

Swot Analysis of Game Theory in Global Airline Collaborations

Burcu GUN AKSOY

İnönü Üniversitesi, İktisat ABD Doktora Öğrencisi

Geliş Tarihi/Received: 02.11.2024

Kabul Tarihi/Accepted: 30.01.2025

e-Yayın/e-Printed: 31.01.2025

ABSTRACT

In oligopoly markets where there is high competition, ensuring the profitability and continuity of the company requires very critical decisions, and the companies in this market develop various methods to cope with intense competition. Airlines, which constitute one of the most important components of the aviation industry, are also in a structure that has to develop strategies for their competitors in oligopolistic market conditions. The moves made by airlines in the name of profitability and continuity affect not only these companies, but also the success of the aviation industry and the national economy. The aim of this study is to examine the strategies used by airlines on a global scale and to evaluate the effectiveness of these strategies. In this direction, "global airline collaborations", "frequent flyer programs", "overbook" and "hub&spoke", which are the four important competitive strategies implemented by airlines, were evaluated by associating them with game theory. In the study, the strengths and weaknesses of these four strategies, the opportunities they provide and the threats they cause were determined by SWOT analysis method. As a result of the evaluation of these strategies according to the dimensions of SWOT analysis, some conclusions and recommendations have been developed.

Keywords: Competition, Game Theory, Aviation Industry, SWOT Analysis

Küresel Havayolu İş Birliklerinde Oyun Teorisinin Swot Analizi

ÖZET

Yüksek rekabetin söz konusu olduğu oligopol piyasalarda, firmanın karlılık ve sürekliliğinin sağlanabilmesi çok kritik kararları gerektirmekte, bu piyasada yer alan firmalar yoğun rekabet ile baş edebilmek için çeşitli yöntemler geliştirmektedir. Havacılık sektörünün en önemli bileşenlerinden birisini oluşturan havayolları da, oligopolistik piyasa şartlarında rakiplerine yönelik stratejiler geliştirmek zorunda olan bir yapı içerisinde yer almaktadır. Havayollarının karlılık ve süreklilik adına yaptığı hamleler sadece bu firmaları değil, aynı zamanda havacılık sektörünün ve ulusal ekonominin de başarısını etkilemektedir. Bu çalışmanın amacı, küresel ölçekte havayollarının kullandığı stratejileri incelemek ve bu stratejilerin etkinliğini değerlendirmektir. Bu doğrultuda, havayollarının uyguladığı dört önemli rekabet stratejisi olan "küresel havayolu işbirlikleri", "sık uçan yolcu programları", "overbook" ve "hub&spoke" oyun teorisi ile ilişkilendirilerek değerlendirilmiştir. Çalışmada SWOT analizi yöntemi ile uygulanan bu dört stratejinin güçlü ve zayıf yönleri ile kazandırdıkları fırsatlar ve neden oldukları tehditler belirlenmiştir. Bu stratejilerin SWOT analizi boyutlarına göre değerlendirilmesi neticesinde bir takım çıkarımlar ve öneriler geliştirilmiştir.

Anahtar Kelimeler: Rekabet, Oyun Teorisi, Havacılık Sektörü, SWOT Analiz

INTROUCTION

Competition is a factor that keeps the sectors alive and makes them sustainable. In order to provide sustainable competitive advantage, businesses have now moved away from traditional competitive strategies. They try to predict how their competitors will react to the competitive strategy they will implement by following different and rational strategies. The study includes how innovative, original and rational strategies specific to the aviation industry are implemented and achieved successes.

In the study, in the aviation sector, especially global airline cooperation, were examined based on game theory. It has been determined how the competition is in the airline industry, which is an example of an oligopoly market, and which strategies are applied in this direction. The strategies applied and how successful they are, their predictability by the competitors, the responses given or to be given by the competitors, and the key points and mistakes in strategy implementation are explained in the past and what may happen in the future. Mergers, conflicts, competitive moves, which strategic games are used for competition in the aviation sector and the strengths, weaknesses, opportunities and threats all these provide or cause are explained. All these issues were evaluated under the four headings of "global airline collaborations", "frequent flyer programs", "overbook" and "hub and spoke".

The main purpose of the study is to explain the strategies and mind games applied by airline companies in order to provide sustainable competitive advantage in the aviation sector. In this way, the concept of competition in oligopoly markets has been explained, evaluations have been made about which strategies have been successful in the past and which strategies have made application mistakes. With the SWOT analysis of the study, the strengths and weaknesses of the four strategies applied by the airlines, the opportunities they have and the threats they pose are explained. With the results and findings reached in the study, competitive behaviors based on game theory in the aviation industry and how to achieve sustainable competitive advantage are explained. Due to the scarcity of studies on airline competition strategies, especially in the Turkish literature, it is aimed to contribute to the literature.

The limitations of the study are the lack of online access to some of the books on competition, loss of time due to insufficient stock, difficulty in adapting the game theory to a qualitative study due to the explanation of mostly quantitative and statistical data, and the limited number of examples on overbook and hub and spoke subjects.

Global Airline Alliances

Airlines often enter strategic alliances for various reasons. These partnerships allow them to reduce operational costs, share resources, expand their destination networks, and increase their competitiveness through economies of scale. By pooling knowledge and capabilities with partners, they can mitigate risks, overcome regulatory barriers, and achieve better market penetration and financial returns. Additionally, these collaborations enable airlines to more efficiently manage operational constraints by sharing route rights, increasing capacity, and optimizing resource usage.

For passengers, the benefits of airline alliances are clear: more destination options, smoother connections, and the convenience of earning and using miles across multiple carriers. Moreover, passengers can benefit from increased flight frequencies, lower ticket prices, and special services such as access to airport lounges, priority boarding, and simplified baggage handling. Initially, alliances started with basic code-sharing agreements and evolved into more integrated operations, including shared sales, personnel, and IT systems to further reduce costs (Önen, 2017: 312-313).

Theoretical advantages of alliances for airlines include a strategic response to global competition, the ability to bypass legal restrictions on routes, cost reductions, and greater financial stability. These collaborations also allow airlines to maintain operational flexibility, as partnerships can be easily expanded or dissolved without significant investments (Gelirli, 2002: 23).

In an industry characterized by globalization, airline alliances have become essential to remain competitive. Airlines aim to meet increasing customer demand, leverage economies of scale, and

improve their global market positions. This trend has accelerated due to technological advancements and the need for higher service standards (Binatlı, 2019: 103; Öztürk, 2018: 23-32).

However, these alliances are not without challenges. Legal competition issues may arise, especially on transatlantic routes, and alliances can restrict competition by creating entry barriers for new competitors (Dündar, 2006: 32-34).

Airlines form strategic partnerships to benefit from economies of scale, share costs, resources, and capacity, exchange valuable information with partners, mitigate risks, and take advantage of legal frameworks. They also aim to access more destinations through an extensive flight network. Other key reasons include cost reduction, market expansion, financial inflows, infrastructure improvements, and market stability. Through alliances, airlines can share route rights or slots, increase capacity, enter foreign markets, and capitalize on economies of scale using shared resources. These partnerships also offer benefits to customers by providing more flight options, increased destination access, simplified transfers, and opportunities to accumulate and redeem miles. Additional advantages include more frequent flights, integrated frequent flyer programs, access to first-class services at lower costs, use of exclusive lounges, coordinated flights, and seamless baggage handling. Initially based on code-sharing, airline alliances have evolved to include joint operational processes to further reduce costs (Önen, 2017: 312-313).

The theoretical benefits of alliances for airlines can be summarized as follows:

Strategic alignment with economic globalization, providing access to markets with higher service demands, reshaping competitive environments through collaboration.

By integrating route networks, alliances have the potential to overcome legal limitations that restrict the growth of competitive services.

They facilitate cost savings, more efficient use of operational resources, and better access to capital and profitability.

Partnerships can range from simple agreements to more comprehensive cooperation initiatives, providing flexibility and limited risk (Gelirli, 2002: 23).

As industries, particularly the airline sector, become more globalized, many companies establish alliances to achieve global standards, gain a competitive advantage in international markets, and enhance quality (Binatlı, 2019: 103). Furthermore, increased demand, economies of scale, and enhanced competitiveness are the key drivers behind global airline collaborations (Öztürk, 2018: 23-32).

However, these alliances also pose challenges, such as legal issues related to competition, financial risks that may arise if partnerships dissolve or transition, and potential competition restrictions, especially on shared flight routes. Additionally, they can create entry barriers for new competitors (Dündar, 2006: 32-34).

Frequent Flyer Programs

Customer loyalty refers to a consumer's commitment to a brand or business, resisting competitors, and continuing to choose the same service or product. In today's competitive environment, customer loyalty not only involves repeat purchases but also defending the brand by sharing positive experiences and countering negative opinions. Loyalty manifests in two dimensions: a positive emotional bond with the company and purchasing behavior. The loyalty ladder describes varying levels of loyalty, with the most loyal customers being the most profitable for companies. Airlines particularly value loyalty in business travel, where returns are higher. Frequent flyer programs allow passengers to accumulate points on flights, which can later be used to purchase tickets. The five dimensions of loyalty are: repeated service usage, resistance to switching, positive communication, service identification, and preference for a specific provider.

Introduced in the early 1980s, frequent flyer programs have become one of the most economically significant loyalty programs. Their advantages include:

Encouraging repeat purchases.

Strengthening the bond between passengers and the brand.

Offering upgrades and free tickets as perks.

Promoting brand loyalty through point accumulation.

Providing traditional airlines with a competitive advantage over low-cost carriers.

Helping establish long-term relationships with passengers.

Expanding customer reach by encouraging passengers to bring friends and family, thereby growing the customer base.

Although these programs promote loyalty and aim to maximize market share while minimizing marketing costs, they can also present challenges. For example, passengers often hold multiple memberships with different airlines, complicating the reward system. This has led airlines to develop joint programs, but these tend to be very similar, allowing customers to benefit from several programs without showing strong loyalty to any one airline. Therefore, it is important for frequent flyer programs to make customers feel valued and personalized, requiring a targeted approach to mass strategies at minimal cost (Aydın, 2016: 65-66).

Frequent flyer programs can also backfire due to strategic mistakes. For instance, American Airlines, the pioneer of frequent flyer programs, encountered issues when customers used miles for free flights, sometimes costing the airline significantly more than expected. To mitigate this, the company restricted free flights to less popular dates and reduced the number of available reward seats, leading to customer dissatisfaction (Brandenburger & Nalebuff, 1998: 149).

Overbook

Two important components in airline operations are reservation and capacity control. Here, capacity control is about not leaving empty seats and how many seats will be sold to which passenger group in which segment. In particular, the overcapacity reservation application is related to the sale of existing seats more than once. Overcapacity booking is a revenue management strategy, in which more sales are made than the number of seats available. With this application, airline companies want the aircraft to operate with a minimum of empty seats, taking into account the possibilities of passengers not joining the flight, being late for the flight or canceling the ticket. It is predicted that with the overbooking method, 15% of the seats sold can be prevented from remaining vacant, and together with an effective revenue management, the overbooking system can save airlines hundreds of millions of dollars annually. The overbooking method, which has been in use for more than three decades, is a very important practice for airline companies to increase their revenues. The important point here is to know how many bookings can be made for a flight. The revenue from overbooking a flight should be balanced with the possible costs. In addition, it should be noted that if all customers apply, some of them may have to refuse to participate in the flight, and in this way, there may be a cost risk that may cause both economic losses and loss of reputation (Uslu, 2018: 10-11).

Although the amount of compensation to be paid in cases of Overbook has not been determined by the US Department of Transportation, the airline has to pay compensation to passengers who cannot participate in the flight due to Overbook status. If no volunteers can be found in case of overbooking, priority should be given to passengers with confirmed tickets and passengers with special conditions, such as disabled passengers and minor passengers needing escort. In addition, the carriers are obliged to inform the passengers who are not accepted to the flight due to the Overbook status, and even to give a written explanation of the rules and limitations on the subject. In Turkey, similar services and compensation are offered to the passengers who are overbooked (Göktepe, 2016: 214-216).

Hub and Spoke

The concept of hub in the airline industry is the selection of a common center in order to make the best connections and transfers at the points where the flight schedule is intense. The hub airports chosen as this common center are the places where there is a high level of flight and connection traffic and where flights can be coordinated. An airport can be selected as a hub by more than one airline. Hub centers can be of different sizes and the hub and spoke system is used to increase efficiency (Gerede et al., 2016: 120).

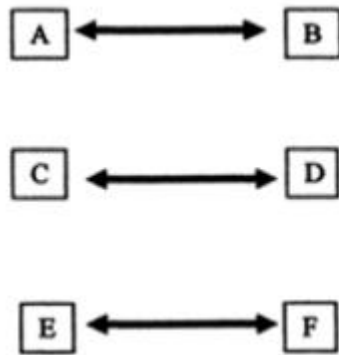
Airlines can set their network choices in two ways: point-to-point and hub and spoke. Airlines that prefer a hub and spoke network concentrate most of their flights at an airport that they have designated as their hub. With this system, two flights arriving from two different airports and meeting at the same center are connected to places where there is no direct flight, and connecting flights are provided. Airlines create economies of scale by providing flight service with these connections. Delta Airlines pioneered the Hub and Spoke operations, which first started in the USA, and gained popularity in a short time.

There are some criteria for a place to be selected as a hub point. These:

- plane (number of planes flying out of the city),
- extra aircraft (the difference between the aircraft and the minimum number of aircraft needed to meet the demand of that city only),
- passengers (total number of passengers from a city),
- extra passengers (number of passengers using a city as a connecting stop),
- ratio (the ratio of passengers arriving from a city and traveling directly to their non-stop final destination to the total number of passengers is taken into account).

When all these are taken into account, hub points can be selected, but hub centers can also arise naturally with the network structure and flow.

POINT TO POINT



HUB AND CONNECTED ROUTES

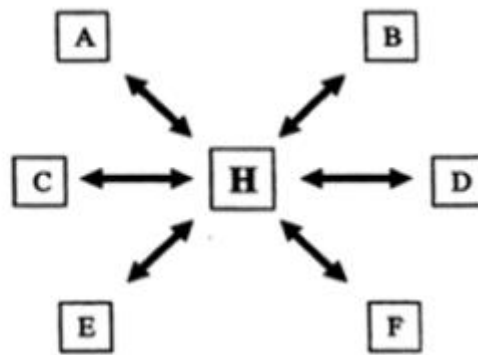


Figure 1. Point-to-point and architecture of hub and connected routes (Aytekin, 2020: 61)

After the liberalization in aviation, the hub and spoke model became increasingly widespread, and after achieving high success in the USA, it started to become widespread in Europe as well. It became more popular in the 1990s as European airlines adopted strategies to compete effectively in the Single European Market. Researchers have reported that flight times for arrival and departure flights are arranged and coordinated to minimize connection time (Aytekin, 2020: 59-61).

With the collect-distribute business model, which became widespread after the deregulation, passengers from small settlements were provided with the opportunity to reach many different destinations from the determined central point. Before the transition to the hub and spoke system, that is, before the liberalization process in aviation matured and the airlines formed commercial partnerships, airlines were performing point-to-point linear operations. With the transition to the hub and spoke system, the limited opportunities in transportation have also been expanded. The hub and spoke network structure allows many airlines to reach a small fleet and at low costs. The following figure shows the model with 20 flights from one point to the center point and 20 flights from the center point to the transfer points:

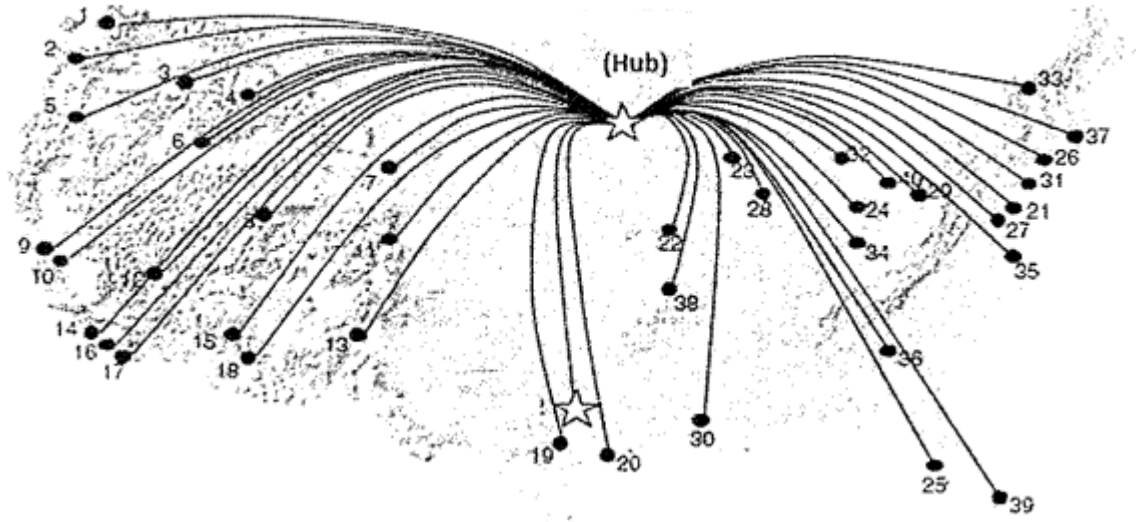


Figure 2. Distribution from hub (Göker, 2013: 50-52)

In this structure, there are 20 flights from a starting point to the center point and 20 flights from the center point to other transfer points, that is, flights from 21 points in total. The Total 440 enables the linear flight market to be served with only 40 flight legs and 20 aircraft to the transfer point. In another scenario, airlines would need to lift hundreds of aircraft and fly to 440 different destinations. With the hub and spoke system, costs are reduced and time savings are created (Göker, 2013: 50-52).

Hub and spoke system also has some disadvantages. For example, one of the main reasons for delays in flights is the strategies created in the connections between the main center and transfer points. The fact that both short and long-haul flights are busy at the airports selected as hubs also triggers delays (İnan, 2017: 127).

This study aims to evaluate strategies offered by the game theory in the scope of SWOT analysis.

METHODS

In the study, using the information from the literature, the relationship between aviation and game theory was wanted to be interpreted, and in the last section, 4 strategies for competition used in aviation were explained with SWOT analysis. The intensity of competition in airlines, the strategic behaviors applied for competition, the game and who the players might be, mutual retaliation behaviors and the moves that win or lose from the competition are explained based on game theory. Collaborations in competition, frequent flyer programs, overbook and hub and spoke network structure were detailed as sub-headings, and it was aimed to determine the strengths and weaknesses of these competition strategies applied in aviation, as well as the game theory, and the opportunities and threats that awaited with SWOT analysis.

It is a technique that allows to identify the strengths and weaknesses of a situation, as well as the opportunities and threats triggered by the external environment. SWOT consists of the words • S: Strength (Aspects that indicate strength and superiority) • W: Weakness (Aspects that report weakness) • O: Opportunity (Opportunities from the external environment to an organization) • T: Threat (threats to an organization from the external environment) . Strengths are the advantageous features that make an organization different from others in the industry. Weaknesses are aspects of the organization that are less developed than its competitors. Opportunities are explained by favorable situations presented to the organization by the external environment or developed over time, while threats are explained as compelling situations that come from the external environment while the organization is performing its activities. With SWOT analysis, the situation assessment of an organization's internal and external environment can be done at the same time. The important thing here is that the culture and structure of the business or organization for which the SWOT analysis will be made should be well known. In addition, the customer base and external

environment addressed by the organization are very important. By combining these factors with SWOT analysis, a holistic evaluation is provided (Demirtaş, 2013: 211). SWOT analysis is also preferred and frequently used in the aviation industry for determining or evaluating success.

RESULTS

All kinds of business behavior that keeps competition and cooperation together and enables to foresee the moves of the competitors while forming a strategy, to plan ahead and to prepare in advance which strategic response will be given in which situation, and thus to achieve sustainability and success in competition, can be interpreted with game theory. While all companies are seen as competitors in the traditional perspective, this perspective is gradually changing when viewed with game theory and more focused on the wants and needs of customers. It is very important for companies to know and empathize with their customers. Firms should ask themselves questions such as “If my customer values the product and service I offer less, what replaces it?” or “What other ways can I use to meet my customers’ needs?”

In a competitive environment, players can take more than one role. In other words, businesses can be both complementary and competitive to each other. There are both gain-gain and gain-loss situations in the relations of enterprises with customers, suppliers, complements and competitors. Businesses can develop a strategy where they can win together with their competitors in the game, instead of acting on the basis of a competition in the form of win-loss and thinking that they will lose as soon as their competitors enter the game. In this way, instead of constantly fighting with rivals, they can turn to the concept of joint competition, which includes war and peace together, competition and complementarity at the same time. In addition, businesses can gain new customers by opening up to new markets instead of competing for a single customer base in the market, thus opening the doors of gaining more chances and profits.

Along with all this, rules can also be a restrictive factor for businesses. In particular, government rules can greatly restrict business behavior. However, when the rules are evaluated within the scope of game theory, it becomes important to be able to change and interpret the rules according to oneself instead of unconsciously following them. But here it should not be forgotten that other players can also do this.

Global airline collaborations, which is an application that brings both partners and competitors to the competition game, frequent flyer programs applied to sustain the competitive advantage in the airline competition game with customer loyalty, overbook that provides competitive advantage by creating maximum occupancy, and hub, which is also an example of joint competition. and spoke strategies are examined. These four strategies were analyzed with SWOT analysis, and the findings are presented in detail in the table below:

Table 1. Results of the SWOT analysis

SWOT	Global Airline Collaborations	Frequent Flyer Program	Overbook	Hub & Spoke
Strengths	To be able to appeal to wider customer bases and to respond to more needs Providing service diversity and increasing destinations Leveraging economies of scale Strengthening its competitive position Benefiting from the flight rights of the cooperating members Further publicizing the airline brand under a global hood Increasing the capacity occupancy rate Making it difficult to enter the market by increasing the power in the market under a global title Preventing the participation of new players in the game by supporting the oligopoly market structure	Providing competitive advantage Providing customer loyalty Increasing airline attractiveness with rewards offered To make competition more difficult by making agreements with different sectors or by differentiating the awards and making them quality. Ensuring the continuity of the flight with the airline by creating a point or bonus system To provide a common customer loyalty in a wide network thanks to global collaborations Implementing a differentiation strategy outside of traditional marketing methods To prevent the preference of other airlines that are new to the market or existing in the market by placing a period of time in the offered reward or point system.	Ensuring that the flight takes place with maximum occupancy Eliminate the possibility of empty seats Ensure maximum profit Take advantage of limited time Consolidating its competitive position with both full aircraft and profits	Flying to non-flyable areas Developing new lines and reaching new destinations Providing passenger and baggage transfer from one central point to many destinations Appealing to more customers Expanding into new markets Maintaining competitive advantage To be able to benefit from the facilities of member airlines such as lounge services at the central airports with a global cooperation
	Requires mutual and multiple dependency Requires strict monitoring of the competitive environment in the market Increasing prices with the desire to be under the global title and branding Large airlines dominate the competition in the market and customers are exposed to high prices	The abundance of similar applications in the market Customer dissatisfaction caused by the duration of the earned awards or points Programs require constant updating and innovation	Have a risk strategy Having customer complaints Customers are not satisfied with the possibilities offered in case of overbook Absence of volunteer passengers in case of overbook	Wrong center selection and failure to cooperate Making a mistake when choosing a geolocation Choosing a center point where there is no customer demand
Opportunities	Benefiting from the technology and opportunities of member airlines in cooperation Creating an effective competitive environment by bringing new players to the game Make more publicity	It offers the opportunity to cooperate with new and different sectors. A collaborative loyalty program ensures global loyalty	Possibility of passengers voluntarily giving up flight Opportunity to earn millions of dollars	It offers the chance to access more destinations at low cost
Threats	Members in a global cooperation are also competitors Possibility of revealing confidential information of the airline within the organization Failure of cooperation	Can be easily imitated Customers may not be satisfied with similar rewards over time Requesting the use of the presented award ticket on a full flight	The increase in customer complaints with word of mouth communication and social media, and the airline's problems in marketing Damage to the image of the airline Paying high compensation to passengers The next flights to be offered to the customer are also full or overbooked.	Delays due to heavy air traffic at central points Risk of customer complaints about delays and baggage disruptions Existence of other cooperating member airlines flying from the same hub to the same destinations

Strengths

In terms of global airline collaborations:

Considering the information in the study, it is observed that within the scope of game theory, businesses can win together with their competitors by establishing strategic alliances and want to act in the form of joint competition, which they see as both competitors and complements. In partnership with its competitors, it will be able to open its own airline business for development, gain new customers instead of competing for a single customer base, create new destinations by opening up to new markets, share code from its competitors, share information and technology, and open its own opportunities to its competitors. In this way, it can both provide a global sectoral development and provide more and better answers to the demands and needs of its customers. With these global airline alliances established, businesses can both keep competitiveness alive and improve themselves and keep up with global development.

In terms of frequent flyer programs:

It ensures loyalty in the purchasing behavior of airline customers. Customers prefer the same company for their flights, as they can earn various rewards or free tickets with the miles they earn through the program, and the airline thus provides customer satisfaction and creates customer loyalty. The fact that scorecards can also be used in global airline partnerships when flying with other companies within the subsidiary is advantageous both in terms of global airline collaborations and airlines that offer frequent flyer programs.

In terms of overbooks:

The Overbook procedure, which was initially applied in the airline industry in order to earn profit from the tickets that the passengers who bought a ticket for a flight and did not participate in the flight or gave up on, paid their fees and did not use, started to be applied in many flights over time and was seen as a competitive strategy by the airline companies.

In terms of hub and spoke:

As we mentioned, hub and spoke provide flights from a central point to many destinations with a small number of aircraft. In this way, it can create customer demand from different destinations and provide flight opportunities to regions where flights cannot be made. The mutual provision of hub and spoke application by member airlines of global airline collaborations also offers time advantages that will save passengers from troubles such as finding tickets at the waypoint or waiting for luggage.

Weaknesses

In terms of global airline collaborations:

One of the important problems arising from airline cooperation is that it creates a mutual and multiple dependency. The companies that are members of the cooperation are dependent on each other in terms of both price and service quality. Companies that are not members of the cooperation also show a dependency by having to follow the cooperation in this regard. In this case, the oligopoly market structure emerges (Mühim, 2012: 95). Inviting more buyers to a game does not mean winning in the game. We cannot force customers to be our own buyers, for this it is necessary to expand the market and increase demand and make it attractive (Brandenburger & Nalebuff, 1998: 105).

In terms of frequent flyer programs:

The loyalty and satisfaction provided by frequent flyer programs can sometimes be diminished or counterproductive. These can be situations such as the unification and standardization of programs, as well as delayed awarding of awards. At the same time, the fact that these mile points, which are used jointly in global airline collaborations, do not show equivalence in terms of winning awards in airlines is an example of this situation.

The American Airlines Aadvange program, which I mentioned in the previous parts of the study, is also an example of the disadvantages of frequent flyer programs. In addition, although it is not often that the miles earned are timed, it is possible to create customer dissatisfaction.

In terms of overbooks:

It is a strategy in which all passengers can incur losses by offering passenger rights (compensation, accommodation, etc.) even if they participate in the flight. With all this, it is possible to say that the Overbook strategy is a risk strategy and a guessing game. However, with high profits, companies may make losses while offering their rights to the passengers who are left from the Overbook procedure, may make the remaining passengers wait for a long time due to the fullness of their other existing flights, or may experience losses due to customer complaints.

In terms of hub and spoke:

The epicenter to be preferred should be analyzed well. In addition, the analysis of the geographical points to be flown and the passenger demand analysis are also very important. Otherwise, attempts may fail. While reciprocal flights are exhibited with a global cooperation, it should not be forgotten that the member airline of the cooperation is also a rival member.

Opportunities

In terms of global airline collaborations:

It is possible to say that airline companies, while participating in global collaborations, aim to add more value to their customers' company, together with other players, than when they are alone. They have the chance to develop marketing strategies together and to announce their brand under a single global title. In addition, the possibility of easily accessing the airspaces of various countries with global airline cooperation is an example of the subject of changeability of the rules, which we discussed within the scope of game theory. According to game theory, bringing new customers to the game can be a solid idea. This way the pie will grow and so will the earnings. As new customers come into the game, your dependence on any one customer will also decrease. So a customer will no longer be indispensable for you. New customers joining the game will reduce the added value of the existing customer.

In terms of frequent flyer programs:

Creating a variety of rewards for customers by using the mile points earned together with other contracted sectors, enables airline companies to take part in more promotions. In addition, passengers who do not want to lose their accumulated miles may want to continue flying with the same company in order to win an award.

In terms of overbooks:

The overbook strategy is a strategy in which airlines can profit from passengers who are unable to catch or join the flight when the check-in time expires. By applying an overbook strategy, airlines have the opportunity to make millions of dollars in profit.

In terms of hub and spoke:

Instead of providing many flights with very high costs, flights to many destinations can be provided with low costs. Companies can increase the number of destinations.

Threats

In terms of global airline collaborations:

Within the scope of game theory, there are some factors that should be considered in the establishment of global airline partnerships. In particular, we can say that internal information confidentiality is ensured and the internal strategies and future plans of the enterprise are not heard by other players in the global airline alliance.

In terms of frequent flyer programs:

The threat in frequent flyer programs is impersonations of rival players. The rewards and strategies in an airline's frequent flyer program can be imitated by the rival player, and the focus of the customers can be changed. To give an example, we can show that American Airlines split customer loyalty by launching the Mileage Plus program after the Aadvantage program of United Airlines. What makes American Airlines strategic here is that it has computer systems that are superior to United Airlines and that it does not lose its customers.

In terms of overbooks:

In flights where the aircraft does not take off, but the check-in time is over and the capacity is full, the application of the passengers and the fact that they are not allowed to board the plane, and that they even lose their rights because they are late, cause customer grievances and increase passenger complaints. Announcing this situation by word of mouth or on social media can lead to loss of customers and prestige for companies. It is difficult to allow losing a customer so it is necessary to fight and win, but if it is necessary to win the battle for all customers, this time we may be in a big war, which can result in lost profits. Delivering the customer to the competitor may cause the competitor to display a more aggressive strategy.

In terms of hub and spoke:

The occurrence of passenger dissatisfaction with the delays that may occur due to the density of the airports selected as hubs. Intense air traffic at hub airports and, accordingly, chain delays and disruptions.

CONCLUSION

In the study, four strategies such as 'global airline collaborations', 'frequent flyer programs', 'overbook' and 'hub and spoke', which are more global, current and specific to the aviation industry, were analyzed on the basis of game theory. In the study, airline competition strategies are explained on the basis of game theory, which is based on rational strategies in oligopoly markets.

As a result of the study, it is concluded that global airline collaborations and hub and spoke strategies have more strengths and opportunities, but the frequent flyer program and overbook strategies contain more weaknesses and threats than their strengths and opportunities. The excess of weakness and threat aspects in these four strategies can be outdated or even destroyed by being used by new players in the sector or by competitors who have the potential to bring new strategies to the game with or without rules. In the study, the strengths and opportunities of these four strategies applied in the airline industry are explained and their sustainability in the future is mentioned.

The fact that aviation is a constantly changing and developing sector requires that these strategies be developed and updated. The most important reasons for this situation are the globalizing world, increasing customer demand, differentiation of customer demands and needs, the search for innovation, customer dissatisfaction arising from the existence of the same, substitute or similar products and services. While applying the competitive strategy, airline companies should not be guessed and imitated by their competitors, should not be predicted and answered by their competitors, should not be applied at the right place and time, causing loss of customers, time and cost, and should be unique. Otherwise, it is possible for new players or existing players to equalize their opponents or bring their opponents to an end in the aviation sector by developing more rational strategies or by targeting the weak and threatening aspects of these strategies.

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