

A Study on the Development of Taiwan's Tourism Industry after the Pandemic: A Document Analysis Approach

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Abstract— Since 2020, the COVID-19 pandemic has severely impacted global tourism through border controls and entry restrictions, significantly reducing international travel. Taiwan's travel, accommodation, catering, and recreation industries were also affected. As the pandemic eased and borders reopened, Taiwan's tourism industry shifted from crisis response to market recovery and industrial transformation. This study uses document analysis to examine post-pandemic development and transformation of Taiwan's tourism industry, drawing on English academic literature published after 2020 on COVID-19, tourism recovery, travel behavior, smart tourism, digital transformation, sustainable tourism, and industry resilience, supplemented by Taiwan's tourism statistics. The findings indicate that the pandemic not only caused a sharp decline in international visitor arrivals but also drove structural changes in source markets, tourism demand, consumption behavior, and business models. Although visitor arrivals have rebounded, the market still has room for recovery. Travelers now place greater emphasis on health, safety, quality, personalization, and in-depth experiences, increasing the importance of domestic, ecological, and locally distinctive tourism. Digital platforms, AI, mobile technology, and smart services have accelerated digital transformation, while sustainable tourism, low-carbon development, local culture, and industry resilience have become key post-pandemic directions. Overall, Taiwan's post-pandemic tourism development is summarized into five dimensions: market recovery, changing demand, digital and smart transformation, sustainable tourism, and industry resilience and competitiveness. Future efforts should promote international market diversification, smart technology application, local characteristic integration, sustainable tourism, and talent cultivation to enhance Taiwan's tourism competitiveness and long-term development.



Keywords— COVID-19, Taiwan tourism industry, document analysis, smart tourism, sustainable tourism, industry resilience.

I. INTRODUCTION

Since 2020, the COVID-19 pandemic has spread rapidly around the world, posing major challenges not only to public health systems in various countries, but also exerting profound impacts on global economic activity and population movement. Among these, the tourism industry is highly dependent on cross-border population movement, transportation, and face-to-face services, making it one of the industries most severely affected during the pandemic. To reduce the risk of cross-border virus transmission,

countries successively adopted measures such as border controls, entry restrictions, quarantine, and social distancing, causing a substantial reduction in international air transport and cross-border travel activities. Gössling et al. [1] pointed out that the global travel restrictions caused by the COVID-19 pandemic led to an unprecedented disruption of international tourism activities and highlighted the high dependence of the global tourism industry on international population movement and the globalization system. The impact of the pandemic is not

limited to the travel industry itself, but further extends to aviation, accommodation, catering, retail, tourism and recreation, and other related industries, creating a broad chain effect across industries.

The shock brought by COVID-19 also prompted the tourism industry to rethink its existing business models and development directions. Sigala [2] argued that the pandemic is not only a crisis for the tourism industry, but also provides an opportunity to re-examine industrial structure, business operations, and tourism consumption patterns. In the past, the tourism industry placed greater emphasis on visitor numbers, output value, and market growth. After the outbreak of the pandemic, the importance of crisis management, industry resilience, digital technology, and sustainable development increased significantly. Therefore, the development of the tourism industry after the pandemic should no longer be viewed simply as restoring the pre-pandemic market scale, but should further examine whether the pandemic has brought about long-term changes in the structure of the tourism industry and travel behavior.

Taiwan has likewise been affected by the stagnation of global tourism activities. Since international tourism is an important component of Taiwan's overall tourism market, the implementation of border controls during the pandemic caused a sharp decline in international visitor arrivals to Taiwan, and travel agencies, hotels, and related tourism service industries faced significant operational pressure. Chan and Chen [3] studied the impact of COVID-19 on Taiwan's tourism industry and pointed out that even though Taiwan adopted effective epidemic prevention measures in the early stages of the pandemic, the tourism industry was still significantly affected by international travel restrictions, with the travel agency sector being particularly affected. In addition, Chen et al. [4] analyzed Taiwan's border control policies and traveler behavior, showing that border policies during the pandemic were closely related to tourism behaviors such as the length of stay, tourism expenditure, satisfaction, and revisit intention of international visitors. This indicates that the impact of COVID-19 on Taiwan's tourism industry was not merely a short-term decline in visitor numbers, but also involved changes in the structure of the tourism market and consumer behavior.

From an economic perspective, the losses caused by the pandemic to Taiwan's tourism industry were also quite obvious. Yeh and Liou [5] used Taiwan's tourism satellite account and an input-output model to analyze the impact of the pandemic, and found that after Taiwan implemented border controls in 2020, the output value of the tourism industry was substantially affected, while the relief and stimulus policies promoted by the government mitigated to

a certain extent the negative effects of the pandemic on the tourism industry, gross domestic product, and employment demand. This result shows that government policies during a major crisis not only have a short-term function of industrial relief, but may also influence the direction of subsequent recovery and transformation of the tourism industry.

As the pandemic gradually came under control, countries successively lifted travel restrictions, and Taiwan reopened its borders, the tourism industry began to move from the crisis response stage during the pandemic to a stage of market recovery and industrial transformation. However, the post-pandemic tourism environment is different from that before the pandemic. Travelers have gradually raised their demands for health and safety, tourism quality, digital services, and travel experiences. At the same time, concepts such as smart technology, digital platforms, sustainable tourism, and industry resilience have gradually become important issues in the development of the tourism industry. Therefore, how to rebuild the competitive advantages of Taiwan's tourism industry while the international tourism market recovers, and how to enhance its capacity for adjustment and response to major crises in the future, have become important topics worthy of in-depth discussion.

Based on the above background, this study takes "the development of Taiwan's tourism industry after the pandemic" as its research topic and adopts a document analysis method. By collecting and organizing relevant domestic and international research results, it analyzes the changes in Taiwan's tourism industry before and after the COVID-19 pandemic and its future development trends. The main purposes of this study include: (1) to explore the impact of the COVID-19 pandemic on Taiwan's tourism industry; (2) to analyze the recovery of Taiwan's tourism market after the pandemic; (3) to examine changes in tourism demand and consumption behavior after the pandemic; (4) to analyze development trends such as digital transformation, smart tourism, sustainable tourism, and industry resilience; and (5) to synthesize relevant literature and research results and propose suggestions for the future development of Taiwan's tourism industry after the pandemic, so as to serve as a reference for relevant policy planning and industrial development.

II. LITERATURE REVIEW

2.1 Impact of the COVID-19 Pandemic on the Tourism Industry

The tourism industry is characterized by high mobility, cross-border operation, and service intensity. Travelers must complete their tourism experience through activities

such as transportation, accommodation, dining, and recreation, making the industry highly susceptible to external factors such as political, economic, natural disaster, and public health events. After the rapid global spread of COVID-19, countries successively implemented measures such as border controls, entry restrictions, quarantine, social distancing, and restrictions on population movement in order to reduce the risk of virus transmission, causing an unprecedented shock to the international tourism market, which originally depended heavily on cross-border population movement. Gössling et al. [1] pointed out that in the early stages of the pandemic, large-scale global travel restrictions and stay-at-home measures rapidly brought aviation, cruise, accommodation, and other tourism activities to a standstill, demonstrating the high dependence of the tourism industry on population movement and the globalization system.

The impact of COVID-19 on the tourism industry is not limited to a decline in international visitor numbers, but also produces chain effects through the tourism industry supply chain. Airlines faced declining revenues due to the substantial reduction in international flights; travel agencies lost their main markets because group tours and cross-border travel came to a halt; hotels and bed-and-breakfasts were affected by reduced accommodation demand; and catering, retail, conventions and exhibitions, amusement parks, and local tourism industries also experienced operational pressure due to fewer visitors. Therefore, what the pandemic created was a systemic crisis that simultaneously affected the demand side, the supply side, and the destination management system of tourism. Sigala [2] argued that the impact of COVID-19 on the tourism industry can be analyzed from the perspectives of different stakeholders, including tourism demand, tourism supply, and destination management and policy, and can be further divided into the stages of response, recovery, and reset. This view indicates that the impact of the pandemic should not be measured only by short-term declines in visitor numbers or output value, but should be further observed in terms of long-term changes in industrial structure and business models.

The Asian tourism market was also severely affected by the pandemic and border controls. Because international tourism, regional aviation, and cross-border business travel are highly frequent in Asia, international tourism activities declined rapidly after countries adopted border controls. On the other hand, when international visitors could not enter, some Asian countries and regions turned to domestic tourism to support accommodation, catering, and local tourism markets, thereby relatively increasing the importance of domestic tourism. The pandemic also highlighted the market risks that may arise

from over-reliance on a single international source market or large numbers of group tourists. Therefore, diversifying source markets, strengthening domestic tourism, and enhancing the ability of the tourism industry to adapt to external crises have gradually become important issues in post-pandemic tourism policy.

Yang et al. [6] reviewed 249 studies related to COVID-19 and tourism and classified the main research topics into five directions: psychology and travel behavior, crisis response and resilience, sustainable development, impact assessment and prediction, and technology application. This result shows that the impact of COVID-19 on the tourism industry has extended from the initial "decline in visitors and industrial losses" to longer-term structural issues such as consumer psychology, technological transformation, sustainable development, and industry resilience. Therefore, the pandemic not only caused a short-term stagnation of the global tourism market, but also prompted researchers to re-examine the traditional tourism development model centered on visitor numbers and economic growth.

2.2 Post-Pandemic Recovery of the Tourism Industry

With the widespread distribution of vaccines, the gradual lifting of travel restrictions by various countries, and the reopening of international borders, the global tourism industry has moved from crisis response during the pandemic to a recovery stage. However, post-pandemic tourism recovery is not simply a restoration of pre-pandemic visitor numbers and market scale, but involves multiple factors such as consumer confidence, business operation models, government policies, technology application, and destination governance. Sigala [2] pointed out that COVID-19 may serve as an important opportunity for the tourism industry to re-examine existing institutions and business models. Therefore, the concept of recovery should not be confined to "returning to the original state," but should include industrial readjustment and transformation.

In post-pandemic tourism research, "resilience" has become an important concept. Tourism industry resilience mainly refers to the degree to which destinations, enterprises, and related stakeholders can absorb shocks, adjust operations, and restore or rebuild development capacity when facing major crises. Sharma et al. [7] proposed a resilience framework for tourism industry recovery based on pandemic-related research, identifying government response, technology innovation, local belongingness, and consumer and employee confidence as four important factors for building post-pandemic tourism resilience. This framework shows that the recovery of the tourism industry does not depend solely on the natural

recovery of market demand, but requires the joint participation of government, enterprises, employees, travelers, and local communities.

Government plays an important role in the post-pandemic recovery of the tourism industry. During the pandemic, governments maintained the basic operation of the tourism industry through relief, subsidies, stimulus measures, and domestic tourism policies. After the pandemic eased, the focus of policy gradually shifted to restoring international visitors, improving the tourism environment, and rebuilding travel confidence. In addition, the pandemic made tourism enterprises place greater emphasis on operational flexibility, such as diversifying source markets, adjusting product content, introducing digital services, and strengthening crisis management mechanisms. These changes reflect the dual characteristics of "recovery" and "transformation" in post-pandemic tourism recovery.

The recovery capacity of different destinations may also differ significantly. Duro et al. [8] analyzed the tourism resilience of different regions in Spain during COVID-19 and found that the recovery capacity of different regions was not consistent, and that the importance of the domestic tourism market before the pandemic could partly explain the differences in resilience among regions. This result indicates that destinations with a more diversified source market structure and a stronger domestic tourism market may have greater room for adjustment when international tourism is restricted. For Taiwan, this perspective also has reference value. In other words, in addition to restoring international visitors, maintaining domestic tourism, local tourism, and diversified source markets after the pandemic is also an important direction for improving industry resilience.

2.3 Changes in Post-Pandemic Travel Behavior

COVID-19 has not only changed the supply and operating environment of the tourism industry, but also had a significant impact on traveler psychology and travel decision-making. During the pandemic, health risks, the possibility of infection, medical safety, and the epidemic prevention capacity of destinations became important considerations for travelers when choosing tourism locations. Compared with the pre-pandemic period, travelers no longer focus only on price, attraction attractiveness, transportation convenience, and service quality, but pay more attention to the safety, population density, sanitary conditions, and emergency response capacity of destinations.

Zheng et al. [9] analyzed traveler behavior from the perspective of pandemic travel fear and found that fear caused by the pandemic prompts individuals to adopt self-

protection and coping strategies, which in turn affects post-pandemic travel behavior. This means that even after border restrictions are lifted, travelers' psychological risk perception may continue to affect their willingness to travel. Li et al. [10] also pointed out that the psychological distance and risk perception caused by COVID-19 may change travelers' behavior patterns. Therefore, the recovery of the post-pandemic tourism market is not only a question of "whether travel is possible," but also involves whether travelers can rebuild their sense of security and trust in the travel environment.

In terms of travel patterns, the pandemic has made some travelers more inclined toward outdoor activities, natural attractions, low-density destinations, small groups, and personalized travel in order to reduce the possibility of contact with large crowds. Compared with large group tours and highly crowded popular attractions, ecotourism, rural tourism, local cultural experiences, and in-depth tourism have received more attention because they offer larger activity space and lower population density. In addition, the restriction of international travel during the pandemic also increased the importance of domestic tourism and travel to nearby areas.

Travelers' perception of "crowding" has also been affected by the pandemic. In the past, crowds at popular attractions might have been regarded as a sign of a destination's attractiveness. After the pandemic, however, excessive crowding may simultaneously represent higher health and infection risks. Therefore, in addition to attracting travelers, tourism destinations must also consider carrying capacity, visitor flow management, and tourism quality. Overall, post-pandemic travel behavior has gradually shown characteristics such as safety orientation, personalization, flexibility, and experience orientation, and these changes have further influenced the product design of tourism enterprises and destination management strategies.

2.4 Smart Tourism and Digital Transformation

Digital technology was originally an important development trend in the modern tourism industry, and COVID-19 further accelerated the digital transformation of the tourism industry. During the pandemic, to reduce direct person-to-person contact, the use of technologies such as online booking, electronic tickets, mobile payment, self-service check-in, QR codes, smart guided tours, and contactless services increased rapidly. Digital technology is no longer merely an auxiliary tool for improving service convenience, but has gradually become an important foundation for tourism enterprises to maintain operations, reduce contact risk, and improve traveler experience.

Gretzel et al. [11] pointed out that COVID-19 provided an opportunity to rethink and transform electronic tourism (e-Tourism). Research on tourism technology should not simply return to the pre-pandemic model of technology application, but should re-examine the relationship among technology, industry, and society. In other words, the development of post-pandemic smart tourism is not simply about adding technological equipment, but about redesigning tourism service processes and traveler experiences through digital technology.

Artificial intelligence, robotics, and automated services have also become important issues in the post-pandemic accommodation and tourism industries. Kim et al. [12] studied travelers' preferences for hotel robot services versus human services in the context of COVID-19 and found that when the threat of COVID-19 was more salient, consumers' preference for robot services increased. This result indicates that contactless technology not only offers efficiency and cost benefits, but may also provide travelers with a greater sense of safety during public health crises.

On the other hand, digital platforms and social media have also changed tourism marketing models. Travelers can obtain real-time destination information through social media, online reviews, travel platforms, and mobile devices, while tourism operators can use data analysis to understand traveler demand and provide more personalized products and services. Therefore, smart tourism has gradually developed from the use of a single technological tool into a service system that integrates information, transportation, accommodation, attractions, payment, and traveler experience. For Taiwan's tourism industry after the pandemic, how to combine artificial intelligence, big data, digital marketing, and smart services to improve travel convenience and service quality will become an important direction for enhancing competitiveness.

2.5 Sustainable Tourism and Industry Resilience

The COVID-19 pandemic caused a rapid and large-scale standstill of global tourism activities, prompting academia to rethink the traditional model of mass tourism and the continuous pursuit of growth in visitor numbers. Gössling et al. [1] argued that the global tourism crisis caused by the pandemic provides an opportunity to re-examine the existing tourism growth model, and in particular to rethink the relationship between tourism development and the environment, climate change, and global sustainability. This view has gradually linked post-pandemic tourism recovery more closely with sustainable development.

Higgins-Desbiolles [13] further pointed out that the pandemic provides an important opportunity to reposition

the tourism industry. Future tourism development should not pursue only industrial benefits and visitor numbers, but should place greater emphasis on local communities, social equity, and the ecological environment. This view implies that post-pandemic sustainable tourism should expand from merely reducing environmental impact to include the rights and interests of local residents, community participation, resource distribution, and public interests.

Sharma et al. [7] combined sustainable tourism with industry resilience, arguing that if the post-pandemic tourism industry is to establish a more resilient development model, it should simultaneously consider sustainable tourism, social well-being, climate action, and local community participation. From this, it can be seen that "sustainability" and "resilience" are not two independent concepts. Sustainable development emphasizes the long-term balance of the tourism industry in economic, social, and environmental dimensions, while resilience emphasizes the industry's capacity for adjustment and recovery in the face of pandemics, natural disasters, economic recessions, and other external shocks. When the two are combined, they can form a tourism development model with greater long-term stability.

Based on the above literature, it can be found that the impact of COVID-19 on the global tourism industry has extended from the initial decline in international visitors and the recession of aviation and accommodation industries to issues such as travel behavior, industry resilience, technology application, and sustainable development. The core issue of the post-pandemic tourism industry has also gradually shifted from "how to restore visitor numbers" to "how to build a more resilient and sustainable tourism system." The literature review by Yang et al. [6] also shows that psychology and travel behavior, crisis response and resilience, sustainable futures, and technology application have become important themes in COVID-19 tourism research. Therefore, building on the above literature, this study will further analyze the development situation and future directions of Taiwan's tourism industry after the pandemic from the dimensions of market recovery, changes in travel behavior, smart tourism, sustainable development, and industry resilience.

III. RESEARCH METHOD

3.1 Research Method

This study aims to explore the development, transformation, and future trends of Taiwan's tourism industry after the COVID-19 pandemic. The research method adopts document analysis, which systematically collects, organizes, classifies, compares, and analyzes relevant literature, and summarizes the important

development issues of the post-pandemic tourism industry from existing research results. Document analysis is a research procedure in which researchers systematically review and evaluate documents and materials related to the research question, and through the organization, comparison, and interpretation of data, identify themes and development contexts of research significance. Bowen [14] pointed out that document analysis is a research procedure for systematically reviewing and evaluating documents, in which researchers can obtain meaning, understanding, and empirical knowledge from documentary materials through repeated reading, content analysis, and thematic analysis.

The impact of the COVID-19 pandemic on the tourism industry involves different dimensions such as international tourism, the accommodation industry, travel behavior, digital transformation, sustainable tourism, and industry resilience, and relevant research has accumulated rapidly since 2020. Therefore, this study adopts a document analysis approach to integrate the research results of different researchers on the pandemic and tourism industry development, with Taiwan's tourism industry as the main object of analysis. The research process does not merely list existing studies, but through comparison and induction among the literature, analyzes the commonalities and differences of different research results, and thereby constructs an analytical framework for the development of Taiwan's tourism industry after the pandemic.

3.2 Sources of Literature

In order to enhance the academic nature and credibility of the research data, this study mainly collects English academic journal papers related to COVID-19 and the tourism industry. The literature search sources include academic databases and retrieval platforms such as Web of Science, Scopus, ScienceDirect, SpringerLink, Taylor & Francis, and Google Scholar. Data collection mainly uses formally published peer-reviewed journal papers as the primary source, supplemented as needed by tourism statistics and policy data published by international organizations or governments, so as to capture the actual changes in tourism industry development before and after the pandemic.

In terms of literature search strategy, this study sets relevant English keywords according to the research purposes, including COVID-19, tourism, post-pandemic tourism, tourism recovery, tourism resilience, smart tourism, digital transformation, sustainable tourism, and Taiwan tourism. In addition to using single keywords, the search process also conducts combined searches according to research themes, such as "COVID-19 AND tourism,"

"post-pandemic tourism AND recovery," "COVID-19 AND tourism resilience," "smart tourism AND digital transformation," "COVID-19 AND sustainable tourism," and "COVID-19 AND Taiwan tourism," so as to increase the completeness of the relevant literature search.

3.3 Criteria for Literature Selection

This study mainly focuses on tourism-related research published after the outbreak of the COVID-19 pandemic in 2020 as the scope of literature, and includes a small number of important foundational studies related to document analysis, the tourism industry, smart tourism, sustainable tourism, and industry resilience as needed. In terms of literature selection, the study first judges whether an article is directly related to the research topic based on its title and abstract, and then further examines the research purpose, research method, research results, and discussion content to confirm whether the literature is suitable for inclusion in the analysis.

The main inclusion criteria are as follows: (1) the research content is directly related to COVID-19, post-pandemic tourism recovery, travel behavior, smart tourism, digital transformation, sustainable tourism, or tourism industry resilience; (2) priority is given to English peer-reviewed academic journal papers; (3) the article has clear author, publication year, article title, journal name, volume and issue, and DOI or other verifiable formal publication information; and (4) the research results can provide a theoretical or empirical basis for the analysis of Taiwan's tourism industry after the pandemic. Materials with duplicated content, insufficient relevance to the research topic, unclear sources, or unverifiable formal publication information are excluded. Through the above screening procedure, the credibility and research quality of the literature used in this study are improved.

3.4 Analytical Approach

After completing the literature collection and screening, this study first organizes each piece of literature according to its research purpose, research subject, research method, and main research findings, and then classifies and compares them according to research themes. Referring to the document analysis procedure proposed by Bowen [14], the study identifies important concepts related to the research questions from existing research through repeated examination of materials, content organization, and thematic induction.

Based on the above literature review and research purposes, this study summarizes the post-pandemic development of the tourism industry into five main analytical dimensions: (1) tourism market recovery; (2) changes in post-pandemic travel behavior; (3) smart tourism and digital transformation; (4) sustainable tourism

development; and (5) tourism industry resilience. In the analytical process, the study compares the research results of different literature within these dimensions and combines them with the development situation of Taiwan's tourism industry for a comprehensive analysis, so as to explore the major transformations, development opportunities, and challenges facing Taiwan's tourism industry after the COVID-19 pandemic.

Finally, based on the results of the document analysis, this study constructs an analytical context for Taiwan's tourism industry after the pandemic. That is, starting from the industrial impact caused by the pandemic, it further explores market recovery and changes in tourism demand, then analyzes the impact of digital technology, smart tourism, and sustainable development on industrial transformation, and finally returns to the improvement of tourism industry resilience and future competitiveness. This analytical procedure serves as the basis for Chapter 4, Research Analysis, and Chapter 5, Conclusion and Recommendations.

IV. RESEARCH ANALYSIS

Through the organization and comparison of relevant English literature and Taiwan's tourism statistics, this study analyzes the development of Taiwan's tourism industry after the COVID-19 pandemic. The results show that the impact of the pandemic on Taiwan's tourism industry is not limited to a short-term decline in international visitor arrivals, but has further brought about changes in source markets, travel behavior, digital services, sustainable tourism, and industrial business models. Therefore, this study analyzes these issues from the perspectives of tourism market recovery, international market structure, domestic tourism, digital transformation, sustainable tourism, industry human resources and resilience, and future development directions.

4.1 Post-Pandemic Recovery of Taiwan's Tourism Market

The impact of COVID-19 on Taiwan's tourism market can be clearly observed from the changes in visitor arrivals. Statistics from the Tourism Administration, Ministry of Transportation and Communications show that in 2019, before the outbreak of the pandemic, the number of visitor arrivals to Taiwan reached 11,864,105, a record high at that time. In 2020, affected by the pandemic and border controls, visitor arrivals to Taiwan dropped rapidly to 1,377,861, a decrease of 88.39% compared with 2019. In 2021, the number further dropped to 140,479, indicating that the international tourism market was almost at a standstill during the period of strict border controls [15].

As the pandemic eased and Taiwan gradually reopened its borders in 2022, international visitors began

to recover. In 2022, visitor arrivals to Taiwan increased to 895,962. In 2023, the number rebounded rapidly to 6,486,951, and in 2024 it further increased to 7,857,686, a growth of 21.13% compared with 2023 [15]. Compared with the 11,864,105 visitor arrivals in 2019, the 2024 figure had recovered to about 66% of the pre-pandemic level. This shows that Taiwan's inbound tourism market has entered an obvious recovery stage, but as of 2024 it had still not fully returned to the pre-pandemic visitor scale.

This result also echoes the view proposed by Sigala [2] that post-pandemic tourism recovery is not an immediate return to the original state, but a process involving market restoration, enterprise adjustment, and industrial restructuring. Therefore, evaluating the recovery of Taiwan's tourism industry cannot rely solely on whether visitor numbers have recovered, but should further analyze indicators such as visitor sources, consumption capacity, length of stay, and industrial revenue.

4.2 Structural Changes in the International Tourism Market

In addition to the gradual rebound in visitor numbers, changes in the structure of Taiwan's international tourism market after the pandemic also deserve attention. In 2024, the main sources of visitor arrivals to Taiwan were Japan with 1,319,592 visits, accounting for 16.79%; Hong Kong and Macao with 1,310,977 visits, accounting for 16.68%; and South Korea with 1,003,086 visits, accounting for 12.77% [15]. This shows that Japan, Hong Kong and Macao, and South Korea remain important international tourism markets for Taiwan after the pandemic.

However, after the pandemic, countries around the world have been actively competing for international visitors, making Taiwan face more intense regional tourism competition. Therefore, the future development of international markets should not simply pursue the total number of visitor arrivals to Taiwan, but should take into account the travel preferences, consumption capacity, and length of stay of different source markets. Tsai [16] studied sustainable strategies for Taiwan's tourism industry after the pandemic and pointed out that visitors of different nationalities have different consumption patterns in Taiwan, so tourism policies should formulate more differentiated strategies according to the characteristics of different markets. Accordingly, in addition to continuously consolidating major markets such as Japan, South Korea, and Hong Kong and Macao, Taiwan should also develop markets in Southeast Asia, Europe and the United States, and other markets with growth potential, so as to reduce the risks that may arise from over-reliance on a small number of source regions.

4.3 Changes in Domestic Tourism and Travel Behavior

During the pandemic, the restriction of international travel made domestic tourism an important force supporting Taiwan's tourism industry. The pandemic also changed travelers' considerations regarding travel safety, population density, and destination environment. Zheng et al. [9] pointed out that pandemic travel fear and risk perception affect travelers' self-protection and travel decision-making. Therefore, after the pandemic, in addition to attraction attractiveness and price, travelers also place greater emphasis on hygiene, safety, tourism quality, and activity space.

During the pandemic, Taiwan also experienced relatively obvious demand for outdoor tourism and domestic tourism. After the pandemic, the domestic tourism market still has considerable scale. In 2024, domestic tourism by citizens aged 12 and above in Taiwan reached approximately 222 million trips, with total domestic tourism expenditure estimated at approximately USD 16.065 billion [15]. This result shows that domestic tourism has not completely lost its importance after the reopening of international borders.

From the perspective of industrial development, domestic tourism in the future should not rely solely on price promotions or short-term subsidies, but should gradually move toward in-depth tourism, cultural experiences, ecotourism, local characteristics, and small-scale destinations. By establishing differentiated tourism products through local culture, cuisine, natural landscapes, and community characteristics, it is possible to improve tourism quality and local tourism value.

4.4 Digital Transformation and Smart Tourism Development

The COVID-19 pandemic also accelerated the digitalization of the tourism industry. During the pandemic, the use of online booking, electronic tickets, QR codes, mobile payment, self-service check-in, and contactless services became more widespread, gradually transforming digital technology from a tool for improving convenience into an important foundation of tourism services.

Gretzel et al. [11] argued that COVID-19 provides an important opportunity to rethink e-tourism and technology application, and that post-pandemic tourism technology should further respond to changes in travelers, industry, and the social environment. Gretzel et al. [17] also proposed the concept of enhanced smart tourism, emphasizing that post-pandemic smart tourism should integrate technology, sustainability, and the needs of local communities. Therefore, the future development of smart tourism in Taiwan should not remain at the level of

building mobile applications or providing electronic information, but should further integrate transportation, accommodation, attractions, payment, marketing, and tourism information.

Artificial intelligence and big data also have room for further development. Through traveler data analysis, smart recommendations, real-time translation, and personalized itinerary planning, it is possible to reduce the barriers for international visitors in obtaining information and improve the travel experience. Digital transformation is therefore not merely a substitute measure during the pandemic, but may become an important tool for enhancing the international competitiveness of Taiwan's tourism industry.

4.5 Sustainable Tourism Development

The pandemic has made the tourism industry rethink the development model of excessive pursuit of visitor numbers and mass tourism. Gössling et al. [1] pointed out that COVID-19 provides an important opportunity to re-examine the relationship between the global tourism growth model and sustainable development. For Taiwan, land and natural resources are limited. If popular attractions are excessively concentrated with large numbers of visitors, this may cause traffic congestion, environmental burdens, and a decline in the quality of life of local residents. Therefore, post-pandemic tourism development needs to shift gradually from "growth in visitor numbers" to "improvement of tourism quality and value."

Sustainable tourism can be combined with Taiwan's ecotourism, local revitalization, cultural tourism, and low-carbon tourism. Lee and Jan [18] studied visitors at nature-based smart tourism destinations in Taiwan and found that smart tourism experiences are significantly related to visitors' environmentally responsible behavior. This study shows that smart tourism and sustainable tourism are not independent of each other, and that technology can also serve as an important medium for guiding travelers to understand the environment and support sustainable behavior.

Therefore, in the future, Taiwan can achieve a better balance between tourism benefits, environmental protection, and local development through public transportation, low-carbon mobility, ecological education, local cultural experiences, and visitor flow diversion.

4.6 Tourism Industry Human Resources and Industry Resilience

During the pandemic, the sharp decline in tourism demand caused some tourism and accommodation workers to leave their original industries. After the market recovered, operators faced the pressure of replenishing human

resources while maintaining service quality. Therefore, the problem of the post-pandemic tourism industry has gradually shifted from "no visitors" to "how to provide sufficient and high-quality services after visitors return."

Sharma et al. [7] argued that post-pandemic tourism industry resilience involves multiple factors such as government response, technological innovation, local belongingness, and consumer and employee confidence. From this perspective, the resilience of Taiwan's tourism industry should not be understood only as the resumption of business after the pandemic, but should include whether enterprises have the capacity for rapid adjustment when facing the next crisis.

Therefore, talent cultivation, digital capability, cross-functional services, crisis management, and operational flexibility should all be included in the scope of industry resilience. Especially in an environment of labor shortage and rising costs, digitalization and automation can reduce the demand for human resources in some repetitive tasks. However, the core of the tourism industry still involves service and experience, so technology should be positioned as assisting human resources rather than completely replacing service personnel.

4.7 Future Development Directions for Taiwan's Tourism Industry after the Pandemic

Based on the above analysis, this study argues that the development of Taiwan's tourism industry after the COVID-19 pandemic can be summarized into the following developmental sequence: "tourism market recovery → changes in tourism demand → digital and smart transformation → sustainable tourism → industry resilience and enhanced international competitiveness."

First, the reopening of borders has driven the return of international visitors, but the restoration of visitor numbers is only the first stage. Second, the pandemic has changed travelers' emphasis on safety, quality, experience, and destination choice, so tourism products must respond to new tourism demand. Third, artificial intelligence, digital platforms, and smart services have gradually become important tools for improving travel convenience and industrial efficiency. Fourth, tourism industry development must place greater emphasis on the environment, local culture, and community interests, so that tourism growth and sustainable development can be balanced. Finally, the government and industry operators must enhance the industry's resilience to future external shocks through market diversification, talent cultivation, digital transformation, and crisis management.

It is worth noting that while the number of international visitors worldwide in 2024 had almost recovered to pre-pandemic levels, the number of visitor

arrivals to Taiwan in 2024 was still about two-thirds of the 2019 level. Therefore, the core issue of Taiwan's post-pandemic tourism development has gradually shifted from "how much loss the pandemic caused" to "how to accelerate international market recovery and enhance tourism value." In the future, if smart technology, sustainable development, local characteristics, and diversified international market strategies can be integrated, it will help Taiwan move from post-pandemic market recovery toward a tourism development model with resilience, sustainability, and international competitiveness.

V. CONCLUSION

The COVID-19 pandemic caused an unprecedented impact on the global tourism industry, and Taiwan was not immune. During the pandemic, affected by factors such as border controls, reduced international air transport, and restrictions on population movement, the number of international visitor arrivals to Taiwan fell sharply, and related industries such as travel, accommodation, catering, and tourism and recreation were affected to varying degrees. However, the impact of COVID-19 was not only a short-term market recession, but also prompted the tourism industry to re-examine its existing development model. Sigala [2] pointed out that in addition to causing a major shock to the tourism industry, the pandemic also provided an opportunity for industrial readjustment and transformation. Gössling et al. [1] also argued that the pandemic made the global tourism industry rethink the long-term development model oriented toward visitor growth and the relationship between tourism development and sustainability. Therefore, the issues facing Taiwan's tourism industry after the pandemic have gradually shifted from "how to restore visitor numbers" to "how to build a competitive, sustainable, and resilient tourism industry."

This study adopts a document analysis method and, through the organization, comparison, and induction of relevant English academic literature and Taiwan's tourism data, explores the development of Taiwan's tourism industry after the pandemic from the perspectives of market recovery, travel behavior, smart tourism, sustainable development, and industry resilience. The research analysis shows the following. First, in terms of market recovery, as Taiwan reopened its borders, international visitors gradually returned, and the tourism market showed obvious recovery. However, compared with the pre-pandemic market scale, there is still room for recovery. Therefore, in addition to continuing to attract international visitors, Taiwan should pay more attention to the tourism demand and consumption characteristics of

different source markets in order to establish a diversified and relatively stable international tourism market.

Second, in terms of changes in travel behavior, COVID-19 has increased travelers' emphasis on health, safety, hygiene, and the tourism environment, and has driven some tourism demand toward personalization, small groups, outdoor activities, natural environments, and in-depth experiences. Zheng et al. [9] pointed out that pandemic travel fear and risk perception affect travelers' self-protection and travel decision-making. Thus, in the design of post-pandemic tourism products, in addition to the attractiveness of attractions themselves, travel safety, service quality, and experience value have also become important competitive factors. Therefore, Taiwan can further combine local culture, culinary characteristics, ecological resources, and community development to create differentiated in-depth tourism products.

Third, in terms of smart tourism and digital transformation, the pandemic accelerated the development of online booking, electronic tickets, mobile payment, self-service, and contactless technologies. Artificial intelligence, big data, and digital platforms have gradually become important tools in the tourism industry. Gretzel et al. [11] pointed out that COVID-19 provides an important opportunity to rethink e-tourism and technology application. Therefore, Taiwan's future promotion of smart tourism should not remain at the level of a single technological device or application, but should integrate transportation, accommodation, attractions, payment, tourism information, and digital marketing to build a more complete and convenient smart tourism service environment.

Fourth, in terms of sustainable tourism, the pandemic has made the tourism industry re-examine the development model of excessive pursuit of visitor numbers. In the future, Taiwan's tourism policy should not only pursue the growth of international visitors and tourism revenue, but should also take into account environmental carrying capacity, cultural preservation, the lives of local residents, and community interests. In particular, Taiwan has tourism resources such as natural landscapes, local culture, cuisine, and diverse ethnic groups. If these can be combined with ecotourism, low-carbon tourism, local revitalization, and cultural experiences, it will not only help disperse crowds at popular attractions, but also increase the added value of local tourism and form a positive relationship between tourism development and local sustainability.

Fifth, in terms of industry resilience, the pandemic experience shows that the tourism industry is highly susceptible to external factors such as public health events, natural disasters, the economic environment, and the

international situation. Sharma et al. [7] argued that government response, technological innovation, local belongingness, and consumer and employee confidence are all important factors for building post-pandemic tourism resilience. Therefore, in addition to market development, Taiwan's tourism industry should also strengthen crisis management, talent cultivation, and enterprise digital capabilities. In particular, the human resource problems faced by the accommodation and tourism-related industries after the pandemic should be addressed through talent cultivation, improvement of the working environment, introduction of digital tools, and development of cross-disciplinary capabilities.

In summary, this study summarizes the development sequence of Taiwan's tourism industry after the pandemic as "tourism market recovery → changes in tourism demand → digital and smart transformation → sustainable tourism → industry resilience and enhanced international competitiveness." In the future, Taiwan's tourism development should not use visitor arrivals alone as the main performance indicator, but should simultaneously emphasize length of stay, tourism consumption, service quality, local benefits, environmental sustainability, and industry resilience. If the government and tourism operators can adopt strategies such as diversified international market layout, smart technology application, integration of local characteristics, sustainable tourism, and talent cultivation, it will help Taiwan move from the post-pandemic market recovery stage toward a high-quality and sustainable tourism development model.

Finally, this study adopts a document analysis method and is mainly based on the organization and analysis of existing English academic research and publicly available tourism data. Therefore, the research results are subject to limitations in the scope of literature selection, publication time, and data availability, and no first-hand data were directly collected from travelers, tourism operators, or relevant government personnel. In addition, the post-pandemic tourism market is still changing continuously, and emerging technologies, the international economic situation, and traveler demand may also affect the development of Taiwan's tourism industry. Future research may further adopt methods such as questionnaire surveys, in-depth interviews, expert interviews, the Delphi method, or empirical statistical analysis to analyze international visitors, domestic travelers, the travel industry, the accommodation industry, and government tourism policies. Through long-term data, future studies may also compare structural changes in the tourism market before and after the pandemic, so as to further verify the development trends summarized in this study and provide a more empirically grounded reference for policy

formulation and industrial management in Taiwan's tourism industry.

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