SOLUTIONS FOR IMPROVING THE PARTNERSHIP BETWEEN AIRPORT AND AIRLINE COMPANIES

Živilė TUNČIKIENĖ*, Romanas KATINAS

Department of Management, Faculty of Business Management, Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223 Vilnius, Lithuania

Abstract. *Purpose* – For every country's economy, air transport is strategically and vitally important. For improving the quality of air transport services provision, partnerships between airports and airlines need to be encouraged more. The application of partnerships leads to quality improvements of services provided by companies and raises the efficiency of used practices. A number of the factors, which determine the effective partnership between organisations operating in the aviation sector, is examined on the basis of specialised literature. The study addresses the question of how organisations interact with each other and what factors determine the need for partnership. Having identified common factors in the organisation's operational interface and the need for it in the aviation sector and having analysed the practical examples of partnerships, the ways to enhance these factors are explored in order to achieve effective partnerships between airports and airlines.

Research methodology – consists of comparative analysis, methods of logical analysis and abstraction, multi-criteria evaluation.

Findings – The solution to the problem is expressed by identifying the factors of an effective partnership between the airports and the airlines and selecting the criteria for the assessment of the favourable effects of airport cooperation activities, and their hierarchical schemes from the positions of the airlines.

Practical implications – Using multi-criteria assessment methods is easy to construct matrices of initial estimates, calculate final estimates and thus decide which airport is the most appropriate partner for an airline or vice versa.

Originality/Value – A unique and, at the same time, a universal system of criteria, the application of which provides the preconditions for the development of the partnership, is created.

Research limitations – The availability of data is limited to determine the reasonable values of the partnership criteria.

Keywords: aviation sector, airports, airlines, partnership, criteria, multi-criteria evaluation.

JEL Classification: M10, M14, M30, L14, L26.

*Corresponding author. E-mail: *zivile.tuncikiene@vgtu.lt*

Introduction

The prospect of the air transport sector is rightly regarded as a factor in the development of the country's economy. Air transport is a strategic and vital sector for the European Union's economy, generating some 65.5 million direct and indirect jobs, the sector contributes to around 2.7 trillion EUR in European GDP, which is 3.6% (Industry High Level Group, 2018). One of the ways to efficiently provide and improve air transport services is the partnership principle between airports and airlines and its implementation. Air transport has been developed with the support and control of national authorities. The entire aviation market has been progressively liberalised through new sets of management tools, which have restricted access to the market to licensed entities that can fully meet their obligations. Requirements have been set which must be meet by air carriers wishing to start or continue operations, they must be owned and effectively controlled by the Member States and/or national of Member States, be in an excellent financial standing and have the professional capacity and organisational structure necessary to operate in accordance with the regulations in force. The airlines are competing with each other and seeking to gain as much market share as possible, thereby reaching better agreements with airports, ground-handling companies. Meanwhile, airports are competing with each other to attract better, more profitable carriers to their airport. Equal access to airports and airport services shall be ensured in accordance with Regulations (EEB) No. 95/93, which provides for the allocation of slots at congested airports (i.e. permits to land or take off at a specific time of the day) to an airline in an equitable, nondiscriminatory and transparent manner (Coito et al., 2019). Directive 2009/12/EB defines the basic principles for the collection of airport charges for the use of airport infrastructure and services (Coito et al., 2019). Airports address the challenge of attracting the most attractive air carriers to meet the development goal, while air carriers vice versa choose the most suitable airport for them. It is the partnership application that is debatable, and the answer is sought how to improve the quality of services provided by such companies, increase operational efficiency, increase financial performance while ensuring high safety standards. The purpose of this study is to reveal the totality of the factors on which effective partnership in the aviation sector depends. To achieve this goal, the following tasks have been set:

- to reveal the aviation sector as a system for specifying the content and the relationships between its elements;
- to justify the need for a partnership in the aviation sector by revealing its role for each other and in general;
- to analyse and evaluate the determinants of partnerships between key players in the aviation sector.

The research methodology consists of comparative analysis and evaluation of scientific literature sources, synthesis and generalisation, multiple criteria decision-making (MCDM).

1. Specifics of the aviation sector: a systematic approach to a management object

The aviation sector is a complex system that connects not only people, cultures but also business across all continents (International Civil Aviation Organization [ICAO], 2017). One thousand three hundred commercial airlines and nearly 32,000 aircraft used by them in 2017

executed 41.9 million flights from more than 3,700 airports, transporting 4.1 billion passengers on 45,000 routes (Air Transport Action Group, 2018). The main organisations active in the aviation sector are:

– Airports;
– Airlines;
– Ground handling companies;
– Air navigation service providers;
– Educational institutions;
– Aircraft manufacturers;
– Insurance and leasing companies.

All of these (airports, airlines, ground handling companies, air navigation service providers, etc.) are interdependent and form a complex network at a global level that requires effective partnership management. According to ICAO Secretary General Dr Fan Liu, the aviation system has evolved over several decades to become an indispensable global network connecting the global economy and cultures. More than three million people are directly employed by airlines, air navigation service providers and airports (ICAO, 2017). Gradually, an aviation network has emerged that considers airports, routes and airlines as nodes and critical edges. In complex networks, several key nodes and critical edges play a vital role. If these core nodes are damaged or malfunctioning, it affects the stability and performance of the entire network structure. Li et al. (2019) emphasise that the identification of key nodes and critical edges is always a hot topic in complex networks. This is also the case in the aviation network, where other players (airlines, passengers) suffer from the inefficiency of the core node (for example, an airport). The effectiveness of the network grows in proportion to its focus on core competencies and relevance, ensuring the consistency of its members' goals (Ribačonka & Kasnauskė, 2014). Thus, network modelling becomes a multi-criteria decision-making problem involving a variety of and interrelated parameters (Kucuk Yilmaz et al., 2018). Many airports and airlines in the world suffer from the climate (storms, volcanic eruptions). These critical airports and airlines must support the stable operation of the aviation network. According to Li et al. (2019), by monitoring vital airports, routes, and airlines, we can quickly understand the operation of the air traffic network. Besides, supervisory resources can be reasonably allocated to ensure stable operation of the entire network at the lowest cost. Given that aviation is a global system where various stakeholders interact, the costs and benefits of environmental policies, capacity building and other interventions need to be assessed in this area (Dray et al., 2019). Thus, it is reiterated the need for all stakeholders and partners to work together to maximise the benefits of air transport and sustain sustainable aviation growth by connecting more and more people (ICAO, 2017).

All of these organisations are directly or indirectly dependent on each other and act on each other. The growth of the aviation industry has a positive impact on passengers through the creation of multiple travel directions. According to Dožić (2019), in general, each stakeholder (airlines, airports, Air Traffic Management (ATM), aircraft manufacturers) creates many jobs in the air transport system and thus contributes to the economic development of the country. Kucuk Yilmaz et al. (2018) emphasise that in order for economic growth, key players – airlines, airports, air navigation system providers and system oversight bodies – need to work together and be interconnected. According to ICAO general secretary Dr Fang

Liu, the results of collaboration in air transport provides prosperity to everyone interested in a very large and inclusive global community (ICAO, 2017).

Airlines develop their strategy to decide which business model to choose from: whether to become a low-cost airline, to which airports to fly (big or small), to buy or rent aircraft, to train pilots themselves or to hire trained pilots and many other aspects. According to Dziedzic and Warnock-Smith (2016), the strategic choice of low-cost carriers is the choice of primary or secondary airports, where the most important criteria for selecting the operating airport are price, demand and efficiency. On the other hand, airports need to decide what to do if they need to choose a location, determine the appropriate level of service, or improve their performance or competitive position in the market (Dožić, 2019). It is the job of air navigation service providers to ensure an adequate level of safety when dealing with aircraft congestion. According to Dožić (2019), air traffic management problems include problems related to safety problems and human factors (stress due to workload, human error, etc.) To sum up, all the organisations operating in the aviation sector, such as airports, ground-handling companies, air navigation service providers, aircraft manufacturers and training institutes, it can be concluded that the primary objective of all stakeholders is not profit, but rather safety. All these organisations must cooperate to ensure overall safety in the aviation sector.

2. Interaction between airports and airlines

There are two main types of organisation operating in the aviation sector: airports and airlines. In order to uncover the interplay between airports and airlines, it is first necessary to examine how they are interdependent and what powers they may have with respect to each other. According to Stephenson (2015), airports and airlines have similar challenges and opportunities in terms of travel experiences (as cited in Eyefortravel, 2015). Good or bad experience in one country affects the brand and reputation of the other, requiring airlines and airports to work together.

2.1. The needs and objectives of airlines and their implementation schemes

One of the major goals of airlines is to match capacity and demand in prevailing market conditions, which has a direct impact on profitability gains and cost reductions (Dožić, 2019). As many of the authors under study point out, the primary purpose of the airline market is to meet passengers' expectations. Airlines need to consider many aspects in order to achieve their goals. Dožić (2019) highlights the following aspects:
  – Technical / Technological;
  – Economic;
  – Passengers;
  – Environmental.

It can be noted that research is dominated by technical/technological and economic aspects – objectives. Regional airlines often opt for LCC's business model of profitability management and pricing: relocating to smaller airports that tend to promote new routes, co-finance, and thus lower entry barriers (Efthymiou et al., 2016). Each year, as the demand

for air transport grows, airlines must decide which aircraft to operate on a particular route, what level of passenger service seems satisfactory, which route to take, and which strategic partner to choose (Dožić, 2019). Evaluates the impact of strategic airline alliances, through which airlines do not only cooperate in marketing (such as loyalty programs), for travellers, and thus for better utilisation of the airlines and their partners' capacity, while reducing costs (Oum et al., 2019).

Dožić (2019) emphasises that in order to remain competitive and maintain or even strengthen its market position in a time of steady growth in air transport, an airline must identify the key factors that make it competitive and force its customers to choose that particular airline. Airlines select and/or value partners for future cooperation. Most airlines select an alliance for a strategic partnership based on various criteria/sub-criteria. In the US aviation industry, for example, almost all regional airlines have contracts with one or more network airlines (Gillen et al., 2015). Airlines need the right approach to make the right decision when choosing an outsourcing provider and gain additional benefits. It is then essential to determine how much the business plans of the potential partners fit together in the present and in the future (Dožić, 2019). Different methods are used to evaluate the quality of service criteria. The most commonly used methods are MCDM. Most airlines opt for an alliance for a strategic partnership.

2.2. Airport operational models, goals and their implementation schemes

Airports are one of the most critical parts of the aviation chain, which also includes airlines, aircraft manufacturers, air navigation service providers and global distribution systems and travel agents (Tretheway & Markhvida, 2014). As emphasised (Donnet et al., 2018), airports are a vital component of a state's or region's ability to create sustainable competitive advantages in pursuit of economic and societal goals. Airport representatives, as the largest group of respondents, identified a number of challenges, including those related to politics, alignment of common goals, lack of knowledge and cooperation, and negotiation skills (Spasojevic et al., 2019). The development of airport routes, also known as the development of air services in some countries, is the process of attracting, developing and maintaining air services at airports (Halpern & Regmi, 2013).

Private airport ownership helps these airports operate more efficiently than state-owned airports (Kutlu & McCarthy, 2016). Thelle and Sonne (2018) defined ARD (Air route development) activities as "airport marketing activities aimed at attracting new routes, such as attending route planning conferences, offering incentive schemes, meeting with airlines, producing special reports for airlines. The most obvious purpose of the ARD is to encourage airlines to operate additional routes from a particular airport (Halpern & Graham, 2015). The same about routing policies is also emphasised by Lin and Huang (2015) that airports usually use active and targeted forms of personal sales to report routing opportunities, such as attending route networking events to meet airlines at their offices and introduce them (Lin & Huang, 2015). Two key areas of business have a significant positive impact on performance: collaboration (through strategic marketing partnerships and collaboration with other airports) and active and targeted forms of personal sales (inviting targeted airlines to visit the airport and attend networking events) (Lin & Huang, 2015).

The incentive theme is most noticeable at smaller airports because it is important for them to attract airlines (Halpern & Graham, 2015). The growth of airports should benefit both the region and the airport. However, if the airport operator forms a partnership, the emphasis may be on maintaining routes that appear to offer the region the greatest economic benefit rather than the highest profit potential. Thus, it can be argued that the airport will increase business connectivity or inbound tourism by promoting routes (Halpern & Graham, 2015).

Increasing demand in an aviation system where the capacity of major airports is limited may lead to the increased airport and airspace congestion, which in turn may lead to increased delays and airline costs (Dray et al., 2019). Although there is a clear interest in close cooperation between airports and airlines, a less understood and discussed aspect of this process is the interest of tourism authorities, both locally and nationally (Spasojevic et al., 2019). The influence of air transport on tourism is not a one-way relationship (Farmaki & Papatheodorou, 2015). The main purpose of airports is to provide safe, fast and pleasant passenger service. To achieve this, the airport must be competitive with other airports. It has to attract the airlines you want. However, they often lead to market distortions and, for example, are dominated only by low-cost airlines.

2.3. Case study of partnerships between airports and airlines

The partnership is a hot topic, as evidenced by the abundance of articles. Spasojevic et al. (2019) emphasised the need for all major stakeholders to cooperate. Partnership, as the most critical attribute of leadership, is the key to successful stakeholder engagement. Closer and long-term partnerships are vital for successful stakeholder engagement. Specific partnerships involving certain stakeholders could be divided into the following categories:
  – Airports – Airlines – Tourism Organizations;
  – Airports – local entities (e.g. shopping malls, conference centres, visitor offices);
  – Airports – Government – Tourism Organisations;
  – A City Couple Approach (Airport-Airport) (Spasojevic et al., 2019).

The overall objective of airlines and airports should be to carry passengers safely, comfortably and pleasantly from door to door. Often the problem is that not all parts of this journey are well connected. That is why the subjects are working to address this problem through partnership. Pernilla Edelsvärd, head of digital services at Scandinavian Airlines, says the goal is to have a seamless travel experience from discovering customers' travel to reaching their final destination. Here airlines and airports need to define common key performance indicators and a common approach to technology development to reduce costs for both parties. Here are the opportunities for improvement on both sides, with a greater focus on passengers rather than aircraft turnaround, a new concept for airline-airport collaboration and common standardisation and development. So, airlines and airports are working together to increase efficiency and passenger convenience with IATA's Business Simplification program, ranging from electronic tickets, common-use self-service (CUSS) kiosks and barcodes. These three tools offer a tremendous opportunity to enhance the passenger experience on fast travel further. Fast travel is a self-service package that improves travel efficiency from check-in to luggage, implemented through a partnership between airlines and airports, including SAS and Copenhagen Airport, the first to implement all five Fast Travel projects (IATA, 2011).

Partnering with stakeholders such as airports and airlines working together on a marketing campaign can help define market strategies. According to Lohmann and Vianna (2016), if these strategies fail, no other action is taken to avoid the stopping of the route. The symbiotic relationship between airlines and airports and the close involvement of private and public services lead to successful partnerships (Spasojevic et al., 2019). Spasojevic et al. (2019) also point out that successful partnerships require a 'strong leader'. Outsourcing, as one of the restructuring measures, is very common in the airline industry (maintenance, ground handling, ticketing, catering) (Dožić, 2019). For example, close cooperation between government agencies, airports and airlines in Singapore and Dubai has led to the transformation of these air hubs into world-leading tourist destinations (Spasojevic et al., 2019).

According to IATA director T. Tyler (IATA, 2011), building infrastructure to manage airport growth is a challenge that can best be solved by working closely with airports and airlines to their mutual benefit. This includes collaborating on joint airport planning to ensure that investments are made that meet the needs of the airlines. He highlighted London Heathrow Airport, where dialogue between the airport operator and the airline helps, among other things, to promote capacity development, optimise existing capacity, take advantage of advancing technologies to reduce noise and emissions. Other airlines are improving the processes at the airport to ensure that customers do not encounter obstacles during their journey. A great example is JetBlue. Back in 2014, JetBlue automated the check-in process, and customers no longer had to wait in line to pick up their ticket or luggage.

Smooth travel creates a positive image for both the airport itself and the airlines it serves. The smoothness of travel depends to a large extent on the partnership between airlines and airports: hotels, travel sharing services, car rental companies. Also, the smoothness of the journey depends on the partnership between the airport and the airline, which often allows faster and more convenient passenger service. In this way, airports and airlines can optimise operations, improve decision-making, and enhance cross-selling (general loyalty program). By integrating systems and digital automation, for example, airports and airlines can easily exchange information. This allows them to remove obstacles at the airport, from check-in to security check-in and boarding. With such information, airports and airlines can direct offers to travellers, ensuring they get what they need and want quickly and easily (Natividad, 2017). One of the key points of all this collaboration is data sharing. According to Stephenson, they believe Gatwick is the market leader in offering other organisations free access to operational data via the API. This free data exchange will benefit both airports and airlines by channelling relevant services to passengers with common needs.

The idea of discussing plans with airline partners comes from Scandinavian Airlines, which works with airports to find reciprocal growth opportunities, and emphasises the need for cooperation. The company would like airports to share their expansion plans and use the expertise of airlines to develop self-service solutions and automation enhancements further.

Both airports and airlines want to meet passengers' expectations as much as possible and are working to create comfortable rest areas. By working together in this field, airports and airlines are working together to improve their image in the market. Today, an example of such a partnership is the collaboration between Brussels Airlines, Brussels Airport and other partners in the development of the new Brussels Airport flagship leisure service, The Loft (Eyefortravel,

2015). Brussels Airport has teamed up with Microsoft and Designit Europe to "create a new passenger experience". According to Lars Redeligx, CCO at Brussels Airlines, this partnership allows guests to borrow a laptop computer in the lounge during their stay. Using the app, they have access to the Brussels Airlines Digital Lounge Assistant Program, where they can book a shower room, see for snacks or book a meeting room (Eyefortravel, 2015).

Although it is publicly known that specific agreements between airports and (low cost) airlines are widespread (e.g. the Polish example) (Huderek-Glapska & Nowak, 2016), their provisions are generally considered business secrets. The partnership helps stakeholders achieve better results. To achieve this, airlines and airports need to work together to achieve a high quality of service. Both airports and airlines want to meet passengers' expectations to the best of their ability, and they try to achieve this in a variety of ways: creating comfortable rest areas, fast digital climbing, fast luggage delivery, IT systems installation, and more.

3. Methodological potential for investigating the problem of partnership between organisations

Multiple criteria decision-making (MCDM) methods are currently being developed and widely used to assess partnership problems. Regarding MCDM methods, Dožić (2019) observed that the combination of ANP and DEMATEL was used in four works (Liou, 2012; Liou & Chuang, 2010; Liou et al., 2011b; Rezaei et al., 2014), the fuzzy Analytic Hierarchy Process (FAHP) in three (Chao & Kao, 2015; Garg, 2016; Rezaei et al., 2014). Promoting the effectiveness of the partnership between airports and airlines, which can be expressed and analysed according to criteria, allowing you to evaluate the partnership objectives and level of implementation, offers the opportunity to achieve better overall and personal results (both financial and qualitative). Researchers focus on service quality (SQ), partners, fleet, competition, financial performance, safety and other specific goals. Different goals and topics can be distinguished from Table 1.

The article thus examines the factors of an effective partnership between airports and airlines by analysing the most important criteria for providing these services. The evaluation of the partnership is expressed through the criteria of service provision, the compatibility of the partners. Airline planners often use a variety of MCDM techniques to balance several criteria. The analysed articles deal with different topics and specific objectives, and the compatibility between different aspects, as shown in Table 1. The evaluation criteria were established by analysing the literature of foreign authors, which examined the factors of a partnership between airports and airlines. As one of the effective tools for evaluating partnerships, can be highlighted peer reviews because many aspects to be evaluated are qualitative.

TOPSIS and AHP methodologies are used to evaluate and select strategic partners. The TOPSIS method is a method for determining the rationality of variants in the proximity of an ideal point. In other words, TOPSIS is used for ranking the alternatives and identifying the most important one (Kraujalienė, 2019). The essence of the TOPSIS method is to determine the relative distance of each alternative to the "ideally worst" variant. The greater the distance, the better the alternative under consideration is for the decision-maker. The formulas used to calculate such distance according to the TOPSIS method are described in the specialised literature (Zavadskas et al., 2016; Jurevičienė et al., 2020).

Table 1. Airline goals, topics and applied methods in special literature (created by authors)

No	Author	Specific purpose	Topics	Applied methods
1	Chang and Yeh (2004)	Safety	Ranking / evaluation	FMADM
2	Hsu et al. (2010)	Safety management system	Evaluation	DEMATEL, ANP, GRA
3	Torlak et al. (2011)	Competitiveness of the airlines	Ranking	FTOPSIS
4	Liou (2012)	Strategic Alliance Partner	Selection	DEMATEL, ANP, FPP
5	Hsu and Liou (2013)	MRO suppliers	Selection	DEMATEL; ANP; SAW
6	Rezaei et al. (2014)	Supplier selection	Selection / Evaluation	FAHP
7	Bruno et al. (2015)	Aircraft	Evaluation	AHP, Fuzzy set theory
8	Yoon and Park (2015)	Competitiveness	Selection / Evaluation	AHP
9	Zhang et al. (2015)	Service quality	Evaluation	Non-aditive MCA Method, Choquet integral
10	Garg (2016)	Strategic Alliance Partner	Selection / Evaluation	AHP, FTOPSIS
11	Huang and Hsu (2016)	Service requirements	Evaluation	FAHP, GAP
12	Kurtulmuşoğlu et al. (2016)	Service quality	Selection	SMAA-2
13	Lau et al. (2016a)	Customer profitability	Evaluation	FAHP, TOPSIS, ABC
14	Lau et al. (2016b)	Service quality	Identification	FAHP, TOPSIS
15	Ozdemir and Basligil (2016)	Aircraft	Selection	FANP, FAHP
16	Singh (2016)	Service quality	Measurement	AHP, comparative analysis
17	Deveci et al. (2017)	Route selection	Selection	2 fuzzy TOPSIS
18	Dinçer et al. (2017)	Airline performance	Evaluation	FDEMATEL, FANP, MOORA
19	Keshavarz Ghorabaee et al. (2017)	Service quality	Evaluation	TOPSIS, COPRAS, WASPAS, EDAS
20	Görener et al. (2017)	Supplier performance	Evaluation	Interval type-2 FAHP, Interval type-2 FTOPSIS
21	Li et al. (2017)	Service quality	Evaluation	FAHP, 2-tuple fuzzy linguistic method
22	Barak and Dahooei (2018)	Safety	Ranking / evaluation	FSAW, FTOPSIS, FVIKOR, ARAS-F, COPRAS-F, Fuzzy MULTIMOORA, Fuzzy DEA
23	Chen (2018)	Service quality	Evaluation	VIKOR, Pythagorean fuzzy set
24	Gudiel Pineda et al. (2018)	Financial Results	Improvement	VIKOR, DANP, DRSA
25	Tsafarakis et al. (2018)	Service quality	Improvement	MUSA

First of all, based on the literature analysis, the specific goals of the airlines were identified, their compatibility and the methods used to balance several criteria. The second phase, based on the study of the literature, identifies the factors, on which effective partnerships depend. The third phase uses the TOPSIS method. The TOPSIS approach makes it easier for airlines to choose a strategic partner (airport). In order to get a universal model, you would also need to do some analysis from the airport side, that is, what requirements and expectations the airport have for attracting one or the other partner (airlines).

3.1. Determination of criteria

One of the most studied topics is the choice of partners. This paper examines how airlines select and value partners for future collaboration. The application of different MCDM methods from the airline position will be analysed. Keeping in mind that the data in the aviation industry very often lack or very expensive, the MCDM approach is chosen accordingly. Specifically, some methods require specific data, some require paired data comparison, and some may use inaccurate data or inaccurate comparisons (Dožić, 2019). Partnership selection criteria must be based on the needs and operational strategy of the organisation. The evaluation criteria were established by analysing the literature, which examined the factors of the partnership between airports and airlines. According to the analysed literature, effective partnership depends on the following key factors (Garg, 2016):

- Marketing and Service (Advertising, Loyalty Programs, Brands, Code Sharing) (Chao & Kao, 2015; Goh & Yong, 2006; Liou et al., 2011a; Merkert & Morrell, 2012; Zhang et al., 2004);
- Finance (Profit, Economy, Investment, Total Expense) (Bilotkach & Hüschelrath, 2012; Chao & Kao, 2015; Evans, 2001);
- Integration and network (flight and route expansion, more frequent flights, overall coverage) (Bilotkach & Hüschelrath, 2012; Chao & Kao, 2015; Liou et al., 2011a; Zhang et al., 2004);
- IT systems (integrated systems, information sharing, standard operating procedures) (Chao & Kao, 2015; Evans, 2001; Liou et al., 2011a);
- Logistics and resources (shared terminals, shared offices, transportation) (Chao & Kao, 2015; Liou et al., 2011a; Morrish & Hamilton, 2002; Zhang et al., 2004).

The authors use different criteria/sub-criteria to support the appropriate selection of a strategic partner for future collaboration. According to Dožić (2019), depending on the partner and the type of cooperation with the airline (strategic alliance, freight forwarder or outsourcing company), four aspects can be identified that could cover all criteria: economic, compatibility, strategy and risk, and product. These aspects include all types of partners and aspects of their cooperation with airlines. Economic aspects include profitability, investment, income, pricing and so on. Strategy and risk aspects are different aspects that can positively or negatively impact the cooperation between an airline and a potential partner (Dožić, 2019) (see Table 2).

These aspects (economic, compatible, strategic and risk, products) show how the different activities of partners overlap. According to Dožić (2019) compatible aspects of sustainability

Table 2. Criteria used for a specific objective partner (Dožić, 2019)

Author	Economic aspects	Compatibility aspects	Strategy and risk aspects	Product aspects
Hsu and Liou (2013)	Cost savings, flexibility in payment	Relationships, flexibility, information sharing	Trade union, loss of management control, information security	Knowledge skills, customer satisfaction with time
Rezaei et al. (2014)	Price, financial stability		CSR	Delivery, product quality, assortment
Garg (2016)	Finance	General equipment, IT system	Marketing and Services, Integration and Networking	Partner image and experience, logistics and resources
Görener et al. (2017)	Pricing Policy (Spare parts and services price policy, price policy expert flexibility, volume discount policy)		Flexibility (flexible payment plans, refund policy expert opinion, emergency resolution, complaint expert feedback)	Delivery (delivery time, delivery time reliability, customs service documentation, expert opinion, delivery reliability), communications (response time, customer service)

in the baseboard, potentially in the partner's field of activity (information system, equipment, ancillary services), product aspects evaluated against criteria for quality and design. By the way, it is sensible to determine how many potential partners business plans can be with each other and in the present and beyond (Dožić, 2019). It is worth noting that the data related to the above criteria if collected from a potential partner, could be used to assess whether the partnership was justified or not. The low-cost airline requirements for airports are (Barrett, 2004): low airport charges, fast 25 min turnaround time, single deck airport terminals, quick check-in, good catering and shopping at the airport, good ground transportation, such as business class sites. The choice of airports among many factors such as traffic convenience between airports and service cities, distances between these cities, the attractiveness of airports, level of airport rates, the material incentive for airlines, efficiency of apron providers, sole terminology companies, etc. (Pandey et al., 2018). Airlines are convinced that the number of passengers at airports is higher, the number of passengers is higher, the average number of passengers and the average number of passengers. Airlines take into account specific criteria, reasonably using the best airport and taking into account the various criteria offered by partners in making informed cooperative decisions, offering unified and universal criteria such as airlines and airports, the precise establishment and development of businesses that have long-term prospects (see Figure 1).
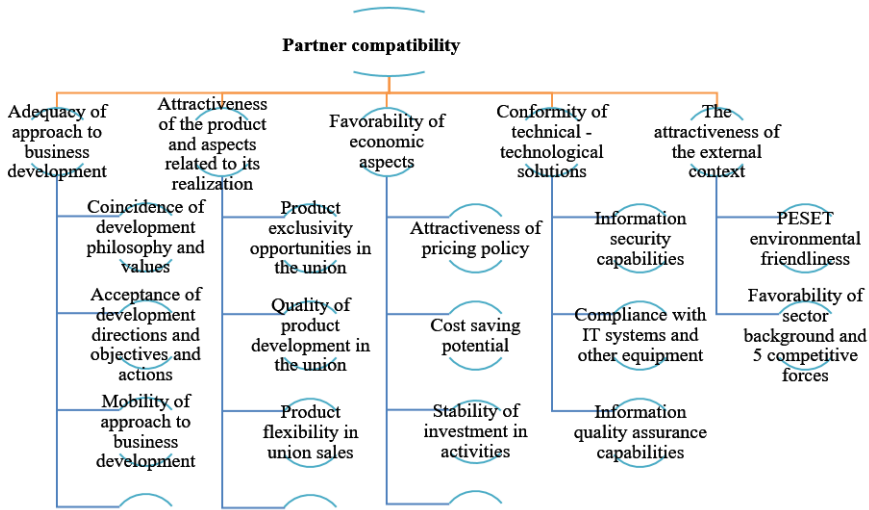
Figure 1. A system of criteria for deciding on cooperation (created by authors)

According to the proposed system of criteria, compatibility of partners is to be considered as an integrated criterion. It can be directly measured against the Level 1 criteria (defined by summarising the factors in the literature that determine effective partnership). Each of the criteria is detailed into indicators. Adequacy of the partner's approach to business development (in terms of how the partner presents himself or herself – in other words, the strategic attractiveness of the partner) involves the development philosophy (for example, what behaviour is unacceptable at all – trade-offs), favorability of goals and actions, the flexibility of the business development strategy – adequacy of changes, periodicity of changes. The latter can be further elaborated on the flexibility of the behavioural model in emergencies. The attractiveness of the product and its marketing and realisation aspects – 3 criteria are highlighted here, they can be further elaborated at a lower level, for example, product exclusivity in partner interactions can be treated through product complementarity, product quality in the union includes separate procedures (for example, from registration to boarding) performance time, etc. Favorability of the economic aspects is related to the attractiveness of the pricing policy, the potential for cost reduction, the stability of the investment in operations, the adequacy of the technical, technological solutions – these are the information management related and so on. In order to systematically evaluate the object of the research, it is logical to combine the criteria system with the criteria allowing to determine the attractiveness of the external context as an activity space.

Based on the limited data, the study determined which airport is the most favourable for the airline to choose. The pilot test for the application of the developed criteria system is based on secondary data on the factors that determine the potential of the partnership, taking into account the aspects of airport performance assessed by users. Table 3 shows how people rate airports according to certain criteria.

Based on the limited data, the study determined which airport is the most favourable for the airline to choose according to the criteria. The TOPSIS multi-criteria evaluation method

was chosen for this study. The TOPSIS method evaluates the minimum distance from the ideal solution and the maximum distance from the ideal negative decision for each alternative. According to the values obtained, the alternatives are ranked from best to worst. In this method, the decision matrix is first normalised using vector normalisation. Obtaining a normalised matrix yields comparable values that can be used for further calculations. A weighted matrix is then constructed. Each matrix value is multiplied by the assigned weight given in Table 3.

Table 3. Airport assessment from a flying perspective (Flightradar24 AB, 2020)

	Number of ratings	Travel to the airport	(Check-in)	Terminal infrastructure	Security check	WiFi	Food and retail	Lounge	Customs	Baggage retrieval
A1 – Brussels (BRU)	133	79%	81%	79%	77%	66%	69%	71%	63%	65%
A2 – Franfurt (FRA)	452	81%	82%	80%	75%	73%	75%	70%	73%	68%
A3 – Miunich (MUC)	245	77%	83%	81%	85%	76%	79%	77%	72%	73%
A4 – London Getwick (LGW)	276	79%	80%	76%	63%	80%	73%	63%	74%	70%
A5 – Oslo (OSL)	146	85%	83%	80%	78%	72%	73%	69%	63%	72%
A6 – Copenhagen (CPH)	169	84%	82%	81%	79%	73%	76%	65%	73%	65%
A7 – Helsinki (HEL)	127	84%	86%	85%	82%	84%	81%	76%	71%	78%
A8 – Paris CDG (CDG)	382	73%	72%	75%	73%	68%	66%	62%	68%	66%
A9 – Rome Fiumicino (FCO)	198	75%	77%	75%	78%	68%	72%	63%	67%	64%
A10 – Amsterdam (AMS)	396	87%	85%	83%	86%	79%	78%	82%	74%	74%

Table 4. Calculated distances to the "ideal" version* (compiled by the author)

	C1	C2	C3	C4	Si+	Si-	Pi	Position
A1	0.042	0.067	0.000	0.102	0.147	0.078	0.347	9
A2	0.116	0.095	0.000	0.105	0.120	0.145	0.547	3
A3	0.077	0.081	0.000	0.092	0.132	0.103	0.439	7
A4	0.077	0.050	0.000	0.135	0.135	0.115	0.459	5
A5	0.005	0.020	0.000	0.051	0.202	0.000	0.000	10
A6	0.049	0.075	0.014	0.127	0.127	0.105	0.453	6
A7	0.035	0.072	0.010	0.098	0.143	0.077	0.352	8
A8	0.117	0.109	0.115	0.124	0.011	0.198	0.949	1
A9	0.071	0.081	0.011	0.129	0.117	0.120	0.506	4
A10	0.115	0.101	0.094	0.118	0.028	0.179	0.863	2
V+	0.117	0.109	0.115	0.135				
V-	0.005	0.020	0.000	0.051				

Note: $*C_{1-4}$ – criterion; A_{1-10} – alternative; Si+ – distance to an ideal positive decision; Si– – distance to an ideal negative solution (V–); Pi – relative closeness of each location to the ideal solution (V+).

In order to evaluate the results, the "positive ideal" and "negative ideal" options V+ and V– need to be identified. Based on these values, in the following calculations, we estimate the distance of each alternative solution to the "positively ideal" Si+ and to the "negatively ideal" Si–. In the last step, we calculate Pi, which shows the distance from the "ideal" solution. Table 4 gives the results.

The results show that Paris CDG Airport would be the most profitable choice for airlines based on the criteria compared to other airports. This is due to the fact that Paris CDG Airport carries the largest number of passengers (C_1) compared to other airports and has the highest capacity (C_2) (it operates the most flights per hour). The fact that Paris CDG carries the largest number of air passengers does not mean that it will be suitable for new airlines. Maybe it's already overcrowded with other carriers. Thus, in order to choose an airport, airlines need to perform complex multi-criteria calculations, evaluate endless aspects, harmonise them and only then decide which airport to choose.

Conclusions

The aviation sector is a complex system that connects people, cultures, businesses worldwide. This complex network consists of airports, airlines, ground handling companies, air navigation service providers and others. Managing this network requires a partnership basis.

The overarching aim of airlines and airports is to carry passengers safely, comfortably and comfortably from door to door. The dilemma is to match the capabilities and demand of different organisations to the prevailing market conditions and at the same time to exceed the expectations of passengers. Airlines and airports are working together to solve this problem through partnerships.

Partnership as the most critical attribute of leadership to successfully engage and engage with stakeholders is a central theme. Partnership selection criteria must be based on the needs and operational strategy of the organisation. The study found that the key factors for an effective partnership in the aviation sector are: marketing and service, finance, integration and networking, IT systems, logistics and resources. There are four aspects that could be covered by all the partnership criteria: economic, compatibility, strategy and risk and product. The key to achieving an effective partnership is that the strategies of the airport and the airlines coincide now and in the future.

It is clear that partner selection is a multi-criteria task. So airlines need complex multi-criteria calculations to choose an airport (or vice versa for airports), evaluate endless aspects, fine-tune them, and only then make a partner choice decision methods such as TOPSIS. It is worth noting that every application of the partnership is subject to slightly different criteria and models, as each cooperation between the airport and the airline has its own aspects that need to be taken into account.

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