

STUDY ON THE QUALITY AND SUSTAINABILITY STRATEGIES IMPLEMENTED ON THE AIR TRANSPORT MARKET IN EUROPE BY LOW-COST COMPANIES

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Abstract—Air transport is one of the most important and powerful industries in the world. People's desire to travel has led to the unprecedented development of this sector. Currently, the implementation of quality and sustainability strategies is a necessity for airlines all over the world. Based on exploratory research, the author identified which are the most used quality and sustainability strategies by low-cost companies in Europe. On the other hand, based on a marketing research, the opinions and attitudes of consumers regarding the sustainability measures and strategies implemented in this sector were found, the importance given to them. The article contributes to the study of the air passenger transport market, since there are few studies on the quality strategies implemented in this market. The results of this research can form the basis of further extensive research on the air transport market, but it can also be used by companies in this sector to formulate competent competitive strategies.

Index Terms— Quality strategies, Sustainability, Air transport market, Marketing Research

INTRODUCTION

In a complex and dynamic business environment, managers are widely using modern methods and techniques to cope with competition and provide customers with new, attractive, good quality and competitively priced products and services. In this context, total quality management is a viable and sustainable option, which can systematically contribute to strengthening the capacity of organizations [1].

In making the purchase decision [2] a large part of consumers consider price and quality to have the same importance [3].

Quality has nowadays become a strategic element in service companies [4,5], as it determines "competitiveness" at the highest level. Quality is the key to the competitiveness and success of a company on a complex and dynamic market and represents a competitive strategy.

By implementing a quality management system, the constant improvement of the quality performance of a product or service will be ensured in the direction of achieving the quality objectives. Currently, the main trend in the field of service quality consists in introducing a set of methods with the aim of constantly improving the quality of products and services, by improving the operation and increasing the performance of service providers [6].

Today, air transport is one of the most important and powerful industries in the world. Understanding customer behavior is important for any airline to retain loyal customers and attract new ones [7]. Previous research has shown that service quality, trust, commitment loyalty, and satisfaction have positive effects on conative (behavioral intention) loyalty [8]. According to Law et al. [9] brand credibility, product uniqueness and loyalty program are the three top dimensions in shaping the level of service quality.

The paper aims to identify the main quality strategies and sustainability measures applied by low-cost airlines and highlight the opinions, attitudes and perceptions of passengers regarding this market and the quality and sustainability strategies implemented. For this purpose, an exploratory analysis was combined with a quantitative market research.

The low-cost air transport market in Europe

Low-cost airlines operate with only one type of aircraft, which considerably reduces operating costs.

The training process of flight and ground personnel is a very expensive one. By using only one type of aircraft, training costs are considerably reduced. Operating a single type of aircraft is also advantageous from the point of view of technical maintenance, as maintenance procedures and spare parts are dedicated to only one type of aircraft. Also, secondary airports are preferred where airport taxes are much lower than in major hubs.

Low-cost carriers generate ancillary income from a variety of activities that are not related to the actual flights. With a traffic of millions of visitors per day on the official websites, they earn income from affiliate partners - suppliers of hotels, car rentals, insurance and others.

These airlines sell their flight tickets online. Flight check-in is also done online. This avoids the costs that the carrier would have to maintain offices and sales staff.

Low-cost air transport refers to budget-friendly airline services that aim to provide affordable travel options. These airlines often cut costs by offering no-frills services, charging extra for amenities, and optimizing operational efficiency. Popular examples include Southwest Airlines, Ryanair, and AirAsia. There are approximately 130 active low-cost airlines in the world. In Europe,

Several low-cost airlines operate in Europe, offering budget-friendly travel options. Some notable ones include:

- Ryanair - based in Ireland, Ryanair is one of the largest and most well-known low-cost carriers in Europe.
- EasyJet - a British airline, EasyJet operates a large network of routes across Europe, providing affordable travel options.
- Wizz Air - this Hungarian airline focuses on flights to and from Central and Eastern Europe, offering competitive prices.
- Vueling Airlines - based in Spain, Vueling serves various European destinations and is known for its cost-effective flights.
- Norwegian Air Shuttle - although facing financial challenges, Norwegian Air Shuttle has been a prominent low-cost carrier with an extensive European network.

These airlines often emphasize point-to-point routes, charge for additional services, and operate with high efficiency to keep costs down for passengers.

Wizz Air is a Hungarian low-cost airline owned by Wizz Air Holdings Plc (headquarters in the Isle of Jersey) and focused on flights within Europe. In March 2018 Wizz Air was the largest low-cost airline in Central and Eastern Europe [10]. Currently, Wizz Air is focused on flights to Europe, North Africa and the Middle East.

Wizz Air was founded in 2003, in July. Then, a team of six members, headed by Jozsef Varadi, the company's executive general manager, prepared the company in just three months. Having extensive experience in the aviation field, but also outstanding results, they were ready to fly. The first flight was made on May 19, 2004 from Katowice, Poland.

In 2016, the Wizz Air company became a member of IATA (International Air Transport Association), being also IOSA (Operational Safety Audit) certified, having an excellent history in terms of safety. IOSA certification refers to the assessment of air transport safety and the analysis of safety management systems and processes for the airline [11].

EasyJet is a low-cost airline officially known as easyJet Airline Company Limited, based at London Luton Airport. It is one of the largest low-cost airlines in Europe, with domestic and international flights [12].

Ryanair is an Irish low-cost airline, owned by Ryanair Holdings Plc, the largest in Europe, surpassing all airlines, including non-low-cost ones, in terms of passenger numbers and profits. It is Ireland's largest airline and has become Europe's largest low-cost airline by scheduled passengers, carrying more international passengers than any other airline [13].

Quality in services is crucial for customer satisfaction, loyalty, and positive word-of-mouth, which can contribute to the long-term success of a service-oriented business.

Quality in airlines involves delivering a high standard of service that meets or exceeds customer expectations. Key aspects of quality in airlines include:

- Safety: ensuring the highest levels of safety standards in all aspects of operations, from aircraft maintenance to crew training.
- Reliability: providing on-time departures and arrivals, minimizing delays, and maintaining consistent service schedules.
- Customer Service: offering friendly, efficient, and responsive customer service throughout all stages of the travel experience, including booking, check-in, and in-flight interactions.
- Comfort: providing comfortable seating, clean and well-maintained cabins, and amenities that contribute to a positive passenger experience.
- Efficiency: streamlining processes and operations to enhance efficiency, both on the ground and in the air.
- In-Flight Services: delivering quality in-flight services, including food, entertainment, and amenities, to enhance the overall passenger experience.
- Communication: clear and timely communication with passengers regarding any changes, delays, or disruptions, keeping them informed throughout their journey.
- Environmental Responsibility: implementing sustainable practices to minimize the environmental impact of air travel.
- Innovation: embracing technological advancements and innovations to enhance the overall travel experience and operational efficiency.

Consistently maintaining and improving these aspects contributes to building a positive reputation, customer loyalty, and the overall success of an airline. Regularly seeking customer

feedback and addressing areas for improvement are integral to ensuring and enhancing the quality of airline services.

Sustainability in air transport is increasingly important, and the aviation industry is making efforts to minimize its environmental impact. Some initiatives include:

- **Fuel Efficiency:** Airlines are investing in more fuel-efficient aircraft and adopting technologies to optimize fuel consumption.
- **Alternative Fuels:** Research and development are ongoing to explore and implement sustainable aviation fuels (SAFs) made from renewable sources.
- **Operational Improvements:** Airlines are working on optimizing flight paths, reducing taxiing times, and improving air traffic management to enhance overall efficiency.
- **Aircraft Modernization:** Replacing older, less fuel-efficient planes with newer, more eco-friendly models helps reduce emissions.
- **Carbon Offsetting:** Some airlines offer carbon offset programs, allowing passengers to compensate for their flight emissions by investing in environmental projects.
- **Reducing Single-Use Plastics:** Airlines are making efforts to minimize single-use plastics on flights, opting for more sustainable materials.
- **Investment in Technology:** Advancements in electric and hybrid-electric propulsion for shorter routes are being explored to reduce reliance on traditional jet fuels.

While these efforts are steps in the right direction, achieving complete sustainability in air transport remains a complex challenge, given the industry's inherent energy requirements. Ongoing innovation and collaboration are crucial for further progress.

Methodology and methods

The aim of the paper is to identify the main quality strategies and sustainability measures applied by low-cost airlines and to determine the opinions, attitudes and perceptions of passengers regarding this market. To achieve this goal, an exploratory analysis combined with a quantitative market research was carried out. The exploratory analysis aimed to identify the main quality strategies and sustainability measures implemented on the low-cost air transport market. In this sense, internal publications of automotive companies, their websites, annual reports, industry analyzes and reference materials for businesses in this market were studied. The purpose of the quantitative research is to know the opinions, attitudes and perceptions of passengers regarding the air transport market, the quality strategies and sustainability measures implemented in this field.

The main objectives of the paper are:

O1 – Identifying passenger opinions, attitudes and perceptions regarding the low-cost air transport market in Europe;

O2 - Determination of the quality strategies applied in the air transport market by the main low-cost companies in Europe;

O3 - Identification of the main sustainability measures implemented on the air transport market by the main low-cost companies in Europe.

The study was conducted on a sample of 1680 people (table 1), who traveled at least once in the last three years with a low-cost airline. The data collection period was May - July 2023 and was carried out using the Google Forms platform. The final questionnaire included 28 questions, of which 21 were aimed at collecting information on the analyzed subject and 6 final questions were aimed at characterizing the respondents. Data were analyzed using the IBM Statistical Package for Social Sciences (SPSS) program.

TABLE 1
DESCRIPTIVE INFORMATION OF SURVEY PARTICIPANTS

Percent (%)	Percent (%)
Gender	Age
Male	25 or below
48.93%	14.29%
Female	26 - 35
51.07%	21.79%
Place of Residence	36 – 45
Rural	24.81%
40.42%	46 – 60
Urban	21.07%
59.58%	60 or above
	18.04%

Source: Author own research

Results and Discussion

The results and discussions are structured around the three main objectives pursued in this paper.

01 – Identifying passenger opinions, attitudes and perceptions regarding the low-cost air transport market in Europe.

To begin with, the research wanted to determine what is the most sought-after information by the respondents, in relation to flights and low-cost companies (fig.1). The answers showed that most subjects (29.05%) are looking for information about the price of plane tickets, 14.28% about the services offered on board the aircraft, 20.54% about the available routes, 23.93% about the flight schedule, 6.43% about information about certifications in the field and 5.77% are looking for other information.

The results of the research showed that consumers put emphasis primarily on the price of the plane ticket, being a very important characteristic for them, to the detriment of other aspects, such as quality or sustainability certifications in the field.

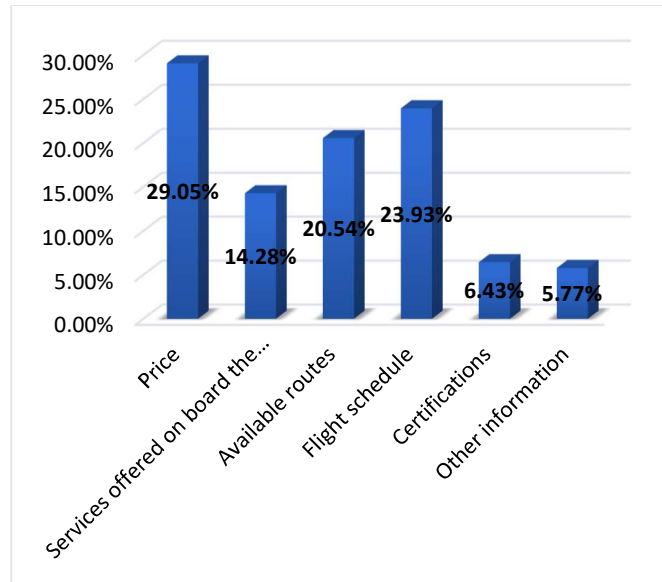


Figure 1. The most sought-after information by respondents in relation to flights and low-cost companies

Source: Author's own research

Respondents were asked what are the main criteria they use when choosing to fly with an airline. Most respondents choose the airline according to the available route (32.5%), the fare charged (31.49%), the flight schedule (24.29%), the training of the airline staff (6.24%), the baggage policy (5.48%).

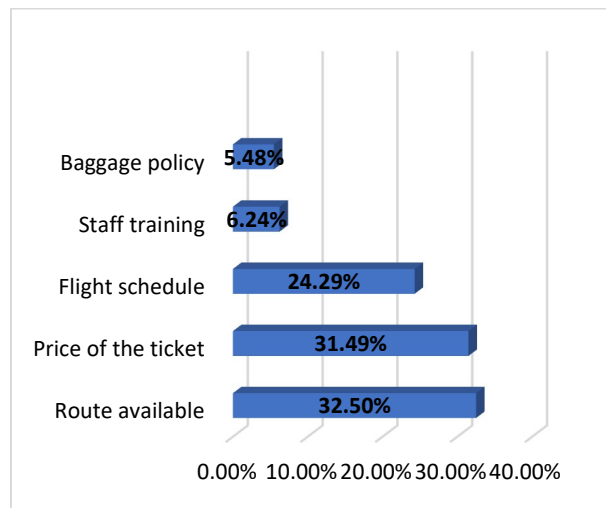


Figure 2. The main criteria by which respondents are guided when choosing an airline

Source: Author's own research

O2 - Determination of the quality strategies applied in the air transport market by the main low-cost companies in Europe

The research sought to identify what quality means for the respondents in air transport services, their perception of the quality of a flight with a low-cost airline. 55.95% of the respondents considered a quality flight when the flight schedule is respected and there are no delays, 21.43% of the respondents believe that the quality consists in the services received during the flight on board the aircraft, 13.93% of the respondents considered a quality flight if it is done with less consumption of resources and is more sustainable and 8.69% of respondents consider a quality flight when the flight is not cancelled.

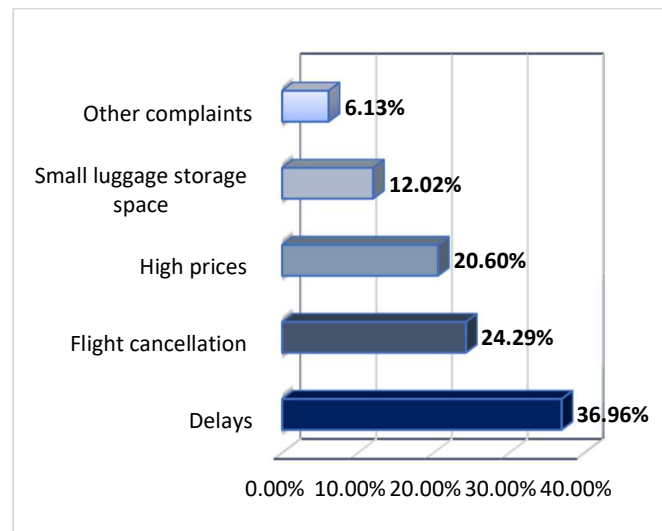


Figure 3. Subjects' complaints regarding flights operated by low-cost airlines

Source: Author's own research

The most dissatisfaction of subjects regarding flights operated by low-cost airlines are related (fig. 3) to: flight delays (36.96%), flight cancellations (24.29%), high prices (20.6%), small storage space of luggage (12.02%) and 6.13% of the subjects expressed other dissatisfactions. Some of the respondents say they are bothered by the fact that, following flight cancellations, they receive compensations very late or not at all.

The main quality strategies applied by the three low-cost airlines, Wizz Air, Ryanair and Easy Jet, are:

- The strategy of differentiation through quality, is based on competitiveness, being quite reliable, and offering availability and accessibility to customers to its services through:
 - ♣ Low prices for services, being a low-cost company;
 - ♣ Continuous promotion of services, through promotion in the mass media, notifications in the application;
 - ♣ Following the products in operation, through the development but also the diversification of services.
- The strategy of diversification through quality, trying to diversify their services, some of these companies, for example Wizz Air, entered the land transport market (taxi services), but also the market of hotel services (accommodation).

- The strategy of dominance through quality, wanting to keep its market, having a large volume of sales, which it wants to increase.
- The strategy of excellence, managing to make a profit while leaving behind countless satisfied customers with the services provided.
- The strategy of continuous improvement, wanting a continuous and gradual development of quality to offer customers the best services [14]. Thus, in 2021 Ryanair made an investment of 22 billion dollars to acquire more ecological planes, reduce fuel consumption as well as operational noise emissions.

O3 - Identification of the main sustainability measures implemented in the air transport market by the main low-cost companies in Europe

The research showed that most respondents have heard of the concept of sustainability (94.58%) and want to be more sustainable (83.63%). However, only a percentage of 6.43% of respondents take into account when choosing the airline to fly with, how sustainable and involved in environmental protection it is. The majority of respondents (57.53%) stated that they would not pay more for an airline ticket to fly with an airline that is more sustainable and has a quality or sustainability certificate.

In the air transport market, the most important certifications that ensure a sustainable activity are: SAF (Sustainable Aviation Fuel), Single European Sky, Green Campus and Electronic Flight Bag Supply Chain Qualification. Thus, a common measure of sustainability is obtaining such a certification. All these certifications are known to a small extent by the respondents, who do not know what these certifications refer to. However, among these certifications the most well-known is the SAF (Sustainable Aviation Fuel) Supply Chain Qualification (17.14% of respondents have heard of it).

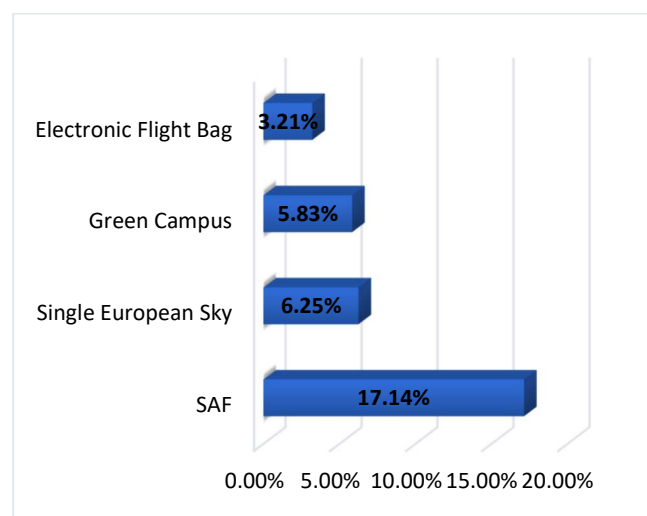


Figure 4. The extent to which respondents are aware of the most important certifications regarding air transport sustainability

Source: Author's own research

Carbon emissions from passenger flights and their impact on the environment have been discussed for several years. Biofuel is currently considered a sustainable resource for reducing carbon emissions in passenger air transport. Therefore, the idea of sustainable use of biofuels in passenger air transport and carbon tax is increasingly promoted to reduce carbon emissions [15].

Wizz Air focuses on the continuous improvement of the three pillars of sustainability – environment, people and economy. The sustainability strategy is integrated with the company's vision [16].

Responsibility towards the environment is a very important aspect for those at Wizz Air, that is why they have intensified the measures related to environmental protection.

The main objectives pursued by Wizz Air from this point of view are the following [17].

- Reducing the intensity of carbon emissions from flight operations by 25% by 2030 (grams CO₂/RPK);
- Qualification as a SAF supply chain starting in 2025;
- Noise reduction by complying with emission standards from 70% to 100% by 2028;
- Creating future technology building blocks and industry partnerships to enable a net zero carbon commitment by 2050.

Ryanair aims to be leaders in aviation and remain the cleanest and greenest airline in Europe. For this, in November 2021 they developed a path to zero net emissions by 2050 "NET ZERO" which aligns with the Paris Agreement and the Destination 2050 initiative. Ryanair shows that decarbonisation and alignment with EU climate targets is possible [18].

The company's environmental policy objectives are:

- Investments in advanced technology (210 B737-8200 "Gamechanger" aircraft);
- The objective to use 12.5% SAF (sustainable aviation fuel) by 2030;
- 10% reduction in CO₂ emissions per pax/km until 2030.

Ryanair has made a \$22 billion investment to purchase greener aircraft [19]. In 2021, 73 Boeing 737-Aircraft 8200 "Gamechanger" aircraft equipped with LEAP-1B engines and wings with advanced technology were purchased. The new aircraft reduce fuel consumption by approx. 16% per seat, as well as operational noise emissions by 40% compared to the existing fleet. Also, the new seating configuration now allows for the carriage of 197 passengers, 8 more than the existing fleet, thus significantly reducing CO₂ emissions per passenger [19].

Another sustainability measure adopted by Ryanair was the signing of a memorandum of understanding (MOU) with Shell. This promotes the supply of sustainable aviation fuel (SAF) to over 200 Ryanair airports in Europe, with a particular focus on the supply of SAF to Ryanair's largest bases such as Dublin and London Stansted. This agreement with Shell provides 360,000 tonnes of SAF between 2025 and 2030, saving over approx. 900,000 tons of CO₂ emissions (the equivalent of over 70,000 flights from Dublin to Milan) [20].

EasyJet has implemented several sustainability measures to minimize the impact of flights on the environment. In the short term, they focus on being as efficient as possible, avoiding noise and unnecessary fuel use. Easyjet owns and continues to acquire Airbus NEO aircraft. These aircraft

are at least 15% more fuel efficient than the aircraft they replace and also have a 50% reduction in noise (www.easyjet.com/en/sustainability).

EasyJet has partnered with Airbus, Rolls-Royce, GKN Aerospace, Cranfield Aerospace Solutions and Wright Electric to accelerate the development of zero-carbon technologies such as hydrogen so that in the future aircraft can fly with zero emissions of carbon. Together with Rolls-Royce, they are pioneering the development of hydrogen combustion engine technology capable of powering an aircraft the size of easyJet in the future. Hydrogen has zero carbon emissions and has the potential to significantly reduce aviation's non-CO₂ impacts as well (www.easyjet.com/en/sustainability). They have introduced new crew uniforms made from recycled plastic.

Thanks to achieving IATA IEnvA Stage 2 accreditation, EasyJet are the first low-cost carrier in the world to have a fully IATA IenvA certified Environmental Management System (EMS) [21].

Conclusion

As a result of the research, it emerged that there are differences between the opinions of passengers and the opinions of low-cost airlines regarding the concept of quality on the air transport market. Passengers understand by quality, first of all, that the take-off and landing time of the plane is respected and that they have access to an auxiliary range of services on board the plane. For low-cost airlines, quality services mean flights with less carbon and gas consumption, more sustainable flights. That is why it is important to have campaigns to educate and raise awareness among passengers about the impact of flights on the environment.

The perspectives on the quality and sustainability of air transport vary based on different stakeholders and considerations.

Quality:

- Industry Perspective: Airlines focus on operational efficiency, on-time performance, and continuous improvement in service quality. Meeting regulatory standards and ensuring a positive passenger experience are crucial for competitiveness.
- Regulatory Perspective: Regulatory bodies play a key role in setting and enforcing safety and service standards. Compliance with regulations is essential to maintaining the quality and integrity of air transport.
- Passenger Perspective: Passengers generally prioritize safety, reliability, comfort, and good customer service. Airlines striving to meet these expectations often receive positive reviews and build customer loyalty.

Sustainability:

- Industry Initiatives: Airlines and aviation organizations are increasingly acknowledging the importance of sustainability. Initiatives include the development and use of sustainable aviation fuels, carbon offset programs, and investments in technology for more fuel-efficient operations.

- Environmental Advocates: From an environmental standpoint, air transport is often criticized for its carbon emissions. However, there is recognition of efforts to adopt sustainable aviation fuels, invest in fuel-efficient aircraft, and implement eco-friendly practices.
- Public Awareness: There is a growing awareness among the public about the environmental impact of air travel. Some travelers are actively seeking airlines with sustainable practices and may be willing to pay more for eco-friendly options.

Balancing quality and sustainability in air transport involves addressing safety and service concerns while actively working to minimize environmental impacts. Industry collaboration, technological advancements, and regulatory support are key elements in achieving a harmonious balance between these two critical aspects of air transport.

The fact that random sampling was not possible is the main limitation of the research. Therefore, statistical validation of the sample is impossible and the results cannot be extrapolated to the entire researched population. However, the work is no less valuable and has relevant scientific contributions in the field of the analyzed subject. The results of this research can be the basis of further extensive research on the air transport market, but can also be used by companies in this sector to formulate competent competitive strategies.

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