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Passenger Experience Management Strategies for Bangkok Suvarnabhumi Airport

Supanat Wattanakamolchai and Therdchai Choibamroong *

Graduate School of Tourism Management, National Institute of Development Administration, Bangkok 10240, Thailand; supanat.wat@stu.nida.ac.th
* Correspondence: tchoibamroong@gmail.com

Abstract

Despite growing global interest in customer experience management, limited research has systematically integrated both quantitative and qualitative approaches to identify service performance gaps and formulate strategic responses in airport settings. This study addresses this gap by examining how Bangkok Suvarnabhumi Airport can enhance its passenger experience through empirical analysis and international benchmarking. The research investigates the alignment between international passengers' expectations and their actual experiences across seven key airport touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail areas. A structured survey of 474 outbound international passengers was conducted between June and July 2024 using purposive sampling. Quantitative data were analyzed using Importance–Performance Analysis (IPA) to evaluate six experience components: affective, cognitive, sensory, conative, physical, and social identity. The IPA results revealed notable service gaps, particularly in conative engagement, physical comfort, and social identity, which were subsequently prioritized for strategic improvement. To validate and enrich strategy formulation, qualitative benchmarking was conducted through semi-structured interviews with ten executives at Hong Kong International Airport, a global leader in passenger experience management. The resulting strategic framework, termed the SCOPE strategy, integrates passenger insights with expert perspectives to guide the design of seamless, personalized, and empathy-driven airport experiences. Theoretically, this study contributes a validated six-component passenger experience model and demonstrates the utility of IPA in service design for complex transport hubs. Practically, it offers airport authorities a replicable, data-informed roadmap for enhancing emotional engagement, service consistency, and cross-stakeholder collaboration in similarly scaled international airports.

Keywords: airport management; passenger experience; strategy formulation; passenger experience management strategy; Suvarnabhumi airport

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1. Introduction

The aviation industry serves as a cornerstone of global economic growth and international tourism. As the industry evolves, airports are no longer judged solely by their capacity or infrastructure, but increasingly by their ability to deliver seamless, emotionally resonant, and efficient passenger experiences. Suvarnabhumi Airport, Thailand's primary international gateway and a key aviation hub in Southeast Asia, holds a vital role in shaping the country's tourism reputation, economic competitiveness, and global image. align with global standards in customer experience excellence.

Since its official opening in September 2006, Suvarnabhumi Airport has been designed to accommodate up to 45 million passengers annually. However, in the years leading up to the COVID-19 pandemic, the airport welcomed between 62 and 65 million passengers per year, demonstrating its significant role in supporting Thailand's tourism and economic growth (Airport of Thailand Plc, 2024). By 2024, passenger numbers once again approached 62 million, reflecting a strong post-pandemic recovery (Airport of Thailand Plc, 2025). While this increase is a positive indicator of demand, it also presents natural challenges in managing congestion, particularly within the Main Terminal Building. Although several expansion projects, such as the North Terminal and the East and West Terminal expansions, have been planned to enhance capacity, these developments are still in progress.

In parallel with infrastructure needs, Suvarnabhumi Airport continues to navigate a range of service-related complexities common to high-traffic international hubs. Passengers may experience occasional crowding, navigation difficulties, or variations in service delivery. Supporting the diverse needs of travelers, including international tourists, families, elderly passengers, and those with reduced mobility, remains a continued focus. Furthermore, while the airport has begun exploring digital solutions, the adoption of emerging global best practices, such as biometric facilitation, real-time passenger navigation, and predictive service models, is still in its early stages of development. These dynamics present a timely opportunity to complement physical infrastructure improvements with a more holistic, passenger-centered experience strategy.

Performance benchmarks from international organizations also highlight areas for development. Suvarnabhumi has yet to be awarded the Airport Service Quality (ASQ) Award or the Airports Council International (ACI) Customer Experience Accreditation, both of which serve as leading indicators of service excellence. Additionally, the airport's Skytrax World Airport Ranking has shifted from 13th in 2011 to 77th in 2022 (Skytrax, 2023). Rather than merely reflecting shortcomings, these indicators point to a broader need for integrated service design and cohesive experience management across all touchpoints. These goals align with the airport's ongoing transformation agenda.

The management of Airport Passenger Experience (APE) has emerged as a critical focus for both researchers and practitioners due to its influence on customer satisfaction, airport brand loyalty, and non-aeronautical revenue (Bogicevic et al., 2016; Prentice & Kadan, 2019). As airports transition from being mere transport nodes to experience-driven service environments, passengers increasingly evaluate airports not only on efficiency and safety but also on the emotional, cognitive, and social dimensions of their journey (Fodness & Murray, 2007; Wattanacharoensil et al., 2016). While the significance of APE is widely acknowledged, much of the existing literature has remained fragmented, often limited to isolated touchpoints or general service quality assessments. There remains a lack of empirical studies that holistically evaluate passenger experiences across all critical airport touchpoints while integrating experience components such as affective, cognitive, sensory, conative, physical, and social identity. Moreover, in the Southeast Asian context, particularly in Thailand, scholarly attention to this area remains sparse, limiting the development of culturally and contextually appropriate strategies.

This study was conducted with three primary objectives. The first objective was to identify the gap between expected and perceived passenger experiences across six critical experience components: affective, cognitive, sensory, conative, physical, and social identity, at seven key airport touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail areas. The second objective was to incorporate international benchmarking insights derived from executive interviews at Hong Kong International Airport. These insights were used to inform and validate the strategic direction proposed for Suvarnabhumi Airport, ensuring that the resulting strategies align with international best practices

in passenger experience management. The third objective was to formulate a comprehensive Passenger Experience Management Strategy for Suvarnabhumi Airport by applying Importance–Performance Analysis (IPA). The IPA findings enable the identification of underperforming areas that require focused attention and resource allocation.

This study addresses these theoretical and contextual gaps by empirically evaluating six key experience components across seven major touchpoints at Suvarnabhumi Airport. Through a mixed-method approach combining quantitative survey-based Importance–Performance Analysis (IPA) and qualitative benchmarking interviews with Hong Kong International Airport executives, the study proposes a practical strategic framework. This contribution not only extends prior work on holistic experience modeling (e.g., Wattanacharoensil et al., 2016) but also offers an adaptable tool for international airports seeking to align passenger expectations with operational improvements in a data-driven and experience-centered manner.

2. Literature Review

2.1. Airport Service Performance

Airport service performance encompasses both operational and experiential dimensions, reflecting how well airports facilitate passenger movement, ensure safety, promote efficiency, and deliver a satisfactory experience. The ACRP Report 19A (National Academies of Sciences, Engineering, and Medicine, 2011) developed a widely referenced set of Airport Performance Indicators (APIs), grouped into six key performance areas: airport activity, safety and security, service quality, productivity, financial performance, and environmental sustainability (ACI, 2012).

Within these categories, service quality indicators, such as customer satisfaction, wait times, and baggage handling, are closely tied to the passenger experience (Humphreys et al., 2002; Forsyth et al., 2011; Wiredja et al., 2019). Andersson Granberg and Munoz (2013), cited in Ogunleye et al. (2022), also proposed five domains: operations, economy, environment, safety/security, and customer service, emphasizing the need for balanced evaluation.

Popovic et al. (2010), cited in Monmousseau (2020), introduced a dual framework categorizing airport domains into processing (e.g., check-in, immigration) and non-processing (e.g., retail, waiting areas). Later research highlighted the growing influence of non-processing domains on satisfaction, particularly retail, which nearly all passengers engage with regardless of purchase intent (Correia & Wirasinghe, 2007; Kirk et al., 2014; Bogicevic et al., 2016).

This literature presents a notable tension: While traditional airport performance models emphasize operational efficiency and throughput, newer approaches advocate for a more holistic view that encompasses emotional, spatial, and interpersonal dimensions. The present study builds on this evolving discourse by proposing a multidimensional framework that integrates both perspectives.

2.2. Airport Awards

As airports have transitioned from infrastructure providers to competitive service entities, performance benchmarking through international awards has gained strategic significance (Graham, 2023). Airports Council International (ACI) offers two major programs: the Airport Service Quality (ASQ) survey and the Customer Experience Accreditation.

ACI's Airport Service Quality (ASQ) program, launched in 2006, surveys passengers on the day of travel to assess service performance across check-in, security, immigration, and retail. Nearly 400 airports worldwide participate, using results to guide improvement. The ACI Customer Experience Accreditation, introduced in 2019, evaluates airport management practices across up to eight domains. As of 2022, only three airports in the Asia-Pacific

region, with over 40 million passengers, have achieved this status: Hong Kong International Airport (HKG), Incheon International Airport (ICN), and Mumbai International Airport (BOM).

Skytrax, an independent UK-based organization, provides additional evaluation through extensive audits of over 500 service items, including comfort, layout, cleanliness, and staff service. In 2021, 11 of 14 five-star airports were in Asia, including Singapore International Airport (SIN), Haneda International Airport (HND), and Incheon International Airport (ICN). These airports consistently lead in these rankings, reflecting a strong regional commitment to both functional and effective service quality. These awards not only offer the data-driven pathways for service enhancement but also present a potential limitation.

2.3. Airport Domains Based on Passenger Activities

A comprehensive evaluation of passenger experience requires recognition of both processing (mandatory) domains (e.g., check-in, security) and non-processing (discretionary) domains (e.g., retail, waiting areas). Popovic et al. (2010) and Wiredja (2017) developed a systematic framework, known as the Taxonomy of Passenger Actions (TOPA), which maps the passenger journey into discrete domains. These domains are categorized according to the nature and sequence of actions passengers undertake during the departure phase. Wiredja et al. (2015, 2019) consolidated these into seven key touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail areas.

Notably, while processing domains are essential for throughput, non-processing domains contribute more strongly to emotional comfort and satisfaction. This has led to an ongoing theoretical tension between infrastructure-centric evaluations and experiential-centric approaches. The present study bridges this divide by treating both as integral components of a cohesive service experience.

2.4. Experience Management

The conceptual foundation of experience management originates from the fields of tourism and marketing literature. Cohen (1979) introduced experiential taxonomies, followed by Pine and Gilmore's (2013) experience economy, as cited in Monge-Zamorano (2023), which emphasizes emotional immersion. Baum (2006) called for "emotional intelligence" in service delivery. Oh et al. (2007) further categorized experiences into entertainment, education, escapism, and esthetics. Customer Experience Management (CXM) now plays a pivotal role in shaping tailored, meaningful, and memorable journeys that drive tourist satisfaction, loyalty, and positive word of mouth.

In the airport context, Fodness and Murray (2007) redefined the passenger experience as a totality of interactions and perceptions. This paved the way for a multidimensional perspective, echoed by Wattanacharoensil et al. (2016) and Han and Hyun (2018), who identified emotional, cognitive, and sensory aspects as critical influencers.

Recent research has increasingly emphasized the multidimensional nature of passenger experience in airport environments, highlighting its critical role in shaping satisfaction, emotional engagement, and brand perception. Usman et al. (2023) proposed a comprehensive model of passenger experience expectations comprising three key dimensions: (1) functional efficiency, including passenger movement and problem-solving by staff; (2) interactional quality through passenger–staff communication; and (3) servicescape transformation, where physical spaces foster comfort and engagement.

Building on this foundation, Ma and Ma (2022) demonstrated the strategic significance of processing touchpoints, such as check-in, while Choi et al. (2024) underscored the importance of cognitive features, including wayfinding.

Contradictions persist. Ryu and Park (2019) linked affective/sensory stimuli to satisfaction, while Bakır et al. (2022) reported that essentials like queuing and seating had a greater influence than discretionary amenities. Similarly, Bae and Chi (2021) demonstrated that social interactions were more important than aesthetics. These findings signal a growing divergence: Are emotional and sensory triggers more influential than core service functionalities?

Building upon these insights, the evaluation of passenger experience in airport environments has been increasingly linked to two foundational service quality frameworks: servicescape and SERVQUAL. The servicescape concept, introduced by Bitner (1992) and Jeon and Kim (2012), underscores how the physical environment, including layout, design, ambient conditions, and signage, directly shapes customer perceptions, emotional responses, and behavioral outcomes. This perspective positions airports not merely as transit hubs but also as complex experiential spaces where environmental cues strongly influence both satisfaction and comfort. Spatial design, ambience, signage, and other environmental elements contribute simultaneously to functional efficiency, affective comfort, and behavioral confidence. Complementing this, the SERVQUAL framework developed by Parasuraman et al. (1988) provides a multidimensional approach, identifying reliability, responsiveness, assurance, empathy, and tangibles as critical determinants of service quality. These dimensions align closely with affective and social identity components, particularly through staff courtesy, cultural awareness, and relational warmth. Together, these frameworks extend the interpretation of passenger experience beyond operational efficiency to encompass both tangible (infrastructure and facilities) and intangible (service warmth, trust, and empathy) elements, thereby offering a comprehensive foundation for strategic evaluation.

Based on a comprehensive synthesis of post-2017 literature, this study consolidates six key components of airport passenger experience into a unified evaluative framework: affective, cognitive, sensory, conative, physical, and social identity. This consolidation was derived from a rigorous review of over 30 conceptual frameworks and 61 experience elements across the tourism, consumer behavior, and service management literature. These six dimensions were not arbitrarily chosen but emerged with the highest frequency and conceptual clarity in leading studies (e.g., Schmitt, 1999; Gentile et al., 2007; Brakus et al., 2009; Bagdare & Jain, 2013). These dimensions are grounded in prominent theoretical models and empirical research across tourism, marketing, and consumer behavior disciplines. For instance, Schmitt's (1999) Five Dimensions of Customer Experience (SENSE, FEEL, THINK, ACT, RELATE) provide a foundational lens through which sensory, affective, cognitive, behavioral, and social dimensions are conceptualized. Building upon this, Gentile et al. (2007) expanded the framework by introducing lifestyle and pragmatic aspects, while Godovykh and Tasci's (2020) Customer Experience Model in Tourism emphasized the multidimensional and dynamic nature of experiences, categorizing them into affective, cognitive, sensory, conative, and physical domains. The consolidation reflects both the frequency of appearance in academic literature and the theoretical significance of each dimension in shaping passenger experience.

Affective experience refers to passengers' emotional states—stress, calm, joy—resulting from social interactions, ambiance, and sensory triggers (Jiang, 2022; Bai et al., 2024).

Cognitive experience encompasses mental processes such as wayfinding, signage interpretation, and situational understanding. It draws on theories of cognitive load and consumer decision-making (Spence, 2023; Zhou et al., 2023).

Sensory experience involves engagement of the five senses, particularly lighting, scent, temperature, and sound, and is critical in shaping mood and memorability (Wattanacharoensil et al., 2016; Godovykh & Tasci, 2020).

Conative experience captures behavioral intentions, confidence, and willingness to engage. It reflects the transition from internal perception to action and is often reinforced by efficient design and service cues (Bogicevic et al., 2017; Prentice & Kadan, 2019).

Physical experience relates to infrastructure, spatial comfort, and tangible service elements such as restrooms, accessibility features, and baggage claim efficiency (Becker & Jaakkola, 2020; Bakır et al., 2022).

Social identity experience, emerging from Schmitt's (1999) RELATE module, refers to how interpersonal interactions and culturally sensitive service promote belonging, inclusion, and emotional safety, an increasingly relevant dimension in multicultural environments such as international airports.

Together, these dimensions provide a holistic view that encompasses both the functional and emotional aspects of the passenger experience. By anchoring its analysis in this well-substantiated, multidimensional framework (see Table 1), the present study addresses gaps in the existing literature and previous fragmentation in experience evaluation. It offers an integrated lens for strategy formulation. It also fills a theoretical gap by incorporating social identity, a dimension that is increasingly relevant in international travel yet underrepresented in earlier airport service models. It sets the foundation for strategy formulation tailored to the needs of contemporary travelers in high-volume hubs like Suvarnabhumi Airport.

Table 1. Components of customer experience.

	Experience Components					
Authors	**Affective**	**Cognitive**	**Sensory**	**Conative**	**Physical**	**Social Identity**
Schmitt (1999)	√	√	√	√	√	
Gentile et al. (2007)	√	√	√		√	√
Brakus et al. (2009)	√	√	√	√		
Bogicevic et al. (2016)	√	√	√	√	√	
Wattanacharoensil et al. (2016)			√	√		√
Bogicevic et al. (2017)	√	√		√		
Han and Hyun (2018)	√	√	√	√		√
Narangajavana Kaosiri et al. (2019)	√			√		
Prentice and Kadan (2019)		√		√		
Ryu and Park (2019)	√		√			
Becker and Jaakkola (2020)	√	√	√		√	√
Godovykh and Tasci (2020)	√	√	√	√		
Bae and Chi (2021)		√				√
Ai et al. (2022)	√	√	√	√		
Bakır et al. (2022)					√	√
Jiang (2022)	√		√	√		
Ma and Ma (2022)		√		√	√	
Spence (2023)	√	√	√			
Zhou et al. (2023)		√			√	
Bai et al. (2024)	√		√	√		
Zhu et al. (2024)	√	√	√			√
Total	15	15	14	13	7	7

Source: compiled by the author.

2.5. Theoretical Overview of Importance–Performance Analysis (IPA)

Importance–Performance Analysis (IPA), originally introduced by Martilla and James (1977), is a widely adopted tool for assessing service quality and customer satisfaction across various industries, including tourism and aviation. The technique is grounded in customer satisfaction theory and facilitates the comparison between what customers consider important (importance) and how they perceive the actual performance (performance)

of specific service attributes. By doing so, IPA offers a strategic lens for identifying service gaps and allocating resources toward improvement areas that matter most to customers.

IPA was selected for this study because it provides a systematic approach to assessing the gap between expected and perceived experience across multiple service touchpoints. Its intuitive two-dimensional matrix format allows for visualizing data in four distinct quadrants, each carrying specific strategic implications, such as identifying areas needing urgent improvement or maintaining current performance levels. This visual clarity enhances its utility for practical strategy formulation and prioritization. Moreover, compared to more complex analytical models, IPA offers methodological simplicity while retaining strong explanatory power, making it especially effective for bridging academic insight and managerial application in airport experience management.

Based on the attribute-level approach, IPA derives practical recommendations by simultaneously measuring the importance and performance of service elements. Due to its simplicity and effectiveness, it has been extensively applied in fields such as service quality analysis, destination image evaluation, market segmentation, and competitiveness benchmarking (e.g., Jin & Park, 2019).

In practice, the IPA method involves collecting importance and performance ratings for a set of predefined attributes using Likert-type survey scales. The resulting data are averaged and plotted on a two-dimensional matrix, where the x-axis represents the perceived performance and the y-axis captures the perceived importance of each attribute. This creates four quadrants that reflect distinct managerial implications (see Figure 1):

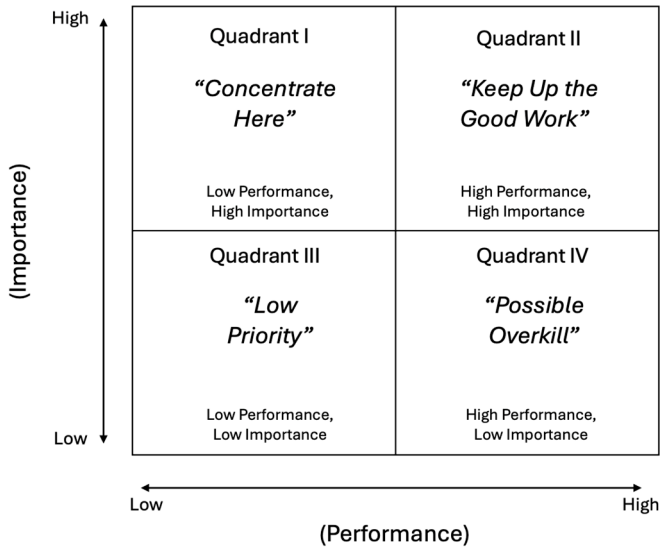


Figure 1. Four quadrants of Importance–Performance Analysis (IPA). Source: Adapted from the original IPA framework of Martilla and James (1977), cited in Līce et al. (2017).

- Quadrant I: Concentrate Here (High Importance, Low Performance)

Attributes in this quadrant represent critical service weaknesses that require immediate managerial intervention. These gaps are likely to cause passenger dissatisfaction if left unaddressed.

- Quadrant II: Keep Up the Good Work (High Importance, High Performance)

This quadrant contains attributes that are both important to passengers and well-executed by the service provider. These areas are service strengths and should be maintained to preserve satisfaction and loyalty.

- Quadrant III: Low Priority (Low Importance, Low Performance)

Attributes found in this quadrant are perceived as neither particularly important nor well-performed. Since they have a limited impact on satisfaction, they may be deprioritized in strategic planning.

- Quadrant IV: Possible Overkill (Low Importance, High Performance)

Attributes in this quadrant receive high performance scores despite being of relatively low importance to passengers. These may reflect areas of overinvestment, where resources could be reallocated to more critical service features.

The primary advantage of IPA lies in its visual clarity and diagnostic capability. It enables service managers to align operational performance with passenger expectations and to prioritize improvement efforts based on what passengers value most. In airport contexts, this is particularly useful given the complexity of the passenger journey, which spans multiple domains and involves both processing (e.g., check-in, security, immigration) and discretionary (e.g., shopping, lounge access, wayfinding) activities.

2.6. Bangkok Suvarnabhumi International Airport

Bangkok Suvarnabhumi International Airport (IATA: BKK), officially inaugurated in September 2006, serves as Thailand's primary international gateway and is one of the largest airports in Southeast Asia. Situated approximately 30 km east of central Bangkok in Samut Prakan Province, the airport occupies over 8000 acres and was initially constructed to alleviate capacity constraints at Don Mueang Airport (DMK), which now primarily handles low-cost carrier operations.

The airport was initially designed to accommodate 45 million passengers annually, yet demand exceeded this capacity by 2015, with more than 65 million passengers recorded in 2019. Its infrastructure includes two parallel runways, 120 aircraft stands (comprising 51 contact gates and 69 remote stands), and a seven-level terminal complex connected to seven concourses (A–G). Notable facilities include 360 conventional check-in counters, an integrated Airport Rail Link (ARL) station, and a comprehensive range of retail, dining, and lounge offerings. The addition of a satellite terminal in late 2022 has contributed to incremental capacity gains, although large-scale expansion projects, namely the North, East, and West terminals, remain pending.

Despite its scale and strategic role, Suvarnabhumi Airport continues to face operational challenges related to terminal congestion, spatial limitations, and service consistency. Accessibility is supported by major expressways, shuttle bus systems, and the ARL, providing multimodal connectivity to Bangkok's urban core.

Beyond its technical and operational functions, Suvarnabhumi plays an instrumental role in supporting Thailand's tourism economy. As the initial point of entry for millions of international visitors, the airport is positioned as both a transportation hub and a cultural gateway. Its design and service environment reflect Thai heritage through curated experiences such as Thai massage centers, Buddhist shrines, local gastronomy, and art installations, all of which contribute to passengers' early impressions of Thai hospitality.

From a passenger experience standpoint, Suvarnabhumi has made notable investments in enhancing both functional efficiency and emotional engagement. Nonetheless, benchmarking data and passenger feedback indicate persistent concerns regarding wayfinding, spatial comfort during peak hours, and the degree of personalized service. Addressing these shortcomings is crucial for advancing Suvarnabhumi's position as a globally competitive, tourism-driven airport that aligns with international best practices.

2.7. Hong Kong Chek Lap Kok International Airport

Hong Kong International Airport (IATA: HKG), located on the artificial island of Chek Lap Kok, serves as Hong Kong's primary aviation hub and one of Asia's major international

gateways. Opened in 1998 to replace the former Kai Tak Airport, Hong Kong International Airport (HKIA) was developed in conjunction with major infrastructure projects, including the Tsing Ma Bridge and the Airport Express railway, underscoring its pivotal role in regional connectivity and urban expansion.

The airport spans 1255 hectares and features an extensive terminal complex, comprising Terminal 1, the Midfield Concourse (MFC), the North Satellite Concourse (NSC), SkyPier, and Terminal 2. Together, they offer 119 passenger stands, 369 check-in counters, 90 boarding gates (including 12 virtual gates), and multiple APM lines for terminal transfers. A third runway is under construction, with operations expected to begin in 2024.

The Airport Authority Hong Kong manages HKIA and serves as a major hub for Cathay Pacific, HK Express, and other carriers. The airport offers a wide range of passenger services, including in-town check-in, baggage delivery, dedicated business aviation facilities (HKBAC), children's play zones, and wellness areas, such as the Caring Corner. Shopping ambassadors assist travelers in navigating HKIA's renowned retail and dining offerings, which include Michelin-starred restaurants and luxury brands.

Beyond its technical and infrastructural capabilities, HKIA is globally recognized for delivering a world-class passenger experience that seamlessly blends operational efficiency with emotional and cultural engagement. Its service design is anchored in human-centered principles, offering an intuitive wayfinding, high levels of cleanliness, and a peaceful, well-curated environment that consistently ranks high in global passenger satisfaction surveys. The airport's emphasis on user comfort, accessibility, and multisensory engagement has helped position HKIA not only as a transfer point but also as a destination in itself, enhancing the city's appeal to global travelers.

HKIA has consistently earned top accolades for excellence in airport service and experience. It holds ACI Airport Customer Experience Accreditation and has been a frequent recipient of the World Travel Awards. In 2022, HKIA was ranked 20th worldwide with a 5-star Skytrax rating, while Suvarnabhumi Airport was ranked 77th with a 3-star rating.

Due to this combination of advanced infrastructure, service innovation, and strong tourism-oriented experience delivery, Hong Kong International Airport was selected as the benchmark for this study. HKIA's approach to managing large volumes of international passengers while maintaining high satisfaction levels offers valuable insights for Suvarnabhumi Airport, especially as BKK seeks to improve its own service quality and alignment with international best practices. Moreover, both airports are situated in dynamic tourism and trade regions in Asia, serving as gateways to major cultural and economic centers. This contextual similarity strengthens the validity of using HKIA as a strategic benchmark for experience management and operational transformation at Suvarnabhumi Airport.

3. Research Methodology

3.1. Questionnaire Design and Research Participants

This study employed a structured survey method to examine the expected and perceived experiences of international passengers at Suvarnabhumi Airport using a sample of 474 outbound travelers. The minimum sample size was initially determined using Yamane's (1973) formula, which accounts for a 5% margin of error and a large population base, resulting in a requirement of approximately 400 respondents. To enhance statistical reliability and compensate for potential non-response or incomplete questionnaires, an oversampling approach was adopted, resulting in a final sample size of 474 valid responses. A purposive sampling technique was employed to target international leisure and business passengers departing from Suvarnabhumi Airport, aligning with the study's objectives. To enhance representational validity, the sample distribution was stratified according to actual

departure nationality data recorded at the airport, ensuring proportional alignment with the demographic composition of international travelers.

The target sample size not only was determined through Yamane's (1973) formula but also was grounded in actual 2022 passenger nationality data from Suvarnabhumi Airport's departure statistics. This approach ensured proportional representation of diverse international travelers and reinforced the validity of stratified purposive sampling.

A non-response bias test was conducted by comparing early and late respondents across core demographic variables (e.g., gender, nationality) and average scores on experience dimensions. Independent sample *t*-tests showed no statistically significant differences ($p > 0.05$), indicating the absence of non-response bias and affirming the generalizability of findings.

The survey instrument consisted of two main sections. The first section collected demographic data, including age, gender, nationality, travel frequency, and travel purpose. The second section assessed passenger experiences in two dimensions, expectations and perceptions, using a 5-point Likert scale (1 = very low to 5 = very high). Evaluation items were structured around six validated experience components: affective, cognitive, sensory, conative, physical, and social identity, across seven critical airport touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail areas. These dimensions were selected based on an extensive literature review and grounded in established frameworks, including Wattanacharoensil et al. (2016) and Han and Hyun (2018).

To enhance transparency, the development of the 42 measurement items followed a structured process involving six stages: literature review, expert consultation, instrument refinement, pilot testing, final survey instrument, and non-response bias check. These steps are summarized in Table 2, which outlines how the items were generated, validated, and finalized for use in the main survey.

Table 2. Development of the final instrument.

Step	Process	Description
1.	Literature Review	A comprehensive literature review was conducted covering seven key areas: airport service performance, airport awards to benchmark best practices, airport domains based on passenger activities to identify passenger touchpoints, experience management, the Importance–Performance Analysis (IPA), and Suvarnabhumi (BKK) and Hong Kong (HKG) airports. The review of the experience management included over 30 conceptual frameworks and 61 experience elements drawn from tourism, consumer behavior, and airport service literature, resulting in the identification of six key experience components.
2.	Expert Consultation (IOC)	Structured IOC forms were distributed via email to five experts (3 academics and 2 aviation professionals). The experts rated each item for clarity, relevance, and congruence. Items scoring below 0.8 were reviewed and revised.
3.	Instrument Refinement	Based on expert feedback, four items were revised for improved clarity and cultural appropriateness. No items were removed, as the overall IOC index reached 0.98, exceeding the threshold of 0.5 for content validity.
4.	Pilot Testing ($n = 42$)	The revised instrument was administered to 42 international passengers at Suvarnabhumi Airport. Pilot data assessed item clarity and internal consistency. Cronbach's alpha = 0.956 confirmed high reliability.
5.	Final Survey Instrument	A structured questionnaire was finalized measuring both expected and perceived experiences across six experience components and seven touchpoints using a 5-point Likert scale. It was used in the full-scale survey with 474 participants.
6.	Non-Response Bias Check	Independent-sample t-tests conducted across key variables (e.g., nationality, gender, travel purpose, and experience dimensions) showed no significant differences ($p > 0.05$), indicating no evidence of non-response bias.

To ensure validity and reliability, questionnaire items were developed through a comprehensive review of relevant literature and refined through expert consultation using the Index of Item–Objective Congruence (IOC). Five professionals from both academic and industry backgrounds participated in the review process: three academics, including a Vice President for International Affairs, a professor with over 30 years of experience in tourism and hospitality education, and a Ph.D. researcher in hospitality, and two aviation industry experts, including an IATA executive and a station manager with over two decades of operational experience at Suvarnabhumi Airport. The consultation was conducted via structured IOC evaluation forms distributed by email, with experts assessing each item's relevance, clarity, and readability.

The results yielded a high IOC score of 0.98, with most items rated at 1.0 and the remainder at 0.8, well above the minimum threshold of 0.5, indicating strong content validity. Although no items were eliminated, four were revised for improved clarity based on qualitative expert feedback.

Subsequently, a pilot test was conducted with 42 international passengers matching the target profile. The pilot yielded a Cronbach's alpha coefficient of 0.956, exceeding the recommended threshold of 0.70 (Cronbach, 1951), thus confirming the instrument's internal consistency and reliability.

3.2. Executive Interviews for Benchmarking

Hong Kong International Airport was selected as a benchmarking site due to its comparable structural and operational characteristics with Suvarnabhumi Airport, including terminal layout, satellite concourse infrastructure, and automated people movement systems. Moreover, HKIA's consistently superior global rankings and internationally recognized customer experience performance further justified its inclusion as a relevant reference point for strategic comparison.

To triangulate the findings and support strategic benchmarking, qualitative data were gathered through semi-structured interviews with airport executives at Hong Kong International Airport. Participants were selected using purposive and snowball sampling techniques, based on their involvement in passenger experience design, strategic planning, and operational leadership. Interviews were conducted both in person and virtually, depending on the participants' availability.

Data collection continued until thematic saturation was achieved. At that point, a total of ten interviews had been conducted. The interview protocol was designed to gather expert insights on best practices in experience management, including segmentation strategies, service innovations, design thinking applications, and quality monitoring systems. Interview transcripts were coded and thematically analyzed to extract insights that could be compared with the IPA results from the passenger survey.

3.3. Data Collection and Analysis Procedures

The survey was administered over a four-month period from March to June 2024, using both paper-based formats and online Google Forms to accommodate respondent preferences. Participation was voluntary and anonymous, and respondents were informed of their right to withdraw without consequence. Ethical approval for the study was obtained from the Institutional Review Board (ECNIDA 2024/0053).

Quantitative data were analyzed using statistical software for both descriptive and inferential statistics. Importance–Performance Analysis (IPA) was employed as the primary technique to compare the mean scores of expected versus perceived experiences across the 42 service attributes. These attributes were plotted into the IPA matrix, which classified them into four strategic quadrants: "Concentrate Here" (high importance, low

performance), "Keep Up the Good Work" (high importance, high performance), "Low Priority" (low importance, low performance), and "Possible Overkill" (low importance, high performance). This analysis informed the prioritization of key service areas that require enhancement.

Qualitative data from the HK executive interviews were analyzed thematically to complement the quantitative findings and validate strategic implications. The triangulated insights informed the development of a practical Passenger Experience Management Strategy, tailored to the operational and cultural context of Suvarnabhumi Airport. An overview of the research framework is presented in Figure 2.

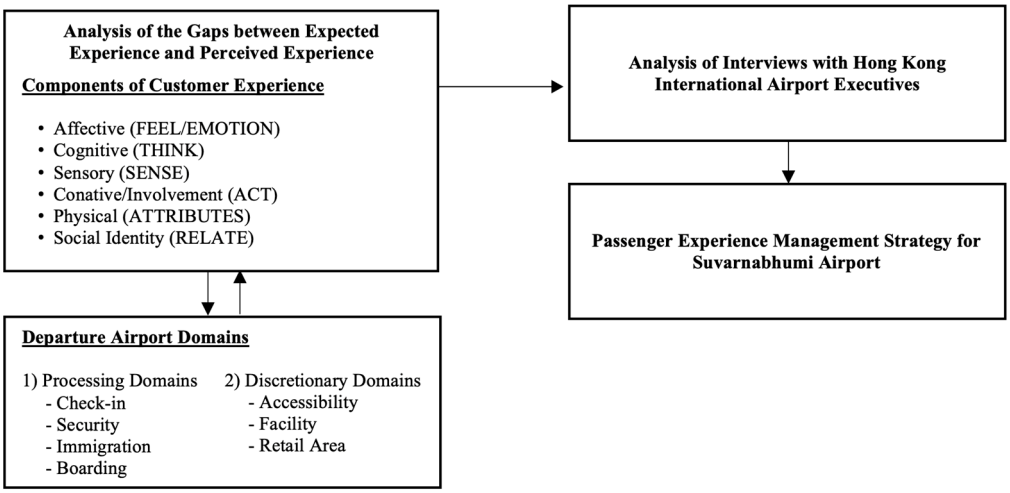


Figure 2. Research methodology steps.

4. Results

4.1. Importance–Performance Analysis (IPA)

In alignment with the first research objective, which aims to identify the gap between expected and perceived passenger experiences across six core experience components and seven airport touchpoints, this section presents the results of the Importance–Performance Analysis (IPA). The IPA serves as a diagnostic framework that compares the relative importance of service attributes, as represented by passengers' expectations, with their corresponding performance, as reflected in passengers' actual experiences. This dual-dimensional assessment enables the identification of priority areas where performance falls short of expectations and where strategic improvements are most needed.

The IPA matrix was plotted using Microsoft Excel (Microsoft Corporation, Redmond, WA, USA), which enabled effective visualization of all 42 attributes across four strategic quadrants.

The analysis focused on six validated experience components: affective, cognitive, sensory, conative, physical, and social identity. These components were evaluated across seven essential touchpoints within the airport journey: check-in (CKI), security (SEC), immigration (IMM), boarding (BOA), accessibility (ACC), facilities (FAC), and retail (RET). A total of 42 experience attributes were assessed and plotted into the IPA matrix, which classifies attributes into four strategic quadrants: "Keep Up the Good Work," "Concentrate Here," "Low Priority," and "Possible Overkill." The results provide a detailed overview of alignment and misalignment across these dimensions, forming the foundation for evidence-based strategy development in subsequent sections.

Figure 3 illustrates that all 42 attributes were distributed across the four IPA quadrants. While this distribution reflects the complexity of the passenger experience, it also offers actionable insights into areas of strength and concern.

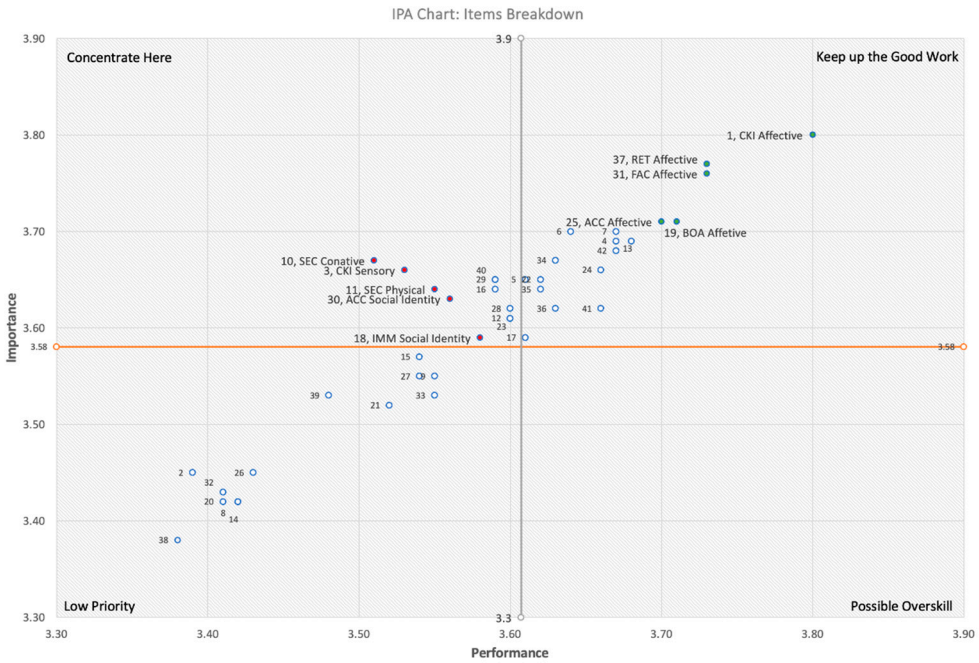


Figure 3. IPA grid: illustrated expected and perceived experience at Suvarnabhumi Airport.

Concentrate Here (High Importance, Low Performance): Eleven attributes were classified into this quadrant, signaling the most critical service gaps. A particularly important and somewhat unexpected pattern emerged: Nearly all conative attributes within security, immigration, and accessibility were rated high in importance but low in performance. This suggests that passengers not only value efficient and purposeful movement through these touchpoints but also perceive significant deficiencies in this regard. Additionally, the social identity and physical components at SEC and ACC also fell short of expectations, underscoring issues in inclusiveness, personal comfort, and staff–passenger interaction. These findings indicate that while operational processes may be functionally adequate, they fail to meet the deeper psychological and identity-driven expectations of passengers. Immediate improvements in these areas are essential to reduce experience dissonance.

Keep Up the Good Work (High Importance, High Performance): Eighteen attributes fell into this quadrant. Notably, all affective attributes across all touchpoints were located here, a highly positive outcome that affirms the airport's ability to deliver emotionally engaging and empathetic service consistently. This result is particularly important, as it validates prior findings regarding the salience of emotional connection in travel environments. The strong performance in affective dimensions suggests that the airport has succeeded in creating a welcoming atmosphere through staff behavior, ambience, and emotional tone. Also included in this quadrant were selected conative and physical elements, especially at the check-in and facility touchpoints, which are identified as high-performing zones that contribute significantly to overall experience satisfaction.

Low Priority (Low Importance, Low Performance): Thirteen attributes, primarily related to cognitive (informational clarity) and sensory (aesthetic and atmospheric) components, were located in this quadrant. These findings were not unexpected, as prior research has suggested that clarity of information and atmospheric features, while important, are typically perceived as secondary to emotional resonance and functional flow. However, their consistent appearance in this quadrant also implies an opportunity. If service upgrades are pursued in these areas, they may improve experience quality for specific passenger segments (e.g., first-time or non-native travelers) without significant resource investment.

Possible Overkill (Low Importance, High Performance): No attributes were mapped to this quadrant, indicating that service delivery remains appropriately aligned without unnecessary resource expenditure on low-priority elements.

Overall, the IPA results reveal distinct patterns across the six evaluated dimensions. The affective attributes consistently fell into the "Keep Up the Good Work" quadrant (high importance, high performance). Conversely, the cognitive dimension was uniformly classified as "Low Priority" (low importance, low performance); similarly, sensory attributes were predominantly "Low Priority," with only a single instance falling into the "Concentrate Here" category (high importance, low performance). The conative dimension presented a mixed outcome: While some attributes were in "Keep Up the Good Work," the majority were classified as "Concentrate Here." By contrast, both the physical and social identity dimensions were largely in "Keep Up the Good Work," each with only a minor subset of attributes appearing under "Concentrate Here." Notably, no attributes were identified in the "Possible Overkill" quadrant (low importance, high performance). Figure 4 provides a comprehensive visual summary of the distribution of attributes across these IPA quadrants, clearly illustrating the findings presented above.

	CKI	SEC	IMM	BOA	ACC	FAC	RET
Affective	Keep Up the Good Work	Keep Up the Good Work	Keep Up the Good Work	Keep Up the Good Work	Keep Up the Good Work	Keep Up the Good Work	Keep Up the Good Work
Cognitive	Low Priority	Low Priority	Low Priority	Low Priority	Low Priority	Low Priority	Low Priority
Sensory	Concentrate Here	Low Priority	Low Priority	Low Priority	Low Priority	Low Priority	Low Priority
Conative	Keep Up the Good Work	Concentrate Here	Concentrate Here	Keep Up the Good Work	Concentrate Here	Keep Up the Good Work	Concentrate Here
Physical	Keep Up the Good Work	Concentrate Here	Keep Up the Good Work	Concentrate Here	Concentrate Here	Keep Up the Good Work	Keep Up the Good Work
Social Identity	Keep Up the Good Work	Concentrate Here	Concentrate Here	Keep Up the Good Work	Concentrate Here	Keep Up the Good Work	Keep Up the Good Work

Figure 4. The accompanying summary table provides a comprehensive visualization of the IPA distribution.

4.2. Strategic Insights from Hong Kong International Airport: Perspectives on Passenger Experience Management

In alignment with the second research objective, which seeks to explore the strategic approaches employed by Hong Kong International Airport, this section presents insights derived from in-depth interviews conducted with ten senior airport executives.

Participants were purposefully selected based on their extensive expertise in airport operations, customer service, digital innovation, or executive-level strategic planning. Each informant possessed over five years of experience and held a decision-making role either at Hong Kong International Airport (HKIA) or within the Airport Authority Hong Kong. Invitations were issued through formal email correspondence. This purposive sampling strategy ensured the collection of insights from individuals with strategic oversight and relevance to the study's objectives.

Data saturation was assessed using a thematic redundancy approach. Following the sixth interview, no new themes emerged, suggesting that conceptual saturation had been reached. To confirm the robustness of this conclusion, four additional interviews were conducted. This helped ensure comprehensive thematic coverage and further reinforced the credibility of the findings.

To strengthen methodological transparency, the qualitative protocol was designed around a semi-structured interview guide that explored three thematic areas: (1) overall

approach to passenger experience management, (2) passenger experience processes and components, and (3) stakeholder collaboration and governance. Each interview lasted between 45 and 75 min and followed the same core protocol, while allowing flexibility for participants to elaborate on specific experiences.

Transcripts were coded manually by the researcher following an iterative three-stage process. First, open coding was applied to identify recurring keywords and expressions in participants' narratives. Second, axial coding was used to cluster related categories and connect emerging themes. Finally, selective coding refined these clusters into overarching strategic factors. To enhance credibility, the derived themes were cross-checked against existing literature on airport passenger experience management and reviewed by the academic advisor for coherence and alignment. This process ensured that the thematic insights presented are both transparent and replicable.

To support the strategy formulation for Suvarnabhumi Airport, these qualitative insights drawn from a globally benchmarked airport were essential for understanding how a leading hub strategically manages passenger experience across both systemic and emotional dimensions of the journey.

Thematic coding of the interview transcripts revealed several recurring strategies that HKIA employs to optimize passenger experience. In terms of touchpoint management, informants emphasized a seamless coordination model that integrates both airside and landside operations through shared digital platforms and real-time information exchange. This integration ensures that critical touchpoints, such as check-in, security screening, and boarding, operate with minimal friction, thereby reducing passenger anxiety and wait times. A notable technological advancement is the adoption of biometrics to facilitate a fully seamless journey. Passenger facial data are captured at the initial security checkpoint and subsequently used to authenticate identity at multiple downstream points, including immigration and the boarding gate, thus eliminating the need for repeated document presentation and reducing bottlenecks.

Additionally, HKIA has introduced multiple differentiated passenger flows to enhance circulation and prevent congestion in the main terminal complex. This includes a dedicated airside-to-Greater Bay Area flow, enabling rapid cross-border transfers without requiring re-entry into the main passenger terminal. The terminal layout is intentionally designed not only to support intuitive navigation and smooth movement but also to encourage discretionary behaviors, such as browsing and leisure, particularly in facilities and retail zones. The spatial planning reflects a hybrid philosophy that combines functional efficiency with experiential design, ensuring that passengers feel both oriented and emotionally at ease throughout their journey.

Regarding experience components, HKIA executives articulated a strong emphasis on personalization and segmentation, aiming to tailor experiences based on passenger profiles and journey stages. Digital tools, including mobile applications and predictive analytics, are employed to deliver context-aware services, enabling passengers to receive timely notifications, tailored navigation support, and personalized recommendations. This enhances both cognitive and conative engagement, as travelers perceive their journey to be efficiently guided and aligned with individual preferences. Emotional resonance is cultivated through a service culture underpinned by empathy-driven training for all frontline staff. Special attention is given to emotionally sensitive moments, such as immigration and security screening, where staff are trained to provide reassurance and proactive support to reduce passenger anxiety.

In terms of sensory design, HKIA has invested heavily in creating a soothing and aesthetically pleasing environment. Terminal spaces incorporate calming visual and acoustic elements, including an iconic artificial waterfall that serves as both a landmark and a

restorative space. Entertainment lounges, quiet zones, and art displays further enhance the sensory experience, providing passengers with a variety of spaces to rest, recharge, or explore. The airport also elevates the affective and cultural dimensions of travel through its diverse food and beverage offerings. A curated mix of Michelin-recommended restaurants and local street food vendors is available even in airside areas, allowing transit passengers to immerse themselves in local culinary culture without exiting the secure zone. Social identity is actively reinforced by empowering staff to engage with passengers in a culturally attuned and emotionally intelligent manner, recognizing diverse needs and expectations across nationalities, travel purposes, and personal contexts. Together, these measures reflect HKIA's holistic approach to embedding experiential quality into every facet of the passenger journey.

From this thematic analysis, eight strategic success factors emerged as foundational to HKIA's passenger experience model:

1. Biometrics and Automation: Enabling contactless and efficient processes.
2. Emotional Support via Digital Tools: Providing real-time updates, assistance, and reassurance.
3. Empathy-Driven Service Culture: Cultivating human warmth and responsiveness.
4. Layout Encouraging Flow and Browsing: Designing spatial environments to support intuitive movement and discretionary activity.
5. Diversity of Retail and Dining Options: Offering personalized choices tailored to diverse passenger profiles.
6. Personalization and Segmentation: Utilizing data to tailor services to individual needs.
7. Shared Performance Accountability: Fostering cross-stakeholder collaboration for service consistency.
8. Adaptive Experience Planning: Using predictive analytics to address passenger needs proactively.

5. Discussion

This study aimed to formulate a Passenger Experience Management Strategy for Suvarnabhumi Airport and yielded two core findings: (1) the presence of significant gaps between expected and perceived experiences across critical airport touchpoints, and (2) the development of a comprehensive, empirically grounded strategic framework built on six interrelated experience components: affective, cognitive, sensory, conative, physical, and social identity.

The Importance–Performance Analysis (IPA) further clarified areas of excellence and aspects requiring strategic improvement. Affective components consistently aligned with high expectations and high performance. These findings suggest that Suvarnabhumi Airport has successfully established a strong emotional connection with travelers, likely supported by well-trained frontline staff and service protocols that are emotionally attuned. This supports earlier studies that emphasize the role of affective elements in influencing service satisfaction (Han & Hyun, 2018; Prentice & Kadan, 2019), thereby reinforcing the notion that emotional resonance is a fundamental aspect of modern travel experiences.

Conversely, IPA revealed critical deficiencies at the security and accessibility touchpoints, particularly in conative, physical, and social identity dimensions. These gaps suggest that, despite the emotional warmth conveyed, passengers—especially those with mobility limitations, specific demographic needs, or heightened security sensitivities—may encounter unmet expectations related to functionality, clarity, and inclusiveness. While previous studies have largely emphasized operational efficiency or terminal aesthetics (Bogicevic et al., 2017), the current findings underscore a more nuanced reality: emotional

excellence alone cannot compensate for failures in physical access, procedural clarity, or culturally sensitive interactions.

The implications are twofold. First, while maintaining high affective service quality is essential, it must be complemented by tangible improvements in operational effectiveness, spatial design, and inclusive practices. Second, specific focus on conative (action-oriented), physical (comfort and space), and social identity (human interaction) experiences, particularly at security screening and access-related touchpoints, is necessary to ensure a well-rounded and universally satisfying experience.

These findings align with prior research that emphasizes the multidimensionality of the airport passenger experience (e.g., Han & Hyun, 2018; Wattanacharoensil et al., 2016). However, this study advances the literature by empirically validating a six-component experience model and integrating it into a practical strategy formulation process. Unlike earlier frameworks such as SERVQUAL, which often separate tangible and intangible aspects (Parasuraman et al., 1988), or the servicescape model (Bitner, 1992), which focuses on environmental cues, the six-component model proposed here synthesizes affective, cognitive, sensory, conative, physical, and social identity components into a unified framework. This approach contrasts with studies that prioritize operational metrics such as queue times, signage, and terminal design (e.g., Bogicevic et al., 2017), often treating service satisfaction as a functional outcome. In contrast, the current model foregrounds emotional, behavioral, and identity-based factors as equally vital, even when physical infrastructure meets basic standards. Moreover, this framework departs from traditional unidimensional models that reduce service quality to infrastructure availability or efficiency metrics. By assigning equal analytical weight to emotional, behavioral, sensory, and identity components, the six-factor structure acknowledges that passenger experience is a multi-sensory, culturally mediated, and interaction-based process, rather than simply a transactional outcome.

The identification of affective and social identity components as key predictors of perceived experience reflects the emotional design principles outlined by Bitner (1992) and supports the empathy-driven service orientation advocated by Prentice and Kadan (2019). Furthermore, the integration of both qualitative and quantitative insights enhances the depth and credibility of the proposed strategy. The use of IPA, in particular, provides a structured framework to bridge perception gaps and prioritize improvement efforts. This holistic approach contrasts with earlier studies that narrowly focused on either emotional engagement or operational flow, often omitting the interplay between physical design, cultural congruence, and behavioral response. For instance, studies emphasizing environmental ambiance (e.g., Bitner, 1992) or terminal convenience (Bogicevic et al., 2017) have not sufficiently addressed how personal identity or social belonging can shape travelers' perceived experience. For example, while many prior works adopted a macro-level evaluation of terminal satisfaction (Bogicevic et al., 2016), this study deconstructs the journey into discrete, component-based interactions and identifies touchpoint-level dissonance.

From a theoretical standpoint, the study presents a novel six-component model: affective, cognitive, sensory, conative, physical, and social identity, providing a unified framework for evaluating passenger experiences at airports. This structure builds on Schmitt's (1999) experiential modules and extends the application of customer experience theory to an aviation-specific context. Unlike models that treat service quality as a fixed or uniform construct, this study's framework accommodates heterogeneity in traveler backgrounds, allowing for more targeted interventions across psychographic or demographic segments. Moreover, the explicit identification of social identity as a significant experiential dimension highlights the growing relevance of inclusion, cultural sensitivity, and personal relevance in travel experience design, an area that has been underexplored in earlier airport studies. This diverges from earlier models that subsumed such relational dimensions under

generalized satisfaction indicators, failing to recognize the distinct experiential needs of diverse traveler profiles. By separating and empirically validating these dimensions, the model offers greater diagnostic precision.

In practical terms, the findings inform both airport operators and airline partners of the necessity to move beyond operational efficiency toward emotionally and socially intelligent service ecosystems. The roadmap developed from this study not only addresses functional gaps but also aligns with global best practices, such as those observed at Hong Kong International Airport. This alignment further validates the transferability and relevance of the strategies proposed, especially in similarly scaled international hubs across Asia and beyond.

In conclusion, by blending empirical analysis with strategic benchmarking and grounded theory, this research makes both theoretical and managerial contributions to the evolving field of passenger experience management in aviation. The insights gained are not only relevant to Suvarnabhumi Airport but can also be adapted to other global gateways seeking to balance operational functionality with human-centric design. By focusing on both the measurable and the meaningful, this study enriches the academic discourse and offers actionable pathways for real-world transformation.

5.1. Passenger Experience Management Strategies Based on IPA Matrix

The IPA findings informed the formulation of experience management strategies at Suvarnabhumi Airport, as outlined in the Importance–Performance Analysis (IPA), which assessed 42 service attributes across 7 airport touchpoints and 6 experience components. This comprehensive diagnostic identified areas of strength and critical service gaps by comparing passengers' expectations and their perceived experiences. Informed by this analysis, seven strategic interventions were developed to address specific touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail areas, aligning each with targeted experience enhancements.

5.1.1. Check-In: Creating a Welcoming and Personalized First Impression

The check-in area emerged as a high-performing touchpoint, especially across affective, physical, and conative components, all situated in the "Keep Up the Good Work" quadrant. To maintain this strength while enhancing personalization and operational fluidity, the following actions are recommended:

- Implement smart check-in ecosystems (self-service kiosks with facial recognition and automated bag tagging) fully integrated with mobile platforms.
- Introduce segmented check-in lanes (e.g., Green Track for eco-conscious travelers, Family Comfort Counters) with tailored signage and services.
- Train staff to deliver culturally sensitive and personalized greetings, leveraging reservation data for emotional connections.
- Utilize wearable and mobile technology for pre-check-in, luggage alerts, and real-time wayfinding.
- Apply AI-based queue forecasting to optimize staff allocation and manage wait times.
- Redesign check-in spaces with ergonomic furnishings and inclusive amenities for families and passengers with reduced mobility (PRMs).

5.1.2. Security: Elevating Assurance and Comfort Through Empathy and Operational Excellence

Security was flagged in the "Concentrate Here" quadrant for the conative, physical, and social identity components. Affective performance was adequate, but gaps in physical and social inclusivity were apparent. Strategic measures include:

- Redesign SOPs to embed emotional sensitivity and standardized application across lanes.
- Humanize environments through soft lighting, acoustic control, and calming signage.
- Establish dedicated lanes (Family, Elderly/PRMs, Frequent Flyers) staffed with trained officers.
- Deploy "Emotional Support Ambassadors" to assist anxious passengers.
- Provide real-time wait displays and calming visual media during queues.
- Introduce mobile-based security preparation guidance tailored to passenger profiles.
- Respect cultural diversity with privacy screens and inclusive officer scripts.
- Monitor emotional experience metrics (e.g., "felt safe") to drive continuous improvement.

5.1.3. Immigration: Empowering Action and Inclusivity Through Empathy and Coordination

The immigration process was rated poorly in conative and social identity dimensions, requiring both operational responsiveness and inclusive design. The following actions were formulated:

- Empower passengers through accessible infrastructure (self-check kiosks, step-by-step signage, PRM-friendly counters).
- Deploy multilingual "Immigration Experience Ambassadors" to offer proactive support.
- Train officers on cultural respect and appropriate engagement practices.
- Provide identity-based lane options for families, solo female travelers, and religious groups.
- Collect real-time feedback on empowerment and recognition.
- Implement an operational dashboard for crowd monitoring and officer reallocation.
- Conduct cross-agency cultural sensitivity workshops to unify stakeholder practices.

5.1.4. Boarding: Enhancing Physical Flow While Preserving Emotional Strengths

While affective, conative, and social identity components scored well, the physical experience during boarding fell into the "Concentrate Here" quadrant. Targeted strategies include:

- Redesign gate areas for optimized flow, with mobility-friendly and family zones.
- Implement digital queue management systems with dynamic, crowd-based boarding.
- Introduce multimodal communication aids (visual, color-coded, and auditory prompts).
- Establish emotionally supportive pre-boarding lounges.
- Train staff on cultural etiquette and identity acknowledgment.
- Offer personalized mobile notifications for navigation and time management.
- Gather real-time feedback via kiosks and dashboards for on-site service adjustments.

5.1.5. Accessibility: Enabling Equitable, Efficient, and Empowering Entry to the Journey

Accessibility was consistently flagged across conative, physical, and social identity components, signaling serious access barriers. The following strategy was formulated:

- Optimize curbside drop-off through Automatic Number Plate Recognition (ANPR), dedicated PRM lanes, and signage.
- Improve vertical movement with express elevators and color-coded signage between ARL and departure halls.
- Reconfigure intermodal transfer hubs with multilingual announcements, shaded walkways, and seamless baggage handling.
- Establish culturally aware welcome areas and seasonal support desks.
- Offer mobile navigation tools with barrier-free routing and support contact.
- Design "Empathy Zones" at key entrances for passengers requiring rest or guidance.
- Standardize service protocols with transport authorities for entry flow.

- Launch an "Accessible Suvarnabhumi" campaign showcasing infrastructure and inclusive values.

5.1.6. Facility: Sustaining Excellence and Amplifying Identity Through Sensory and Cognitive Enhancements

Facility performance was strong across all four dimensions: affective, conative, physical, and social identity. Cognitive and sensory elements, however, fell into the "Low Priority" quadrant. Enhancements include:

- Maintain environmental quality through high standards of cleanliness, ergonomic design, and ambient control.
- Install intuitive, multilingual digital signage and unified information displays.
- Expand flexible-use comfort spaces (Quiet Corners, Prayer Rooms, Gender-Neutral Restrooms).
- Integrate Thai cultural elements through scent zones, traditional music, and exhibitions.
- Introduce gamified information kiosks and cultural education panels.
- Utilize AI to dynamically adjust comfort conditions based on real-time passenger data.

5.1.7. Retail: Driving Intent and Connection Through Experiential Retailing

Retail scored well in affective, physical, and social identity aspects, but conative experience (behavioral engagement) was underwhelming. Recommendations include:

- Develop themed experiential zones (e.g., Thai Wellness Street, Floating Market).
- Use data to personalize offers and guide passengers to preferred brands or local products.
- Infuse layout with emotional design (ambient lighting, scent zones, supportive scripts).
- Promote Thai identity through certified local brands and cultural value labeling.
- Integrate online and offline retail with pre-order, AR previews, and scan-to-buy options.
- Apply behavioral nudges, such as "Most Shared" displays and gamified retail interactions.

These 42 touchpoint-specific strategies, derived directly from the IPA matrix, form an integrated roadmap to optimize Suvarnabhumi Airport's passenger experience. Each strategy reinforces strong components while addressing underperformance, mapped to six experience dimensions and informed by empirical data. This comprehensive approach will position the airport as a globally competitive, emotionally intelligent, and operationally seamless passenger hub.

5.2. Passenger Experience Management Strategy Formulation

The formulation of experience management strategies for Suvarnabhumi Airport was grounded in the empirical findings from the Importance–Performance Analysis (IPA), which assessed 42 service attributes spanning seven key airport touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail areas, and six experience components: affective, cognitive, sensory, conative, physical, and social identity. This IPA matrix enabled the comparison of passengers' expectations with their actual perceptions, thereby illuminating critical service deficiencies and performance strengths across the airport journey.

From the IPA analysis, a total of 42 actionable strategies were developed, each addressing specific gaps or strengths across the examined touchpoints and experience dimensions. These strategies served as the foundation for the airport's strategic response. During the synthesis process, the researcher grouped these 42 strategies based on their thematic focus. Unexpectedly, five recurring themes emerged organically across the strategy, revealing a coherent pattern that allowed for the formulation of a unified strategic model. This thematic alignment led to the naming of the framework as the SCOPE strategy, which stands

for Seamless Integration, Collaborative Platform, Operational Excellence, Personalized Experience, and Empathy-Driven Service.

The SCOPE strategy integrates five strategic pillars, each reflecting a distinct yet interdependent domain of passenger experience management. These pillars collectively encapsulate the functional, emotional, and systemic dimensions of airport service delivery. Importantly, the alignment of these five categories was further validated through cross-analysis with qualitative data obtained from interviews with ten airport executives at Hong Kong International Airport (HKIA). The insights from HKIA not only affirmed the strategic direction taken in this study but also demonstrated congruence with international best practices, thereby reinforcing the robustness and external relevance of the proposed framework.

In the following sections, each of the five strategic pillars will be elaborated upon in detail, highlighting their theoretical foundations, tactical implications, and actionable components. Through this structured synthesis, the SCOPE strategy aims to guide Suvarnabhumi Airport toward becoming a seamless, inclusive, and emotionally intelligent international gateway (see Figure 5).

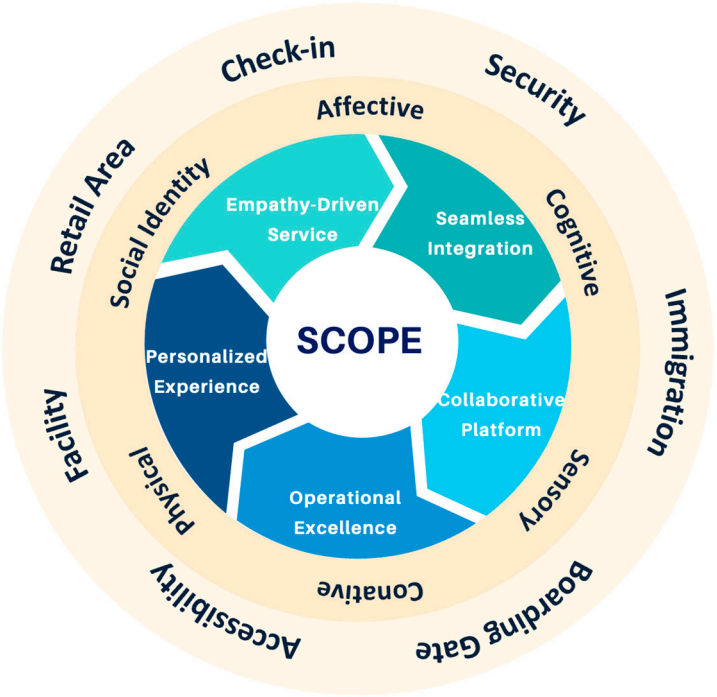


Figure 5. SCOPE strategy: transforming passenger experience at Suvarnabhumi Airport.

5.2.1. Seamless Integration: Orchestrating Systems and Experiences Through Technology-Enabled Connectivity

The Seamless Integration strategy focuses on mitigating fragmentation across Suvarnabhumi's passenger journey by enhancing connectivity between digital and physical systems, fostering intermodal cohesion, and enabling real-time data exchange. Key issues, such as inefficient queueing, disconnected intermodal transfers, and inconsistent information delivery, were frequently mentioned by stakeholders and substantiated by IPA results. This strategy emphasizes the use of biometric authentication, mobile platforms, AI-powered wayfinding, and integrated service ecosystems to create a fluid and intelligent travel experience.

Strategic actions include:

- Deploying smart check-in systems featuring biometric facial recognition, multilingual interfaces, and predictive queuing linked to airline systems.

- Developing a mobile-first digital companion app with real-time alerts, indoor navigation, and multilingual support integrated with wearable devices.
- Installing Bluetooth beacons and cognitive-friendly signage to guide passengers through complex transfer paths.
- Optimizing vertical flow from the ARL and bus terminals using escalator upgrades, digital journey planners, and shaded rest zones.
- Implementing predictive resource dashboards to dynamically adjust flows and reduce stress points.
- Personalizing retail and service recommendations using AI to anticipate needs and increase satisfaction.
- Bridging digital–physical experiences in retail through omnichannel integration, such as scan-to-buy and augmented product previews.

These measures not only increase functional efficiency but also support the conative and cognitive dimensions by reinforcing confidence and reducing decision fatigue.

5.2.2. Collaborative Platform: Strengthening Cross-Stakeholder Synergy for Passenger-Centric Delivery

Suvarnabhumi Airport's complex stakeholder ecosystem, including airport authorities, airlines, immigration services, and retail vendors, requires a harmonized platform for collaboration. The Collaborative Platform strategy addresses fragmented operations by introducing shared governance mechanisms, unified service standards, and co-creation initiatives. The IPA analysis highlighted service inconsistencies at entry points and a lack of cultural alignment, particularly in areas such as security and accessibility.

Strategic actions include:

- Co-developing cross-entity SOPs and KPIs for entry and accessibility services.
- Conducting joint cultural sensitivity training and empathy-driven service training for frontline staff from multiple agencies using real scenarios.
- Establishing a Passenger Experience Steering Committee (PESC) for oversight and decision-making.
- Implementing a steering board and fully deploy the Airport Collaborative Decision-Making (A-CDM) tool, integrating both landside (terminal) and airside management to enable joint discussions on operations and resource coordination.
- Launching a digital coordination team to liaise with airlines during technology rollouts and service changes.
- Hosting journey-mapping workshops involving stakeholders to identify pain points and co-design solutions.

This strategy not only ensures horizontal integration among stakeholders but also fosters collective ownership of the passenger journey, aligning diverse interests around a common goal.

5.2.3. Operational Excellence: Elevating Reliability, Efficiency, and Quality Across the Journey

Operational Excellence is essential for providing consistent, high-quality service across all passenger touchpoints. IPA findings and stakeholder interviews identified weaknesses in vertical connectivity, service predictability, and facility responsiveness. This strategy introduces systemic improvements in resource planning, infrastructure maintenance, and service standardization.

Strategic actions include:

- Standardizing empathy-centered protocols across security, boarding, and accessibility.

- Introducing dedicated fast-track lanes with tailored signage and equipment for specific passenger groups.
- Redesigning intermodal hubs with multilingual support, shaded walkways, and ergonomic transfer paths.
- Maintaining comfort through predictive facility audits, temperature control, and real-time cleanliness monitoring.
- Establishing a centralized operations center with A-CDM integration to enable collaborative decision-making and rapid response.
- Using AI to forecast resource demands and align staffing with passenger segmentation.

By embedding these practices, Bangkok Suvarnabhumi Airport can address IPA-identified deficiencies in conative and physical dimensions while building a reputation for reliability and trust.

5.2.4. Personalized Experience: Tailoring Journeys for Diverse Needs, Values, and Expectations

Passenger diversity, spanning nationality, age, mobility, and travel purpose, demands tailored service approaches. The Personalized Experience strategy operationalizes identity-aware protocols and behavioral segmentation to ensure all travelers feel recognized and valued. This direction emerged from the IPA's emphasis on affective and social identity dimensions, particularly at check-in, retail, and boarding.

Strategic actions include:

- Designing check-in lanes for specific passenger types (e.g., eco-conscious travelers, solo women, PRMs).
- Embedding personalization into protocols without explicit self-identification, using AI and historical data.
- Creating identity-reflective zones throughout the terminal (e.g., family areas, Gender-Neutral Restrooms).
- Training staff in cultural etiquette and segment-sensitive service tone.
- Offering personalized digital retail suggestions and exploration nudges based on previous behavior.

This approach aligns experiential design with segmentation findings, enabling Suvarnabhumi to serve as a globally inclusive and emotionally resonant airport.

5.2.5. Empathy-Driven Service: Cultivating Human-Centered Experiences Through Emotional Intelligence and Inclusive Design

Empathy-Driven Service positions emotional well-being as a strategic asset. Drawing on the affective and social identity gaps identified in the IPA, this strategy introduces spaces, services, and training programs designed to foster a culture of care. Empathy Zones, Sanctuary Lounges, and multicultural design exemplify this human-centric approach.

Strategic actions include:

- Curating environments with emotional comfort features (biophilic design, soft lighting, cultural visuals).
- Training staff in non-verbal empathy and scripted interactions for reassurance.
- Deploying mobile Emotional Support Ambassadors for PRMs and vulnerable passengers.
- Redesigning security and immigration spaces to promote dignity and reduce emotional stress.
- Using AI sentiment analysis and real-time feedback to monitor emotional quality.
- Launching campaigns like "Accessible Suvarnabhumi" to promote inclusive values and awareness.

This pillar acts as the emotional anchor of the SCOPE strategy, ensuring that every operational enhancement is grounded in compassion, dignity, and inclusive hospitality.

Together, the five pillars of the SCOPE strategy, Seamless Integration, Collaborative Platform, Operational Excellence, Personalized Experience, and Empathy-Driven Service, form a unified framework for transforming Suvarnabhumi Airport into a globally competitive and emotionally intelligent passenger hub. These strategies translate empirical insights into tangible initiatives that address both infrastructural inefficiencies and affective dimensions of travel. By orchestrating a balance between human needs and operational sophistication, Suvarnabhumi can lead the regional aviation sector in delivering truly passenger-centric experiences. The detailed mapping of IPA-derived strategies, informed by international benchmarks and stakeholder input, affirms the feasibility and scalability of the SCOPE framework in driving long-term transformation.

5.3. Integration of International Best Practices: Insights from Hong Kong International Airport

The eight factors received from the interview with Hong Kong Airport executives were then mapped against the five pillars of the SCOPE strategy, which was developed for Suvarnabhumi Airport: Seamless Integration, Collaborative Platform, Operational Excellence, Personalized Experience, and Empathy-Driven Service. The mapping exercise confirmed a strong thematic alignment between HKIA's best practices and the IPA-derived strategy framework (see Table 3). For example, "Biometrics and Automation" supports the SCOPE pillar of Seamless Integration, while "Shared Performance Accountability" aligns with the Collaborative Platform component. Emotional and cognitive elements are reinforced through both "Empathy-Driven Culture" and "Personalization," resonating directly with Suvarnabhumi's emphasis on conative, cognitive, and social identity dimensions.

Table 3. Mapping of HKIA's strategic success factors to the SCOPE framework.

No.	HKIA Strategic Success Factor	Mapped SCOPE Strategy
1	Biometrics and Automation	Seamless Integration
2	Emotional Support via Digital Tools	Empathy-Driven Service
3	Empathy-Driven Service Culture	Empathy-Driven Service
4	Layout Encouraging Flow and Browsing	Operational Excellence
5	Diversity of Retail and Dining Options	Personalized Experience
6	Personalization and Segmentation	Personalized Experience
7	Shared Performance Accountability	Collaborative Platform
8	Adaptive Experience Planning	Collaborative Platform

This cross-validation process ensures that the strategic response formulated for Suvarnabhumi Airport is not only grounded in empirical IPA data but also informed by the lived experience of a world-class airport. The convergence of local findings and global best practices thus reinforces the internal logic, external validity, and long-term relevance of the SCOPE framework as a blueprint for enhancing passenger experience in the Thai aviation context.

In conclusion, this study validates a six-dimensional passenger experience framework, comprising affective, cognitive, sensory, conative, physical, and social identity components, as applicable in international air travel. The integration of regression and IPA findings offers actionable insights for Suvarnabhumi Airport to enhance its experience design. Ultimately, the findings support the development of a comprehensive, data-driven Passenger Experience Management Strategy, known as SCOPE, which aligns service delivery with evolving passenger expectations and global benchmarks for excellence in airport experiences.

5.4. Strategic Roadmap for Practical Implementation

While the previous subsections outlined the strategic components derived from the IPA results, the following roadmap consolidates these insights into a practical framework. It links key issues with targeted recommendations, implementation timelines, cost-effectiveness considerations, and performance indicators, thereby ensuring that the proposed strategies are actionable and measurable.

Table 4 offers a holistic view of how selected strategic recommendations can systematically address key issues identified through the IPA and interview analysis. It is intended to enhance the clarity and applicability of the overall strategy formulation by illustrating how diagnostic insights may be translated into practical implementation through seamless integration, collaborative alignment, and empathy-driven service.

Table 4. Strategic roadmap linking IPA priorities to strategic recommendations.

IPA Quadrant Issue	Strategic Recommendation	Implementation Period	Cost-Effectiveness Consideration	Key Performance Indicators (KPIs)
Physical inefficiencies at security and boarding; check-in sensory gap	Seamless Integration: Deploy end-to-end biometric solutions allowing passengers to pre-enroll from home (via airlines or mobile apps) and use biometrics across all airport touchpoints (check-in, security, immigration, and boarding).	Short term (1–2 years), phased rollout	Moderate capital investment, high efficiency gains	Average processing time per touchpoint; biometric adoption rate; reduction in queue length
Social identity gaps at security, immigration, accessibility (stakeholder coordination issues)	Collaborative Alignment Platform: Establish Airport Collaborative Decision-Making (A-CDM) and a dedicated digital alignment team to harmonize operations and coordinate with airlines/government agencies.	Medium term (2–4 years) with staged rollout	Moderate recurring costs; high ROI in reducing misalignment delays	Number of stakeholders actively onboarded; reduction in delays from misaligned policies; adoption rate of joint IT solutions
Service culture weaknesses (social identity in SEC, IMM, ACC)	Empathy-Driven Service: Develop unified training modules emphasizing empathy, inclusivity, and cultural sensitivity; align frontline KPIs with human-centered service metrics.	Short to medium term (1–3 years), built into existing training cycles	Low financial cost; very high impact on passenger satisfaction	Service quality scores (empathy-related); % staff trained; complaint reduction

6. Conclusions

Thailand's primary international gateway, Suvarnabhumi Airport, requires a transformative shift in experience management to meet evolving global service expectations and diverse passenger needs. This study provides a data-driven foundation for strategic enhancement by formulating the SCOPE strategy, comprising Seamless Integration, Collaborative Platforms, Operational Excellence, Personalized Experience, and Empathy-Driven Service. These five strategic pillars are not only grounded in empirical IPA findings but also validated through comparison with international best practices. The integration of experience dimensions—affective, cognitive, sensory, conative, physical, and social identity—advances the theoretical discourse in airport management by offering a novel framework applicable beyond the case study context.

Beyond the Suvarnabhumi Airport context, the SCOPE strategy provides a transferable blueprint for airports of similar size and complexity seeking to enhance passenger experience. The framework's adaptability lies in its modular structure, allowing other airports to calibrate strategies based on their specific touchpoint performance and traveler demographics. For instance, regional hubs in Southeast Asia or emerging international airports can replicate the SCOPE model's collaborative platform and empathy-driven service components to strengthen stakeholder alignment and cultural sensitivity. This study thus contributes to both theoretical advancement and international applicability by offering a replicable model for global aviation settings.

6.1. Academic Contributions

This study makes a significant academic contribution by introducing a structured framework of six experience components—affective, cognitive, sensory, conative, physical, and social identity—as critical lenses for understanding and managing the airport passenger experience. While prior research has explored airport service quality through various models, most studies have emphasized functional and operational dimensions, such as service reliability, cleanliness, staff behavior, and waiting time (e.g., Fodness & Murray, 2007; Bogicevic et al., 2016). These studies provided valuable insights into service expectations but often treated the passenger experience as a unidimensional construct, lacking emphasis on the emotional, behavioral, and identity-related aspects of travel.

More recent studies have attempted to adopt a more holistic view. For example, Wattanacharoensil et al. (2016) proposed a conceptual model emphasizing service experience at airports, while Han and Hyun (2018) highlighted the importance of affective and cognitive engagement. While these frameworks have offered valuable conceptual insights, empirical applications within a comprehensive, component-based structure remain limited. In addition, the systematic linkage between experience components and specific airport touchpoints along the passenger journey has yet to be fully explored in the existing literature.

This study fills those theoretical and methodological gaps by offering the first empirical application of a six-component experience framework within the airport context, using data from international passengers at Suvarnabhumi Airport. It systematically examines how expectations and perceptions vary across seven critical touchpoints: check-in, security, immigration, boarding, accessibility, facilities, and retail, thereby creating a granular, touchpoint-specific understanding of experiential quality.

Furthermore, by employing Importance–Performance Analysis (IPA) in conjunction with a validated six-component framework, the study introduces a novel diagnostic tool that can prioritize interventions based on both experiential salience and performance gaps. This integrated model offers new opportunities for academic inquiry, allowing researchers to assess not only the presence of service gaps but also their experiential significance from both functional and emotional standpoints.

Lastly, the strategic implications derived from this framework contribute to the literature on experience management and transport service design by offering a structured prioritization approach. This can serve as a foundation for future research evaluating tailored interventions in airport contexts, and it holds potential applicability for broader service environments such as cruise terminals, rail stations, and integrated transport hubs.

6.2. Practical Contributions

This study provides practical contributions that are directly applicable to airport operators, particularly in the context of designing and prioritizing passenger experience strategies. By uncovering the performance gaps across six experience components and

seven key airport touchpoints, the research provides airport authorities with a data-driven foundation for evaluating where passenger expectations are not being met. These insights are critical for designing targeted service improvements and ensuring that resources are allocated effectively across operational, technological, and cultural dimensions.

A key practical outcome is the development of a strategic framework that enables prioritization based on both the importance and urgency of experience gaps. Airport managers can use this framework to identify high-impact areas for intervention, such as enhancing physical accessibility for PRMs, improving real-time information systems, or elevating culturally immersive spaces, to boost satisfaction and loyalty. This approach encourages more informed decision-making that aligns with both short-term operational needs and long-term service excellence objectives.

Moreover, the findings underscore the importance of cross-functional collaboration among stakeholders, including ground services, immigration, retailers, and airline partners. The study encourages a shift from fragmented service delivery to an integrated, passenger-centric model where empathy, cultural identity, and digital readiness are seen as shared responsibilities. In this way, the research not only guides immediate enhancements but also supports the development of a sustainable and differentiated passenger experience strategy for airports operating in increasingly competitive environments.

6.3. Limitation of the Study

This study has some limitations. First, although questionnaires were available in Thai and English, non-English-speaking passengers, such as Chinese, Japanese, or Russian travelers, were underrepresented, potentially narrowing the diversity of insights. This focus on Thai- and English-speaking groups may limit the external validity of the findings, as it excludes perspectives from other linguistic groups who may encounter unique challenges related to communication, signage, and service interactions. Future studies should broaden the linguistic scope to capture a more comprehensive range of international passenger experiences.

Second, data collection was conducted exclusively at Suvarnabhumi Airport, which may limit the geographic generalizability of the results. Airports in different regions may vary in terms of infrastructure, cultural expectations, and service models. Replicating the study across multiple international airports would enhance comparative insights and validate the model's broader applicability.

Third, the study employed a cross-sectional design and relied on self-reported survey data. While this approach effectively captured passengers' perceptions at a single point in time, it limits the ability to assess changes over time or infer causal relationships. Retrospective recall may also introduce memory bias, particularly for experiences at earlier stages of the journey, such as arrival or landside access.

Lastly, the study focused solely on international departing passengers, excluding both arriving and domestic travelers. This segmentation may overlook important experience patterns unique to other traveler groups. Future research should incorporate longitudinal and multimodal data collection, combining surveys, behavioral observations, and interviews across broader traveler demographics and journey types to enrich the understanding of passenger experience dynamics.

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Abbreviations

The following abbreviations are used in this manuscript:

ACC	Accessibility area
BKK	Bangkok Suvarnabhumi Airport
CKI	Check-in area
FAC	Facility area
HKG	Hong Kong International Airport
HKIA	Hong Kong International Airport
IMM	Immigration area
PRM	Passenger with reduced mobility
RET	Retail area
SEC	Security area

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