

Recovery of the Tourist's Confidence in the Airport System in the Face of the COVID-19 Crisis and their Expectations in the Implementation of Sanitary Measures at the Benito Juárez Airport, Mexico City

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Abstract: *The objective of this research was to examine the relevance of air transport in the tourism industry, as it plays a crucial role in customer service and is a fundamental part of visitor travel, contributing significantly to the economy of Mexico. However, the implications and effects derived from the health crisis, specifically the spread of SARS-CoV-2, were explored, with a particular focus on the Benito Juárez Airport in Mexico City.*

Keywords: airport system, tourist displacement, economic crisis, security protocols, SARS-CoV-2

1. The airport industry and its importance in Mexico's economic and tourism activity prior to the, SARS-CoV-2health crisis

With a population of nearly 130 million people, a rich cultural history, diverse geography, and abundant natural resources, Mexico ranks 48th among 141 evaluated economies. Tourism constitutes 9% of its gross domestic product (vamos, 2022), being the third source of foreign exchange after oil, [the country] is ranked 16th globally in terms of income from international visitors, with \$24.6 million. Additionally, it holds the seventh position with 45.0 million tourists (DATATUR, 2019). This is because, from January to December 2019, there was a notable influx of international passengers arriving by air, particularly from the United States, accounting for 51.1% of the total. Canada also contributed significantly with 21.9% of arrivals. Consequently, the country recorded a foreign exchange income from international travelers of \$2,289 million in January 2019. (turismo, 2019). Similarly, from the Latin American and Caribbean region, residents of countries with the highest number of arrivals were Argentina, Colombia, and Brazil, contributing 2.6%, 2.4%, and 2.1% of the total, respectively (DATATUR, 2019). However, tourist activity experienced a significant reduction in international visitor arrivals at borders, excluding domestic tourists. The main cause of this decline was the onset of travel disruptions on February 27, 2020, due to a new disease called SARS-CoV-2. (MAPFRE, 2024). This respiratory illness is highly contagious and manifests with symptoms such as fever, cough, difficulty breathing, as well as fatigue, muscle aches, chills, headache, sore throat, runny nose, nausea or vomiting, diarrhea, and loss of taste or smell. (CANCER, 2020). The global spread of this virus generated a ripple effect that reverberated through the world economy,

triggering the most significant crisis in over a century. Economic impacts became evident as the pandemic progressed in 2020, highlighting the lack of preparedness among many households and businesses to cope with such a massive disruption. This phenomenon was particularly noticeable in the aviation industry, as airlines in Latin America globally lost revenues on the order of USD 256 billion, of which 7% (USD 19 billion) accounted for losses originating in Latin America and the Caribbean.. (Unidas, 2020). Considering that in Mexico, the National Statistical Information System of the Tourism Sector reported that the arrival of international travelers during the period January-October 2019 was 79.5%, representing 1,000,189 travelers (DATATUR, 2019). It is noteworthy that Mexico ranks seventh globally for tourist arrivals in 2019, with a significant influx of international flights. Importantly, the development through consolidated tourism flows, such as those at airports, has played a crucial role. The development, adaptation, and improvement of tourism transport infrastructure have been vital for achieving the decentralization of both tourism supply and demand. This includes the consolidation of tourist destinations and the stimulation of tourists who, for family, leisure, health, and business purposes, visit our country. In 2019, the country recorded an entry of 9,316,160 visitors (DATATUR, 2019); with visitors from different origins, among which stand out: during the period from January to December 2019, there was a notable influx of air passengers from residents in the United States, accounting for 58.3% of the total, as well as from Canada with 12.4%. Meanwhile, the European region recorded a participation rate of 10.8%, with residents in the United Kingdom representing 3.0% of the total air arrivals. South America contributed 10.6% to the overall arrivals, with residents from Colombia and Brazil participating with 2.9% and 1.9% of the total, respectively

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(DATATUR, 2019). This situation has led to the consolidation of the airport system as one of the main air transportation hubs, providing safety and efficiency, much like the services offered by countries such as Argentina, Spain, and Brazil (Amador, 2020). In 2020, there was an unprecedented 66% drop in passenger traffic compared to the previous year. This decline had an unparalleled impact, as none of the previous global crises had resulted in such a drastic reduction. The Covid-19 pandemic (Aerospace, 2024), which took the world by surprise, triggered an unforeseeable situation for the aviation industry. In the Latin American context, airlines experienced significant losses, contributing to the overall decline in global revenues. According to data from the United Nations, the global aviation sector reported total losses of approximately USD 256 billion, of which 7% (USD 19 billion) accounted for direct losses (UNWT, 2020). One of the main challenges for travel was the restrictions on movement, slow containment of the virus, people's lack of confidence in traveling, and an unfavorable economic environment. The year 2021 marked a 49% decrease in demand for the aviation industry, equivalent to approximately 2,197 million passengers worldwide. However, this figure reflects a significant improvement of 11 percentage points compared to the previous year (Aviles, 2021), primarily derived from passenger transport. In a more encouraging outlook, the regions of North America and Latin America showed recovery and remarkable resilience. By early December, both regions were already approaching offering the same seat capacity they maintained. However, on May 25, 2021, when the FAA downgraded Mexico's aviation safety category from 1 to 2, this decision was based on the perception that Mexican civil aviation authorities did not meet the minimum safety oversight standards set by the International Civil Aviation Organization (ICAO). It's important to note that Mexico has 77 airports, with 53 operating commercial flights, distributed across different states to facilitate access to various regions of the country. The National Airport System includes 19 airports, catering to 138,000 operations, of which 122,000 are domestic and 16,000 are international, combining commercial and general aviation (Virgen, 2024), along with 545 heliports and 1,492 aerodromes (infobae, 2022). Additionally, the tourism industry saw remuneration in 2022. Travel Agencies and Reservation Services registered 8,427 economic units (DATATUR, 2023). In terms of hotels and car rental agencies, there is a concentration of 23,699, with a demand for 836,300 available rooms (DATATUR, 2019), highlighting the importance of the hotel industry in Mexico as a backbone of tourism due to the investment, foreign exchange, and employment it generates. Moreover, Mexico ranks seventh globally in hotel infrastructure with 24,000 hotels and 854,000 rooms (Reportur.mx, 2022). However, in the transportation sector, there was an economic impact of \$35.185 billion from the aviation sector throughout 2022 (Aerospace, 2024). Globally, tourism activity in Mexico has solidified its position as one of the main job creators, contributing significantly to the Gross Domestic Product (GDP) with 8.5%, equivalent to 2,372,556 million pesos in 2022 (INEGI, 2023). This strong contribution is reflected in the employment within the tourism sector, reaching 4,764,000 people employed during the period from July to September 2023 (DATATUR, 2023). While air tourism flow

has gained great importance in the country, comprising private airlines using jets such as Ale Mexjet, Textron, ALE FBO & Management; located in various cities with Aguas Calientes, Los Cabos San Lucas, La Paz Baja California Sur, Ciudad del Carmen Yucatán, Chihuahua, Puebla, San Luis Potosí, Culiacán Sinaloa y Veracruz with an exclusive terminal, thus with two terminals Guanajuato, Acapulco Guerrero, Querétaro, and Cancun, Quintana Roo currently with three private airlines is Guadalajara Jalisco, Therefore we meet four private airlines in terms of Monclova Coahuila, likewise Tabasco with five air terminals, without leaving behind Toluca State of Mexico with nine private lines and finally Monterrey Nuevo León with ten private lines of FBO (NOTEWORK, 2024). According to Air Transport, it emphasizes that "The aeronautical industry worldwide generated more than 803 billion dollars, as reflected in 2023, equivalent to a total of 9.7%" (Vilarasau, 2023).

2. The Impact of Aviation in Strengthening the Mexican Tourism Industry

In this regard, Mexico gained significant importance through the establishment of infrastructure in its transportation sector, facilitating the movement of people and goods from one place to another through air travel, either within Mexico or to other countries. This plays a fundamental role in international trade, and aviation is crucial to the economy of our country. To discuss the importance of the aviation industry in Mexico, it is necessary to delve into its history, which leads us to the development of the Secretary of Communications and Public Works, which granted a permit for air transport services. This was proclaimed on July 12, 1921 (Calde, 2023). However, aircraft were perceived as less satisfactory by the public, as the Secretary of Communications and Public Works faced delays in the construction and management of these aircraft until 1930 (Aerospace, 2024). National and international air routes began to consolidate; consequently, in 1932, aircraft were created for a Mexican commercial aviation company operating the Mexico-Acapulco route. It became feasible for them to maintain private air terminals in the 1960s until the Mexican government acquired the majority of the airports. The auxiliary services, the Secretary of Communications and Public Works, initiated air terminals in Mexico in June 1965 (Ruíz, 2015). Playing a fundamental role in the economy and transcending borders, the Secretary of Communications and Public Works successfully built an additional 25 airports (Aerospace, 2024). During that decade, commercial aviation received a significant boost from the federal government, particularly through the nationalization of Aircraft of Mexico and the acquisition of airports that had been owned by Pan American Airlines through its subsidiary, the Mexican Aviation Company. Also airports and auxiliary services had to be responsible for the modernization of the infrastructure of maintenance and improvement of navigation services and fuel supply, as well as promoting the development of Mexican commercial aviation and tourist routes. This was a first step towards an increase in operational demand, expanding and rehabilitating 25 airports within its first 10 years of existence. The operating network experienced a boom from 1975 to 1985, acquiring more than 60 airports during these years (ASA, 2010), giving way to a

recognition of Latin America in addition to increasing the operational capacity of flights managed by ASA by implementing passenger and hand luggage screening services at international airports; the construction of own equipment, special for the airport activity, which allowed to reduce costs, was promoted, and the appropriate mechanisms for air navigation in the network airports were improved (ASA,2010).At the end of the 1960s, they modernized the airports they thought most suitable for the arrival of tourism in the states of Mexico City, Cancun, Acapulco, Guadalajara and Monterrey where they implemented new real estate, design, image, plastic integration and airport equipment that was designed in Airports and Auxiliary Services, manufactured in Mexico developing two prototypes of fumigators aircraft.In 1985, a financial crisis began not only in Mexico but worldwide, impacting the country's airport development sector. In response to this, a new legal framework was eventually proposed to promote airport development through private investment. This paved the way for the initiation of a network of 58 airports in Mexico in 1998 (ASA, 2010). However, the privatization was reduced to 35 more profitable ones, forming four regional groups: ASUR (Pacific Airport Groupdel Sureste), OMA (GrupoAeroportuario Centro - Norte), GAP (Pacific Airport Groupand AICM (Benito Juarez International Airport Mexico City) (ORANTES, 2019). Likewise, ASA began the decade of the 21st century operating 27 airports, as well as 63 fuel stations (ORANTES, 2019). It should be noted that the latter had a 20-year lag and the facilities, equipment, systems and training programmers were beginning to show signs of obsolescence, claiming their modernization took advantage of their strengths: its human capital and its institutional experience for the administration and operation of its airport network, as well as the management of the fuel stations of the most important airports of the Mexican Airport System.Through institutional planning and structural reform in the sector, ASA proposed schemes, innovative concepts, and investment projects for infrastructure with a regional and sustainable focus. This included the involvement of state governments and private investors. These initiatives were outlined in sector guidelines and a new decree that modified and updated to the new economic reality prevailing in the country. This marked the beginning of the formation process of airport companies with the airports in Puebla, Querétaro, Toluca, and Cuernavaca. In 2007, airports and auxiliary services directly operated 19 airports and four in partnership (Federación, 2002), and consolidated an airport network, both productive and efficient, striving to comply with national and sectoral strategies, in addition to the profitability of as many airports in its network as possible, without neglecting its purpose of performing a public service this promoted public-private participation in the associated airports (Tuxtla Gutiérrez joined this scheme), able to adequately meet fuel supply needs and provide national and international consultancy services, completed the construction of Terminal 2 of the AICM and the expansion and modernization of the Toluca International Airport and began work to grant technical assistance to the Government of the State of Chiapas in the construction of a new airport in Palenque that made the increased air transport competitiveness, but without realizing this, the ozone layer was affected, this led them to

implement a strategic biofuel project in 2009, This would also reduce the sector's greenhouse gas emissions that contribute to climate change. Already in 2013, the aviation industry showed a recovery of passenger movement and operations nationally and internationally with 16% growth in transported passengers (Aerospace, 2024).Around the years 2014 to 2018 former President Enrique Peña Nieto considered an adequate infrastructure for Mexico which consisted of a new airway located in the Federal Zone of Lake Texcoco as it would be closer to the city of Pachuca than to the City of Mexico however for 2019 (SEDENA,2019).President Andrés Manuel LopezObrador took office and expressed that the proposed project was a severe mistake as it would lead to a major ecological disaster and demographic explosion in the Eastern Zone of the Valley of Mexico. He highlighted concerns about overexploitation of resources and water scarcity. Consequently, on January 3 of the same year, he officially canceled the aviation infrastructure project Among Andrés Manuel LopezObrador's proposals was the promotion of the new Santa Lucia Airport. This airport would be situated on what was a military base, the country's main one, and it was advantageous as it did not require land acquisition since it was a federal zone. This marked the beginning of a financial restructuring to facilitate the construction of the new airport named "Felipe Angeles." The project involves building two runways one of 5.1 km and another of 4.6 km a terminal building with 33 positions, and a control tower at the Santa Lucia military base to complement the current Benito Juarez Airport in the capital (SEDENA, 2019),this project was carried out through detailed studies on the positive and negative environmental impacts that could arise from such planning. However, worldwide, a pandemic began in 2019 that had collapsing effects on the economy, leading to widespread closures of borders for the transit of tourists and commerce, both domestically and internationally, resulting in a severe crisis.The International Air Transport Association estimated a collapse in industry revenue of around \$252 billion a 44% decrease compared to 2019 (IATA, 2020). This was attributed to severe restrictions on Mexican air travel and the global economic recession. The estimation took into account a scenario that includes three months of severe restrictions on air travel followed by a slow economic recovery by the end of the year (IATA, 2020).As a consequence, the halt to economic activity and mobility has led, in the initial months of the pandemic, to two-thirds of the global commercial fleet being grounded and non-operational, resulting in job losses at various airlines. Over the years;The Benito Juarez International Airport in Mexico City has undergone various expansions and renovations to accommodate the constant increase in air traffic and improve the quality of its services. However, on February 10, 2021, the current president, Andrés Manuel LopezObrador, addressed the consequences that were expected to arise around the Benito Juarez Airport. According to his statements, certain businessmen were accused of planning to take over the 600 hectares of the current Benito Juarez Airport for real estate development, characterizing it as a "great robbery" (21, 2021).It is detailed that the intention of these interested parties was to transform it into something similar to Santa Fe. This project included the construction of runways, which would require the closure of both the Benito Juarez Airport and the Santa

Lucia Airport. The argumentation revolved around potential air and airspace interferences. As part of this controversy, President Lopez Obrador's statements focused on exposing these intentions and highlighting the possible negative consequences of the Texcoco airport compared to the development and operation of the Benito Juarez Airport. The AICM (Benito Juarez International Airport in Mexico City) has been the stage for numerous events that have contributed to the development of air transportation in Mexico. Amidst its rich history, it has faced notable challenges, including the global health crisis triggered by the COVID-19 pandemic. During these difficult times, strict health and safety measures were implemented in 2021. These protocols, aligned with the WTTC's "Safe Travels" standards, are global measures established in the ICAO document "Operational Safety COVID-19 Measures for Aerodromes," which, in turn, serves as the guideline for the Mandatory Circular CO SA-09.1/13 R2 from the Federal Civil Aviation Agency (Mexico, 2021). The protocols cover actions such as cleaning, necessary personnel for operations, safety and health guidelines for staff, a stay-at-home policy for anyone displaying symptoms, the implementation of automated technologies to reduce physical contact at checkpoints, documentation, and payment points. Additionally, there are measures for safety and hygiene in food consumption areas, restaurants, cafes, and other service providers, as well as the reorganization and blocking of seats in waiting areas. The use of personal protective equipment such as masks is emphasized, along with mandatory non-intrusive entry and exit inspections (Mexico, AICM Implements Global Health Standards, 2021). The protocols were defined by representatives from both the public and private sectors to maintain the continuity of airport operations. In September 2022, the Mexican government announced an "urgent" renovation of Terminal 2 at Benito Juarez Airport. The project aims to add a foundation slab and a base beneath the terminal to address sinking issues and improve its functionality. Despite being estimated at 600 million pesos and having a previous duration projection of 13 months, it has not yet commenced (Travesias, 2023). On September 14, 2023, "Jorge Nuño" reported that Benito Juarez Airport accommodates 19 airlines, including ANA, Aero Mexico, Air Canada, Air France, American Airlines, Avianca, British Airways, Copa Airlines, Delta, Iberia, KLM, Latam, Lufthansa, Magnicharters, United, Viva Aerobus, Volaris, Emirates, and Turkish Airlines (MARINA, 2023). However, the airport aims to achieve Category 1 status to reopen routes and add new destinations. This strategic move would not only strengthen operational safety but also create opportunities for service expansion and diversification, marking a significant milestone in its development. The airport is not just a transportation infrastructure but also a symbol of evolution and progress in the history of Mexican aviation. Adapting to the changing demands of the modern world, its legacy endures as a crucial player in the development of airport infrastructure.

3. Main Airport Flows in Mexico

In 2019, the average spending by international tourists who arrived by air was 1,105.67 dollars (INEGI, 2023), in addition, in December, according to preliminary figures from the tourism organization's global tourism barometer

(OMT) I experience growth sustaining globally in terms of passengers and cargo before the pandemic of 2020. Subsequently, in 2022, Mexico ranked fifth worldwide in the training of tourist currencies, according to the survey of international travelers of the national institute of statistics and geography (INEGI.2020). During that year, 65,999,947 visitors entered the country, of which 38,326,999 were international tourists (MEXICANAS, 2022). Foreign exchange income derived from the total expenditure of international visitors reached 28,016.4 million dollars (TOURISM, 2023), exceeding by 14% the 24,573.2 million dollars (TOURISM, 2023) collected a year before the Covid-19. The average expenditure per visitor was \$422.52 (TOURISM, 2023), while that of international tourists was 907.50 dollars, underlining the significant contribution of air activity to tourism in Mexico. In 2022, according to the report of the international council of (ACI), in 2022, 6.5 billion passengers were served globally, representing 62% of pre-pandemic level (MEXICANAS, 2022). This data shows a significant recovery compared to pre-pandemic levels, indicating a substantial improvement in airport and air transport activity worldwide. In this context, it is important to analyze the current situation of air terminals and airport groups in relation to the flow of domestic and international passengers during the period from January to November 2023. This information will provide a more detailed view on recent developments and trends in the airline industry in Mexico; we will start with Benito Juarez International Airport (CDMX) as the largest and busiest airport in Mexico, the AICM handles a large number of domestic and international flights transporting 156,878 international and domestic users (travel, 2023), second to the international airport of Cancun highlighted by its tourist traffic, especially to and from destinations in North America and Europe, transporting 29,729,798 users (travel, 2023), third to the international airport of Guadalajara it should be noted that it is an important hub for domestic flights and some international routes mobilizing 16,148 passengers (travel, 2023), fourth to the international airport of Tijuana as it serves a large number of passengers crossing the border by air and is a strategic point for flights from Mexico to the United States with a total of 12,870 passengers (travel, 2023). fifth, the Monterrey international airport with significant traffic, especially on domestic flights with a total of 12,185,708 users (travel, 2023).

Table 1: Main airports

		TOTAL ARRIVAL OF PASSENGERS						
		JANUARY-FEBRUARY		DIFFERENTIAL		PERCENTAGE VALUATION		
No	AEROPUERTOS	2021	2022	2023	2023-2021	2023-2021	2023-2022	
1	Ciudad de México	15,944,913	21,446,232	21,993,242	6,048,329	547,010	37.9%	2.90%
2	Cancún, Q.Roo	9,864,799	13,580,787	14,722,908	4,858,109	1,142,121	49.2%	8.4%
3	Guadalajara, Jalisco	5,370,256	6,932,204	7,955,963	2,585,707	1,023,759	48.1%	14.8%
4	Tijuana, BC	4,463,254	5,837,681	6,349,817	1,886,563	512,136	42.3%	8.8%
5	Monterrey, NL	3,707,940	4,993,454	6,141,605	2,433,665	1,148,151	65.6%	23.0%
6	Los Cabos, B.C.S	2,447,498	3,141,073	3,474,047	1,026,549	332,974,000	41.9%	10.6%
7	Puerto Vallarta	1,757,889,000	2,714,137	2,987,404	1,229,515	273,267,000	69.0%	10.1%

Source: Airports and Auxiliary Services. Secretariat for Infrastructure, Communications and Transport

4. Benito Juárez International Airport

The Benito Juarez Airport serves the Metropolitan Area of the Valley of Mexico, Av. Capitán Carlos León S/N, Peñón de los Baños, Venustiano Carranza, 15620. Currently, it is divided and consists of Terminal 1 of AICM, which is further divided into two sections. The first section is for flights to North America, Europe, Asia, Oceania, and Africa, while the second section is for flights to Central America, South America, and the Caribbean. This division is noteworthy considering that no flights from Africa or Oceania arrive at this airport. Due to the saturation of AICM, sometimes operations will be transferred to the alternate airports of Toluca, Cuernavaca, Querétaro and Puebla in case of small aircraft, and to Monterrey, Guadalajara and Acapulco for larger aircraft. It is also a strategic point of connections, between North and South America, as between Europe and Central America, since it is the main hub and operating base of Aeromexico, Aeromar, Mexicana de Aviacion and the second of Aviacsa until August 2009, Interjet. In the operate 9 domestic passenger airlines, and 23 foreign, thus giving more than 100 destinations. It has a domestic baggage claim room grew from 2,760 to 3,750 m², these areas are installed two bands to service approximately nine million passengers per year (AICM, 2019).



Image 1: Mexico City International Airport Benito Juarez
Source: AICM airports.net (2019)



Image 2: Ground floor T1 of Mexico City International Airport
Source: AICM airports.net (2019)

The pre-waiting area of Bravo Lounge was expanded by 1,540 m², bringing the total to 7,590 m² and thereby increasing its service capacity from seven to nine million passengers per year (AICM, 2019). This lounge houses airline counters, escalators, commercial spaces, public telephones, restrooms, and an elevator for people with different abilities, providing greater convenience for travelers with domestic destinations. The national ambulatory or main hallway covers 8,170 m² (AICM, 2019), Commercial establishments are located in the area, and users have spacious and modern spaces during their

passage through the airport terminal. Additionally, there is a mezzanine where the financial area and other services are located. There are roadways for accessing Terminal 1: two to the national parking lot, one to the pilot's parking lot, and another connecting to the Camino Real Hotel. The national and international parking lots are equipped with a modern automated prepayment system, expediting the entry and exit of users, with a capacity of approximately 3,000 vehicles. They provide all facilities, including ramps and special elevators for people with different abilities (AICM, 2019). Additionally, it has a new drainage system, preventing waterlogging during the rainy season, and two new access and exit ramps to the international parking lot, which were relocated and renovated to better serve passengers and users. Also, there is an exclusive access vehicular bridge to the documentation areas for passengers F1, F2, and F3, where both national and international airlines dispatch flights to foreign destinations. The new international documentation rooms on the first floor of the terminal cover an area of 5,600 m², facilitating travelers' access to the last waiting rooms located in Module XI (from 29 to 36). A new filter named Julieta was opened on the ground floor near the new documentation rooms F1, F2, and F3. On the ground floor of Terminal 1, the Migration area M2 is located, featuring 24 service modules with light indicators to facilitate the departure of arriving travelers from the airport premises. This area provides ample space for the transit of users arriving from North America, Europe, and Asia. The international baggage claim area has increased by 100 percent with the installation of six new carousels, allowing passengers to retrieve their luggage more quickly and avoid overcrowding. The Customs area covers an area of 6,200 m², with 18 fiscal inspection modules located in the international departure zone, directly connecting to the taxi bay. (Aeroespacial, 2024). It has a Long-Distance Bus Terminal with destinations to the cities of Puebla, Cuernavaca, Pachuca, Toluca, Querétaro, and Orizaba, which is connected to the fast-food area, as well as international departures and arrivals, and a pedestrian bridge that connects to the "Peñón de los Baños" neighborhood. For the operational area, it has a taxiway Coca 2, construction of the Gulf taxiway, and rehabilitation of the Alpha and Bravo taxiways, allowing the airport to increase its air operations from 54 to 61, (landings and take-offs) per hour and expedite the movement of aircraft from runways to terminal buildings. The runway has horizontal and vertical signs, as well as taxiways and platforms, which are fundamental for the descent and ascent of aircraft, likewise, a system of stop bars is installed in all the waiting points of taxiways. The Bravo taxiway, located between Terminal 1 and runway 05 left 23 right (05L-23R), was restructured and rehabilitated to enhance the circulation and operation of aircraft, thereby increasing the quality of service to airlines. As part of safety measures in the operational area, it features a deflector that protects against air currents from aircraft turbines for the roads passing behind the heads of runways 5D and 5I. Additionally, a semi-deep drainage system was constructed at a depth of eight meters, spanning 820 meters with a diameter of 1.83 meters, crossing platforms, taxiways, and runways. This helps reduce the impact of rainfall in the operational area during the rainy season. To provide better services and passenger spaces, a new terminal (Terminal 2) was constructed, involving an expansion and remodeling of

the airport. Covering an area of 242,496 m², it features the latest security system (a passenger flow separation system). The Terminal 2 began its operations on November 15, 2007, with flights from Aeromar and Delta Airlines. Subsequently, Aero Mexico, Copa, Lan, and Continental Airlines fully transferred their operations to Terminal 2. The formal inauguration was conducted by the President of the Republic, Felipe Calderon Hinojosa, on March 26, 2008. This expansion allows AICM to increase its capacity to serve 32 million passengers annually. It comprises a passenger terminal with 23 contact positions and seven remote positions, a parking facility for over three thousand vehicles, elevated bridges, new access and exit roads, and the capability to accommodate the Airbus 380.



Image 3: Ground floor T2 of Mexico City International Airport

Source: AICM airports.net (2019)

Terminal 2 is connected to Terminal 1 through a terminal train, which has a 3 km route, in addition to a new system of direct roads, are two distributors: The D1 connecting to T1 and T2 with Consulate River and the D2 connecting to T2 and T1 directly from Pieta Viaduct and Churubusco River (Aeroespacial, 2024). These works, which were carried out without affecting aircraft landings and take-offs, will allow the AICM to offer better services and respond to the growing demand for passengers and operations in the coming years.

5. Safety and hygiene protocols at Benito Juarez airport

In response to the Covid-19 pandemic, Benito Juarez Airport implemented safety protocols with the aim of reducing contagion and protecting the health of passengers, users and workers. A prominent example of these measures was Mandatory Circular CO AV-01/20 (Huirtron, 2020), published on 10 June 2020 by the Ministry of Communications and Transport. The circular establishes mandatory guidelines for concessionaires, per missionaries and domestic air and airport operators, excluding foreign permits under certain conditions. Those concessionaires and/or permits that have suspended or reduced operations, reduced air fleet, reduced aeronautical technical personnel, contemplated changes in their business scheme or plan to reactivate operations should follow the guidelines of the circular (Huirtron, 2020). For the reactivation of operations, it is required to submit a plan to the Deputy General Directorate of Aviation, belonging to the Federal Civil Aviation Agency (AFAC), which in turn is the directive of the Mandatory Circular CO SA-09.1/13 R2, the plan should include detailed information on aircraft, aeronautical technical personnel, surcharges, maintenance technicians,

aircraft operations officers, other personnel required for reactivation, routes to operate, tariffs applied, technical information, cleaning and disinfection measures, passenger processing, financial capacity and risk analysis (Huirtron, 2020). Given this scenario, the World Travel and Tourism Council (WTTC), in collaboration with the WHO and CDC, developed global protocols for the tourism industry in 2021 (Mexico, 2021). They seek to establish strict hygiene and sanitation standards, providing guidance to suppliers, operators and tourists to travel safely post-crisis. Gloria Guevara, president of the WTTC, explained that the protocols seek the prompt reactivation of the sector, job recovery and the mitigation of financial losses (MEXICO, AICM implements global health standards, 2021). It emphasized the importance of global coordination and the implementation of measures by governments and the private sector. The WTTC protocols are divided into six pillars:

- 1) Deep cleaning regimes.
- 2) Staff must be fully acquainted and trained in the new policies, including social distancing, the use of thermal scanning, and the use of face masks.
- 3) Social distancing should be observed in stores through special visual markers.
- 4) Minimize points of contact by introducing digital maps, digital queue management, electronic menus, virtual personal shopping, and roaming concierges.
- 5) Promote contactless payments and email receipts whenever possible by providing free WIFI to encourage acceptance.
- 6) Hand sanitizers at store entrances and exits, as well as at intervals within the facilities and in bathrooms.

The implementation of these protocols aimed to restore consumer confidence and allow travelers to feel secure, leading to the inauguration of COVID-19 modules on July 22 (MEXICO, AICM IMPLEMENTS GLOBAL HEALTH STANDARDS, 2021). which were tests for passengers on international flights so that their health could be verified and could be seen supporting the prompt reactivation of the tourism sector at Benito Juarez Airport.

6. Recovery of the airport industry after the health crisis by COVID 19 and its involvement in tourism in Mexico

During the COVID-19 pandemic, the intrinsic connection between physical and mental health has been highlighted, sparking debates about the devastating effects on medical, economic, and psychological fronts. Daily anxiety, job losses, and impact on social relationships have been prominent aspects of this discussion. In the Mexican context, the presence of tourists was significantly affected by the pandemic. However, long before we fully grasped the value of good mental health, vacations played a fundamental role in people's happiness. According to Dr. Helena McKeown, President of the Representative Body of the British Medical Association (euronews, 2021). COVID-19 has been an intriguing subject of study. With travel halted and mobility to other locations minimized, the pandemic has provided us with the opportunity to see the real impact of being geographically limited to a single place. In a more general sense, it is becoming increasingly clear that people work and look forward to the arrival of vacations," says Helena. "It

represents a break and relaxation for people" (euronews, 2021). In the midst of the uncertainty generated by social distancing measures due to COVID-19 in Mexico, General de Ala Pilot Aviator D.E.MA. Rodolfo Rodríguez Quezada, President of 'FAMEX-2021,' announced on May 4th the details of the preparations for this outstanding aerospace event (BUENTELLO, 2023). Now consolidated as the largest in Latin America, FAMEX-2021 highlights its crucial role as an engine for the country's economic recovery. During the pandemic, the aerospace sector faced the cancellation of key international events, impacting global commercial and private aviation. FAMEX proved to be a beacon of hope by working intensively with the Government of Querétaro to deliver a first-class aeronautical event, utilizing virtual platforms such as video conferences and webinars (BUENTELLO, 2023). However, on February 10, 2022, during the commemoration of the 107th anniversary of the Mexican Air Force in Tecámac, State of Mexico, now home to the Tecamac Airport (AIFA), the state governor, alongside President Andrés Manuel López Obrador and military personnel, presented Chest Wings and Certificates at the Military School of Specialist Troops of the Air Force at Santa Lucia Air Base (Mexico n. V., 2022). Subsequently, in a series of inaugurations, the Military Aviation Museum, the Paleontological Museum of Santa Lucia Quinaméztin, and the Directorate of the Military Aviation School were established. These events marked the beginning of the Aerospace Fair Mexico 'FAMEX 2023' (BUENTELLO, 2023), held at the Santa Lucia Military Air Base from April 26 to 29, with the presence once again of the Governor of the State of Mexico. The FAMEX 2023, organized by the Secretariat of National Defense (BUENTELLO, 2023), seeks to promote the development of the national aeronautical sector, generate jobs, attract foreign investment and strengthen the link between academia and industry. In addition, it highlights the pride of the State of Mexico to host for the fifth consecutive time, highlighting its vocation in the aerospace field. In this edition, seven companies from the industry established in the state of Mexico participated in pavilion B, including Indumentum, Vazagui, and Airspaces Cluster estate of Mexico. The inauguration was attended by the Ambassador of France in Mexico, the President of FAMEX, the Secretaries of National Defense and Navy, the Commander of the Air Force, and members of the Federal Government's Cabinet. However, on March 21 of the same year, the Felipe Angeles Airport was inaugurated, marking a significant milestone for the country by relieving the congestion of the Mexico City International Airport (AICM) through the Metropolitan Airport System (SAM), consisting of the AICM, the Toluca International Airport (AIT), and the new General Felipe Angeles International Airport (AISL). This collaborative project between the government and the private sector, which allocated 1,531 hectares of the Santa Lucia Military Air Base No. 1 for the AISL (Mexico, 2019), aims to promote the economic growth of the country in various sectors. December 26 marked a milestone for the new Mexican airline operating from the Felipe Angeles Airport, with its inaugural flight to the Felipe Carrillo Puerto International Airport in Tulum, Quintana Roo (Nieto, 2023). During the inauguration ceremony, President Andrés Manuel López Obrador stressed that the rebirth of the airline represents a historic fact, Mexicana de Aviation was officially announced its destinations, Flight fees and ticket

purchase availability through their website. This return to the skies was made possible thanks to an agreement of 815 million pesos (approximately 48 million dollars) with the former employees of the now-defunct Mexicana de Aviation, as well as a capital injection of 4,000 million pesos (Nieto, 2023). On December 26th, it marked a milestone for the new Mexican airline operating from the Felipe Angeles Airport, with its inaugural flight to the Felipe Carrillo Puerto International Airport in Tulum, Quintana Roo (MARINA, 2023). During the inauguration ceremony, President Andrés Manuel López Obrador highlighted that the revival of the airline represents a historic event. The payment for the acquisition of the brand will be distributed among 7,407 former employees of what was Mexico's oldest airline (Nieto, 2023). Starting from August 15, 2023, pilots, flight attendants, and other workers who had remained in the struggle began to receive the benefits of this agreement. In 2005, the government of Vicente Fox sold Mexicana to Group Posadas, but the company experienced a decline that led to bankruptcy five years later. After 13 years of conflict, the new airline, now operated by the Secretary de Defense Nacional (Sedena, 2023), has resumed its operations. Mexicana de Aviation plans to cover a total of 14 destinations in the country, focusing especially on routes to tourist destinations (Nieto, 2023). Its main base will be the Felipe Angeles Airport, with a secondary base at the Felipe Carrillo Puerto Airport in Tulum, Quintana Roo, which is also one of the icons of tourist recovery. This new air complex, operated by the Armed Forces, aims to become an additional option for tourists and compete directly with the Cancun and Cozumel airports. It opened its runways and doors after 536 days of construction and an investment of 3.2 billion pesos, located on a 1,200-hectare site 20 kilometers southwest of downtown Tulum, in the municipality of Felipe Carrillo Puerto (Luna, 2023). The main connectivity route of the aerodrome will be a 10.5-kilometer road that will connect the complex with Federal Highway 307, serving as a commercial and service corridor (Luna, 2023). In addition, the airport will connect with sections 5 and 6 of the Tren Maya, another flagship project of the six-year term. The aerodrome, located 76 kilometers from Playa del Carmen, will become the closest option to the charming magical town of Valladolid and the renowned archaeological site of Chichen Itza, in Yucatan (FONATUR, 2023). Furthermore, it will facilitate access to the southern Riviera Maya, a less developed region compared to its northern counterpart, where large all-inclusive resorts and ecotourism parks give way to picturesque coastal towns and the northern boundary of the Sian Ka'an Natural Reserve. The latter is a unique collection of ecosystems encompassing jungles, underground rivers, mangroves, and the Mesoamerican Reef, the second-largest coral reef on the planet (SUÁREZ, 2023). Initially conceived as a Mexican military airline, the project underwent a change in direction due to the lack of aircraft and certifications. As a result, the runway of the new Tulum airport was inaugurated on December 1 with a flight from Viva Aerobus originating from Felipe Angeles in the State of Mexico. The aircraft, with 179 passengers on board, was welcomed with a water arch in a symbolic gesture that marked its first landing. This new airport will have a main runway of 3,700 meters, 13 boarding gates (Luna, 2023), a hangar, and a wastewater treatment plant. It is expected to be a key piece for regional

connectivity and development (Luna, 2023), as well as an essential component of the Tren Maya project, which is considered the most ambitious project of the current government. The Train Maya has made significant progress, reaching 95.7% completion in section two, covering 224 kilometers from Escarcega to Calkiní, in Campeche (Gonzalez, 2023). Despite its partial start on December 16, it is expected to contribute significantly to regional connectivity and development (Gonzalez, 2023). However, Mexico has experienced constant changes in the field of transportation, playing a crucial role in both commercial and tourist aspects. This change is attributed to an essential architecture that emphasizes connections at both national and international levels. Through these strategies, there is a proposal to establish solid foundations for larger companies, thus attracting investments to various regions of Mexico. This support will contribute to the growth of rooted and vulnerable states, through the formation of business groupings and clusters. The goal is to boost productivity, competitiveness, and the ability to generate greater added value to the tourism sector.

7. Methodology

To address the proposed objectives, a systematic and organized approach will be carried out using a qualitative focus, describing a methodological plan such as conducting a comprehensive review of literature related to the Covid-19 health crisis and its effects on the airport system. It involves exploring research and public policies implemented in other contexts for the recovery of tourist confidence regarding health risks, analyzing current conditions by collecting and examining statistical data on the impact of the health crisis on the airport system in Mexico. Additionally, it aims to evaluate conditions at Benito Juárez Airport in terms of measures and perception by tourists. The identification of key elements and resources that can influence tourist perception in creating safe travel scenarios will be a crucial part of the methodology. It also includes an analysis of the regulatory and health strategies implemented at Benito Juárez Airport in response to the Covid-19 crisis, assessing the effectiveness of these measures in protecting health and tourist confidence. The final output will be a detailed report that includes findings, conclusions, and recommendations for the implementation of tourist policies in the airport system during health crises.

8. Conclusion

The Mexico City Airport, traditionally a key driver of national economic activity, was significantly impacted in May 2021 due to the COVID-19 pandemic. The drastic decrease in the number of international passengers affected not only the aviation industry but also global tourism. The impact on people's mental health, especially with diagnoses like phobic anxiety disorder, resulted in a decline in travel and, consequently, job loss in the tourism and aviation sectors. Over time, the need to revive the economy was recognized, and strategies were implemented, such as organizing prominent aerospace events like FAMEX-2021 and FAMEX 2023. Additionally, measures and protocols were established to ensure the safety of travelers at airports. These rules became essential elements to dispel fear and

foster tourist confidence, encouraging them to continue traveling. In an effort to diversify options and attract more tourists, the president promoted the creation of two new airports in the country, presenting attractive alternatives for the nation. Furthermore, a project to build a new train was launched. All these initiatives have the main goal of forming an appealing tourism sector and creating a travel experience that ensures passenger satisfaction.

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