



Taiwan Civil Airport System Plan 2040 Summary Report



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Abstract

The “Taiwan Civil Airport System Plan 2040” provides the overall guidance for the future development of the 17 airports in Taiwan, with 2040 as the target year. The plan is conducted every five years and reviewed on a rolling basis, and considers the trends of the aviation market and social environment change from a global to national development perspective.

This plan takes into account the current national industrial and economic policies, national airport capacity development, and the domestic and international air transportation market trends. It predicts that by 2040, the number of international air passengers carried in Taiwan annually will be between 80 million and 100 million. In line with the national spatial plans as well as industry and tourism policies, which calls for an enhanced level of cooperation with local communities, the positive development scenario for the airports in Taiwan will be achieving the target of 120 million passengers and processing 4.2 million tons of cargo annually, which is expected to further boost economic development and create greater economic impact and benefits.

The plan proposes that the 17 airports in Taiwan will adopt “The Most Competitive Airport Group in East Asia” as their vision and “Multiple Gateways, Local Prosperity” as their goals, and sets five major objectives, which are “Safety and Resilience“, “Capacity Increase and Value-added Services”, “Diversity Service”, “Compatible Cooperation and Synergy” and “Innovation and Sustainability”.

In order to strengthen the diversified function of international air passenger, domestic air passenger, air cargo, MRO and other aviation-related industries, the Taoyuan International Airport Corporation will invest approximately NT\$244.9 billion of its own capital for further investments in construction and capacity expansion. To ensure sustainable airport development, the CAA Operation Fund is expected to inject more than NT\$337.3 billion over the next 20 years to upgrade hardware and software facilities at Songshan, Taichung, Kaohsiung, and other smaller airports. Through the joint and concerted efforts of the central ministries and local governments, it is estimated that the national economy can be boosted with the achievement of the target capacity, creating NT\$3.39 trillion in economic benefits and 970 thousand job opportunities.

Chapter 1 Introduction

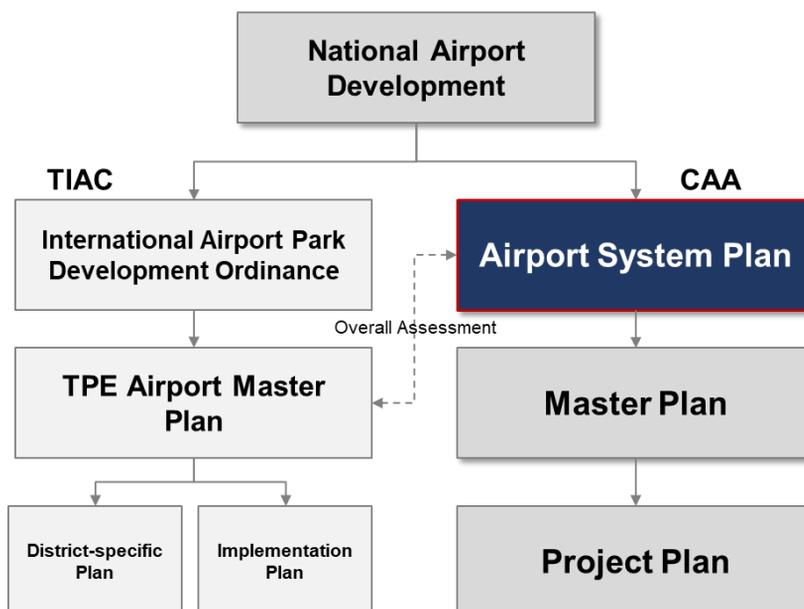
Mission and Goal

In accordance with national policy guidelines, the airport development in Taiwan is planned at various stages under two major systems, which are “Taiwan Civil Airport System Plan” and “International Airport Park Development Ordinance”. The Airport System Plan (ASP) is designed to provide a common development vision and goal for all the airports in Taiwan, as well as the coordination and positioning for each airport, and serves as the guiding principle for subsequent development. The project considers the future aviation changes from the global and national levels, and to develop an overall strategic direction for the future development strategy of airports in Taiwan.

In order to ensure that the Airport System Plan can meet the evolving trends of social and economic development, in 1996, the Executive Yuan instructed the Ministry of Transportation and Communications (MOTC) to conduct a nationwide civil airport system plan every five years on a rolling basis to review the development needs and future goals of the nation's airports. Since the latest plan was approved by the MOTC in 2014, it has undergone many changes such as shifts in international political and economic trends and changes in the international and domestic aviation markets. Therefore, in consideration of the aforementioned aspects, this new and updated ASP will discuss and establish the following three goals as the overarching guidelines:

1. To establish the vision and objectives for 17 airports in Taiwan
2. To set the positioning and function for each airport
3. To propose short-, medium-, and long-term airport development strategies.

Figure 1 Rank and Role



Source: Compiled by Project Team



Review of Previous Phase Plan

The latest phase “Taiwan Civil Airport System Plan (2013-2017)” was approved by the Executive Yuan in July 2014. Based on the goal “One-main, Multi-Auxiliary” strategy for the four major international airports in Taiwan, with Taoyuan as the main airport, and Songshan, Taichung, and Kaohsiung as the auxiliary airports. Taoyuan airport is moving towards becoming a major hub airport in East Asia, while Songshan plays the role of the capital and business airport, and Taichung and Kaohsiung airports play the role of regional international airports. As for domestic airports, Songshan, Taichung, Kaohsiung, Hualien, Taitung, Kinmen, Penghu and Matsu airports are regarded as main airports and are responsible for domestic passenger and cargo transportation services. Tainan, Chiayi, and Hengchun are supporting airports and are responsible for serving supporting routes. The small outlying island airports of Ludao, Lanyu, Qimei, and Wangan serve the function of basic island transport and disaster relief.

Since the approval of the previous phase of the Plan, the nation’s airports have gone through the political and economic trends and changes in the international aviation market, as well as the approval of the second edition of “Taiwan Taoyuan International Airport Park Master Plan”, the Songshan, Taichung, and Kaohsiung airports have also conducted master plans for 2030 and 2035 respectively. The current version includes the outcomes of the related plans and sets out the overall vision and goals for all the airports in Taiwan, the functional positioning and development objectives of each airport, and strengthens the diversity of services provided by the 17 airports. The financial analysis and funding principles are proposed to enable the airport and the local community to prosper together and create economic benefits. The planning results are described below.

Figure 2 Review of Previous Plan



Source: Compiled by Project Team



Chapter 2 Current Airport Development Plan

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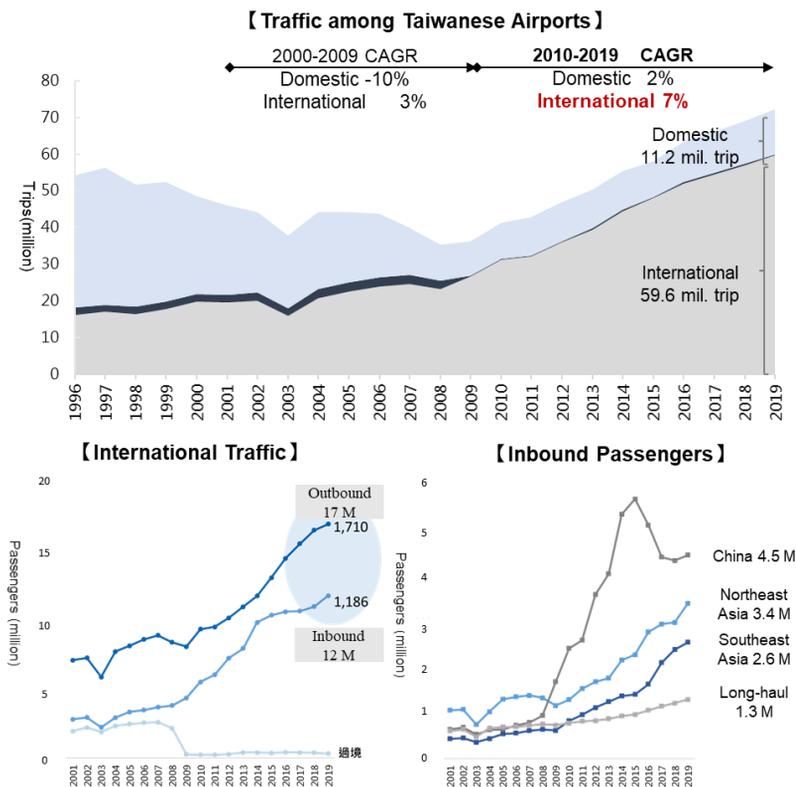
Current Airport Development

International Air Passenger Routes

The international and domestic aviation traffic among all the Taiwanese airports is shown below. In the past decade, international traffic has been growing significantly, with a compound annual growth rate of 7%, and 59.58 million passengers in 2019. International passenger trips have been increasing, accounting for 83.7% of total traffic, while domestic passenger trips account for 15.7%.

With regards to the international passenger structure, the number of outbound passengers is 17.1 million and that of inbound passengers is 11.86 million. The historical growth trend indicates that the number of domestic travelers has increased significantly by about 5 million over the past five years, while the growth of inbound travelers has slowed down significantly. The composition of foreign visitors mainly comes from Mainland China(including Hong Kong and Macau), Northeast Asia (Japan and South Korea), Southeast Asia and long haul routes. Although Chinese passengers increased significantly after the opening of cross-strait flights, the numbers dropped to an average of 4.5 million due to the political issues on both sides of the Taiwan Strait. Whereas, the number of inbound passengers from Northeast Asia has grown steadily and rapidly to about 3.5 million over the past five years. Also, the number of Southeast Asian inbound passengers has increased significantly in the past five years. Lastly, intercontinental long-haul routes have maintained a steady growth trajectory.

Figure 3 International Air Traffic



Source: MOTC



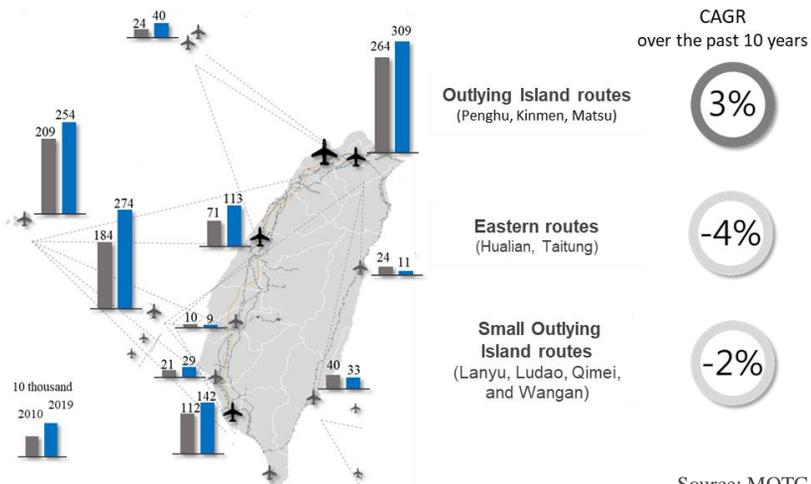
Domestic Air Passenger Routes

In the past ten years, the overall growth rate of domestic air passenger routes has been slightly increased by 2%, and there are three main types of routes, namely, outlying island routes, eastern routes, and small outlying island routes. The air traffic of outlying island routes (Penghu, Kinmen, and Matsu) have been growing at a steady rate of 3% in recent years. However, due to the competition from rail and highway transportation, air traffic of the eastern routes (Taitung and Hualien) continues to decline, with an average decline of -4%. In addition, the annual traffic of small outlying island routes (Lanyu, Ludao, Qimei, and Wangan) did not grow significantly, with an average decline of -2%.

After the opening of Taiwan High Speed Rail in 2007, the western routes have been completely replaced by land transportation, with only the eastern routes remaining operational. The eastern routes carried about 360 thousand passengers in 2019. However, the eastern routes have continued to decline slightly in recent years due to competition from Taroko and Puyuma Express of the TRA (Taiwan Railway Administration). In addition, various land transportation facilities will continue to be added to the eastern Taiwan, such as the dual-tracking of TRA and the ‘SUHUA Highway Improvement Project’, which have challenging consequences for air transport to eastern Taiwan.

For the outlying island routes, with the opening of the Mini Three Links and the continued growth of the tourism market, according to the passenger traffic statistics in 2019, both Kinmen and Penghu airports reached roughly 2.5 million passengers, while Matsu Nangan and Beigan airports carried about 400 thousand passengers. The smaller airports on the outlying islands (Lanyu, Ludao, Qimei, and Wangan), however, are limited by their geographical location, topography, geography, runway length, and weather conditions. The plan aims to continue to provide stable and reliable air transport services on remote routes to the outlying islands, which has an average decline of -2% in recent years.

Figure 4 Domestic Air Traffic



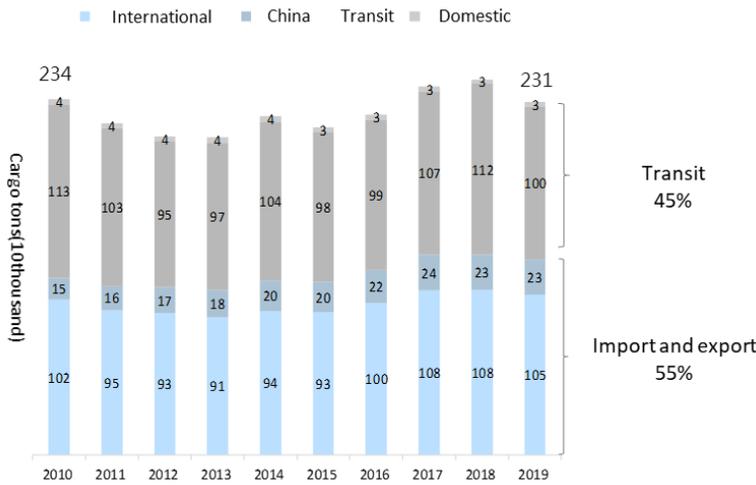


Air Cargo

In 2019, the total cargo volume of the national airport was about 2.31 million tons, of which 1.28 million tons and 1 million tons for direct import-and-export cargo and transit cargo respectively, accounting for about 55% and 45% of the total cargo volume, 230,000 tons for cross-strait routes and only 30,000 tons for domestic routes, indicating that the cargo market in Taiwan is mainly derived from direct import-and-export cargo and transit cargo. According to the trends and shifts in air cargo traffic, both international and transshipment routes have been fluctuating since 2010, while cross-strait routes have been growing slowly.

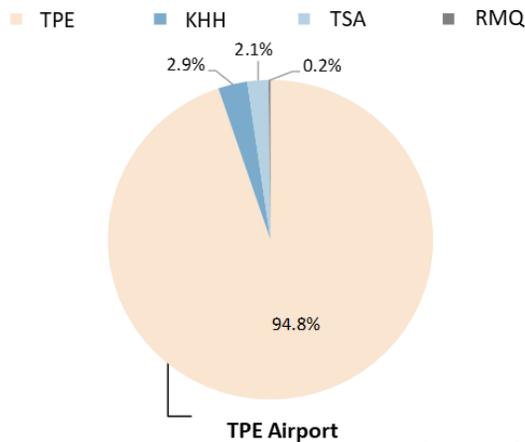
According to the latest statistics, international air cargo is mainly concentrated in Taoyuan Airport, accounting for 94.8% with the remaining taken up by Kaohsiung Airport 2.9%, Songshan Airport 2.1%, and Taichung Airport 0.2% respectively. It indicates that Taoyuan airport is the air cargo hub in Taiwan and plays a key role in the import and export of our high-tech products. According to the 2019 global airport cargo ranking, Taoyuan airport ranks 10th in the world and 4th in Asia Pacific in terms of air cargo handling volume.

Figure 5 Air Cargo Volume



Source: MOTC

Figure 6 Air Cargo Composition of Airports



Source: MOTC



Maintenance, Repair and Overhaul

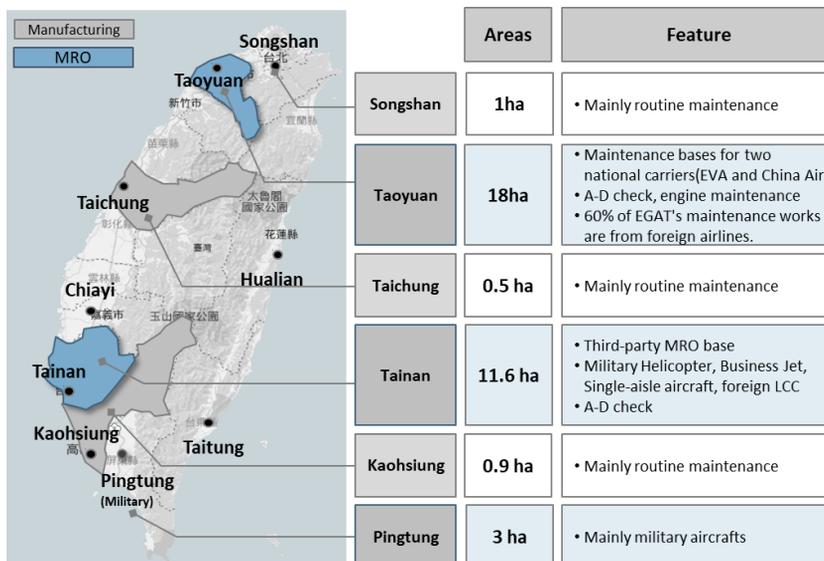
According to the latest available statistics from Ministry of Economic Affairs, the aerospace industry market in Taiwan has doubled in the past 10 years, reaching NT\$134 billion in 2019. The aerospace industry can be categorized into aircraft maintenance and manufacturing, which can be further divided into maintenance business into aircraft, engines, and parts repair, and manufacturing business into airframe structures, engines, aircraft interiors, and avionics manufacturing.

The current MRO service supply in Taiwan is mainly concentrated in the Taoyuan and Tainan airports. Taoyuan airport is the base for EVA and China Airlines, and the current capacity for MRO hangars is full. Tainan airport is the maintenance base of AirAsia, providing third-party maintenance services for narrow-body aircraft; Songshan, Taichung and Kaohsiung airports mainly provide routine maintenance services for domestic airlines such as Uni Air and Mandarin Airlines.

Figure 7 Aerospace Industry Market



Figure 8 Overview of MRO in Taiwanese Airports



Source: Compiled by Project Team

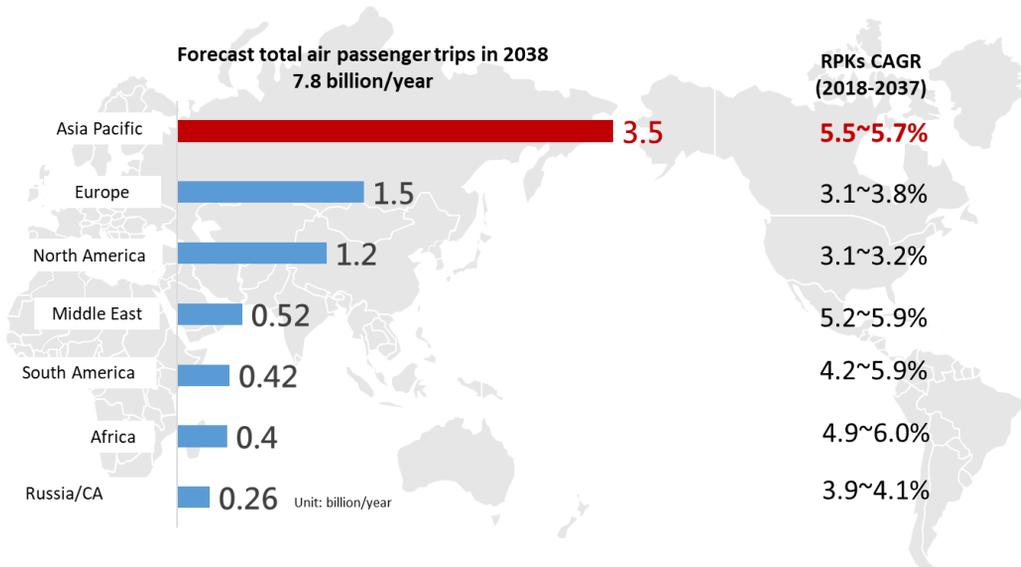
Chapter 3 International Aviation Trend Analysis

Air Passenger(Pre-COVID-19)

The global air transport market will continue to grow with close regional economic and trade relations, advancements in innovative technology, shifts in business models, and booming tourism. Based on the population and demographic changes of the world, the International Air Transport Association (IATA) estimates that the total global air passenger traffic will reach 7.8 billion in the next 20 years, of which 3.5 billion will be taken up by the Asia-Pacific region, accounting for 45% of the global share, followed by 1.5 billion in Europe and 1.2 billion in North America.

Aircraft manufacturers Boeing and Airbus utilized passenger revenue kilometers (RPK) as an indicator to estimate the future market potential for each region in the world, with the Asia Pacific region growing at a total rate of 5.5% to 5.7% over the next 20 years. However, Northeast Asia is estimated to be about 2.0%, which is the lowest future growth in Asia Pacific. China and Southeast Asia will grow at 6.2% and 5.9% respectively, and South Asia will even reach over 7%. Not all regions in the Asia-Pacific region are consistently optimistic about future growth, with Northeast Asia experiencing slower growth, mainly due to its lower population growth. Taiwan is also classified as part of Northeast Asia, meaning the air traffic growth in Taiwan will also be affected by the slowdown in population growth, with a relatively small market growth.

Figure 9 Air Passenger Market Forecast



Source: Boeing, Airbus, IATA



Air Cargo

International cargo development is closely interrelated to GDP, and its demand has been affected by the slowdown of global GDP growth in recent years. IATA forecast the growth rates roughly between 2-3%. In light of these slowing trends, airport cargo development is moving toward a consolidated and concentrated business model, with the largest airports serving as air cargo hubs by leveraging their high-density flights, regional and intercontinental destinations, and 24-hour services. In addition, growth in passenger traffic is expected to drive demand for belly cargo, which should be a fundamental requirement for the international airport.

In addition, considering the high-value feature of air cargo, in order to enhance the competitiveness of cargo development, leading airports are striving to expand value-added service facilities to attract more transit cargo to the hub airports for manufacturing, assembly and fabrication activities. For example, Singapore Changi Airport has established a 70-hectare Airport Logistics Park(ALPS), serving as a distribution center for third-party logistics operators in Southeast Asia. It also provides storage and distribution services for fresh food produce, pharmaceuticals, express delivery, animals, and even airline parts, continuing its role as an air cargo hub in Southeast Asia. Furthermore, in order to become a smart logistics hub in Europe, Amsterdam Schiphol Airport has strengthened its partnership with air cargo operators and developed various value-added products and services. For example, it is promoting the Smart Cargo Major Airport Project by leveraging technology to provide transshipment services and digitalization of the supply chain. In addition, it is also making full use of the advantages of local industries to establish air cargo alliances for pharmaceuticals and floral products.

Figure 10 Air Cargo Market Trend

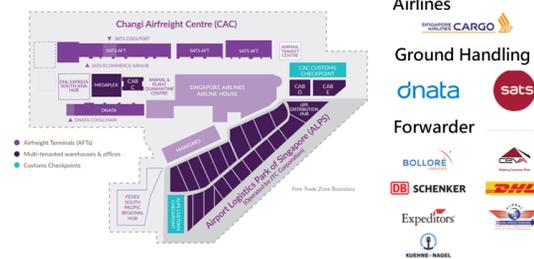
Air cargo market trend analysis(based on information from IATA)

- Due to cargo development influenced by global GDP slowdown, air cargo growth rate is 2~3% in the next 5 years
- The international air cargo hub should be equipped with a high density of flight routes, regional and intercontinental destinations, and 24-hour service.
- With the growing passenger traffic, the belly cargo becomes more important.

Focus on hub airports and enhancing value-added services

Singapore Changi Airport Cargo Park

- 70 hectares of Free Trade Zones
- Value-added/Special Air Cargo Services: fresh product, pharmaceuticals, express delivery, live animals and aerospace components



- Airlines**
- EMIRATES CARGO
- Ground Handling**
- dnata
 - sats
- Forwarder**
- BOLLORÉ
 - DBI SCHENKER
 - Expeditors
 - KUHNHARDT

Amsterdam Schiphol Airport Cargo Park

Smart Cargo Main port Program

- Optimization of land-side logistics and distribution
- Supply Chain Digitization
- Innovative technology application (Ex: develops APP to solve the congestion problem in the warehouse area)

Air Cargo Alliance

Pharma Gateway Amsterdam (PGA) Holland Flower Alliance (HFA)

Source: Changi Airport, Schiphol Airport

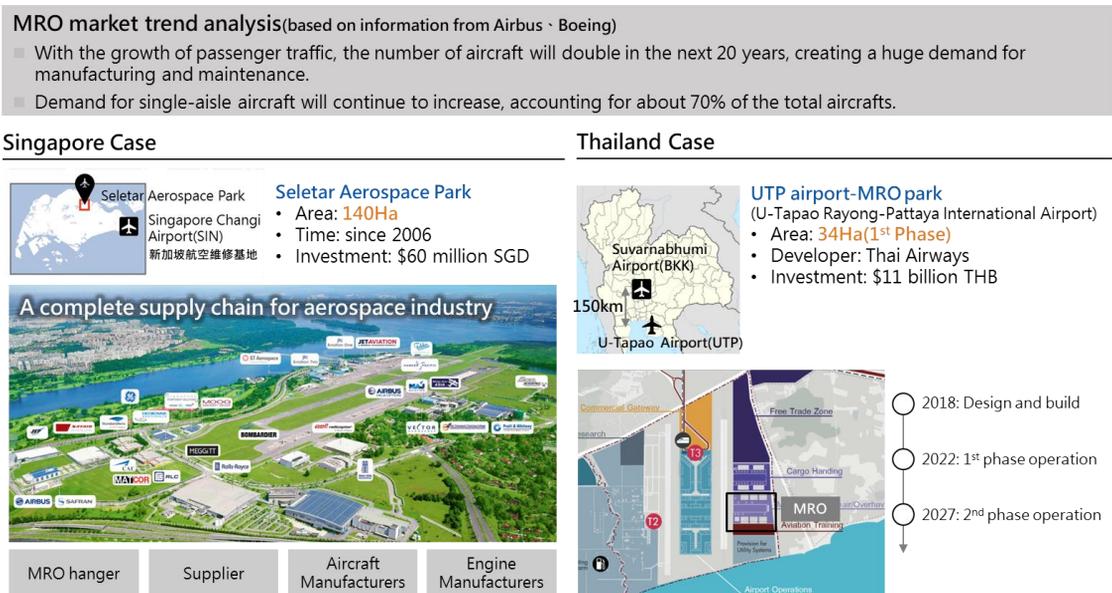
Maintenance, Repair and Overhaul (MRO)

With the growing aviation market, aircraft manufacturers Boeing and Airbus are optimistic about the future of aircraft manufacturing and MRO market, estimating that the number of aircraft worldwide will double in the next 20 years. The increase of the aircraft manufacturing market will also reflect in the growing global MRO market.

With respect to strengthening the competitiveness of MRO services, countries in the Asia-Pacific region are actively expanding their MRO markets. For example, Singapore has turned its military airport into the Seletar Aerospace Park to create a multinational aircraft maintenance base. The airport area attracted MRO companies, aerospace component suppliers, engine manufacturers, and aircraft manufacturers, providing a complete end-to-end supply chain from upstream to downstream. The Thai government is aiming to dominate cross-sector cooperation with airlines and aircraft manufacturers to develop an aircraft maintenance park in U-Tapao Airport (UTP), and is currently working on the first phase of its development plan. By adopting a specialization strategy, UTP airport will concentrate on heavy maintenance while the two airports in Bangkok will perform routine light maintenance services.

In summary, the aerospace manufacturing and maintenance industry is growing in tandem with global air transport development, and the huge demand in aircraft maintenance can drive the related industrial supply chain. Based on the development cases of Asian-Pacific countries, the future MRO development in Taiwan should also consider the feature and potential of local market and seek an appropriate development approach.

Figure 11 MRO Market Trend



Source: Seletar Airport, CAPA News

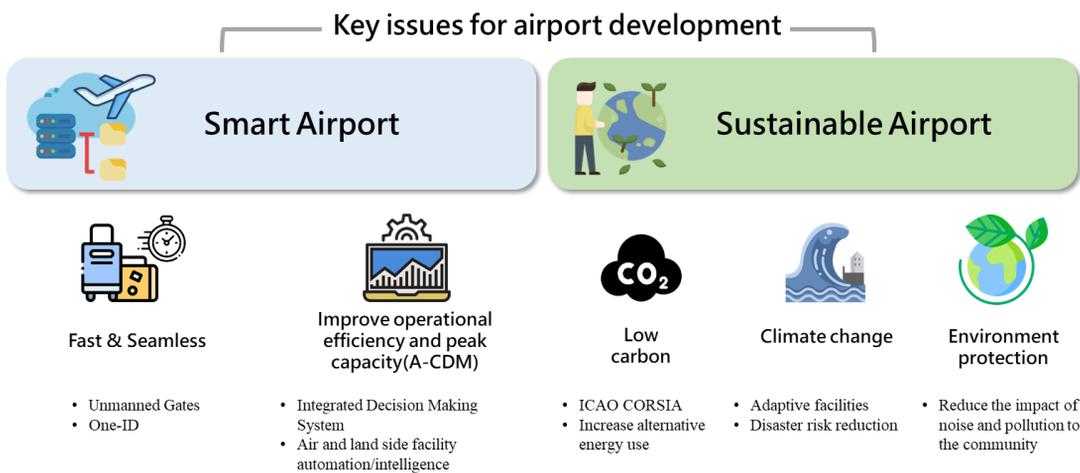


Smart and Sustainable Airport

In terms of airport operation trends, SMART AIRPORT has become a key issue in recent years. With advancements in new technologies, major international airports continue to utilize new technologies to improve operating efficiency within both air and land side, enhance passenger experience, increase airport revenue and reduce costs, also resolve manpower shortage problems. For example, through the introduction of One-ID and unmanned gate system, it can enhance passenger service experiences. Also with the introduction of Airport-Collaborative Decision Making (A-CDM), it is able to increase operational efficiency and peak capacity through the automation from airspace, airside to landside by airport joint operation systems. To sum up, responding to the smart airport trend in the future, the key issue for the airports in Taiwan is to consider the goals of digitalization, the actual effects, and the potential applications.

In addition, SUSTAINABLE AIRPORT is also an important issue. Aviation organizations such as ICAO, IATA, and ACI are actively promoting low-carbon operations to reduce carbon emissions in the aviation industry by increasing the use of alternative energy. Also, concerning climate change, providing adaptive facilities to reduce the risk of extreme disasters can build a more resilient airport system. Furthermore, environmental protection aims to reduce the impact of noise and pollution to the surrounding community. Therefore, to achieve sustainable airport development in Taiwan, low carbon operation, climate change, and environmental sustainability are three key aspects that come under consideration.

Figure 12 Smart and Sustainable Airport



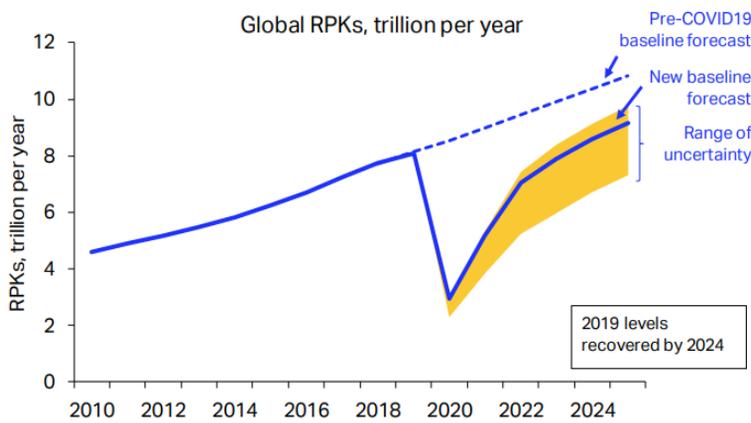
Source: Narita Airport, Changi Airport, Schiphol Airport



COVID-19 Pandemic

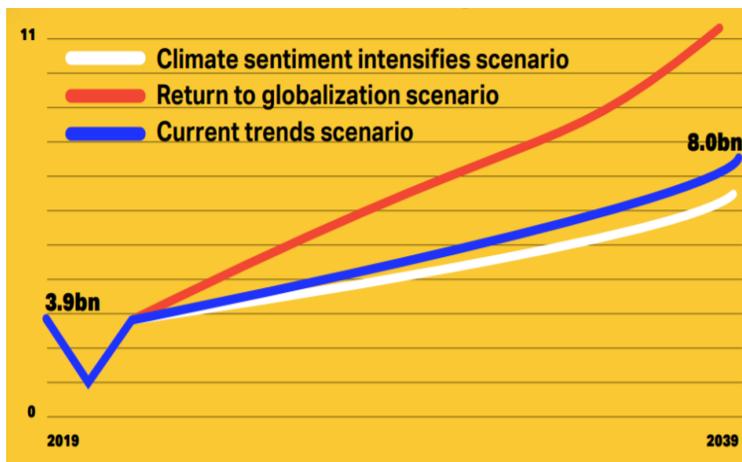
The outbreak of COVID-19 from early 2020 hit the global economy hard, greatly impacting people’s lives and the aviation market, resulting in an overall decrease in air traffic of more than 60% in 2020. According to IATA’s forecast of the impact of the COVID-19 pandemic on global air traffic, as shown in the figure below, it will take more than three to four years for overall traffic to recover to 2019 levels by 2024, and it is estimated that by 2025, air traffic will be only about 10% below the pre-COVID-19 forecast. According to the long-term trend forecast published by IATA, air traffic development will gradually return to the right track and resume the original forecast growth trend. In terms of regional recovery, IATA expects Asia Pacific as the fastest region to recover.

Figure 13 COVID-19 Impact to Passenger Forecast (IATA)



Source: IATA

Figure 14 Long-term Passenger Market Forecast (IATA)



Source: IATA



Response to COVID-19 from International Airports

The COVID-19 pandemic has greatly impacted the global aviation market. In order to ensure that airport service capacity can handle the expected traffic recovery in the post COVID-19 era, major hub airports around the world are continuously investing in renovation and maintenance programs, and promoting the existing short-term construction during the recovery period. Long-term construction projects have also considered adjusting the schedule and design based on the projected recovery from pandemic.

Figure 15 Summary about Airport Construction Projects

	Short-term Continue the ongoing construction project	Long-term Adjust schedule for long-term project
Singapore Changi	<ul style="list-style-type: none"> Close T2 and T3 for reconstruction, reopen in the end of 2021 Promote 3rd runway project 	<ul style="list-style-type: none"> T5 originally expected to be completed by 2030, but confirmed to be delayed at least two
Amsterdam Schiphol	<ul style="list-style-type: none"> Promote existing terminal reconstruction and runway&taxiway maintenance 	<ul style="list-style-type: none"> Promote the construction plan of new terminal building, but the opening time will be delayed
Incheon	<ul style="list-style-type: none"> Expansion of Terminal 2 Construct ongoing 4th runway(competed by 2023) 	<ul style="list-style-type: none"> Reassessment of the necessity for a fifth runway
Hong Kong	<ul style="list-style-type: none"> T3&R3 project completed by 2024 as schedule 	
Tokyo Narita	<ul style="list-style-type: none"> Promote 3rd runway project and expansion of 2nd runway 	

Source: Compiled by Project Team

Besides, the airports often implement digitalization solutions during the recovery period from pandemic. For example, Japanese airports have introduced contactless identification systems, contactless immigration processes, and robotic services to reduce human contact, improve operational efficiency, and implement intelligent pandemic prevention measures.

Figure 16 Intelligent Pandemic Prevention Case Study



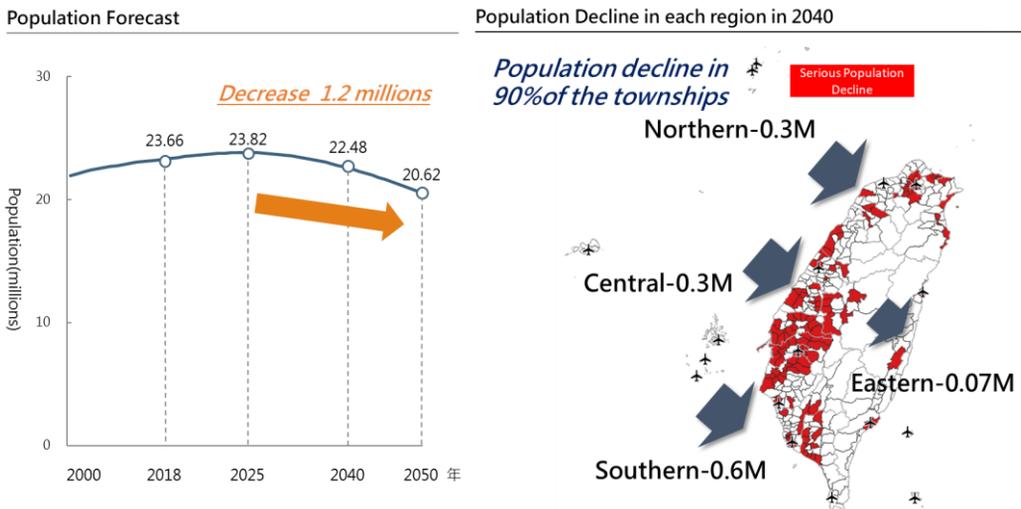
Source: Narita Airport, Incheon Airport, IATA

Chapter 4 Issues for Future Development

Socio-Economic Challenges

In addition to addressing the trends of international air transportation development, it is also necessary to consider the future social challenges in Taiwan. According to the population forecast by National Development Council, the population in Taiwan will start to experience a negative growth in 2025, while all the regions in Taiwan are facing the issues of labor force and economic decline. Under the above-mentioned circumstances, the total population will see a gradual decline and the proportion of young adults will decrease, influencing the domestic consumption, economic pressure and social issue of high dependency ratio. In the future, we should coordinate with the national spatial plan, the spatial structure of urban and rural areas, the industrial and transport policy to balance the development of northern, central and southern regions. For the further details about the national spatial plan, please refer to the official website of the National Development Council (<https://www.ndc.gov.tw/en/>).

Figure 17 Issue of Population Decline



Source: National Development Council



Major Policies in Taiwan

Over the past decade, the number of inbound visitors to Taiwan has nearly doubled to 12 million, of which 70% visit for sightseeing purposes, indicating that the growth of sightseeing passengers is one of the key development and growth trends for air transportation in Taiwan. To expand the inbound tourists and domestic tourism market, the Tourism Bureau of MOTC proposed “Taiwan Tourism 2030 White Paper” in 2019 with a target of 20 million inbound tourists and 220 million domestic trips by 2030.

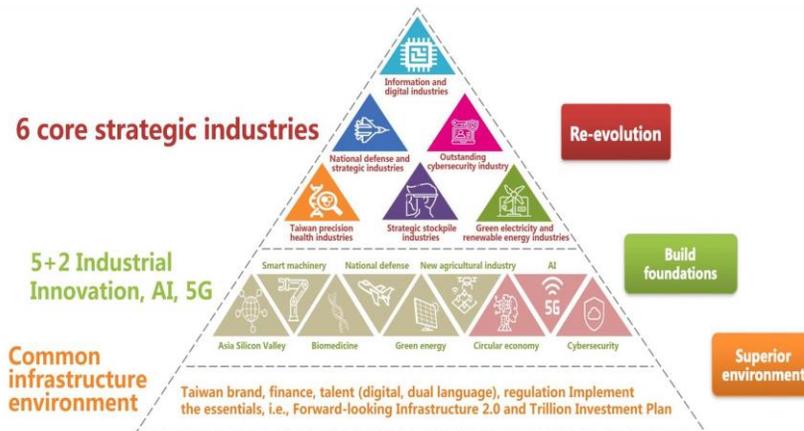
Besides, the recent national industrial policies issued by the Executive of Yuan include the “New Southbound Policy”, the “Six Core Strategic Industries” and the “Invest in Taiwan”. This epitomizes the government’s focus on developing closer economic and trade connection with Southeast Asia. With more investment of high-tech industries returning to Taiwan, it is expected to propel further growth in international passenger and cargo.

Figure 18 Taiwan Tourism 2030 White Paper



Source: Tourism Bureau

Figure 19 National Industrial Policy



Source: National Development Council

International Case Study

Faced with the issue of national population decline, the Japanese government has promoted the “Tourism Nation” policy in recent years, considering tourism development as an important national strategy. The government set the goal of reaching 40 million inbound tourists by 2020 and 60 million by 2030, with an increase of 1.5 times every ten years. In addition, with all Japanese airports as the gateways to the nation, the Ministry of Land, Infrastructure, Transport and Tourism(MILT), local governments and private tourism sectors are collaborating to attract foreign tourists by providing a wide range of itineraries and local creative activities and content. Therefore, the tourism benefits can be spread throughout the country, revitalizing the local economy, promoting the growth of both hub airports and local airports, and compensating for the impact of population decline and aging on the domestic economy. Based on the successful tourism development case of Japan and recent tourism policy in Taiwan, it supports the strategic goal of strengthening the joint development of hub and local airports.

Figure 20 Japan Tourism Policy

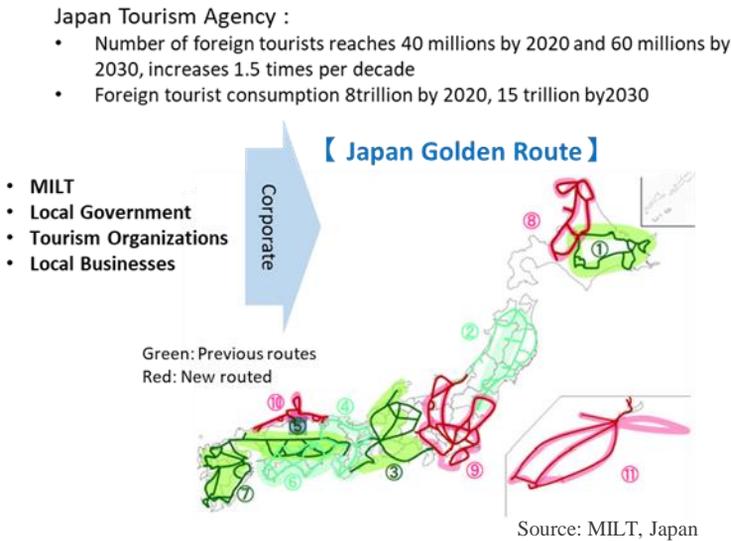
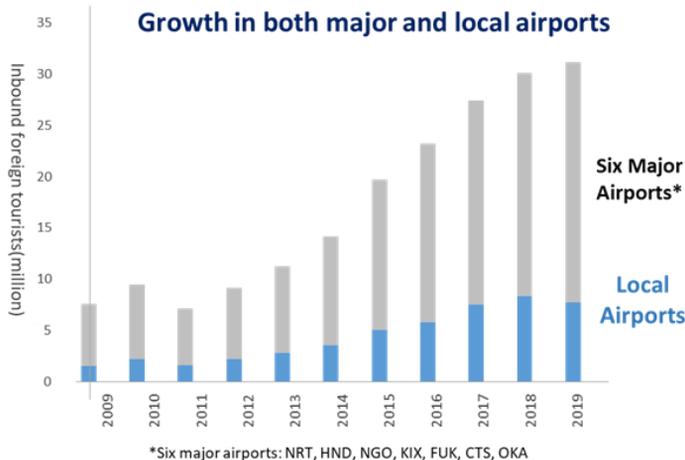


Figure 21 Japanese Airport Passenger Development



Source: Ministry of Justice, Japan

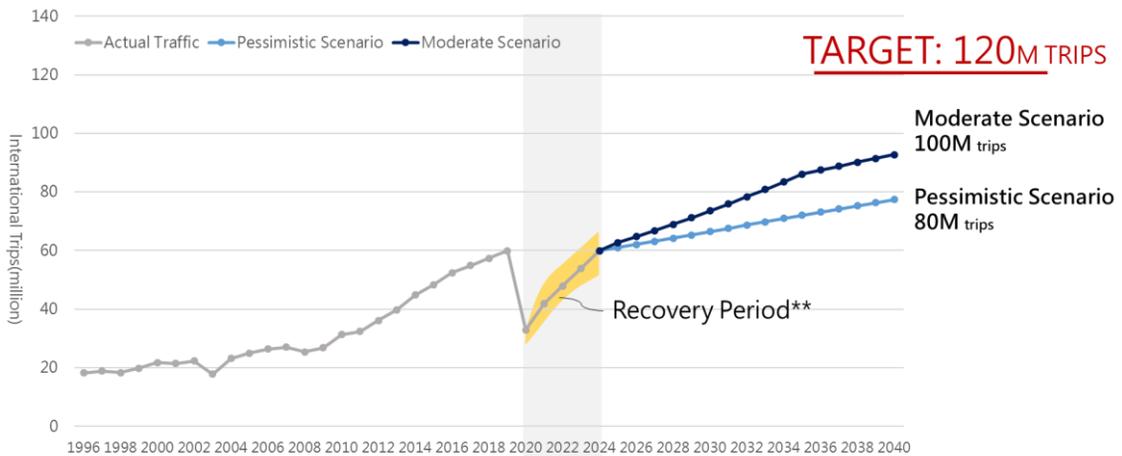


Traffic Forecast

The traffic forecast sets 2040 as the target year and adopts a multiple regression model for long-term air traffic forecast. However, considering the impact of the COVID-19 pandemic, according to the forecast by the International Air Transport Association (IATA), short-term aviation market will experience the demand fluctuations, while long-term air traffic will return to normal. Therefore, the traffic forecast result for international routes is expected to reach approximately 80-100 million trips by 2040 under a moderate to pessimistic scenario.

In addition, in considering that Taiwan will still face the issues of population decline and local economic development, it is recommended to refer to the successful case of Japan’s tourism policy. Also with the national policies such as the Tourism 2030 and the six core strategic industries, the project set the target of inbound visitors to Taiwan to 30 million by 2040, meaning that international routes will reach 120 million trips per year. Therefore, for the optimistic scenario, the project set a target of 120 million passengers per year and by preparing in advance for the active development in the post-pandemic era.

Figure 22 Air Traffic Forecast (COVID-19 adjustment)



*120 million is the long-term target for the international air traffic, but it may be affected by the pandemic recovery period, and should be continuously reviewed on a rolling basis for timely adjustment.
 ** According to short-term traffic change by the IATA forecast, with a 55% decrease in 2020, 70% in 2021, 80% in 2022, 90% in 2023, and a return to 2019 levels in 2024.

Source: Compiled by Project Team

Analysis of Airport Capacity Supply

In light of the social issues involved, national policy development, and traffic forecast, it is still necessary to review the capacity supply of airport facilities in Taiwan to draw up the strategy for future traffic deployment. After reviewing the planning of terminal construction in international airports, if completed on schedule, the airports will be able to meet the demand of 100 million passenger trips.

1. Taoyuan Airport: As the major international passenger hub in Taiwan, air traffic in Taoyuan Airport has been growing rapidly in recent years, and terminals have exceeded the declared capacity with the passenger LOS(level of service) being affected. The airside is facing capacity problems in aprons, runway, and saturated slots. In the future, Taoyuan Airport will carry out various large-scale construction projects, and the T3 is expected to be completed by 2026, adding 20 million passengers per year and bringing the total capacity of the airport to 57 million passengers per year. The northern satellite concourse terminal is planned to be completed by 2035, with a total capacity of 82 million passengers per year. For the airside, land acquisition and advance planning for the third runway are underway with scheduled completion in 2030, which shall increase the peak hourly takeoff and landing capacity from 50 to 90 movements.
2. Songshan Airport: The airport will operate at its current capacity and has no plans to expand capacity in the future.
3. Taichung Airport: The international terminal is currently facing the problem of insufficient capacity, and the expansion plan of the existing terminal is underway.
4. Kaohsiung Airport: The land side of international terminal is currently struggling with insufficient peak capacity. According to the "Kaohsiung Airport 2035 Master Plan", the expansion of the passenger terminal should be completed in 2035, and the total capacity can reach 10 million passengers per year. According to the recently implemented "Kaohsiung Airport New Terminal Construction Plan", the capacity of international flights is expected to reach 10.5 million passengers by 2030.

Figure 23 Airport Capacity Assessment

Current Capacity(million)		Future cumulative annual capacity(million)			
Airport	Capacity	2022Y	2026Y	2030y	2035y
Taoyuan (TPE)	37		T3 57		North Satellite 82
Songshan (TSA)	3.8				
Taichung (RMQ)	1.7	Expansion of existing terminal 2.69	New Terminal 4		
Kaohsiung (KHH)	6.09			Terminal Reconstruction 10.5	
Total Capacity	48.59	49.58	70.89	75.3	100.3

- The current airport capacity is the declared capacity of each airport.
- The future capacity is referred to the second edition of Taiwan Taoyuan International Airport Park Master Plan, the Taichung Airport Master Plan 2035 (approved), and the Kaohsiung Airport Master Plan 2035 (approved).

**Total Capacity
100M**

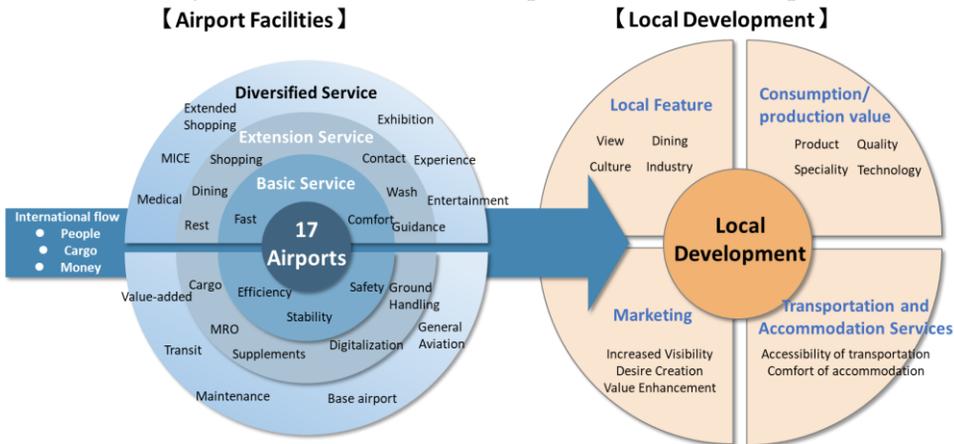
Source: Compiled by Project Team



Airport and Local Attractiveness

Airport passenger flow is derived from perceived attractiveness of the local area. The airports provide basic services, extended services, and even creative services, acting not only as a local gateway with comprehensive services but a facilities supporting local-to-international links. With the concept of an airport group, various service functions can be included by the collaboration among multiple airports, in addition to marketing and promoting the local culture, characteristics, transportation and lodging services. Airport development can be combined with the local community for joint prosperity.

Figure 24 Attractiveness of Airport and Local Development



Source: Compiled by Project Team

Currently, there are 17 airports in Taiwan, each endowed with unique facilities and location conditions. If we can properly realize the local features and highlights of each airport, we will have the opportunity to achieve the goal of expanding their respective attractiveness. What is reflected behind this is not only expanded capacity, but also the development of an airport division to create international competitiveness. At the same time, inbound tourists from local airports can bring more economic benefits directly to each region. Therefore, through strengthening the airport capacity and cooperation with industries and local communities, it is able to lead the expansion of airport development in central and southern Taiwan and create more economic ripple effects to benefit the local economy.

Figure 25 Indicative Image of Airport-to-local Link



Source: Compiled by Project Team

Chapter 5 Integrated Development Plan

Vision and Goal

Considering the growing aviation market prospects, the airport capacity issues, geographical location advantages and local development in Taiwan, the Airport System Plan should be directed toward the joint development of multiple airports, which can also strengthen the value of local development. Thus, the airport facilities should not only support the aviation industry development in Taiwan and but also the expectation of local development, and creating more economic value from the passenger, cargo, and information flow. Therefore, the project proposed that “The Most Competitive Airport Group in East Asia” is the vision for 17 airports in Taiwan, which contains three important concepts:

1. The Most Competitive: The ability to leverage its unique characteristics to attract more passenger and cargo while maintaining financial sustainability
2. Airport Group: The airports in the country are seen as a common entity with the same vision and goal, working together and support each other to achieve a better airport system.
3. East Asia: Our airports will be the leading airports in East Asia.

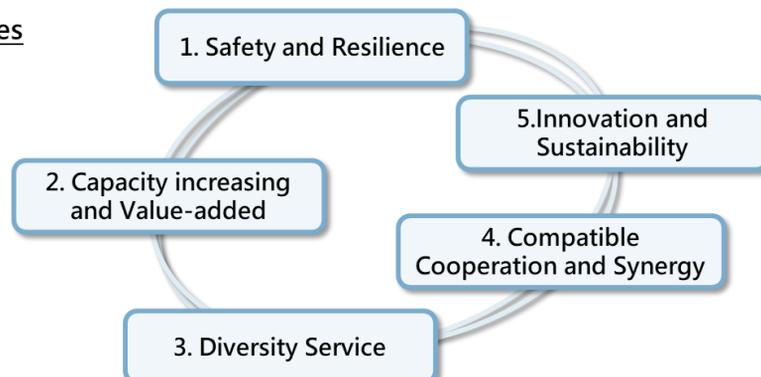
To achieve the aforementioned vision, and make good use of all the airports in Taiwan, and link the regional characteristics, the goal of our airports is established as “Multiple Gateways, Local Prosperity”. “Multiple Gateways” refers to the use of the 17 airports in Taiwan to create national and local gateways. “Local Prosperity” means that the 17 airports should not only be a sound integration for national development, but also create greater benefits together with the local community. To achieve the goal, five major objectives are defined, including “Safety and Resilience“, “Capacity increasing and Value-added”, “Diversity Service”, “Compatible Cooperation and Synergy” and “Innovation and Sustainability”.

Figure 26 Vision and Goal

Vision **The Most Competitive Airport Group in East Asia**

Goal **Multiple Gateways, Local Prosperity**

Objectives



Source: Compiled by Project Team

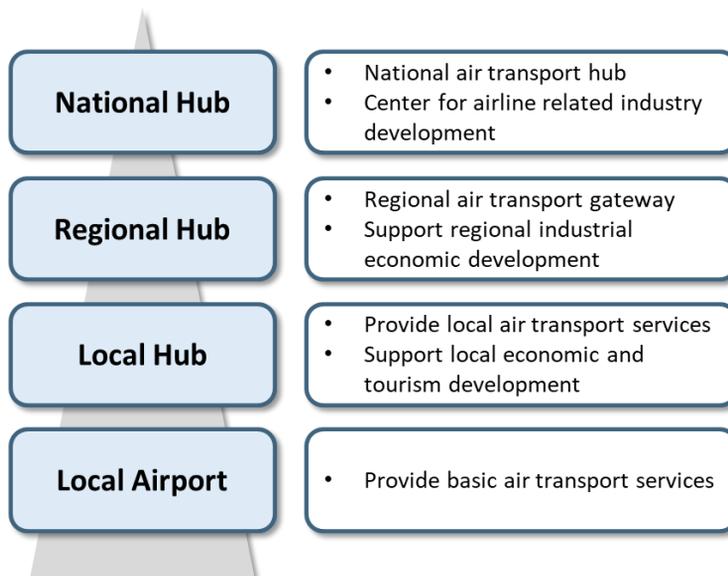


Airport Hierarchy

Each of the 17 airports feature different facilities and unique characteristics that highlight the surrounding area. In order to achieve “multiple gateways and regional prosperity”, the airports are classified based on the service areas and service types. Considering the current and future role for air transport service such as national, regional, local, and outlying islands, and the service type such as international, domestic and specific functional services, the levels of our airport system are established as “National Hub”, “Regional Hub”, “Local Hub”, and “Local Airport”. The service scope, target development goals and roles in each category are described below.

1. National Hub: The airport plays the role of a national air transportation service hub and the core of aviation-related industry development, and aims to serve air transport for the whole country and to achieve the passenger traffic of over 50 million passengers per year or 250,000 movements per year.
2. Regional Hub: Airports serving as the regional gateway and supporting the economic development of regional industries and aim to provide more than 10 million passengers per year or more than 50,000 movements per year for the northern, central, or southern regions.
3. Local Hub: Airports serving as local gateways and assisting in local economy and tourism development, with counties and cities as their main service areas, and aim to serve more than 100,000 passengers per year, or have the potential to provide regular routes and specific services.
4. Local Airport: Airports providing basic air transport services and serving the rural areas, and which can provide basic aircraft landing and takeoff function.

Figure 27 Airport Hierarchy



Source: Compiled by Project Team

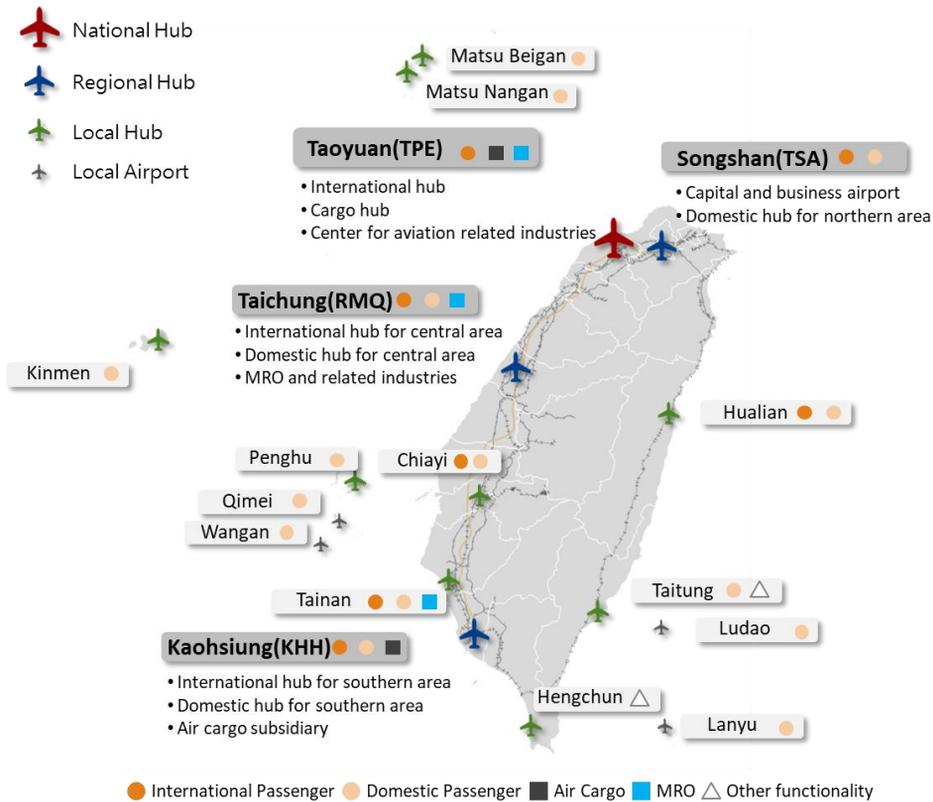


Airport Functionality

According to the airport hierarchy classification, we propose the functionality of air transport service among the 17 airports in Taiwan. In addition, based on the existing characteristics of each airport and its surrounding area, national development expectations, the division framework among the 17 airports is defined by international air passenger, domestic air passenger, air cargo, aircraft maintenance, and other specific functions.

The national hub (Taoyuan Airport) and the regional hub (Songshan, Taichung, and Kaohsiung Airport) provide international air passenger, air cargo, and MRO services. Other local hub and local airports serve mainly domestic passenger services, while some airports have specific services such as MRO and aviation training services. In the future, creating multiple gateways through airports across the country and joint development with local economy can provide a compelling comprehensive air transport service and strive for international aviation markets.

Figure 28 Airport Functionality



Source: Compiled by Project Team



Airport Positioning

According to the airport hierarchy and airport functionality, the development position of each airport is listed as follows.

Figure 29 Airport Positioning

Category	Airport	Positioning	
National Hub	Taoyuan (TPE)	International hub (OD/transit) in East Asia Air cargo hub Center for aviation related industries	
	Songshan (TSA)	Capital and business airport Domestic hub in Northern Taiwan	
Regional Hub	Taichung (RMQ)	International hub for Central Taiwan Domestic hub for Central Taiwan Cluster for MRO and related industries	
	Kaohsiung (KHH)	International hub for Southern Taiwan Domestic hub for Southern Taiwan Air cargo auxiliary	
	Chiayi (CYI)	Domestic airport in the Chiayi area International charter	
Local Hub	Tainan (TNN)	Domestic airport in the Tainan area Subsidiary for international routes in southern area MRO base for single-aisle aircraft	
	Hualian (HUN)	Domestic airport in the Hualian area International resort with mountain and sea attractions & theme	
	Taitung (TTT)	Domestic airport for the Taitung area (including Ludaο and Lanyu) Aviation Training Base	
	Hengchun (HCN)	Emergency medical service in the Pingtung area	
	Penghu (MZG)	Domestic airport in the Penghu area International resort with sea imagination	
	Kinmen (KNH)	Domestic airport in the Kinmen area Main Gateway for Mini Three Links	
	Matsu Nangan (LNZ)	Domestic airport in the Matsu area Local service center in the Nangan area	
	Matsu Beigan (MFK)	Domestic airport in the Matsu area Local service center in the Beigan area	
	Local Airport	Lanyu (KYD)	Basic transport and emergency service for the Lanyu area
		Ludaο (GNI)	Basic transport and emergency service for the Ludaο area
Qimei (CMJ)		Basic transport and emergency service for the Qimei area	
Wangan (WOT)		Basic transport and emergency service for the Wangan area	

Source: Compiled by Project Team

International Air Passenger Strategy: Airport Capacity Deployment

Based on the preceding analysis, under the moderate scenario of 100 million international passengers annually, the total capacity of passenger terminal and runway can accommodate the future demand. In the optimistic scenario of 120 million passengers, the existing construction plans will not be able to fully satisfy the demand. For this reason, the following discusses the possibilities for further capacity expansion based on the current airport master plans.

1. Taoyuan Airport: According to the second version of the Taoyuan Airport Master Plan, the approved expansion project plan to build the third terminal and the satellite concourse terminal on the north side of the airport. If there is still a shortage of capacity in the future, it is estimated that the capacity may be increased to more than 92 million passengers by expanding the satellite concourse terminal or renovating the existing terminal.
2. Taichung Airport: According to the "Taichung Airport Master Plan 2035", it proposed that a new passenger terminal be completed in the Yangsi District in 2035, considering the growth of passenger demand in Taichung Airport for the next 20 years. With regards to the airside, according to the airport's civil-military use agreement, there are currently 85 flights per day, or a quota for 170 landings and take-offs, and the plan suggests that the runway capacity can provide 6-8 million passengers per year under the existing agreement. If found to be insufficient, the new civil-use runway should be completed in 2040 to provide a peak hour capacity of 21 flights, and the total capacity of the airport may reach 10 million passengers. However, the existing civil-military agreement should be improved first in order to allow more quotas for civil use.
3. Kaohsiung Airport: According to the recently implemented "Kaohsiung Airport New Terminal Construction Plan", the airport is expected to expand to a capacity of more than 16 million passengers by 2035 if the number of finger corridors can be increased.

Figure 30 International Air Passenger Strategy: Capacity

	2035Capacity 100M	Med-long term construction plans	With a total capacity of 120M Continuously promote various planning to ensure capacity supply	
Taoyuan	82M	「2nd Masterplan」 Add north satellite	Continue to promote construction and plan for future development	More than 92
Songshan	3.8M	-		More than 3.8
Taichung	4M	「Develop Yangsi District」 An expandable capacity of 10M needs to further assessed.	Advanced assessment of Yangsi District Development	More than 10
Kaohsiung	10.5M	「Detailed Design of New Terminal Building」 Increase fingertip lounges	Evaluation of Capacity Expansion	More than 16

Source: Compiled by Project Team

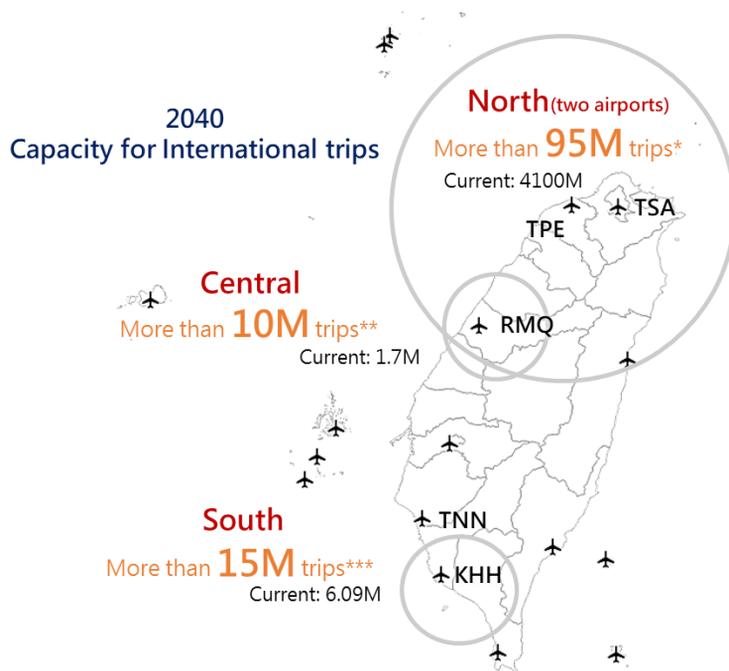


International Air Passenger Strategy: Airport Capacity Deployment

Based on forecasts of air traffic and analysis of airport capacity supply, if the tourism policy is implemented successfully, the future passenger traffic in Taiwan will reach 100 to 120 million passengers, meaning demand cannot be fully satisfied by a single airport. In addition, considering the issue of future population decline and local development, resources from the different regions are expected to be utilized and not concentrated in a single airport or region. In response to the aforementioned tourism policy and a balanced national development policy framework, in order to ensure that the capacity supply of international routes among all regions can reach the development target of 120 million passengers, it is necessary to advance the pre-development in Taichung Airport's Yangsi District and evaluate the possibility of further capacity expansion in Kaohsiung Airport.

If the assessments of further capacity expansion can be put into practice, the deployment of the future capacity for international air passenger is shown below. The two airports in the northern region will have a capacity of 95 million passengers, the central region will have more than 10 million passengers, and the two airports in the southern region will have more than 15 million passengers. However, all of the above conditions must be carefully evaluated, including the airport construction, coordination with the military, and curfew adjustments. Under this development framework, Taoyuan Airport should focus on providing regional and intercontinental routes and transit service, while Songshan, Taichung and Kaohsiung Airport should concentrate on regional routes, and other airports aim to provide international charter flights and scheduled flights on specific routes.

Figure 31 International Air Passenger Strategy: Capacity



Source: Compiled by Project Team

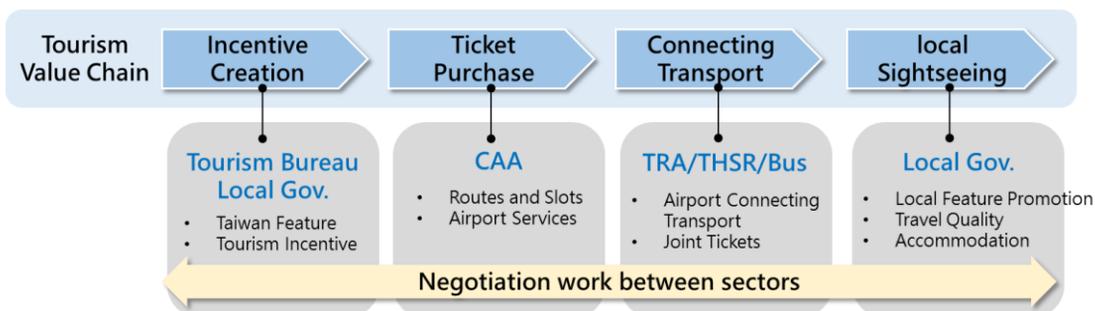
International Air Passenger Strategy: Market Demand Expansion

In addition to expanding airport capacity, the national and local governments should actively promote tourism development, and the following are the proposed methods.

1. National hub airport: Taoyuan Airport, as an international hub in Taiwan, attracts the largest amount of passengers and should continue to expand its route network. However, considering the relative economic benefits for the hub airport, it is possible to transfer some routes (ex. LCC routes) to the other type of airports. Thus, TPE airport could obtain better operating conditions, and at the same time, it is able to transfer capacity development to the central and southern regions. As for the transit market, the key for further expansion and development is the consideration of whether airlines could actively promote North America and Southeast Asia based on the advantages of Taiwan's geographical location.
2. Regional hub airports: In considering the adequacy and the ease of expansion in the regional passenger market, the routes network should still give priority to regional destinations. Regional international airports can observe the current popular routes and passenger composition of Taoyuan Airport to grasp the actual market demand and prioritize the development of popular destinations. In addition, according to previous case studies of airports in other countries, the expansion of destinations and flights, marketing promotion of both local governments can expand destinations more quickly.
3. Local hub airports: Because of the lack of local passengers and international popularity, operations at local airports are relatively difficult. Based on previous case studies of local airport development, it is common to develop local popularity first and then launch direct international links with overseas hub airports. For example, in Japan, many local airports in the Setouchi Inland Sea, such as Takamatsu, Matsuyama, Okayama, Hiroshima, have direct flights to Taoyuan Airport. Furthermore, to facilitate the development of international routes, they all start by promoting the charter market with Japanese local governments for positive negotiations with Taiwanese airlines and travel agencies. Although local airports do not possess market advantages, they still need other incentives and promotion to increase the possibility of flights operating.

However, to expand international visitors to Taiwan, the overall value of the tourism industry chain needs to be fundamentally overhauled. The tourism industry chain is usually divided into several distinct stages, including creation of travel incentives, airline ticket purchase, connecting transport and local sightseeing. Due to the involvement of different responsible authorities in each stage, it further manifests the fact that local tourism development requires the collaboration between various sectors and stakeholders to facilitate the expansion of business.

Figure 32 Value Chain of the Tourism Industry



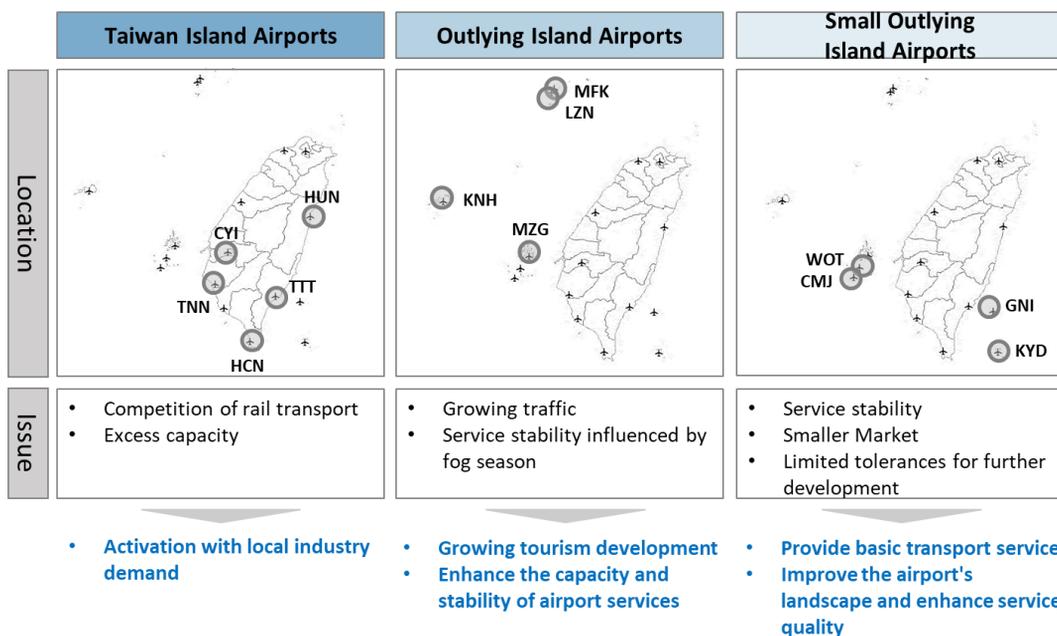


Domestic Air Passenger Strategy

Domestic air transport not only provides basic transportation services but can also be developed into sightseeing routes in the future. The core development strategy is to strengthen the service quality by integrating and highlighting local characteristics. Domestic airports can be divided into three categories, which are airports on Taiwan Island, outlying island airports and small outlying island airports. The development strategies are described below.

1. Taiwan island airports: Due to the intense competition with rail transport, air transport faced a precipitous decrease in demand in recent years. Therefore, with regards to the availability of airport capacity, airports should continue to revitalize and develop with the local tourism industry in the future, or gradually increase the demand of international routes.
2. Outlying island airports: With a rise in traffic seen in recent years, and the capacity of the airports can be increased in accordance with the growing demand. In addition, after the completion of the bridge linking Beigan and Nangan in Matsu, it is recommended to evaluate the possibility of merging the existing two airports into one airport considering resource concentration and operational efficiency.
3. Small outlying island airports: The topographical conditions around an airport affect its service stability. Furthermore, with a limited market size, the airports are relatively small and capacity limited. In the future, the airport should provide basic transport services considering the tourism market demand and the capacity of the outlying islands. Besides, it is important to improve the image of the existing airports and enhance service quality, while taking into account the balance between economic development and environmental protection.

Figure 33 Domestic Air Passenger Strategy



Source: Compiled by Project Team

Air Cargo Strategy

With the slowing growth of global air cargo demand, airports are focusing on the development of value-added services as a core strategy. Therefore, for the air cargo strategy, it is recommended to position national hubs as the main airport and regional hub as the auxiliary airport, with a combined air cargo target capacity of over 4 million metric tons annually. Based on the above development conditions, Taoyuan Airport plays a pivotal role as the main air cargo hub in Taiwan. Besides, other international airports should be equipped with basic import and export cargo handling capabilities. The following are the air cargo development strategies for the National Hub airport (Taoyuan Airport) and Regional Hub airports (Songshan, Taichung, and Kaohsiung Airport).

1. National hub: It is proposed to draw up a cargo development plan based on the three types of cargo development sites, which are cargo terminals within the airport, the airport's surrounding free trade port area, and the Taoyuan Aerotropolis Industrial Development Zone. In light of the considerable value of the airport's surrounding land, the special characteristics of the adjacent ramp, and the high timeliness required, the airport cargo terminal should be reserved purely for customs clearance and transit cargo. Value-added logistics services can be provided with the development of a Free Trade Zone (FTZ) with its high lead time requirements and tax-free status. Examples include the provision of cold chain logistics services like flowers and pharmaceuticals, and value-added services such as electronic products maintenance & repair reverse logistics, express warehouse, etc. It is recommended that Taoyuan Aerotropolis provide logistics services with a higher degree of value-added processing. In addition, it is recommended that airport cargo operators should consider new and innovative business models, extend the scope of air cargo services, and cooperate with cargo distribution operators, logistics operators, and airlines to create new business opportunities for the national airport cargo industry.
2. Regional hub: These airports do not have the same prime conditions for cargo development as Taoyuan Airport. However, with the future growth in air passenger traffic, the proportion of belly cargo will increase, and the air cargo demand will also be promoted.

Figure 34 Air Cargo Strategy

Airport	Cargo Strategies
<p style="text-align: center;">National Hub Taoyuan</p>	<ul style="list-style-type: none"> • Air cargo hub (account more than 90% in Taiwan) • Develop value-added cargo service • Extend the scope of air cargo services
<p style="text-align: center;">Regional Hub Songshan/Kaohsiung/Taichung</p>	<ul style="list-style-type: none"> • With the growth of passenger traffic, the demand for belly cargo will increase. • Basic cargo handling equipment should be available. • Review the adequacy and development of cargo terminal capacity on a rolling basis

Source: Compiled by Project Team

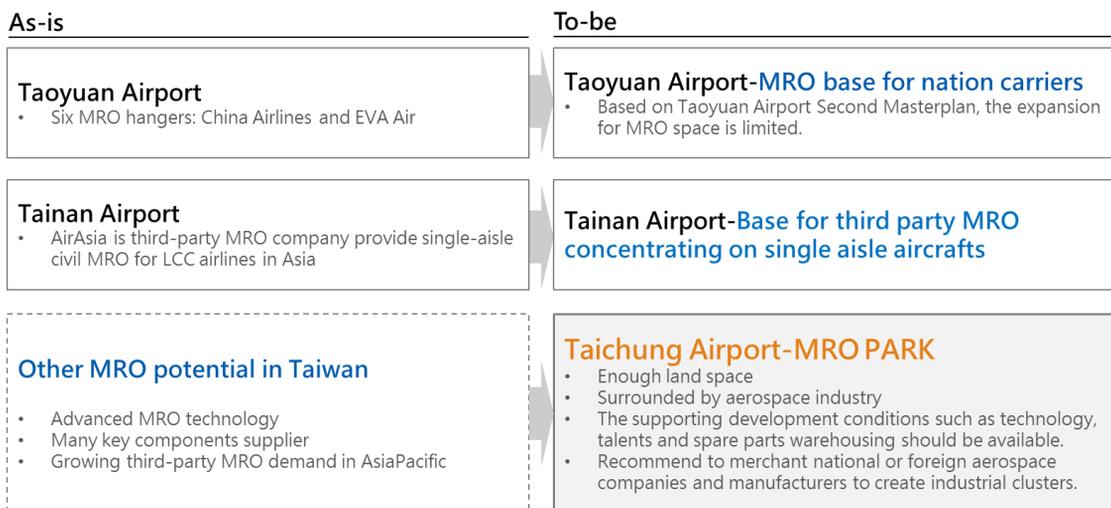


MRO Strategy

In the future, the international air passenger market is expected to flourish, and the demand for aircraft maintenance will expand accordingly. However, the Taoyuan, Songshan, and Kaohsiung airports which currently provide international passenger services have limited land for future expansion and development. Tainan Airport lacks direct international flights to support the aircraft maintenance demand. Therefore, the main MRO strategy will assess the feasibility of developing a new aircraft maintenance area in Taiwan. According to the “2035 Taichung Airport Master Plan”, although a civil-use MRO service has not yet been developed, it has been reserved land for MRO development with the advantage of sufficient adjacent space next to the airport for development. Also, in considering factors such as manpower demand, industrial technology and cluster of existing MRO companies, the feasibility of developing Taichung airport into a new aircraft maintenance park should be carefully evaluated.

In this way, the MRO industry in Taiwan can be developed in accordance with the existing advantages of each airport. Taoyuan Airport has the larger MRO demand and existing maintenance hangar capacity, playing the role as a key MRO base for national carriers in Taiwan. Although Tainan Airport only has very little international air traffic, it can still serve as a third-party maintenance center and continue to strive for the MRO market of foreign narrow-body aircrafts. Furthermore, in Taichung airport, only Mandarin Airlines provides routine maintenance services at present. With reference to the examples set by Singapore’s Seletar Airport and Thailand’s UTP Airport, the future MRO strategy can be formulated into a comprehensive MRO service network from parts to assembly, thus jointly striving for the growing international MRO market.

Figure 35 MRO Strategy



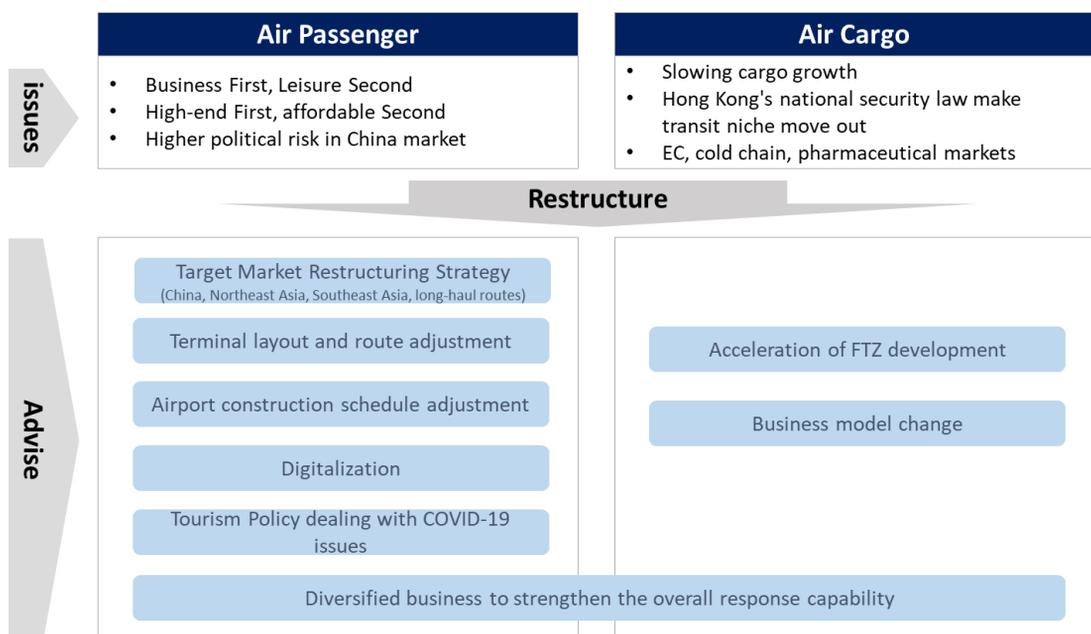
Source: Compiled by Project Team

Response to COVID-19 Pandemic

The outbreak of the COVID-19 pandemic has devastated the international air transport market, resulting in the overall decline of air traffic by more than 60% in 2020, affecting not only airport and airline operations, but also causing numerous airlines to declare bankruptcy. In addition, IATA(International Air Transport Association) predicts that it will take more than three to four years to recover, and that overall traffic will return to 2019 levels only by 2024, with Asia Pacific being the fastest recovering region. In the post-pandemic era, air passenger and air cargo will follow disparate development strategies, and the restructuring of airline businesses is an important issue that needs to be addressed. The following is the discussion in response to the COVID-19 pandemic.

1. Air Passenger: Considering the international market trend and demand type, the concepts of “business first, then tourism” and “high-end first, then affordable“ are proposed. Also in light of the higher political risk in the China market, it is advised to adjust our target market development strategies. Besides, to increase passengers’ willingness to our airports, it is also recommended to adjust airport terminal design, actively introduce new cutting-edge technology applications, and provide safe travel measures.
2. Air Cargo: It is recommended to consider the slowing growth trajectory of air cargo volumes. The National Security Law imposed on Hong Kong has caused the regional transit hub to lose its niche as well as the air cargo trend in the E-commerce, cold chain, and pharmaceutical markets. Based on the advantages of the transit market in Taiwan, it is advised to accelerate the development of the Taoyuan Airport FTZ to attract for more international cargo, as well as increase the diversification for the business model of air logistics.

Figure 36 COVID-19 Response Strategy



Source: Compiled by Project Team



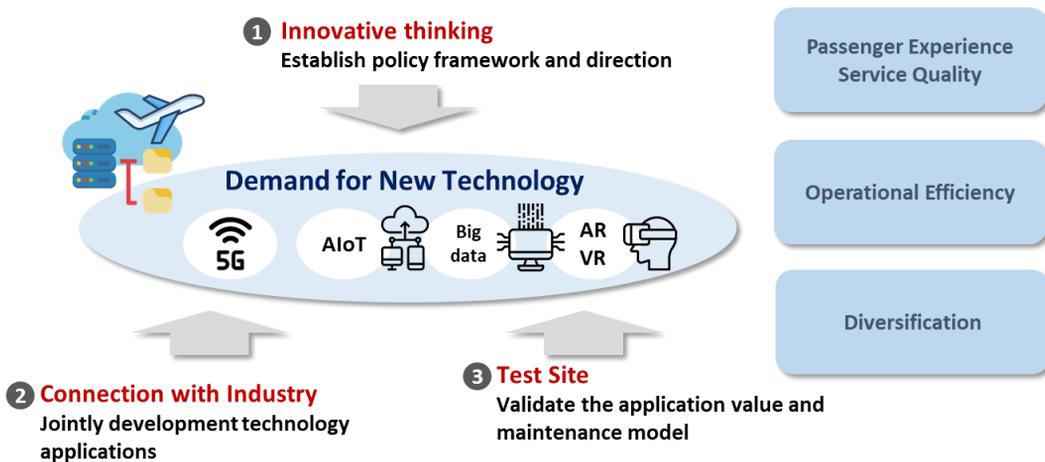
Innovative Operation

In response to the constantly evolving aviation market, it is suggested that our airports should take the initiative to carry out innovative operations plans. Based on new technology progress such as automation, sensor facilities, artificial intelligence (AI), internet of things(IOT), big data analysis, augmented reality (AR) and virtual reality(VR), it is advisable to establish intelligent development processes for different airport types, and introduce pilot application mechanisms. The following three steps are recommended based on international case studies.

1. Introduce Innovative Ideas: Develop a blueprint for smart airport in Taiwan to make each airport operate with a clear direction to introduce innovative ideas for technology applications. The blueprint should include the existing operational issues faced by each airport, improvements gained after using technology, and the promotion projects and priorities of each airport.
2. Linking with industry technology: In order to promote smart airports, we need to enable the use of industry technology. It is suggested that we can make use of our leading position in the international information and communication industry and the cooperation between domestic and foreign industry players to help our airports optimize industry resources to achieve the goal of becoming a “smart airport”.
3. Test site: The test site mechanism can be established to enable the industry to develop technology products suitable for our airports, or to avoid the impact through testing before actual implementation.

To sum up, the key to smart airport development needs to return to the fundamental issues about which aspects need to be improved or optimized. For example, we can benchmark Taiwanese airports with its international peers, which have set goals including passenger experience and service quality improvement, operational efficiency enhancement to strengthen airport service standards, and operational diversification to increase non-aviation revenue. In the future, airports in Taiwan can first set the goal of smart airport and then create a compelling environment through which newly introduced technology mechanism can achieve the advantages of new and emerging technologies.

Figure 37 Airport Digitalization Strategy



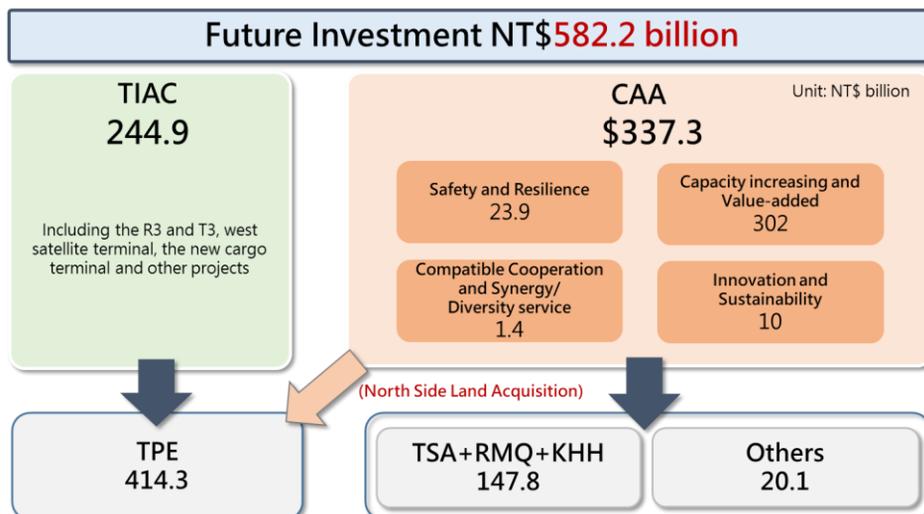
Source: Compiled by Project Team

Financial Sustainability

To ensure that our airports can continue to improve their service quality and provide more diversified services to generate revenue for sustainable operation, it is estimated that investments over NT\$580 billion are required in the next 20 years. Taoyuan International Airport Corporation(TIAC) will invest more than NT\$240 billion. The CAA Operation Fund is expected to invest more than NT\$300 billion, including approximately NT\$160 billion to cover the land acquisition cost of the north side of Taoyuan Airport, over NT\$140 billion to invest in regional hub airports, and NT\$20.1 billion to invest in local hub airports and small local airports. The proposed future airport construction plan can be categorized according to five major development objectives:

1. Safety and Resilience: Runway and taxiway rehabilitation, apron improvement, navigation aid function enhancement projects, as well embankments and existing terminal building renovation and improvement projects related to airside flight safety.
2. Capacity Increasing and Value-added: Projects related to the enhancement of the airport passenger and aircraft capacity, such as new construction and expansion of airside aprons, runways, taxiways, and landside terminal buildings, as well as related land acquisition projects.
3. Diversity Service: Development and renovation projects for the proper use of airport space to enhance the airport's diversified functions in addition to transportation, such as consumption, tourism, and related industry development.
4. Compatible Cooperation and Synergy: Projects intended to strengthen the connection between the airport and local development and to achieve the effect of supporting local tourism, mainly for key local airports and basic airports on outlying islands, are carried out to meet the needs of local governments.
5. Innovation and Sustainability: These projects must actively integrate forward-looking, intelligent and innovative concepts and pursue sustainable management.

Figure 38 Future Airport Investment



Source: CAA, TIAC



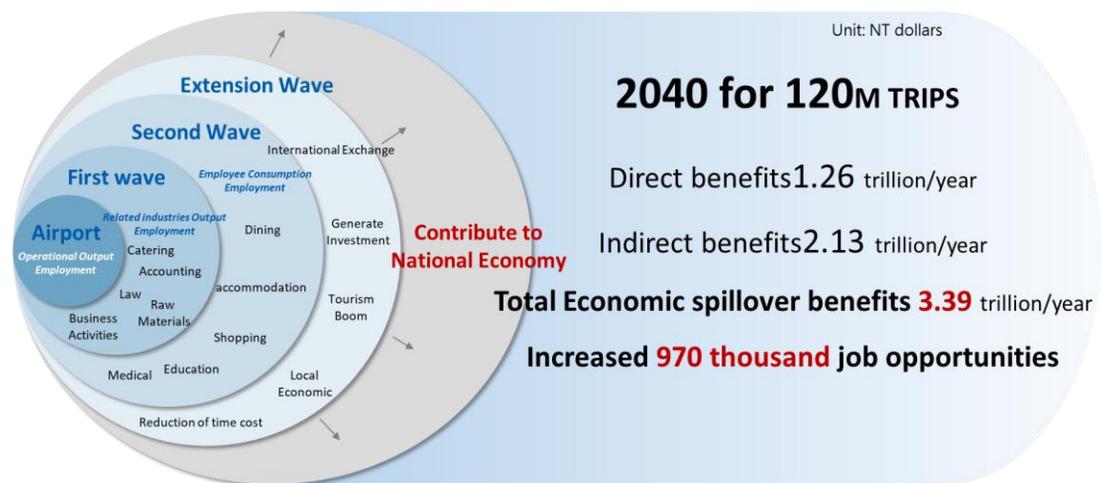
External Economic Benefits

The economic value of aviation to modern cities is no longer just a service to industry or people, but a key driver to propel economic growth and social prosperity. In addition to satisfy national travel demand and generate direct airport revenue, airports can also have a ripple effect on the country. For instance, IATA analyzes the operational benefits generated by airports in various countries, including the following four aspects.

1. Direct benefits: The value of activities directly related to the airport, such as the revenue generated by the airport itself, the revenue generated by the airport leasers, the airlines, and the value of activities generated by passenger activities.
2. First-wave benefits: Support for downstream manufacturers and production chains of airport activities, such as aviation-related goods wholesalers, fuel suppliers, accounting services, legal affairs, catering as well as the value of industry chains related to commercial activities.
3. Secondary spillover benefits: Economic benefits derived from the external consumption of the employees concerned, including catering, accommodation, groceries, education, medical care and so on.
4. Derivative benefits: The value of activities related to airport operations, such as trade, investment, and productivity gains.

According to the above four major spillover benefits, if the international air traffic reaches 120 million passengers by 2040, the direct benefits will be NT\$1.26 trillion, the spillover benefits will be NT\$2.13 trillion, and the total benefits will be NT\$3.39 trillion, and bring about 970 thousand job opportunities.

Figure 39 Airport Economic Benefits



Source: Compiled by Project Team

Chapter 6 Summary

Conclusion

1. Taiwan is surrounded by sea, and air transport service serves a pivotal role in connecting Taiwan and the outlying islands, as well as the economic and trade activities between Taiwan and the world. As a major hub in East Asia, the total air passenger traffic in Taiwan exceeded 70 million in 2019, with international air passenger traffic growing at an average annual rate of 7% and international air cargo traffic of Taoyuan airport ranking 6th in the world and 4th in Asia. Therefore, investments in airport construction and development should continue at a steady pace to ensure our national competitiveness.
2. According to the latest air traffic forecast, the number of international passengers will probably reach 80 to 100 million by 2040. In line with the national spatial plan, industry innovation, tourism policies and having a sound engagement with local communities will contribute to airports in Taiwan reaching 120 million passengers per year under an optimistic scenario, which is expected to further boost economic development and create higher economic impact and benefits.
 - 1) With the vision of being “The Most Competitive Airport Group in East Asia” and the goal of “Multiple Gateways, Local Prosperity”, the Airport System Plan facilitates the overarching strategy for Taiwan’s 17 airports to collaborate and create synergized operational benefits.
 - 2) Promote the future development and development plan of airports in Taiwan based on the five major objectives, namely “Safety and Resilience“, “Capacity increasing and Value-added, “Diversity Service”, “Compatible Cooperation and Synergy”, “Innovation and Sustainability”.
3. Subsequent airport construction and development will follow the strategic directions from the aforementioned five major objectives, and will be evaluated for feasibility or construction plans in accordance with the “Guidelines of Government’s Public Construction Projects and Funding Review” and will be submitted to the Executive Yuan for approval. Then it can proceed with budgeting, as well as for engineering design and construction.
4. In addition to the investment of about NT\$244.9 billion for expansion from the Taoyuan International Airport Corporation, the CAA Operation Fund is expected to invest an additional NT\$337.3 billion in the next 20 years to acquire land for other airports and to carry out various software and hardware construction projects for the sustainable development of the airport.



Recommendation

1. This is an Airport System Plan as well as a comprehensive integrated guiding framework plan. It fully integrates the future development plan of Taoyuan International Airport, takes into account the regional balance and reasonable allocation of resources, and will promote future air transport development in accordance with the plan. The next phase (target year 2045) of the overall plan will commence in a timely manner depending on changes in the political, economic and air transportation market trend.
2. IATA and ACI predict that the air passenger traffic affected by the COVID-19 pandemic will recover in four years. Considering the potential and growth of the international air transport market, we will continue to promote the approved short-term (5-year) construction and ongoing plan and continue to review the most appropriate time to kick start the medium- and long-term development plan, to ensure that the airport construction can satisfy the requirements of national development.
3. The subsequent construction of each airport will follow the administrative procedures and follow the “Guidelines of Government’s Public Construction Projects and Funding Review” to conduct stringent feasibility assessments or construction plans, evaluate financial and economic benefits, and submit them to the Executive Yuan for approval before preparing budgets and kicking off subsequent projects.

