

# Supply Chain Management (SCM), Environmental Factors and Porter Five Forces: A Case Study of Malaysia Airlines Berhad (MAB)

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**Abstract**— This paper examines the supply chain management (SCM) concept and Porter Five Forces which practiced by the Malaysia Airlines Berhad (MAB). Besides that, contingency factors, such as environmental uncertainty and intensity of competition were reviewed to provide an insight study about the environmental influences on the strategies implemented in MAB. Using case study of MAB, this paper highlights that supply chain management need to take into account environmental uncertainty and competition factors to increase the service value in supply chain. This paper uses Porter Five Forces and comparative industry structure analysis to examine the MAB latest market situation and to provide detailed information about the current trend in airline industry. This helps industry practitioners to apply their supply chain management and business models to suit with environmental changes, which, in turn, could assist them in developing more effective and efficient operation and management practices. Overall, this paper emphasizes that SCM and strategies that suit with environmental changes are necessary to be practiced in organization for future planning and development of the organization.

**Keywords**— *Supply chain management (SCM), environmental factors, Porter Five Forces, Malaysia Airlines Berhad (MAB)*

## 1. Introduction

Supply chain management concepts integrate the environmental, social, and economic aspects that allow an organization to achieve long term economic viability in supply chain management [1]. By increasing the product value in supply chain will enhance the product's competitiveness, as well as in services industries, such as, airlines, hotel and banking. By increasing the services quality starting from the beginning of the services process with supply chain management, will enhance the competitive advantages of this organization.

Supply chain management (SCM) includes the movement and storage of raw material from the point of origin to a point of consumption [2]. This supply chain involves the cooperation of interconnected networks, channels, node businesses and markets. The firms realize that in order to evolve, they must develop an efficient and effective supply chain [3]. This starts from markets' research which provides information about the target markets and types of products the consumers prefer.

Supply chain management (SCM) emphasizes that firms need to manage all suppliers back to the point of origin and all products and/or services out to the point of consumption. Management executives would want to manage their supply chains to the point of consumption, because whoever has the relationship with the end user has the power in the supply chain. SCM offers the opportunity to capture the synergy of intra-and intercompany integration and management. In that sense, SCM deals with total business process excellence and represents a new way of managing the business and relationships with other members of the supply chain [4].

Supply chain management (SCM) as one of the important practice in organization to monitor the organizational production process and services to be delivered to the end consumer effectively and efficiently. During the process, environmental factors could not be avoided that these factors had some influences on the final outcome due to the forces in the markets. These environmental factors include uncertainty, competitiveness, dynamism and intensity of competition. Ref. [5] indicated explicitly five forces, thus, new entrants in the markets, buyers, suppliers, competitors, and substitutions. This paper examines the relationship of the supply chain management, environmental factors and Porter Five Forces and bridge the gaps

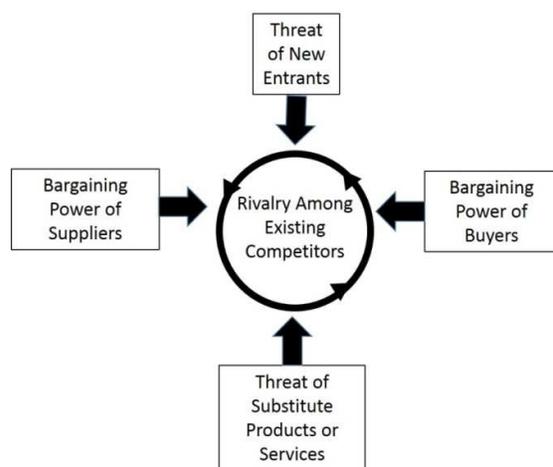
of literature related to these fields. Case study method is applied by studying in depth Malaysia Airlines Berhad (MAB) and its operation and management system.

## 2. Literature Review

### 2.1 Porter Five Forces

Ref. [5] proposed Porter Five Forces strategies with comparative industry structure analysis to study about the industry life cycle and cycles of competition to respond to potential and existing threats within an industry. These five forces are buyers, suppliers, competitors, substitutes and threats of new entrants. Implementation of comparative industry structure analysis requires strong commitment and supportive organizational structure. In the airline industry, different types of actions carried by the organization as part of their overall strategy.

Figure 1: Porter Five Forces (1980)



Source: Ref. [5]

### 2.2 Environmental Uncertainty

Environmental uncertainty is defined as an organization's perceived inability accurately to predict the actions of customers [6]. Environmental uncertainty is instability and discontinuity faced by organizations in the market and the difference between the amount of information obtained and required to perform a task. This environmental uncertainty is unpredictability resulting from the dynamic interaction of multiple variables [7] and as the inability confidently to assign probabilities to

events. 'Environment' encompasses customers, suppliers, competitors, socio-political and technological components [6].

Summarizing the above, environmental uncertainty can be defined as a firm's inability to predict the changes in the environment due to turbulence in market conditions, and a consequent instability in interactions with customers, suppliers, competitors, socio-political and technological components.

Ref. [8] measured the environmental uncertainty of each environmental component (customer, supplier, competitor, socio-political and technological) with Likert scale closed questions and by calculating the mean of each component from the feedback of respondents. Ref. [9] measured environmental uncertainty with five components scored, similarly, on a Likert scale with closed questions: buyers, supplier, competitors, substitute of products and technological change. Reviewing the previous research measurement on environmental uncertainty, it is found that the three components: customers, supplier and competitors were commonly used to measure environmental uncertainty. However, the main ascertained weakness of these instruments is the ignorance of the 'government' element in measuring environmental uncertainty.

The problem is that the environment is usually both dynamic and uncertain. In the Malaysian context, the government can monitor the interest rate, money supply, and taxation rates to influence business activities. In addition, the Malaysian government can also formulate competition policy law, rules or regulations, all of which affect business activities. For example, if the government injects more money into the market, people will have more money in hand and would thus be more likely to spend, and this will stimulate business activities. This means that the government plays a role in influencing the market. Hence, the environmental uncertainty created by the intervention of government in the markets requires the examination of the 'government' indicator to investigate fully the ways in which uncertain environments impact on their business activities.

Environmental uncertainty is determined by the predictability or otherwise of conditions in the organizations environment. Firms' failure to not make correct decisions on environmental uncertainty influences how the firm allocates the resources. Environmental uncertainty needs to be monitored because it plays a significant role in the firm [10]. If an organization incorrectly perceives its environment to be certain and predictable, when it is in fact uncertain, it will affect organization to

allocate its resources (e.g., manpower, raw material and fund) effectively.

### 2.3 Intensity of Competition

Fiercer competition is seen as a way of increasing an organization's effort to outperform its rivals. At the same time, instability and discontinuity of the environment creates threats for firms. Increased competition in terms of cost of products and services indirectly impacts the competitiveness of the organization [11]. In markets that are very competitive, organizations become interested in new tools and techniques to meet customers' demands and to gain market share [12].

Intensity of competition is defined as the amount of competition a firm may face as a result of the instability in variables such as product, technological factor and resources (e.g. capital, manpower and material). Ref. [5] indicated five fundamental competitive forces: new entrants in the markets, buyers, suppliers, competitors, and substitutions. These forces can be studied in order to analyze the environment. Different competitive forces which include stakeholders, competitors and new entrants and other general forces, such as political, economic, socio-cultural and technological factors can influence a business manager to choose one strategy over another [13].

Among the advantages of Porter Five Forces are firms are able to stake out a position in their industries if they aware of these forces. By understanding these forces, firms are able to lower their cost of production with their bargaining ability.

The disadvantages of Porter's Five Forces model are that it is unable to provide a comprehensive description and analysis of all five forces in complicated market structures. Furthermore, it does not provide suggestions for preventive courses of action in dynamic markets due to the volatile changes of markets. Also, it pays too much focus to economic conditions and has limited viability under changed conditions [14]. Finally, this model also ignores the role of government in affecting the market by way of regulations and rules [15]. Ref. [16] indicated that the main role in the leading of the economic revival is played by businessmen and entrepreneurs, with the government only playing supporting role to them.

In the Malaysian context, the Malaysian government can influence the business activities and markets by monitoring the interest rate, money

supply, taxation rates, and also formulates competition policy law, rules or regulations. Under mix economy environment, price, products, industries, technology for production, raw material for production, manpower (skilled and unskilled) and so forth compete with each other and the intensity competition of these factors will impact on business activities. The supply and demand of products are affected by price, products' distribution channels, production-related technology and the other factors. These factors create a competitive situation, that significant influence the market. Competition policy law can also affect airlines business activities. The capabilities of MAB to compete in intensive competitive situations can be increased with government incentives, subsidies and other assistance programs [17]. For example, the Malaysian government subsidized MAB for purchasing new aircrafts and provided incentives to MAB by assisting in production, marketing and human resource training programs [18]. Hence, in the Malaysian context, as government clearly influences business activities, the government's role in the market also calls for close scrutiny.

### 2.4 Significances of Study

Most of the previous research has focused on the effect of the Porter Five Forces on large organizational performance. However, the linkage between supply chain, environmental factors and Porter Five Forces on service industry had remained under-explored. After a thorough search of the literature (with the literature review process consists of literature collection, literature analysis and literature synthesis) on written between 1990 and 2015 on this topic, it was found that there is no previous research known in the past which studies on supply chain-environmental factors-Porter Five Forces by applying case study in service industry. Three research gaps were identified: 1) missing link between supply chain and environmental factors on services industry, 2) lack of research was done on environmental factor and Porter Five Forces using case study approach and 3) 'government' factor was not explicitly studied in Porter Five Forces.

The newness of this research are to link together these three components (supply chain, environmental factors and Porter Five Forces) which have impact on MAB and to examine the 'government' influences on MAB business activities.

### 3. Method

The aim of this conceptual paper is to apply the supply chain management in MAB through evaluation of environmental factors using [5] and come out with suggestive ideas to achieve better performance. In this study, the author used case study method which mainly focuses on factors determination. The author had analyzed the MAB with previous and current data and several suggestions were put forwards.

#### 3.1 Case Study: Malaysia Airlines Berhad (MAB)

The Malaysia Airlines Berhad (MAB), formerly known as Malaysia Airlines System (MAS) was first founded in 1933. MAS commenced operations in 1972 and ceased operations in 31 August 2015. From 1 September 2015 onwards, the new company Malaysia Airlines Berhad (MAB) had carried on the operations of the former MAS. The new Chief Executive Officer (CEO) of MAS, Christoph R. Mueller, had launched series of changes since he became the CEO of MAS. The first change is to remove the invisible bureaucratic networking in the organization. Secondly, to reduce the allowances system and thirdly is to retrench the staff. These new changes are aimed to improve the operations and practices in MAS.

The changes had reflected that he (the CEO of MAS) had carried out plans to repair revenue, optimizing cost and putting in place enablers to facilitate the restructuring effort and to cut off the non-productive practices, reallocate the resources for beneficial projects. This process is painful but this is necessary for restructuring the organization. This process involves deleting those which are unnecessary and remaining those which are beneficial to the organization. MAB disbursed about RM1.3 billion as part of the remaking of the national carrier [19]. In this regard, the organization able to implement new administration system and this enable the organization to continue moving forwards.

Among the challenges being identified for MAS are using old practices in managing complicated resources, lack of sense of emergence and too rely on government and government related agencies' support. The author had provided some suggestions for MAB to overcome the challenges in the last section of this paper.

### 4. Results

The author used Porter Five Forces framework to analyze the current market situation faced by MAB as follows:

#### 4.1 Buyers

The numbers of customers using MAB has decreased drastically since the aviation of MH370 on 8 March 2014 and airplane MH17 crashed on 17 July 2014. MAS first quarter 2014 net loss was RM 443.4 millions (USD138 millions) compared with first quarter 2013 net loss was RM278.8 million (USD87 millions) [20]. It shows that the loss had expanded. Customers were influenced by the rumors and had boycotted the MAB. Sales of air tickets were decreased up to 30% in the same period compared with last year [21].

One of the indicators of environmental uncertainty is buyers (customers). A huge number of buyers in the industry can create high purchase power for products or services. As consequence, environmental uncertainty is increased because of the number of buyers in the market had changed. Number of buyers determines the purchase power and this influences the buying and selling activities in the market.

To retain its customers, MAB had launched promotions and price offers for the air tickets. Buyers are the main sources of profit for business, as well as airline industry. Therefore, buyers have high power in influencing the market price.

#### 4.2 Suppliers

The power of supplier is driven by the number of suppliers of each essential input, uniqueness of the product or service, relative size and strength of the supplier, and cost of switching from one supplier to another.

Since there are only a few fuel organizations in Malaysia and the fuel price is set by the government, for the fuel price, the fuel suppliers do not really has high bargain power in MAB.

Besides the fuel suppliers, MAB also need to handle the catering suppliers well. New MAB starts its catering contract with Brahim's Holding Berhad, with shorter and more compliance terms and lower in price up to 25% [22]. This new contract provides more flexibility to MAB to adjust the plans according to the market demands. Suppliers have moderate power in influencing markets by considering MAB still have many other choices.

**4.3 Competitors**

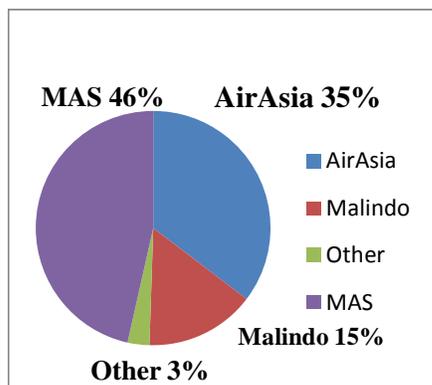
AirAsia and Malindo are among the toughest competitors for MAB. Both AirAsia and Malindo airlines dominant the low cost airlines market by offering lower air fares to all the destinations it served compared to MAB. Bookings and payments can be made through these companies’ own reservations, sales offices and ticketing counters. Figure 2 shows the market shares of some airlines operating in Malaysia. It shows that up to Mar 2014, MAS owned nearly half of the market share with 46%. The second largest market share owned by AirAsia is 35% [23]. This market share had changed slowly with more and more passengers choosing AirAsia. Table 1 shows that MAS carried 22.1 million passengers in 2014, an increase of only 1.3% compared to 2013. This marks by far the slowest growth rate since the airlines launched at the end of 2000. In 2010 to 2013 annual passenger growth ranged from 9.4% to 12.6%. Comparing MAB with AirAsia, AirAsia carried 4.2 million passengers in 2014, an increase of 33.8% compared to 2013. This marked the fastest growth since the airline was established in 2007 [23]. In this regard, competitors have high power in influencing the markets.

**Table 1. MAS and AirAsia No. of Passengers (2013-2014)**

Airlines	2013 (in millions)	2014 (in millions)	Growth rate (2013-2014)
MAS	21.8	22.1	1.3%
AirAsia	3.1	4.2	33.8%

Source: Ref. [23]

**Figure 2: Malaysia Airlines Market Share (Updated in Mar 2014)**



Source: Ref. [23]

**4.4 Substitutes**

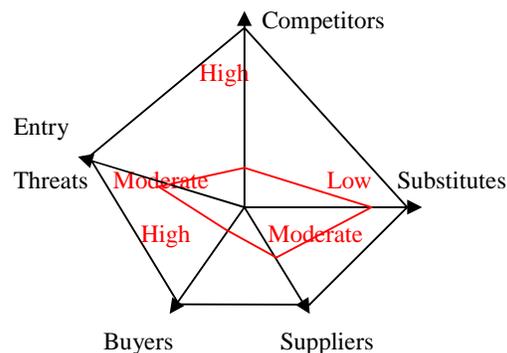
Malaysia Airlines (MAS) had cut off the international seat capacity by about 18% in August 2015 as the ailing flag carrier restructures its network ahead of the 1 September 2015 transition to a new company [24]. For airline industry, substitutes such as rail way, sea way and road way could be arranged to replace the airplanes. Due to times, cost and accessibility constraints, airplane is still the main choice because of some destinations could only be connected by air. Airline industry is characterized by very low or minimal pressure from substitute products due to the role of complements has yet to be tapped fully. Concerning this, substitutes have low power in influencing the airline industry market.

**4.5 Threats of new entrants**

This airline industry has moderate to high barriers of entry. A new small airline serving one or two routes may enter easily. However, research had shown that a larger airline serving multiple routes may be harder [25] to enter. The transformation of present small airlines into a larger airline is probably more likely to be successful as in AirAsia’s case. The major obstacles for new entrants are access to capital and labour.

Besides that, brand name is important to consumers (passengers) nowadays. The incidents of MH370 and MH17 had influenced passengers’ confidences on MAB’s reputation and services quality. Among the MAB restructuring plans implemented since 1 September 2015 was to cut its international seat capacity by about 18% [23]. This gives opportunities for other airlines to promote their routes and services and will threaten MAB. Figure 3 shows the comparative industry structure analysis for MAB.

**Figure 3: Comparative Industry Structure Analysis**



Source: Ref. [26]

Figure 3 provides a framework summarizing the power of five forces on five axes. Power decreases as the axes go outwards. In contrast to that, the power increases as the axes go inwards. When the forces are low, the total area covered by the lines between the axes is large, which means greater potential. When the forces are high, the total area covered by the lines between the axes is small, which means limited potential. If industry analyzed using this comparative industry structure analysis shows large area enclosed by these lines, this gives a good sign for the industry structure. With this analysis model, the red color lines show that MAB has great potential with the total area covered by the lines between axes is small (high buyers power, moderate suppliers power, high competitors power, low substitutes power and moderate threats of new entrants). It suggests an attractive industry and MAB has potential to turn the lost to profit.

The analysis of Porter Five Forces and Comparative Industry Structure analysis had shown that environmental uncertainty and intensity of competition influence supply chain management. MAB faces uncertainties because of different suppliers, competitors and buyers. MAB encounters uncertainties if government and regulators' policies are not favorable to them. Furthermore, MAB also face the intensive competition of existing players, such as financial institutions, labors, stakeholders and other low cost carriers. Ref. [27] discussed about government role in influencing the markets with industrial policies, for example, subsidies, incentives or taxes exemption provided by government. With government's assistance in term of financial supports, training and development programs provided and technology upgrading system had helped MAB to survive in high level of competency markets. This study confirmed that environmental factors have impact on the operation and management of MAB.

## 5. Discussion

The author had suggested some implementation for short and long terms basis. The implementations in short and long term are explained as follows:

For implementation in short term, MAB needs to improve their operation system. They can recruit experienced employees in order to help improves the management within MAB. The new CEO of MAB, Christoph R. Mueller had started a few strategies to restructure the operation and management practices in MAB. Among them were

to retrench up to 6,000 staff [19] in order to save cost, eliminate non-profitable routes and to reduce cost for catering contracts.

Retrenchment had created claims by some of the staff saying that MAB do not concern for their staff. To solve this, understanding between company and workers are important. Company should always communicate with their workers such as find out the best solution to overcome this issue and at the same time ensure the rights of the related parties not being exploited. The top level management executives should sit down and discuss with the employees about their requests and expectations, and try to find a solution to solve the problems.

Over supply of employees in MAB had become one of the main operation costs, especially when MAB was under restructuring process. Uncertainties occurred due to changes of employees, schedules, duties and flights frequency had influenced MAB overall performance. To overcome these problems, MAB management need to provide equal retrenchment packages to employees who were retrenched to assist them to start their new career in other organizations. For the remained employees, MAB need to practice efficient and effective management process to increase employees satisfaction and they will feel highly appreciated. This will motivate them to work harder and this lead to MAB better performance.

In the long term, MAB need to organize meetings between top level management executives and the employees frequently to inform the new information or policy of company to the employees. Through the meetings, employees will know what MAB is doing recently and they can also contribute their ideas and suggestions to the company because these employees involve in front lines operations. Some of these employees might have known better the wants and needs from the passengers and they can convey these messages to the top management. This can help the management to improve and review the current operations from time to time to suit with the customers' demand and situational changes.

Additionally, MAB need to put comprehensive efforts to reset the operating business, including more than 100 projects aimed at resetting the operating business mode [19]. The non-profitable routes need to be suspended and introduce new profitable routes. The competitor, AirAsia had launched new direct flights from Kuala Lumpur to some of the tourists' destinations in the world, such as Gold Coast (Australia), Guilin (China), Yogyakarta (Indonesia) and Pattaya (Thailand). Comparing with MAB, it does not

provide direct flights to these mentioned tourists' destinations. For long term planning, MAB needs to consider about the potential of some tourists' destinations which can attract more passengers to board on the flights.

Besides that, MAB can form a committee to search the new investment to reduce the operation cost, to research and monitor the investment plans. This committee is encouraged to do market research and find the strategies to increase profits and reduce wastage and cost. This includes bring in and trained up skillful and experienced employees, maintain the advanced computerized systems and operations and also implement Total Quality Management (TQM) system in management and administration. In this regard, MAB can be competitive and do better than the other competitors in the airline industry.

## 6. Conclusion

The main aim of MAB is to become a sustainably profitable, principally commercial national carrier that supports national development objectives, while remaining a full service international airline that maintains its current domestic routes and a regional backbone with broad global connectivity through partnerships.

Success depends on many factors, including staff (as the assets of the company), opportunities available in the markets and efforts contributed by employer and employees to the company. Furthermore, the supply chain management, management and administration systems influence the operations of the company. This is because these systems guide the productivity and performance of the staff and directly affect the company.

The current management and administration system in MAS is no more competitive with the rapid changes in the business environment, especially in the airline industry. Threats from the low cost airlines, application of high technology in aircraft, fluctuation of cruel oil prices and exchange rate had created many challenges for airline industry. This further influences the efficiency and effectiveness of management process and cost control of the organization.

As the leading industry in Malaysia, MAS management need to suit with the changes of the business environment in order to increase the service quality, to restructure the organization to achieve improvement in management and administration. This will lead to competitive

advantages of MAS in competing with other airlines in the world. An integrated organization which emphasizes on supply chain management, where attentions were paid starting from the beginning of the process till the end of the process is a well-planned company with efficient resources and systematics management. It is like a completed flower with every petal represented a function of the organization and these functions are interrelated and need to be integrated to produce quality products or services.

This paper had answered the research gaps that were identified in section 2.4. It had incorporated environmental uncertainty and intensity of competition aspects which related to Porter Five Forces and comparative industry structure into supply chain management. This had provided significant contributions to supply chain management literature, particularly for service industry. Furthermore, this conceptual paper also beneficial to industry practitioners to assist them in decision making process with the information obtained. It also set as a stage for addressing the other issues related with supply chain management, such as supply chain management performance evaluation and decision modelling.

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