakarta Post: https://www.thejakartapost.com/news/2019/11/15/neighbors-control-half-of-indonesias-1b-aircraft maintenance-market.html. Accessed on April 10, 2022

Nurcahyo, R., Azka, R., & Wibowo, A., Customer Expectations Analysis on Aircraft Maintenance Outsourcing Companies,*Proceedings of the International Conference on Industrial Engineering and Operations Management*, Bangkok: IEOM Society, pp. 1558 - 1563, 2019.

Nurcahyo, R., Malik, F., & Farizal., Aircraft Spare Parts Inventory Management Using Multi-Criteria Classification With AHP Approach. *IEEE International Conference on Engineering Technologies and Applied Sciences (ICETAS),*Depok: Institute of Electrical and Electronics Engineers Inc, pp. 1558 - 1563, 2018.

Porter, M. E*., Competitive Strategy*, Michigan: Free Press, 1980.

Porter, M. E., *Competitive Advantage: Creating and Sustaining Superior Performance,* New York: The Free Press, 1985.

Sivusuo, J., and Takala, J., Management Changes in MRO Business Through Product Lifecycle, *Management and Production Engineering Review,* vol. 7, pp. 87-93, 2016.

Vieira, Darli R. and Laures, Paula L., *Maintenance, Repair and Overhaul (MRO) Fundamentals and Strategies: An Aeronautical Industry Overview. International Journal of Computer Applications*, vol. 135, no. 12, pp. 21–29, 2016.

Wheelen, T. L., and Hunger, J. D., *Strategic Management and Business Policy: Toward Global Sustainability,* New Jersey: Pearson, 2012.

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