

Customer Expectations Analysis on Aircraft Maintenance Outsourcing Companies

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Abstract

The growing competitiveness and rapid technological innovation has placed tremendous pressure on companies to embrace outsourcing as a corporate strategy. One type of business that uses an outsourcing strategy is aircraft maintenance. The role of customers in the aviation industry is increasingly being highlighted because high quality services are vital to the viability of airlines and are critical to the competitiveness of the aviation industry itself. Application of service quality to identify and analyze the attribute of customer expectations in depth, and if applied optimally, can be used as basic reference for aircraft maintenance, repair and overhaul companies to develop company's strategy.

Keywords

Customer Needs, Aircraft Maintenance, Strategy

1. Introduction

The growing competitiveness and rapid technological innovation has placed tremendous pressure on companies to embrace outsourcing as a corporate strategy. Around 77% of large companies in Europe, Asia, North America and Latin America was using outsource strategy. These companies use outsourcing projects to support functions such as cleaning and catering. In general, outsource strategy is focusing on cost reduction. They realize that non-core functions can be outsourced to utilize the different types of knowledge and expertise available in the industry and enhance their own core competencies. Therefore, they can use their limited resources to focus on their core competencies without sacrificing their performance.

Outsource strategy is also popular in aircraft industry. Currently airlines tend to use outsource strategies for areas that are not their core business, one of which is in the field of aircraft maintenance as it is considered capable of transferring risks associated with regulation and at a reasonable cost (Rieple, 2008; McFadden and Worrells, 2012). FAA (2008) found that airlines allocated an average of 64% of their maintenance costs in 2007, compared to 37% in 1996, for outsourcing aircraft maintenance, covering everything from repairing critical components, such as landing gear and engine repairs and to the structure. Outsourcing MRO allows airlines to avoid significant capital investment in the facilities, equipment and supply of parts and components (Tang and Elias, 2012), therefore airlines with large fleets tend to have their own aircraft maintenance centers rather than airlines with small fleets or low-cost carrier (Phillips, 2008).

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The role of customers in the aviation industry is increasingly being highlighted because high-quality services are critical to airline survival and are critical to the competitiveness of the aviation industry itself. MRO's treatment in

Indonesia for airlines as its main customers is still traditionally, where customers are regarded as kings and with this perspective. MRO companies in Indonesia only focuses on satisfying customers with a reactive system, focusing on customer-specific requests, one-at-a-time. So that this results in inadequate customer satisfaction, indicated by the still not achieving the target of the largest Customer Satisfaction Index (CSI) MRO in Indonesia in 2016. Phillips (2008) described that companies do not only fulfill what the desired or expected customers, but also do corporate strategy planning and management of voice-based resources customers. Therefore, one question arises that the main problem in this research is the analysis of customer needs that have a significant influence in the aircraft maintenance industry.

The main activities involved in aircraft maintenance include service, repair, modification, inspection, inspection and condition determination. The main purpose of aircraft maintenance is to provide full maintenance services for aircraft when required by airlines at minimum cost. MRO can be classified into 5 special segments, namely: engine maintenance, component maintenance, line maintenance, airframe maintenance, and modifications. Maintenance costs for aircraft maintenance for 10-15% of total operating costs of aircraft operators. Many airlines like Air Canada, United Airlines, US Airways, BMI and Thomsonfly have seen outsourcing aircraft maintenance as a major reorganization strategy to reduce costs. Outsourcing of aircraft maintenance is expected to reach 65% of the MRO aircraft budget in 2010. Engine maintenance and component maintenance are the first and second most-outsourced activities respectively, and line maintenance is the least outsource activity (Al-kaabi et al., 2007). The growth of both outsourced maintenance of aircraft and the global MRO aircraft corresponds to the growth of air passengers and air freight as shown in Figure 1 and Figure 3 (IATA, 2007).

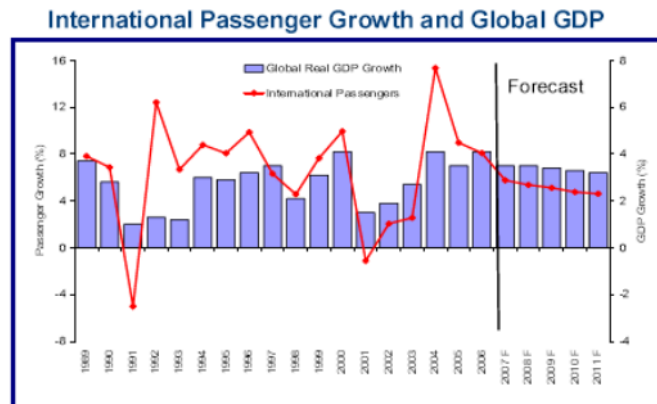


Figure 1. International Passenger Growth and Global GDP

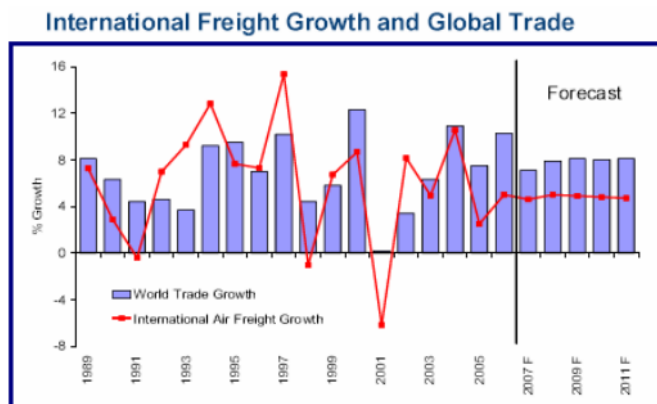


Figure 2. International Freight Growth and Global Trade

Four areas that get the most attention from researchers on aircraft MRO industry: (1) Planning and scheduling; (2) Supply chain dan inventory management; (3) Safety and reliability; (4) Model of aircraft maintenance outsourcing, research on outsourcing aircraft maintenance has not been widely discussed, only in terms of characteristics of global MRO outsourcing; as did Al-kaabi (2007) and Rieple (2008) which discusses the types of outsourcing MRO. Azka and Nurcahyo (2018) have added one research area on aircraft MRO industries which is quality management strategy in aircraft MRO companies. They have proved that the strategies through quality management approach influential to improve product quality and maintain company's competitive advantages.

1 Success 1 product development requires an in-depth knowledge of customers and their needs. According to some studies, product development projects based on carefully determined customer requirements are more likely to succeed than those based on new technological opportunities. In addition, by clarifying and defining customer needs and requests carefully in the early phases of product development, major and timely changes can be avoided in the final stages of development work, which can significantly reduce the total time required for development activities. Understanding customer needs and reactions to product design and marketing is critical to the company. The so-called airlines tend to give aircraft maintenance jobs to MROs in countries with low hourly labor costs (Phillips, 2008). This makes MROs in developing countries have great potential to compete in the global aircraft maintenance market given the 6 mpetitive advantage of developing countries in general one of them is the low-cost labor (Allen, 2017). In fact, 6 actual selection process varies according to the airline and is based on the needs and priorities set by management. Becher, 6 spokesman for Northwest Airlines stated in 2005: "Rather than cost factors, Northwest focuses more on the form of management, control systems and technical capabilities. Therefore, outside vendors undergo a rigorous review before being offered a maintenance contract by Northwest.

The differences of opinion about the most influential factor in the selection of MRO aircraft by an airline. Identifying the needs of current MRO customers and poten 12 customers has been a serious challenge for aircraft repair shops in Indonesia. Therefore, activities where customer needs are collected and analyzed, and it ensures that the company will operate to achieve customer satisfaction, is a process that must be implemented appropriately.

2. Methods

8 The study questionnaire consists of 2 parts; i 8 he first part, demographic characteristics of the respondent, such as airlines, gender, job position, and educati 5. In the second part, the servicee quality (ServQual) questionnaire was used to assess aircraft MRO customer's expectations and perceptions of service quality which included 15 items representing service quality dimensions tangibles (3 items), reliability (3 items), responsiveness (3 items) assurance (3 items) and empathy (3 items). A 9-point Likert-type scale was used, ranging from strongly disagree (1) to strongly agree (9) to access expectations and perceptions of customers toward aircraft MRO.

3. Result and Discussion

This study uses questionnaires distributed to 7 major airlines Indonesia, where the results obtained 30 people who on the job directly related to outsourcing activities aircraft.

Table 1. Correspondents profile

Age	Respondent		Work	Respondent		Education	Respondent	
	Sum	Percentage		Sum	Percentage		Sum	Percentage
20-30	9	30%	0-5	8	27%	Diploma	3	10%
31-40	14	47%	6-10	14	47%	Bachelor	23	77%
41-50	5	17%	11-15	4	13%	Master	4	13%
>51	2	7%	>15	4	13%	Total	30	100%

Total	30	100%	Total	30	100%			
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After processing the data needs of MRO customers in Indonesia with ServQual method, obtained the following results (see Table 2)

Table 2. Customer requirements gap result by ServQual

Category	Customer Requirements	Avg. Expected Condition	Avg. Current Condition	Gap	Avg. Gap/Category
Tangibles	Tools and equipment	6.60	6.07	-0.53	-0.156
	Company General Facility	6.53	7.53	1.00	
	Material availability	6.40	5.47	-0.93	
Assurance	Quality System & Quality Assurance	8.67	8.40	-0.27	-0.222
	Safety compliance	8.60	8.33	-0.27	
	Airworthiness Certification	7.80	7.67	-0.13	
Responsiveness	Company responsiveness	7.73	7.33	-0.40	-0.333
	Warranty	7.60	6.53	-1.07	
	Company flexibility	6.33	6.80	0.47	
Empathy	Information and communication disclosure	7.27	5.93	-1.33	-0.444
	Payment method	6.53	6.40	-0.13	
	Customized Product	6.00	6.13	0.13	
Reliability	Quality of work	8.80	8.07	-0.73	-0.556
	On-time Performance	8.67	7.73	-0.93	
	Troubleshoots	7.40	7.40	0.00	

Based on the Table 2, the needs of the customer that his gap is almost all is negative, only 4 customer needs are positive. But on average each ServQual attribute is a negative number, which means the MRO in Indonesia is considered by the customer has not fulfilled what the airline expected in Indonesia. The next section of this research will discuss each customer's needs on each attribute. The average difference of tangibles attribute is -0.156, which is still negative which means that attribute tangibles are still not fulfill customer expectation. But the minus attribute of tangibles is the smallest when compared with other attributes, even the company general facility is considered the customer has met customer expectations. But material availability still shows a difference of 0.93 which means that there is still a problem of Supply Chain Management that can still be improved on MRO in Indonesia. Meanwhile, the average difference in assurances attribute is -0.222, which is still negative which means that the assurance attributes are still not fulfill customer expectations. The minus attribute of tangibles is relatively small compared to 3 other attributes, but all customer needs included in the assurance attribute are still negative. This indicates that there is still little gap to be closed by MRO in Indonesia in terms of quality system, quality assurance, safety compliance, and airworthiness certification.

The average difference of responsiveness attribute is -0.333, which is still negative which means that the attribute responsiveness is still not fulfill customer expectations. But the minus attribute of tangibles is moderate when compared with other attributes, even company flexibility is considered customer already meet customer expectations. But warranty still shows a difference of -1.07 which means that there are still problems regarding warranty to customers that can still be improved on MRO in Indonesia. Then, the average difference of the empathy attribute is -0.444, which is still negative which means that the empathy attribute is still far below customer expectations. Although customized product has exceeded customer expectations, the average gap of -0.333 is somewhat large, indicating that there is still a problem regarding empathy to customers that can still be improved on MRO in Indonesia.

The last but not least, the average difference of the attribute reliability is -0.556, which is still negative which means that the attribute empathy is still far below customer expectations. Although troubleshoots have matched customer expectations, they are still vulnerable to being below customer expectations. Therefore, being the largest attribute among the other attributes shows that all attributes of reliability, quality of on-time performance work, and troubleshoots on MROs in Indonesia should be prioritized as key attributes that must be promptly corrected if they are to enhance global competitiveness.

4. Conclusion

Through this paper, MRO in Indonesia today when compared with customer expectation, that the 4 customer needs have exceeded customer expectations, but 11 customer needs are still below customer expectations. Even if averaged, all ServQual attributes for MRO in Indonesia are still below customer expectations. This shows the challenge of MRO in Indonesia to be able to increase competitiveness in global level. When analyzed from the results of this ServQual there are two main things that can be the focus of MRO companies in Indonesia that is quality management and supply chain management. Therefore, more in-depth research on quality management and supply chain management based on MRO's customer needs in Indonesia is needed to improve the competitiveness of MRO in Indonesia at global level.

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Biographies

Rahmat Nurcahyo is senior lecturer in Management System in the Industrial Engineering Department, Universitas Indonesia, Depok, Indonesia. He earned Bachelor in Mechanical Engineering Department, Universitas Indonesia, Depok, Indonesia and Masters in University of New South Wales, Australia. Then he obtained his Doctoral degree in Universitas Indonesia. He has published journal and conference papers. Rahmat has completed research projects with Pertamina, PZ Cusson, Indonesia government. His research interests include management system and business management.

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Ramdha Dien Azka is business strategy staff in GMF AeroAsia, Indonesia's MRO company owned by Garuda Indonesia Airlines. He started the career as aircraft maintenance planner, and after one year become part of GMF AeroAsia's 1st generation Management Trainee Program. After He finished the program, now he become a business analyst at Cabin Maintenance Services. He also responsible to analyze optimize, and improve business process related to cabin maintenance. In addition, He responsible to product development and market enhancement of Cabin Maintenance Services. He earned master degree in Industrial Management of Universitas Indonesia, and gained Bachelor Degree of Mechanical Engineering in Universitas Brawijaya.

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