OTHER ASPECTS OF SECURITY

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DOI : 10.14746/ps.2025.1.20

CRISIS MANAGEMENT IN AVIATION DURING AN EPIDEMIOLOGICAL CRISIS. CASE STUDY: CHINA, TAIWAN, POLAND

INTRODUCTION

In today's fast-moving and digitalized world, information spread worldwide can become either the cause of a crisis or its solution. One of the key factors in crisis management is the proper use of technology and public relations tools to manage, control and inform the public about the situation. Public Relations, as defined by IPRA, is a planned management function aimed at gaining public understanding and support through research and strategic communication (Szyran-Resiak, 2017: 330–333). The epidemiological crisis qualifies as a natural disaster (Kaczmarek-Śliwińska, 2015: 82–84) and in this case global spread of SARS-CoV-2, caused severe health risks, economic collapse, and enduring global consequences (WHO, 2020). This study was conducted to address knowledge gaps in crisis management strategies within the aviation industry during global emergencies, particularly focusing on the impact of the COVID-19 pandemic. Most existing research on aviation crisis management focuses on technical issues, such as equipment failures, plane crashes, or security threats like cyberattacks. Wu and Olson examined how advanced technologies influence flight safety, while the ICAO report outlined emergency response procedures (Wu, Olson, 2020; ICAO, 2021). However, the COVID-19 pandemic introduced unprecedented challenges, requiring the aviation industry not only to adapt standard practices but also to develop entirely new global crisis management strategies. Despite this, there is limited research exploring how different regions of the aviation sector responded to the pandemic (Zhang, Wang, 2022). Crisis management in the aviation sector can be defined as an organized and systematic process designed to protect passenger safety and operational continuity during unexpected events, including health emergencies (ICAO, 2021; Kaczmarek–Śliwińska, 2015). In this context, public relations are understood not only as reactive communication but as a planned management function integrating strategic messaging and stakeholder engagement (Szyran–Resiak, 2017).

The purpose of this study is to analyze crisis management models within the aviation sector in China, Taiwan and Poland during COVID-19 pandemic, with particu-

lar attention to the period 2020–2024, which encompasses both the initial outbreak, subsequent waves, and the gradual lifting of international restrictions. The research problem explored in the article is how the epidemiological crisis impacts crisis management strategies in aviation, with public relations as a key element, and investigates regional differences in these approaches. The hypothesis is that, despite regional differences, crisis management strategies in aviation during the COVID-19 pandemic share common features, with public relations playing a key role. The article aims to answer several research questions: How did the epidemiological crisis impact crisis management strategies in aviation? What role did public relations play in these strategies? Were there regional differences in aviation crisis management approaches? Based on an analytical synthesis of various case studies, this paper reveals distinct approaches to crisis management: China's centralized strategy (Śniedziewski, 2020e), Taiwan's technology-driven model (Wang et al., 2020), and collaborative coordination in European contexts (European Commission, 2021). This typology illustrates how crisis management strategies reflect local institutional contexts and technological capacities while sharing common principles such as transparency, flexibility, and rapid response. The results indicate that despite regional variations in the approach to the COVID-19 outbreak, certain strategies, particularly international cooperation and public relations tools, became prominent elements in the crisis management strategies of China, Taiwan, and Poland. Due to the continuous global impact of pandemics, examining crisis management is essential for improving future responses and enhancing resilience in public health emergencies.

METHODS

In this research I employed a qualitative method, specifically thematic analysis and case studies to explore how governments, aviation organizations, and airlines addressed the challenges brought by the COVID-19 pandemic. The analysis covered the primary pandemic years 2020–2021, supplemented by later data and reports up to 2023/2024 to trace the long-term implications for aviation crisis management. Future research should complement these findings with quantitative methods, such as statistical analysis of passenger flows, financial losses, or recovery rates, in order to better assess the effectiveness of different crisis management strategies. By examining secondary data such as government policies, industry reports, academic writings, and public statements, I pinpointed both widespread patterns and specific tactics employed in various regions for crisis management. I applied a case study approach, selecting China, Taiwan, and Poland based on their roles in aviation crisis management during the pandemic. China was the first to face the outbreak, Taiwan developed innovative strategies that shaped Europe's future approach, and Poland provided a European perspective with unique aviation challenges. Significant cooperation between these nations at aviation and governmental levels further enriched the analysis. The analysis criteria were the actions of national authorities, the strategic deployment of public relations, the roles played by aviation authorities, and how national airlines contributed to handling disruptions in the aviation sector.

RESULTS

Aviation was among the sectors hardest hit by the epidemiological crisis. Declining demand for air travel and border closures led to shutdowns of aviation markets, bringing severe economic consequences. The International Air Transport Association (*IATA*), representing over 290 airlines globally, which is considered the voice of the aviation industry, estimated massive losses that would be impossible to recover (Walków, 2020a). Airlines implemented crisis mitigation measures, including flight cancellations, fleet grounding, and cost optimization. Additional actions involved the suspension of investments, renegotiation of leasing agreements reduced guaranteed work hours for staff or downsized their workforce. Others declared controlled bankruptcy or went out of business entirely. IATA appealed to governments for greater support for airlines to help mitigate the crisis, focusing on three primary types of actions: direct financial aid to passenger and cargo airlines to compensate for lost revenue and liquidity constraints due to government-imposed restrictions; loan support or guarantees from governments or central banks; and tax relief for 2020 (Walków, 2020a). To address these challenges, airlines strengthened public relations efforts, establishing relationships with authorities at various levels (*public affairs*) and lobbying government decision-makers, often involving the media (Walków, 2020b). Airlines and IATA urged governments to implement a unified crisis strategy, including measures like relaxing compensation regulations for delayed and canceled flights, suspending slot usage rules during flight suspensions, and providing financial support. The primary justification for governmental aid to airlines, despite the economic strain the pandemic places on all sectors, is the critical economic importance of connectivity and mobility.

CASE STUDIES: CHINESE MODEL

The People's Republic of China (PRC) was the first to face the expanding epidemic, just before the celebrations of the Chinese New Year, a period of high travel demand. The collapse in passenger flight demand, triggered by reports of further COVID-19 infections, forced Chinese airlines to implement crisis management protocols (Śniedziewski, 2020a). In February, Chinese authorities began implementing support strategies for the civil aviation sector. Moreover, strict oversight and the exchange of information and experiences facilitated by the Civil Aviation Administration of China (*CAAC*) helped develop the most effective procedures to address the ongoing challenges. The consequences of the decline in passenger flights led to the implementation of saving measures (Śniedziewski, 2020b). The growing issue of excess aviation personnel became more pronounced, with many crew members, both flight and cabin crew, being sent on unpaid leave. This solution, commonly applied in the Chinese aviation industry, particularly during seasonal downturns, could influence the long-term perception of China as an attractive market for foreign aviation personnel (Śniedziewski, 2020c). After the WHO declared a public health emergency at the end of January, China's Ministry of Finance and CAAC announced specific terms for a support strategy for the aviation sector, which had been heavily impacted by the health crisis.

Subsequently, CAAC issued 16 directives aimed at supporting the aviation industry, and on March 21, it was announced that all international flights to Beijing would be rerouted to other domestic airports for epidemiological testing before continuing to the capital. The crisis management model adopted by China's aviation industry, supported by governmental policies, led to a situation where China was the only country to experience an increase in flight operations (Śniedziewski, 2020b). Despite the assurances from the Civil Aviation Administration of China regarding the stability of the aviation sector, from an economic perspective, the suspension of international flights to China while domestic carriers maintained internal operations is a partial solution to the crisis. While at the peak of the pandemic the true balance in the aviation sector depended on the lifting of international flight bans, these restrictions were gradually relaxed between late 2022 and early 2023. China's updated measures included easing quarantine rules, resuming selected international routes, and adjusting entry regulations, which collectively marked the gradual reopening of the PRC's aviation sector (Śniedziewski, 2020b).

CASE STUDIES: TAIWANESE MODEL

In the context of regional dynamics, the 2016 democratic elections in Republic of China (ROC, Taiwan), which brought Tsai Ing-wen to power, marked a turning point where the PRC intensified its efforts to exclude Taiwan from the WHO as part of a broader policy of diplomatic isolation. This exclusion, even as an observer at the WHO's meetings, deprives the island's 23 million citizens of access to up-to-date medical information and denies the world the benefit of Taiwanese scientific contributions. For example, research conducted by a team of scientists from Taiwan in 2003 played a key role in the development of a SARS vaccine (Liu et al., 2024: 3218–3220). Similar isolation of Taiwan occurs in other international organizations, such as the United Nations and the International Civil Aviation Organization (*ICAO*) (Council on Foreign Relations, 2023).

Despite these challenges, Taiwan is regarded as a model example of pandemic management during the SARS-CoV-2 outbreak. The use of big data, the Internet, mobile applications, and swift responses in this small country helped it avoid the devastation caused by COVID-19 (Duff-Brown, 2020). In mid-January – weeks before the WHO confirmed the emergence of a new infectious disease – Taiwan sent a team of medical experts on a reconnaissance mission to Wuhan, despite the complex nature of Taiwan-China relations. A crisis management team was also established, which implemented a ban on the export of protective masks and ensured their affordability by capping prices at approximately $0.17 per mask. Domestic mask production was scaled up from 2 million to 20 million units per day (Ko, Lee, 2021). Taipei had established the Central Epidemic Command Center, centralizing policy measures to safeguard public health (Ministry of Health and Welfare, 2021: 4–6). The Ministry of Transportation and Communications (*MOTC*) announced that starting from March 16, the government would provide financial support in the form of a project loan to mitigate the impact of the coronavirus on Taiwan's aviation industry. During a press conference at the Legislative

Yuan, MOTC Deputy Minister Huang Yu-lin noted that six major airlines in Taiwan, including *China Airlines*, *Eva Air*, *Mandarin Airlines*, *Uni Air*, *Tigerair*, and newly established *Starlux Airlines*, had contacted the government for economic assistance and the possibility of obtaining financial loans (Taiwan News, 2020). The MOTC also developed a financing plan for aviation companies worth 30 billion NT$, approximately 1 billion USD. The Deputy Minister emphasized that Taiwanese airlines had suffered notable losses due to the pandemic, including crew members who were forced to take unpaid leave due to the suspension of international flights. Taiwanese authorities also decided to reduce airport rents and landing fees for national carriers until the epidemic was under control (Taiwan News, 2020). It is estimated that in February alone, the number of passengers traveling on Taiwanese airlines decreased by approximately 50%. On March 19, Taiwan introduced a ban on foreign nationals entering Taiwan, with certain exceptions for individuals fulfilling business contracts, holding valid foreigner certificates, diplomatic credentials, or other official documentation, and special permits. At Taiwanese airports, temperature monitors were installed to screen travelers for fever, a symptom of COVID-19. Travelers could also report their travel and health history using a QR code, which the government utilized to classify travelers' infection risk based on flight origin and travel history over the past 14 days. Additionally, the health insurance system allowed citizens suspecting they had contracted the coronavirus to receive a fully funded hospital visit for a free test. If the test result was positive, the government also covered the cost of a 14-day hospital stay, including meals and, of course, medical care (Wang et al., 2020). In response to the COVID-19 pandemic, the ROC and its aviation sector, implemented comprehensive public relations strategies, including a dedicated online platform for COVID-19 information and health regulations. This resource provided updates on travel restrictions, health declarations, and quarantine requirements, while enhancing passenger support through services like flexible ticket refunds and "The Safe Seat Selection" for social distancing. To maintain a high standard of hygiene, the airline implemented enhanced cabin disinfection protocols, using medical-grade HEPA filters. Further reinforcing its community responsibility, China Airlines, in partnership with the Taiwanese government, facilitated donations of medical supplies to Europe, strengthening its global public image (China Airlines, 2022). Taiwan's Minister of Digital Affairs and a former Apple employee, Audrey Tang, played a pivotal role in the country's crisis management model during the pandemic. Tang leveraged her connections within the hacker community to integrate stock data from mask suppliers with Google Maps, allowing citizens to locate available masks. A rationing system was introduced, limiting adults to nine masks and children to ten every two weeks. The app, which included features for visually impaired users, was used by over 10 million citizens. Tang also implemented "digital quarantines," where cell phone data was monitored via transmission towers. Alerts were triggered if someone left their "electronic fence" or turned off their phone, prompting a police response (Lee et al., 2024: 52–55). Compliance was incentivized with a daily allowance of $33, while violators faced hefty fines. Isolated individuals received local government support, including shopping assistance, and were regarded as national heroes, fostering broad societal acceptance of the measures (Yarmosky, 2020). The involvement of Taiwan's government and national carrier, in global aid

efforts during the COVID-19 pandemic not only enhanced the airline's public image but also strengthened diplomatic ties between Taiwan and European countries. Media coverage of these aid initiatives facilitated closer partnerships, highlighted when European Commission President Ursula von der Leyen publicly praised Taiwan for donating millions of masks to support Europe's fight against the coronavirus. In a notable display of solidarity with Taiwan, von der Leyen public statement which underscored the significance of Taiwan's contribution on the international stage (European Commission, 2020). Taiwan's Ministry of Foreign Affairs have been running the #TaiwanCanHelp campaign by China Airlines, which involves donating medical masks free of charge to countries battling the COVID-19 pandemic (Ministry of Foreign Affairs Taiwan, n.d.). As part of this initiative Taiwan provided to Europe healthcare system with half a million masks. This campaign also indirectly sparked an intensified discussion about changing the name of the national carrier (Śniadziewski, 2020d). Moreover #TawianCanHelp campaign was an example of hashtag activism (Liu, et al., 2024: 3215).

CASE STUDIES: POLISH MODEL

The COVID-19 pandemic began impacting Europe in January 2020, with the first cases reported in France and on March 13, the World Health Organization declared Europe the epicenter of the pandemic. As part of response, the European Commission activated support mechanisms such as closing the external borders, launching tenders for medical equipment purchases and mobilizing resources for vaccine research. Restrictions also included bans on mass gatherings, closure of educational institutions, and restrictions on air travel (European Commission, 2021) which led to a drastic drop in tourism as well. European countries implemented various crisis management strategies in response to the virus and aviation regulations.

At the outset of the pandemic, Poland chose to take quick and decisive preventive measures. The country prioritized early interventions to minimize the spread of the virus and protect public health, such as special flight procedures at Chopin Airport in Warsaw, including passenger locator forms and screening for passengers with symptoms of infection, particularly on flights from China. In Poland as well as other European countries, air traffic essentially ceased from March 15th (Walków, 2020b). Due to the health emergency, both international and domestic flights were suspended. On March 15, take-offs and landings across all Polish airports decreased by nearly 83%, according to the Polish Air Navigation Services Agency (PANSA). Only charter and special repatriation flights were operated at Polish airports. Restrictions introduced in Poland led Eurocontrol, which monitors European air traffic, to rank Warsaw Chopin Airport 10th among the 40 European airports most affected by the pandemic's impact on air traffic (Walków, 2020b). The situation was further impacted by the U.S. president's decision to temporarily close the country's borders to Schengen Area travelers (Walków, 2020b). The decision created a challenge, which was addressed through the repatriation flight program carried out by LOT Polish Airlines. The concept of repatriation flights, aimed at safely and efficiently transporting citizens back to their home

country, embodies a well-planned crisis response. In cooperation with the government (*public affairs*), the airline conducted a series of these flights under the #LOTdoDomu slogan, through which 55, 000 Poles were brought back to Poland (MSZ, 2020). The operation slogan, #LOTdoDomu became highly prominent and widely recognized, partly due to the company's strong media relations as one of the key components of crisis management strategy. The national carrier took part in strategic initiatives in air cargo transport, responding to the critical demand for medical supplies during the COVID-19 pandemic, working closely with the Prime Minister's Office, the Ministry of Foreign Affairs, and government agencies. The #CARGOforPoland campaign facilitates specialized flights to transport critical medical supplies, ensuring a reliable flow of resources between China and Poland through an established air bridge ("Gazeta Prawna", 2020). LOT has completed over 70 flights, with the majority destined for China, and has transported nearly 10,000 cubic meters of protective materials ("Gazeta Prawna", 2020). LOT's logistical operations included daily flights from Shanghai and twice a week flights from Beijing, with a reported frequency of one to three medical cargo flights per day. Throughout the #CARGOforPoland campaign, LOT expanded its flight destinations, including a significant milestone with a flight to Taipei, the capital of the Republic of China. This historic operation enabled the delivery of 500,000 masks donated by the Taiwanese government, further supporting Poland's healthcare infrastructure (Śniedziewski, 2020d).

DISSCUSION

This article aimed to examine crisis management models in the aviation sectors of China, Taiwan and Poland. The analysis confirmed the initial hypothesis that epidemiological crisis influenced aviation crisis management strategies, despite geographic and contextual differences, these strategies exhibit common characteristics and stress the importance of international cooperation. The study reveals how the pandemic, categorized as a natural disaster due to its vast health and economic impact, directly affected the transportation sector, particularly civil aviation. The analysis showed that the aviation industry, often reflective of a country's broader political and economic landscape, required adaptive and consistent responses regardless of the severity of the outbreak or a country's location. The examples in this case studies underline the interconnectedness of aviation stakeholders, including governments, local and global communities, and market participants. Across geographical boundaries, crisis management strategies emphasized intercontinental collaboration and social engagement.

The Chinese and Taiwanese aviation sectors illustrate two distinct yet effective approaches to crisis management during the COVID-19 pandemic in Asia. Both regions faced severe disruptions, enacting extensive crisis management protocols and receiving substantial government support to mitigate impacts. China, as the first country impacted by the pandemic, adopted a centralized, state-driven model characterized by rapid interventions via the Civil Aviation Administration of China (CAAC). Measures included large-scale flight cancellations, financial relief, and regulatory support, which collectively stabilized domestic operations and led to an increase in internal

flight volumes despite global declines. Taiwan's crisis management strategy relied heavily on the integration of advanced digital technologies and public health measures. This approach combined proactive digital solutions, targeted financial support for the aviation sector, and international aid initiatives. By leveraging digital innovation alongside comprehensive health protocols, Taiwan effectively limited the domestic impact of the pandemic while simultaneously enhancing the international reputation of Taiwanese carriers and government through humanitarian aid and public diplomacy campaigns. The case studies illustrate the importance of strategic innovation, effective governance, and evidence-based planning in enhancing the resilience of the aviation industry during global health emergencies. A comparative analysis shows that China's approach prioritized rapid stabilization of domestic operations, whereas Taiwan's strategy achieved greater public trust and international recognition through transparency and technological innovation. These differences underline the importance of balancing centralized decision-making with public engagement and digital solutions to maintain operational stability and long-term reputational benefits.

The Polish response to the COVID-19 pandemic in the aviation sector reflects a government-directed strategy that prioritized public safety within a broader European context. This approach combined strong governmental leadership with close cooperation with the national carrier, LOT Polish Airlines, allowing critical operations to continue despite severe disruptions. The coordinated repatriation flights under the #LOTdoDomu initiative successfully brought home 55,000 Polish citizens, while the #CARGOforPoland campaign ensured the timely transport of essential medical supplies. Mobility restrictions led to an 83% reduction in air traffic, underscoring Poland's clear prioritization of public health. Furthermore, Poland's model demonstrated adaptability to evolving external factors, including EU regulations and international border closures, illustrating an effective example of collaborative crisis management and public-private partnership within the European aviation market.

To address the research questions, the study reveals that, despite universal principles of crisis management, governments adopted flexible approaches adjusted to their specific contexts. Financial aid provided to impacted enterprises, limitations on mobility and public health interventions including isolation protocols, mandatory mask-wearing, and prohibitions on public assemblies represented commonly implemented measures. However, the lack of a cohesive global strategy in the pandemic's early stages exposed weaknesses in international coordination. Inconsistent leadership, fragmented policies, and insufficient preparedness hindered initial responses (Fidler, 2020). The crisis underscored the importance of cross-sector collaboration involving governments, international organizations, and private industry. As the pandemic recedes, it serves as a reminder of the deep interconnection between global health, politics, and governance. Based on this comparative analysis, future crisis management strategies in aviation should combine centralized intervention with transparent communication and technological innovation. These recommendations should be considered within the broader context of an increasingly global and interconnected aviation sector, where a crisis in one region can quickly disrupt markets worldwide. This underscores the need for stronger coordination among national governments, airlines, and international organizations such as ICAO and WHO. In practice, this could include investing in real-

time digital monitoring systems, developing cross-border crisis coordination frameworks, creating contingency financial instruments to support airlines, and harmonizing regulatory standards to strengthen the sector's resilience against future disruptions.

Building on this study's findings, future research should explore the long-term effects of pandemic crisis management on the aviation industry while expanding the analysis to encompass additional markets for a more global perspective. Comparative studies could evaluate how COVID-19 lessons enhance preparedness for future global challenges, focusing on developing regions not covered here. More research is needed to assess the effectiveness of public relations efforts and digital innovations, such as Taiwan's big data systems, in enhancing passenger confidence and operational resilience. Including private and budget airlines could also offer a wider perspective on how various industry segments manage crises.

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ABSTRACT

The research problem examines the crisis management strategies implemented during the COVID-19 pandemic in China, Taiwan and Poland and explores how the epidemiological crisis affected the aviation sector. The study analyzes secondary data, such as government policies, industry reports, and academic writings, based on qualitative methods of thematic analysis and case studies. The results show some common characteristics, such as public participation and flexibility, but also some regional characteristics: rapid state interventions in China, Taiwan's technology-based health measures, and public health activities in Poland with international cooperation. The study highlights the importance of worldwide collaboration and public relations to reduce disruptions in the aviation industry and improve its resilience to future global crises.

Keywords: crisis management models, COVID-19, aviation, China, Taiwan, Poland

ZARZĄDZANIE KRYZYSOWE LOTNICTWEM W CZASIE KRYZYSU EPIDEMIOLOGICZNEGO. CASE STUDY: CHINY, TAJWAN, POLSKA

STRESZCZENIE

Problem badawczy niniejszego artykułu dotyczy wyboru strategii zarządzania kryzysowego, które były stosowane podczas pandemii COVID-19 w Chinach, na Tajwanie oraz w Polsce, a także wpływu tego kryzysu na sektor lotnictwa cywilnego. W badaniu wykorzystano dane wtórne, takie jak polityki rządowe, raporty branżowe i publikacje naukowe, stosując jakościowe metody analizy tematycznej oraz studium przypadku. Wyniki wskazują na pewne wspólne cechy, takie jak zaangażowanie społeczne oraz elastyczność działań, jak również regionalne różnice: intensywną politykę interwencyjną w Chinach, środki zdrowotne oparte na nowych technologiach na Tajwanie oraz działania w zakresie zdrowia publicznego w Polsce realizowane w oparciu o współpracę międzynarodową. Badanie podkreśla znaczenie kooperacji międzynarodowej i stosowania narzędzi public relations w celu minimalizowania zakłóceń w branży lotniczej oraz wzmacnianiu jej odporności na przyszłe globalne kryzysy.

Słowa kluczowe: modele zarządzania kryzysowego, COVID-19, lotnictwo, Chiny, Tajwan, Polska

Article submitted: 16.04.2025; article accepted: 13.09.2025.