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ORGANIZATION OF PASSENGER LOGISTICS PROCESSES IN THE PERSPECTIVE OF EPIDEMIC CONDITIONS FOR AIR TRANSPORT

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Purpose: The aim of the research is to analyze changes shaping the organization of passenger service processes in air transport during the epidemic.
Design/methodology/approach: The main goal and partial goals resulting from the analyzes performed were achieved by using a developed research methodology that includes literature analysis, analysis of the research area, survey research and process mapping.
Findings: The development of research results allowed us to observe differences in the structure of passenger service processes before and during the Covid-19 pandemic.
Research limitations/implications: The conducted research was based on a selected representative entity, which is an international airport. Future studies in other ports should be considered to increase the study area and diversify the study population.
Practical implications: It is possible to use the developed methodology to standardize passenger service processes in an epidemic situation for various modes of transport.
Social implications: Based on the experience of the Covid-19 pandemic, standardization of processes may contribute to improving the quality of services provided and increasing the sense of security of users.
Originality/value: The article presents an individual approach to the issues of process designing using the developed research methodology. The work can be used by passenger logistics operators to develop their own passenger service procedures in an epidemic situation.

Keywords: process management, air transport, covid-19, process designing.

Category of the paper: Research paper.

1. Introduction

Management and organization of transport processes is an integral part of the functioning of enterprises on the market. Air transport is the youngest and fastest growing branch of transport in the world. The continuous development of aviation technologies and the implementation of modern solutions in process management are an integral part of improving

procedures and airport infrastructure. Wąsowska (Wąsowska, 2018) states in her work that air transport nowadays is the most important element of global transport infrastructure. It guarantees flexibility and consistency in relation to the changing market environment and is crucial for the functioning of complex supply chains (Brzóska, 2017). Due to the nature of movement, air transport has been the most affected during the Covid-19 pandemic. This resulted in a drastic drop in the number of passengers and thus a reduction in revenues for airlines. While waiting for the vaccine, the authorities of individual countries introduced legal restrictions to reduce air traffic. It has been shown that this branch of transport significantly contributed to the spread of the virus, the subsequent consequence of which was the implementation of a flight ban in the most affected regions (Troyer, Bidaisee, 2022; Tulio et al., 2020). Statistical data published by the International Air Transport Association (IATA) (IATA, 2020) clearly indicate that in April 2020 there was the largest slowdown in air traffic since the end of WWII, where the number of passenger flights was reduced to 6% of the value from 2019. Governments of many countries directed aid through the introduction of relief and support programs due to the significant drop in revenues of the aviation industry by 62%. (Abate, Christidis, Purwanto, 2020; Zhang, Zhang, 2021) Upstream and downstream aviation industries as well as related sectors also saw a significant decline in orders. Many airports were closed, which led to the termination of contracts with aircraft manufacturers, fuel suppliers and service providers. The entire tourism industry based on air connections has slowed down. (Gallego, Font, 2021). The epidemic situation forced the entire aviation industry to look for solutions that would enable it to continue operating on the market. This especially concerned passenger transport, which was drastically reduced. The slow recovery from the pandemic provided greater opportunities for airlines to increase passenger traffic. This was possible, but only while maintaining the necessary safety procedures. (Sun, Zheng, Wandelt, Zhang, 2023). The article analyzes airport procedures from the perspective of a passenger and an airport employee. The research covered one of the largest airports in Poland located in the Silesian Voivodeship. The logistics processes included in the research were narrowed down to a comparative analysis of airport procedures before and during the epidemic state of the Covid-19 pandemic. These analyzes were preceded by surveys, the results of which were presented in the research part.

2. Literature review

According to Madeyski et al. (Madeyski, Lissowska, Marzec, 1976) air transport is defined as "the intentional movement of people and cargo in airspace, separated from other activities in technical, organizational and economic terms." The labor resources of air transport include four basic elements, including: airplanes, airports and all devices designed to ensure safe travel,

i.e. precautions and air traffic monitoring (Huderek Glapska, Nowak-Mizgalska, Jankiewicz, Augustyniak, 2019). Aviation law defines an airport as "an airport for public use used for commercial flights" (Art. 2. section 17 Aviation Law, 2023), while an airport is defined as "a separate area on land, water or other surface wholly or partially intended for to perform take-offs, landings and ground movement of aircraft, together with permanent construction facilities and equipment located within its boundaries, entered into the airport register" (Article 2.4 of the Aviation Law, 2023). Nowadays, airports are "complex, large technological and economic organizations" (Stangel, 2014) and fulfill many different functions.

2.1. Air transport in the era of the Covid-19 pandemic

The pandemic has redefined the approach to managing and organizing transport processes. Many works raised the topic of Covid-19 and its impact on individual branches of transport, including air transport, which was one of the most economically disrupted.

Khatib et al. (Khatib, Carvalho, Primavesi, To, Poirier, 2020) identified the risk of virus transmission during commercial flights, referring to the activities of staff and passengers at airports and on aircraft. In the work of Bielecki et al. (Bielecki et al., 2021), the strategy for preventing the spread of the virus in air transport of passengers was reviewed, taking into account: the number of travelers, preventive measures, medical recommendations, visual temperature control, the use of masks and other quarantine measures. Sun et al. (Sun, Wandelt, Zheng, Zhang, 2021) did a great job of reviewing the literature and analyzing over 110 articles in the context of Covid-19 and air transport in 2020.

They explored in-depth issues covered in works related to the global air transport system, the impact of the pandemic on passenger-centric flight experiences, and the far-reaching implications for aviation. Similarly, in the literature research included in the work of Khatib et al. (Khatib, McGuinness, Wilder-Smith, 2021) analyze the role of passenger travel in the spread of Covid-19, the safety of air travel, the effectiveness of control and prevention, and issues related to vaccine passports. Thepchalerm and Ho (Thepchalerm, Ho, 2021) presented a summary of the impact of the pandemic in the context of operational, financial and market impact on airlines.

When examining the impact of Covid-19 on air transport, many authors present detailed analyzes that clearly emphasize the importance of the epidemic for the global economy (Agrawal et al., 2023). The biggest collapse of the aviation market occurred in 2020, when in the first half of March the number of travelers on international flights dropped dramatically and a month later there was a 90% drop in the availability of seat kilometers (Suau-Sanchez, Voltes-Dorta, Cugueró-Escofet, 2020; Iacus, Natale, Santamaria, Spyratos, Vespe, 2020). The capacity of major carriers decreased by approximately 60-80%, and this parameter was most related to the collapse in air travel (Dunford et al., 2020). IATA forecasts included a 55% decline in passenger revenues and a 48% decline in passenger-kilometer revenues. In fact, this decline turned out to be around 66%, which brought back the long-term development of the aviation

market to the state of 1999 (IATA, 2020; 2022). The Covid-19 pandemic wiped out half of airport revenues and two-fifths of passenger traffic in 2020. Airlines reported a net loss of $5.2 billion in the first quarter of 2020 (First Quarter 2020 U.S. Airline Financial Data, 2020).

2.2. Designing passenger logistics processes at airports

The functioning of market entities and industry institutions is inextricably linked to management and process design. Maintaining appropriate internal structures and procedures allows you to efficiently organize the work of enterprises, taking into account appropriate parameters and predicting the results of individual activities. Process design can be defined as activities undertaken as part of the structuring of activities and decisions while maintaining the sequential nature of individual steps (Bendkowski, 2017). However, process modeling allows for accurate mapping of all activities by eliminating possible errors for a smooth and uninterrupted course (Kwasiborska, 2016).

In Będkowski's work (Bendkowski, 2017), the design process is defined as "a substantive and creative type of human activity, emphasizing the creative feature of design that gives the product signs of greater or lesser originality." According to the definition of Hammer and Champy (Hammer, Champy, 1993), a process is "a set of activities that have one or more inputs, which are modified into outputs and then present their value to the buyer." A process is a set of certain activities and events taking place before an obstacle occurs, and the implementation of documents in which a given obstacle is identified and solved is also indicated by Sołtysik (Sołtysik, 2015).

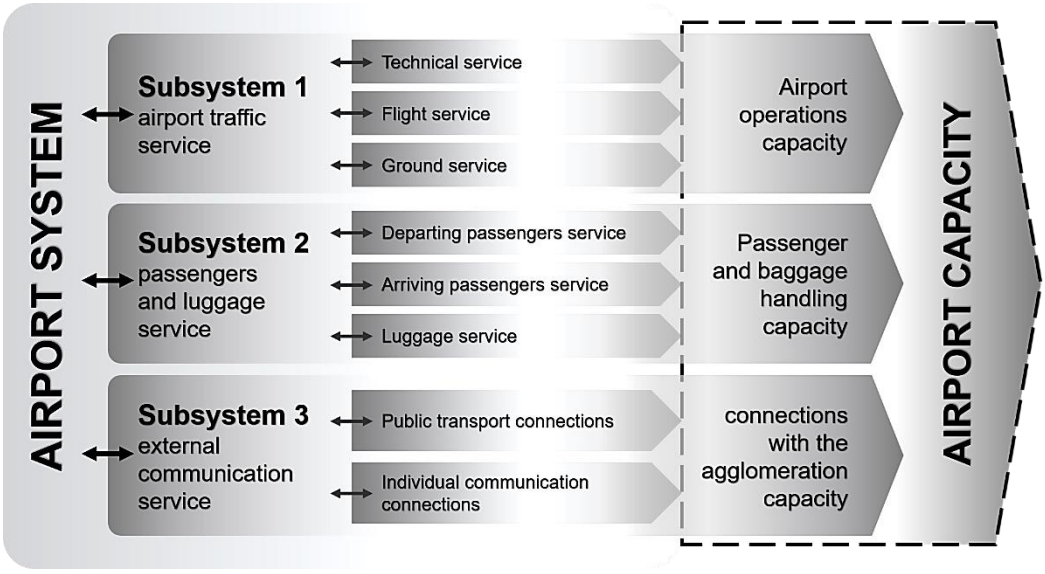

Figure 1. Capacity of airport subsystems.

Source: based on Stachlewski, 2011

The global development of air transport and technological development have enabled a rapid increase in demand for air services. A particularly important element during the Covid-19 pandemic was the adaptation of airport procedures to regulations and difficulties in

air traffic (Bitkowska, 2021). Designing logistics processes at the airport is one of the most important activities to ensure the safety of travelers and the stability of the entire passenger transport. An airport is a complex system (Figure 1), it can be divided into several important subsystems: air traffic handling, passenger and baggage handling, and external communication (Merkisz-Guranowska, Kamyszek, Andrzejewska, 2013).

One of the basic modeled processes at an airport is throughput. This is one of the most important parameters aimed at assessing the transport capabilities of a given airport. According to the definition, it is considered that throughput is the value of the maximum operations performed by a given airport, i.e., among others, the number of take-offs and landings reflected in a given time unit (Malarski, Ziółkowski, 2016). Throughput is an important parameter and depends on several factors:

- weather conditions,
- devices aimed at aircraft navigation,
- "landing area" parameters (take-off area),
- flight control instruments (Mascio, Moretti, Piacitelli, 2020).

In accordance with the rules for determining capacity, it is necessary to familiarize yourself with the rules under which a given airport operates. Thanks to such information, an in-depth analysis is carried out, which leads to the closest assessment of the actual throughput. One of the most important processes taking place at airports is passenger service. This is one of the most critical elements of the system and the most dynamic resulting from the need to service several types of groups of passengers and their luggage (Orłowski, Modrzewska, 2020). They can be classified as: arriving, departing or waiting to transfer, the group of the last people are called transfer passengers. Passenger service is a dynamic and time-consuming process that is primarily associated with the thorough preparation of service stations (Sztucki, Gąsior, Zając, Szczelina, 2011). The basic operations that must be performed by a passenger before he boards an aircraft include:

- identification of baggage, appropriate marking for transporting it to the aircraft,
- passenger identity verification,
- issuing appropriate documents enabling the cruise (boarding pass),
- passenger search for security purposes,
- compliance with the trip and indication of the passenger's on-board seat (Załoga, Kwarciński, 2019).

Auxiliary processes at check-in include the use of RFID and baggage identification codes, NFC sensors to shorten check-in activities and systems supporting passenger movement around the terminal. The use of modern technologies significantly improves the flow and acquisition of information in passenger service processes (Zafari, Gkelias, Leung, 2019).

3. Research methodology

The main aim of the research is to analyze changes in activities and activities shaping the processes of organizing air transport in epidemic conditions. Additionally, the analyzes carried out are intended to provide answers to questions regarding the impact of COVID-19 on the aviation sector in terms of passenger traffic, as well as issues related to flight safety and the complexity of airport procedures.

First, the structure of passenger air transport in Poland was analyzed based on available statistical data before and after the pandemic. The next stage was survey research, which was conducted in 2023 and included an online questionnaire. The aim of the survey was to indicate the directions of changes in passenger service processes at airports. The sheets contained questions aimed at two separate target groups. The first study was aimed at people traveling by means of transport, such as an aircraft, before and during special pandemic conditions. 155 respondents participated in this study. The second group are airport employees who, as persons staying at airports, directly participated in airport procedures before, during and after the epidemic. The group of respondents consisted of 22 people.

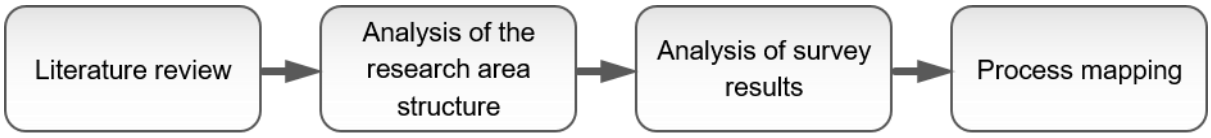

Figure 2. Structure of the research part.

Source: own study.

Survey research allowed us to observe key areas of airport operations in the context of changes caused by epidemic regulations. Highlighting the differences in the organization of processes before and during the pandemic guided further activities in the context of developing a process map, and the results of these analyzes were presented in the last research part.

3.1. The structure of air transport in Poland

Transport is of great importance not only in terms of economic aspects for the economy, but also social ones. It is distinguished by a low accident rate; disasters in air transport are rare compared to road transport, which is why it is considered one of the safest forms of transport. According to the statistics of the Civil Aviation Office, in 2019 (ULC, 2020), over 49 million passengers used airport services, which, compared to the previous year, resulted in an increase of over 3 million passengers. The increase was also recorded in the number of flight operations, which amounted to over 400,000, which, compared to 2018, resulted in an increase of almost 5%. The airport in Katowice-Pyrzowice, as one of the key ports in Poland, recorded an increase in passenger traffic by almost half over the years 2012-2019. The greatest increase was recorded at the turn of 2016 and 2017. The upward trend continued until 2019.

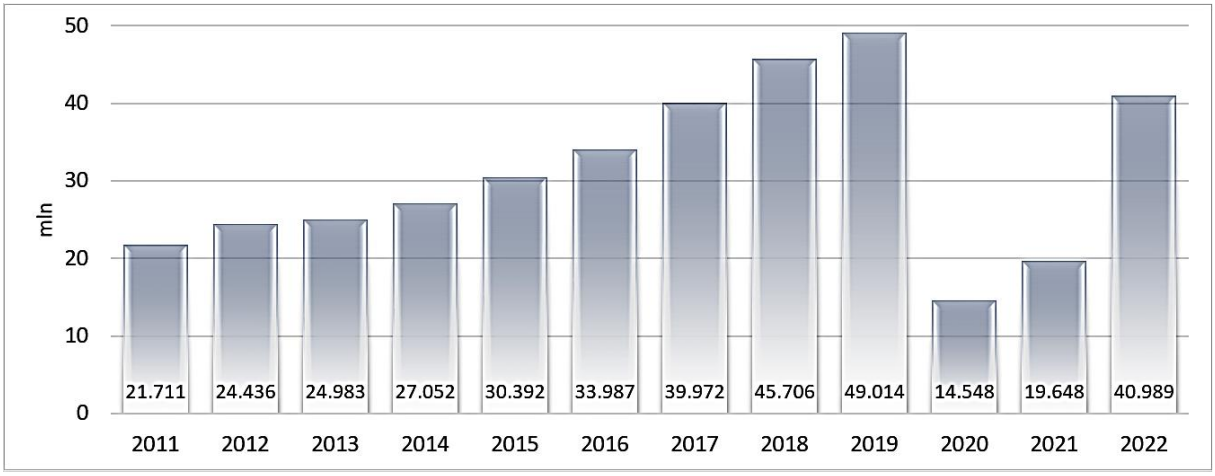

Figure 3. Quantity of passengers traveling by air in Poland 2011-2022.
Source: www.ulc.gov.pl.

Airports in Poland are located mainly on the outskirts of larger cities, this is due to the area they occupy and the noise generated by air transport, which significantly reduces the level of functioning of society, which is why they are not built in centers. The construction of airports on the outskirts of cities is of particular importance, especially when expanding the aviation infrastructure and the surrounding area, which would be difficult in urban development. Especially if we are talking about the expansion of ports into logistics or distribution parks.

3.2. Impact of the Covid-19 pandemic on the aviation sector

The year 2020 will undoubtedly be written in the pages of history - the spreading virus led to a collapse of the economy. The beginning of the economic crisis is considered to be January 30, 2020, when the WHO announced a state of infection threat. The pandemic caused this year by the SARS-CoV-2 virus has changed the current face of the global economy and has had a significant impact on the aviation sector not only in Poland but also across the globe. Which was one of the few transport branches that suffered the most. The Covid-19 epidemic will cause an air transport crisis. Air transport, has so far played an important element of the economic chain and was the most prosperous international branch, and its importance on the global arena was constantly increasing.

The introduction of restrictions caused many problems for airports. Mainly regarding the design of new additional processes and additional safety checks, thanks to which the passenger and the staff reduce the risk of infection. Introducing a number of new processes is a time-consuming cycle, especially in a short period of time. The main processes ensuring reducing the risk of infection with the Covid-19 virus at airports and aircraft included:

- mandatory measurement of body temperature,
- control of wearing masks at airports, but also on aircraft,
- control of presenting a negative Covid-19 test or taking the test at the airport,

- mandatory disinfection,
- limiting the presence of people, including a social distance of 1.5 meters between passengers.

Despite the implementation of all safety rules, there was a visible decline in flight operations compared to previous years, due to the introduction of newer and newer restrictions and long quarantine periods. At the most dramatic moment of the pandemic, this contributed to a complete ban on passenger traffic, as stipulated in the Regulation of the Council of Ministers of March 13, 2020 (Journal of Laws of 2020). The ban did not apply only to persons returning to the territory of the Republic of Poland on the basis of the recommendations of the Prime Minister (Journal of Laws of 2019).

The most dramatic moment of the pandemic for the aviation sector is considered to be April 2020. The air transport crisis ended only at the beginning of June 2020. Air traffic was restored, but it was not completely valid - it was only for domestic connections. Within a dozen or so days of the resumption of domestic traffic, it could also take place internationally, which was not without strict restrictions regarding mandatory quarantine or the presentation of a negative Covid-19 test or, at a later stage, the presentation of a vaccination certificate. Despite the partial resumption of passenger traffic in the summer, this did not allow for significant reconstruction of the aviation infrastructure. This was largely due to another wave of SARS-CoV-2 virus infections. In the following years, i.e. 2021, 2022, there is a clear upward trend in the number of travelers. Forecasts for 2023 are very optimistic. In the first half of the year, airports in Poland served over 23.3 million travelers. This represents an increase of 4.5% compared to the first six months of 2019

4. Research results

The survey questionnaires used during the study were intended for two groups of respondents. In both groups, questions were constructed in relation to the level of participation in airport procedures, separately for passengers and airport employees. Each questionnaire included basic demographics questions and targeted questions.

4.1. Survey 1 - passengers

The largest group of passenger respondents are people aged 18-24 and 25-36, which together constitute 68.9% of all passengers. Most of them were women, as many as 67.1%, and the vast majority had higher or secondary education.

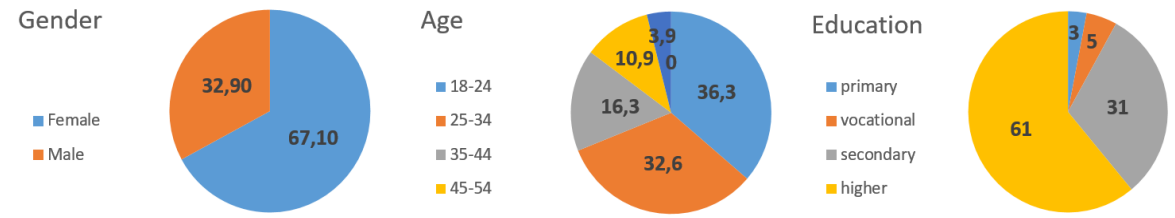

Figure 4. Questions about personal details, survey 1 – passengers.

Source: own study.

The next part consists of eight questions and concerned the preferences and behavior of participants using air transport before and during the pandemic.

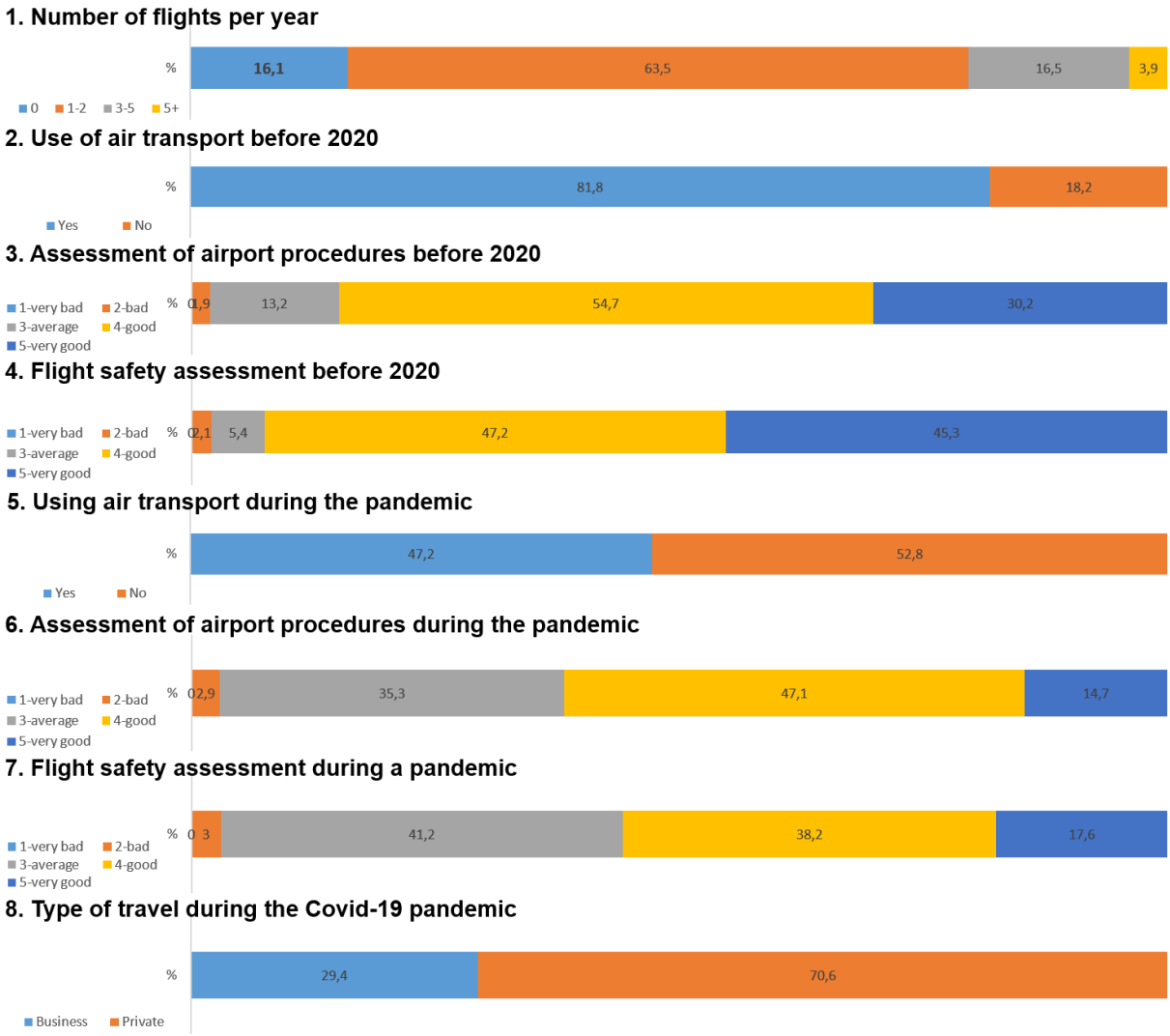

Figure 5. Structure of responses to the survey 1-passengers.

Source: own study.

In the first question, which concerned the number of flights per year, 63.5% of answers were obtained in the range of 1-2, which means that most respondents limited their trips using this mode of transport to 2 per year. More than 20% declared that they used transport more

often, while 16.1% replied that they did not use it, which resulted in their exclusion from further research.

The second question aimed to identify people who used air transport before the introduction of epidemic restrictions. Confirmation was obtained from 81.8% of people, which qualified them for further participation in the study.

The next two questions were focused on the user's assessment of airport procedures and flight safety in normal conditions. Answers were given on a scale from 1 to 5, where 1 meant the lowest rating (very bad). At this stage, the majority of survey participants rated airport procedures as good (54.7%) and very good (30.2%), which proves high passenger satisfaction and appropriate adaptation of service processes to their requirements. Just over 13% rated the procedures average and only a small number rated them poorly (1.9%). Nobody gave a very bad rating.

In the case of the fourth question regarding safety procedures during the flight, the vast majority rated this stage of the journey as good (47.2%) and very good (45.3%), which in total exceeds 92% of positive answers. The average rating is 5.4% and the negative rating is 2.1%. This distribution of responses clearly indicates a high level of satisfaction with the safety procedures ensured during the flight and proves a high degree of passenger confidence in the staff and pilots. This is the end of the first stage of passenger research, which concerned the period before the pandemic. The answers obtained constitute a reliable basis for stating that airport procedures regarding passenger service and flight safety ensure a high level of satisfaction and flight safety standards among the respondents.

The rest of the research concerns the period when pandemic restrictions were introduced. First, study participants were asked about the use of air transport during the pandemic. A positive response was obtained from 47.2% of respondents, which allowed us to select a group of people for further research.

Questions 6 and 7 are a reflection of previous questions 3 and 4 in the realities of "Covid" restrictions. They concern the assessment of airport procedures and flight safety, where a tendency to change the distribution of responses in a negative direction is clearly visible.

The number of responses rating the procedures as very good (5) dropped by more than half to 14.7%. The number of good ratings decreased slightly, by only 7.6%, which gives a total of 61.8% positive ratings. This is a decrease compared to the period before 2020 by 23.1%. The average rating (3) increased significantly and amounted to 35.3%, which is an increase of 22.1%. Bad ratings are still a small percentage of 2.9%, which together with average ratings gives a result of 38.2% and constitutes a significant increase in "non-positive" ratings.

The structure of answers to question 7, which concerned safety procedures during the flight, shows a similar trend as in the case of question 6. There is a clear difference between the increase in "non-positive" ratings (1,2,3), which constitute a total of 44.2%. This gives a 36.7% jump compared to the pre-pandemic period. This clearly indicates a reduced sense of safety

among passengers, which was most likely caused by a number of regulations hindering travel comfort and the awareness of the possibility of endangering health.

The last question concerned the type of travel during the pandemic. It did not have a significant impact on further research, but was included to highlight people's social behavior. Among people who traveled by air during the pandemic, as many as 70.6% traveled for private purposes. This does not mean, however, that they were not necessary and justified. Part of the society consciously declared a lack of interest in Covid-19 topics and downplayed some of the restrictions. Travel for professional purposes certainly has a higher justification status, but with such a significant reduction in all flights during this period, this number is not significant.

4.2. Survey 2- airport employees

The airport employees participating in the study constituted a group of 22 people. This study was carried out using an electronic spreadsheet and face-to-face interviews with a paper spreadsheet.

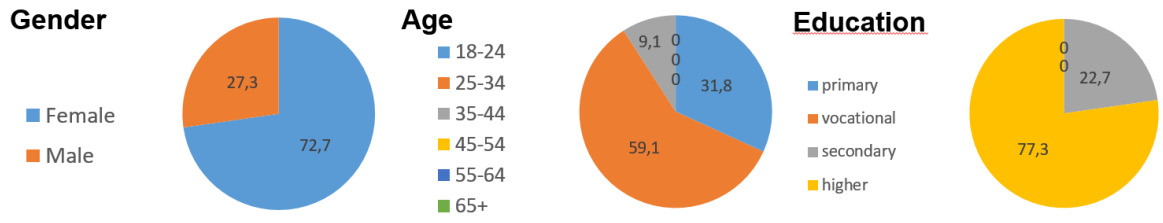

Figure 6. Questions about personal details, survey 2 - airport employees.

Source: own study.

Women constitute a significant group of employees, as many as 72.7%, which may be related to the job position held by the respondents. The age of the respondents also proves their experience in the labor market, not only in airports. Less than 60% of employees are aged 25-34, while 31.8% are aged 18-24. This clearly indicates a very young workforce. Only 9.1% of people declared their age to be between 35-44. No other answers were received, which means that people older than 44 may be employed in other positions. The survey was conducted among employees actively involved in passenger service processes, which to some extent excluded management staff from the research sample. Most people have higher education, this is a group of 77.3%, the rest declared secondary education. There were no answers regarding primary and vocational education.

A survey was conducted among airport employees, the results are presented in the figure above. It included a questionnaire consisting of four questions, the first three being single-choice questions and the fourth being a multiple-choice question.

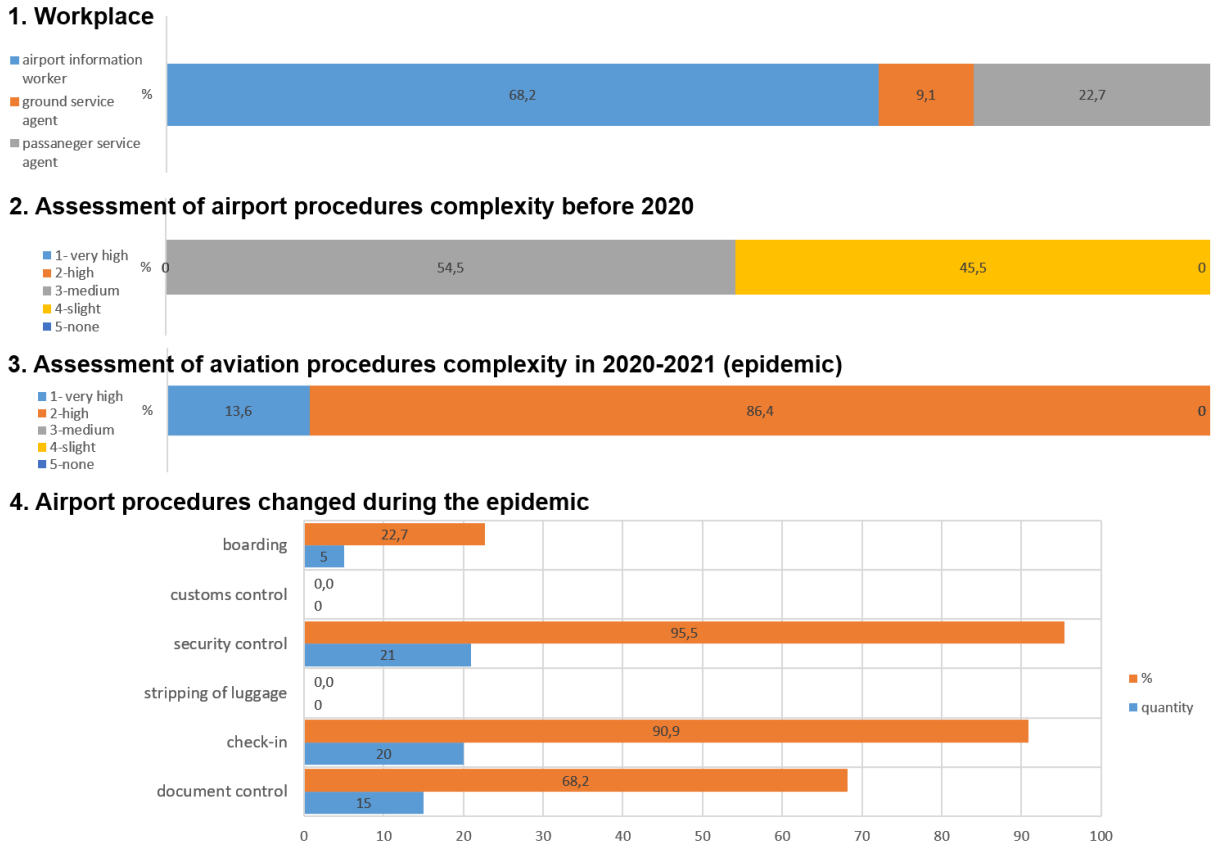

Figure 7. Structure of responses to the survey 2 - airport employees.

Source: own study.

The first question concerned the job position. Among the respondents, 68.2% were airport information workers and 22.7% were passenger service agents. The rest are ground handling agents. Two questions were intended to indicate differences in the organization of airport processes resulting from changes in regulations during the pandemic from the employee's point of view. The degree of complexity of the procedures was assessed on a five-point scale, where 1 - very high - meant the worst result. Airport employees indicated that before the pandemic, the level of complexity of passenger service procedures was medium (3-54.5%) and low (4-45.5%). No other answers were received. It can be concluded that the moderate evaluation of employees is due to good training and low complexity of the procedures themselves. In the symmetric question about procedures during the pandemic, the results turned out to be completely different. Respondents rated the level of complexity as very high and high, which indicates drastic changes caused by the restrictions. This is primarily related to adapting procedures to epidemic regulations regarding the safety of travelers and staff as well as preventing the spread of the virus.

The answers obtained in both surveys constitute the basis for developing a map of the passenger service process, taking into account the stages introduced during the pandemic.

4.3. Mapping passenger service processes in air transport

According to statistics, air transport is the safest branch of transport. Ensuring this state is associated with a very precise and demanding level of management of airport processes, which must meet all safety requirements. Process management, in turn, involves their proper design and mapping. A number of activities are undertaken to efficiently guide the passenger through all stages of the process, from arriving at the terminal to boarding the plane. Airport procedures for passenger service are presented in Figure 7. The process is presented in the form of a map illustrating individual stages of the passenger's path to the plane, including changes marked in orange color. These are operations and activities that appeared or changed during the pandemic.

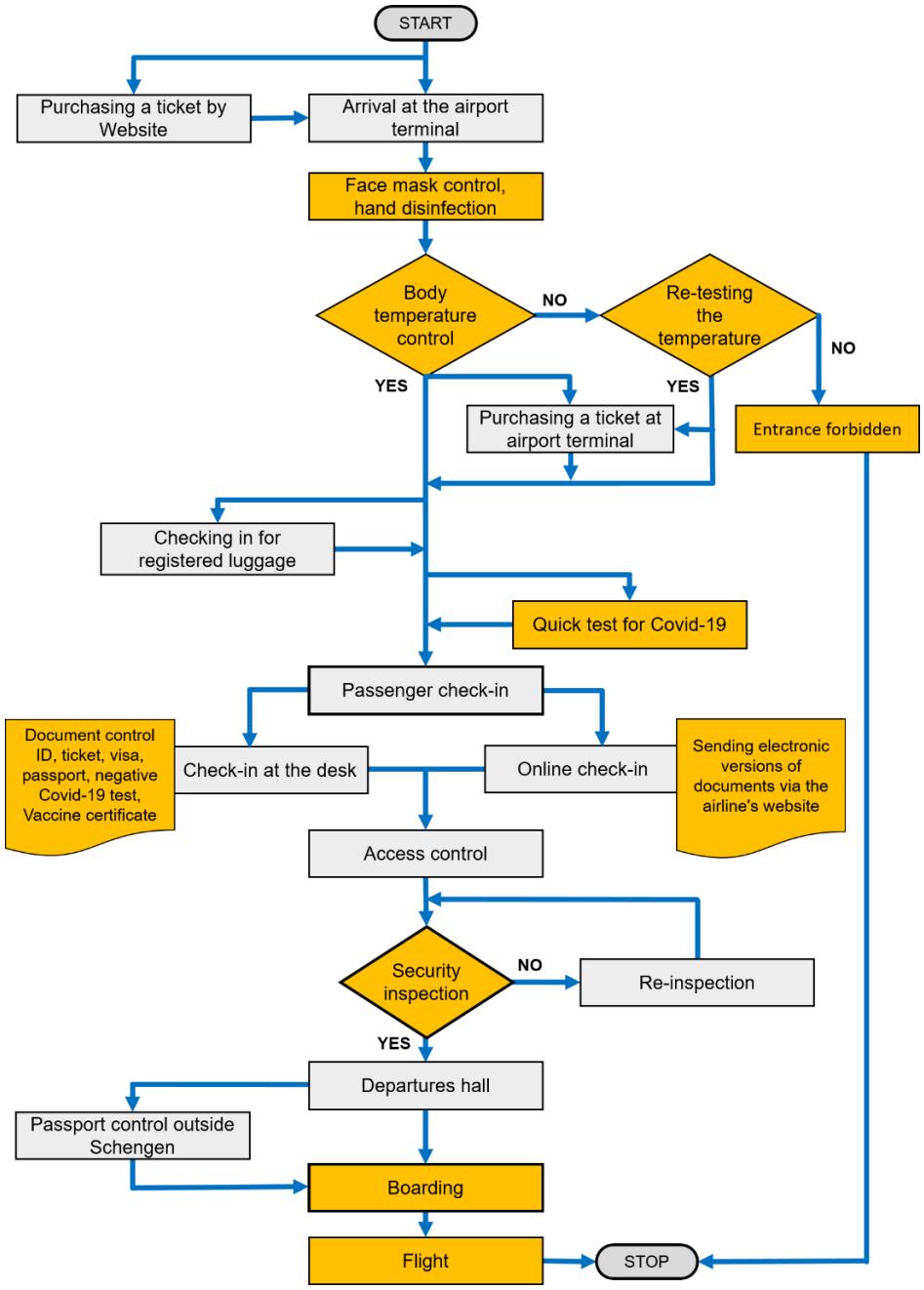

Figure 8. Passenger service procedure during the Covid-19 pandemic.

Source: own study.

The whole process begins with purchasing a ticket, which can be done in two ways. The most common method is purchasing via the website. The next step was to measure the body temperature of a person entering the airport terminal. This activity is marked as new introduced during the pandemic. In most cases, this was done using thermal imaging cameras or other measurement methods. Only people whose body temperature was within normal limits were allowed to enter the airport. Covering the mouth and nose with protective masks was also mandatory when staying at the airport. Moreover, each person staying in the terminal was asked to disinfect their hands using special dispensers, mainly automatic ones, with disinfectant liquid, which were located in designated places.

A key and necessary step for every passenger is check-in. In the case of a standard procedure, after arriving at the appropriate desk, an airport employee checks the passenger's identity (checking documents: ID card, visa, passport, etc.). At this stage, the passenger receives a boarding pass that contains the most important information about the flight. Online check-in is carried out entirely by the passenger using forms on the websites of the airlines. It must be done within the previously designated time frame. After thorough verification of the documents by the staff, a boarding pass is generated, which the passenger should have with him in paper or digital form. The changes introduced in the clearance process consisted primarily in additional documentation. Among other things, in addition to the basic documents, the traveler had to present a negative Covid-19 test or an EU Covid Certificate depending on which country he traveled to and what safety rules were in force in a given country. Rapid direct tests could be performed at designated airport locations. Additionally, the passenger had to submit health documents by completing a form regarding potential contact with an infected person or any disturbing symptoms occurring in recent days.

Access control involves verification and scanning of the boarding pass at automatic gates leading to further control.

The security check is one of the most important stages, the aim of which is to exclude any potential danger caused by the human factor (passenger). In this procedure, passengers are subject to inspection of the contents of their luggage, i.e. compliance with the requirements established by the airlines and whether their hand luggage meets the dimensions and weight requirements. The luggage is x-rayed using scanners, thanks to which the inspector verifies its contents. The passenger is also subject to inspection, passing through a special gate detecting metal elements that could pose a threat to other flight participants. There are also additional forms of personal inspection that are performed on random passengers or people who have been detected with irregularities. During this search, the passenger is again subjected to a more thorough inspection using a hand-held scanner.

After passing the security check, the passenger goes to the departures hall, where he waits for his flight. The last stage is boarding. In the case of passengers traveling outside the Schengen area, additional passport verification is performed. Before boarding the aircraft, you must show your ID and boarding pass. After positive verification of documents, passengers go to special

passages (communication routes) facilitating boarding the aircraft or are directed to vehicles that will safely transport them close to the aircraft. During the pandemic, entry methods may have varied slightly by airline. However, in order to limit the transmission of the virus, in addition to maintaining social distance, passengers boarded in the order in which they took their seats. The first passengers from the back of the plane and subsequent passengers. Changes were also visible in the procedures in force on the plane. This included a reduction in the number of staff and passenger-staff interactions as well as a reduction in on-board catering services.

5. Summary

There is a huge number of studies in the literature relating to the impact of the pandemic on individual economic, social and environmental aspects. The Covid-19 pandemic has had a huge impact on the global economy. Passenger air transport, as one of the main economic sectors, was also subject to turbulence related to the crisis in global logistics. Legal regulations limiting the intensity of virus transmission particularly affected passenger transport, and aviation was one of the main channels of its spreading. Many works raise the issue of the collapse of this branch of transport, seeking explanations for the situation and analyzing the effects in the studied areas. The research methodology presented in the work is characterized by four main stages.

First, a review of the literature on air transport in the era of the pandemic was performed. This is an introduction and reinforces the need for further research focusing on aspects of process management.

The second stage included the analysis of the research area. The aim of the activities undertaken in this regard was to structure knowledge and statistical data on passenger air transport. The directions of changes taking place in the development of passenger aviation under the influence of the pandemic were demonstrated, as well as an analysis of the economic factors resulting from the appearance of the virus.

Then, the results of survey research conducted to identify changes in passenger service processes that were introduced during the pandemic were analyzed. These studies were conducted on two groups of respondents representing "users" and "providers" of given services. This differentiation was intended to indicate relationships that are emphasized by separate groups of people participating in the same processes from a different perspective. This allowed us to identify in detail the stages of the passenger service process that were introduced as procedures to increase the safety of airport users and employees.

The last part of the research involved creating a map of the passenger service process. The aim of the actions taken was to indicate in detail the occurrence of new or changed process activities and to present them in a graphical form. The visualization of the process clearly highlights the number and complexity of airport procedures that have been introduced to protect travelers. It also summarizes all stages of the research. In retrospect, we can see how sensitive and prone to crises the current global economy is. It is a complex structure, composed of many interconnected elements that constantly change and interact with each other. The presented research results present a certain perspective on the possibility of their future application as a model for reorganizing processes in an epidemic situation. Similar crises will probably occur on different scales and at indefinite intervals, so it is important to draw conclusions from experience and develop corrective actions for the future.

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