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AIRPORT OPERATOR'S HIGH-VALUE SERVICES FOR AFFLUENT PASSENGERS: AN EMPIRICAL ANALYSIS AT U-TAPAO INTERNATIONAL AIRPORT, THAILAND

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ABSTRACT

Given that airports serve as gateways for travellers to destinations around the world, they must offer competitive products and services to meet the expectations of targeted passengers. The Thai government has prioritized innovation and cutting-edge technology to modernize various industries, including affluent, medical, and wellness tourism. U-Tapao International Airport, Thailand's third international airport and an aviation hub in the eastern region, must enhance its operational competency and strengthen its competitive advantage. This study aims to identify key high-value services (HVS) provided by airports by assessing the expectations and perceptions of affluent passengers. The airport's service performance is also evaluated to identify areas in need of improvement. Exploratory factor analysis is utilized to identify key HVS, and data was collected from 350 passengers through a structured questionnaire survey. Findings showed that the advancement of technology and services, with a focus on automated procedures, improvements to new and standard products and services, innovative spatial design, and tech-driven solutions, is an important factor in meeting passenger needs. Moreover, traditional products and services are found to be significantly important to passengers. The insights offered implications that airport operators can incorporate into their future strategic plans.

Keywords: High-value services; affluent passenger; airport operator; innovation

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1. INTRODUCTION

The tourism and aviation industries play a vital role in Thailand's economic development, significantly contributing to the country's gross domestic product, facilitating international connections, and promoting cultural exchange (Champahom et al., 2022). Airports have always been integral to the travel and tourism industries because they serve as key transportation hubs enabling travelers to reach their destinations and offer the first and last glimpse of their destinations (Graham et al., 2019). Nevertheless, the recent strategic development plan of Thailand emphasizes innovation and cutting-edge technology, focusing on transforming traditional industries through modernization. The government adopted this plan as part of its Thailand 4.0 project and the Eastern Economic Corridor, including special economic districts. The primary initiatives focus

on leveraging technology to integrate potential industries, aiming to increase productivity for high-value goods and services. A sector that is particularly targeted is affluent, medical, wellness tourism, and tourists who, exhibit high potential in terms of quality and expenditure (Eastern Economic Corridor, 2022; The Secretariat of the Prime Minister, 2017). U-Tapao International Airport, the leading airport in the Eastern region, will play a crucial role in these initiatives, representing a strategic development aimed at enhancing Thailand's competitiveness in the global context.

Recently, the global development of airport services has focused on enhancing passenger experiences through personalized, efficient, and environmentally friendly products and services (Office of the National Economic and Social Development Council, 2023). In addition, leading airport operators are incorporating high-value services (HVS) to their new business strategies to respond to the evolving needs of passengers (Jeeradist, 2021). Airports that offer high service quality with attractive experiences appear to be effective in passenger satisfaction (Kurniawan et al., 2017; Türeli et al., 2019). Boc et al. (2023) showed that new airport terminal infrastructures can help in improve passenger experience, particularly in terms of comfort, convenience, and commercial facilities. Göçmen (2021) mentioned that innovations aimed at optimizing passenger flow and safety can contribute to enhancing the overall airport experience for passengers. Despite the growing emphasis on HVS in airports and the critical role of service quality across all passenger segments, little research has explicitly investigated how affluent passengers engage with these services. Affluent travelers represent a high-value market segment that generates a disproportionate share of revenue for airports. Notable studies in airport passenger research have primarily classified passengers based on travel frequency and return rates (Halpern et al., 2021; Kalakou & Moura, 2021). However, current trends emphasize experience-driven segmentation and the growing recognition of passengers' service expectations, particularly among premium passengers. These passengers, often characterized by high-income levels and a preference for premium services (Mastercard, 2024; Novotná & Kunc, 2019), exhibit distinct behaviors in their consumption of airport services. They seek personalized, technology-enhanced experiences and the highest quality services. Nevertheless, empirical studies that evaluate which HVS component are most valued by these passengers remain scarce. Existing research has primarily focused on general airport service quality or frequent traveler segmentation. However, few studies have explored the expectations of affluent passengers as a distinct market segment. In addressing this gap, this study aims to answer the key HVS that these passengers expect and how they perceive these services at the airport. Given U-Tapao International Airport's ambition to become a regional aviation hub, gaining insights into affluent passengers' priorities is crucial for developing competitive HVS that align with their expectations.

2. LITERATURE REVIEW

2.1 Key attributes of airport's HVS

HVS operates under the concept of a value-based economy, which prioritizes high economic value through operations that maximize net profit by achieving a large price margin over production costs. The application of this strategy also helps in increasing workers' wages and business profits. These services, in relation to HVS, involve adding unique features to goods that enhance their value, set them apart from competitors, and allow them to be sold at a high price. Moreover, HVS contribute to increased profitability in the service sector and drive its sustainable growth through the application of innovation, technology, and efficient resource utilization, thereby enhancing economic growth and competitiveness (Argandoña, 2011; Giannopoulos et al., 2020; Olya et al., 2018; Taylor Wells Advisory Firm, 2021). However, the enhancement of HVS relies on a well-supported ecosystem that fosters connectivity among various stakeholders. This ecosystem can be categorized into four essential dimensions of value creation: 1) defining customer-centric values through entrepreneurial foresight and market orientation (Ianioglo, 2022; Orfila-Sintes & Mattsson, 2009; Zehrer et al., 2016), 2) innovating and leveraging technology to create greater service contributions, supported by research institutions and strategic business networks (Hagedoorn et al., 2018; Murat Ar & Baki, 2011), 3) effectively delivering these services through skilled workforces and efficient training systems (Busch-Casler et al., 2021), and 4) maintaining competitive advantage by continuing innovation and collaboration across service industries, supported by policy-making and educational institutions (Akman & Yilmaz, 2008; Valkokari, 2015). Accordingly, a dynamic and flexible ecosystem that integrates these dimensions to continuously improve and deliver HVS in a sustainable manner is essential to their success. In tourism and hospitality contexts, HVS refer to high-quality offerings highlight collaborative engagement and personalized experiences, visitors actively play a significant role (Giannopoulos, et al., 2020). Usman et al. (2023a) highlighted that airport operators can enhance the efficiency and quality of services by implementing innovations, such as information and communication technology, into their operations.

Innovation is the process of adding value or novelty to products and services through introducing new ideas, methods, or devices, which involves the interaction of technology, market, and organization to gain a competitive advantage. In addition, businesses aiming to invest in innovation must consider offering new products, improving customer experiences, and co-creating values. Innovations include business processes and models (Kiliç et al., 2021). OECD/Eurostat (2018) categorizes innovation into: products, processes, organizational, and marketing, emphasizing that sectors, such as airports, must adopt these innovations to provide new services, optimize processes, and improve passenger experiences through quality and technology. Airport innovations typically include product, service, and process innovations (Caetano et al., 2021). Effective airport management requires careful planning of various aspects, including innovative product-service solutions and processes (Türeli et al., 2019). Ma et al. (2022) emphasized another aspect of airport innovations, the physical environment, which can influence passenger satisfaction through perceived service quality. Passengers are typically involved in all aspects of the airport's physical environments, including facility functionality, layout, accessibility, and cleanliness. Meanwhile, digital technology innovations improve the effective operation of the airport's physical environment and create new and potentially disruptive ways for passengers and related stakeholders (Medvedev et al., 2017). In conclusion, airport innovations encompass aspects of products and services, processes, and the physical environment, while incorporating 35 attributes for the study (Caetano et al., 2021).

2.2 Underlying affluent passengers' expectation

Affluent travelers are high-income individuals who seek unique experiences and eco-luxury, often prioritizing high-quality services and look for a specific non-material added value, such as personalized services (Mastercard, 2024; Novotná & Kunc, 2019). These travelers place great importance on unique and memorable experiences that offer personal enrichment and authenticity, with the aim of promoting their personal fulfilment. Offering personalization is mandatory, with products and services tailored to individual preferences and dreams, resulting in an exclusive and impeccable experience. Furthermore, affluent travelers place high importance on a safe and secure environment that supports their physical and emotional comfort throughout their travels. Moreover, this demographic group expects high-quality services, characterized by luxury and smooth travel experiences (Novotná & Kunc, 2019). However, despite the demand of these passengers for premium offerings, they still seek ordinary products and services, viewing them as essential elements that contribute to their airport experiences. Passengers can become highly dissatisfied if these critical elements are poorly maintained or fail to meet expectations, even though simply having them does not guarantee satisfaction. Accordingly, essential services must be prioritized over additional perks to improve the overall quality of airports, as neglecting them could significantly disrupt the passengers' airport experience (Fakfare et al., 2021). In response to these evolving demands, airport operators have increasingly focused on understanding the passenger experience within airport facilities (Bezerra & Gomes, 2019). Thus, airport innovation attributes have been analyzed to identify key HVS components and airport performance, ensuring that service enhancements align with passenger expectations.

2.3 Conceptual model and hypothesis

This study applied a five-dimension scale to examine the influence of affluent passenger characteristics and personality types on their service expectations. Chao et al. (2013) suggested that a traveler's first and last impressions at the airport influence their negative or positive perception of a destination, as airports serve as a gateway experience. Parasuraman et al. (1985) and Tsai et al. (2011) noted that the gap between passengers' expectations and the actual performance of airport services influences their perception of service quality. Consequently, a number of airport operators regularly conduct passenger satisfaction surveys to substantially understand passengers' perceptions of products and services and improve those that are underperforming to meet passenger expectations and demands (Bogicevic et al., 2017; Seyanont, 2012; Usman et al., 2023b). In addition, passengers' demographic characteristics influence their perception of airport products and services, as passengers come from diverse cultural backgrounds (Pantouvakis & Renzi, 2016; Seyanont, 2012; Suwannakul, 2021). Accordingly, the first hypothesis is formulated as follows:

H_1: Different affluent passenger characteristics influence passenger expectations in various ways.

According to Plog's (2001) travel personality theory, travelers can be categorized into allocentric, mid-centric, and psychocentric types, each exhibiting distinct travel preferences and expectations. Previous studies have shown that personality traits significantly influence travelers' expectations. For instance, allocentric travelers are drawn to novelty and innovation, while psychocentric travelers prefer familiar environments, prioritizing personalized services and security (Poon & Huang, 2017). Accordingly, the second hypothesis is proposed as follows:

H_2: Different affluent passenger personality types influence passenger expectations in various ways.

3. RESEARCH METHODOLOGY

3.1 Research tool and measurement

This study used a self-administered questionnaire to collect data from the participants. The first section comprised a screening question to determine whether the respondent was an affluent passenger or not and questions related to demographic factors. The second section was designed to evaluate the respondents' expectations and perceptions toward HVS at the airport. This section comprised 35 attributes of HVS adopted from Caetano et al. (2021). The five-point Likert scale with a semantic differential format was used for rating the respondent's opinions. The quality of the questionnaire was evaluated before the data collection by performing validity and reliability tests. Content validity was evaluated by five experts. The result of the item-objective congruence indexes indicated that all items exceeded the minimum threshold of 0.60. In addition, some questions were modified based on the experts' suggestions. After the modification, the questionnaire was distributed to 30 respondents as a pilot test. The result indicated a Cronbach's alpha coefficient of 0.984 for all items, which exceeds the threshold value of 0.600 suggested by Hair et al. (2018). Accordingly, this research tool was highly suitable for data collection. Prior to distributing the questionnaires to the sample population, the research methods and questionnaires were submitted for ethical review and approved by the Research Ethics Committee of Burapha University on July 4, 2023 (No. IRB2-059/2566). In this study, the sample size was determined using a rule of thumb, which suggested 350 participants. A sufficient sample size should consist of 10–20 observations per variable to minimize the influence of non-normality (Hair et al., 2018).

3.2 Sample and data collection

This study utilized an accidental sampling technique to collect data at U-Tapao International Airport in Rayong, Thailand, between July and September 2023. Affluent passengers were identified based on their subjective financial status and classified as a high spending potential group, defined by an annual income exceeding USD 20,000 (Ministry of Tourism and Sports, 2017). The questionnaires were exclusively distributed to passengers who met the criteria through a pre-screening question and they voluntarily agreed to participate in the study to ensure sample appropriateness. Furthermore, this study strictly adhered to ethical standards, with all institutional ethical protocols duly observed. Prior to data collection, the study objectives were communicated to the respondents, and informed consent was obtained. Moreover, the respondents were assured that all data provided would be kept confidential and securely protected. A total of 350 completed questionnaires were collected and utilized for data analysis.

4. RESULTS

4.1 Affluent passengers' characteristics

This study utilized descriptive statistics to analyze the general profile and personality of the respondents. A total number of 350 respondents participated, with majority being male (58.30%) and aged between 27 years old and 42 years old (59.70%), representing the millennial generation. Most respondents were Westerners (43.40%), held a bachelor's degree (69.40%), and company employees (48.60%). Majority of the respondents traveled for leisure/tourism (87.70%) and used internet/website as their source of information (61.40%). Moreover, more than half of the respondents were classified as mid-centric affluent passengers (60.30%).

4.2 Exploratory Factor Analysis (EFA)

Prior to testing the research hypothesis, EFA was conducted to minimize the unrelated variables and facilitate the formation and refinement of the measurement variables in this study. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.930, which was greater than the acceptable threshold of 0.50 and exceeded the value of 0.80. This finding indicated that these datasets were highly suitable for factor analysis. The results of Bartlett's test of sphericity were statistically significant at 0.000 for both sets of variables, indicating their suitability for factor analysis. The variables with community values greater than 0.50, eigenvalues exceeding one, and a cumulative percentage of variance explained were retained as the appropriate number of factors, according to the factor retention criteria. All constructs had factor loadings ranged between 0.545 and 0.828, with communalities greater than 0.50, in line with the suggestion of Tabachnick and Fidell (2007) that the acceptable value of factor loadings should exceed 0.50. Hair et al. (2018) asserted that variables with high cross-factor loadings on two or more factors were typically removed. Consequently, 29 factors were retained for further analysis. In conclusion, the analysis indicated that the measured variables were attributed to five components underlying affluent passengers' expectations toward HVS: 1) cutting-edge product and service creation, 2) automated process initiative, 3) standard product and service development, 4) spatial design innovation, and 5) tech-driven process upgrade (Table 1).

The findings revealed that technology and innovation are vital in enhancing affluent passengers' experiences and meeting their expectations at U-Tapao International Airport. The first dimension relates to the introduction of new products and services that offer uniqueness and revolution. This aspect aligns with the study of Poulaki et al. (2021), which highlighted that technology can change people's interaction with the airports. The need to balance demand for efficiency and traditional service quality on automated operations and typical service advances are deemed necessary. Mandić et al. (2023) emphasized that achieving a balance between technology and human connection is essential for maintaining the satisfaction of diverse customers. Particular attention should be given to the physical environment and technological advancements, as these factors can significantly influence passengers' experience. Accordingly, providing a holistic product and service experience requires the integration of cutting-edge technology with physical comfort and security. This notion aligns with several studies that found that the physical and technological environments influence the passengers' pleasure at the airport (Ali et al., 2016; Bogicevic et al., 2017; Ma et al., 2022). The above-mentioned findings can help U-Tapao International Airport in creating a comprehensive strategy to provide a unique and fulfilling travel experience. Moreover, this approach may improve the airport's operational efficiency and elevate its competitiveness in the global context.

Table 1: Exploratory analysis results of HVS

Factor	Loading	Items
Factor 1: Cutting-edge product and service creation		
% of variance explained = 54.437	0.844	Metaverse travel experiences
Eigenvalue = 19.053	0.769	Virtual concierge for shopping services
	0.748	Robotic service provision
	0.710	Artificial intelligence in passenger interaction
	0.689	Digital entertainment and information
	0.689	Social media for airport experience
	0.576	Innovative relaxation services
Factor 2: Automated process initiative		
% of variance explained = 5.288	0.765	Self-service baggage systems
Eigenvalue = 1.851	0.710	Self-boarding services
	0.703	Advanced baggage tracking
	0.701	Self-check-in and ticketing kiosks
	0.688	Electronic luggage tags
	0.632	Automated immigration channels
	0.629	Mobile boarding pass accessibility
Factor 3: Standard product and service development		
% of variance explained = 4.498	0.697	Technology in airport lounges
Eigenvalue = 1.574	0.688	Quick response to online inquiries and complaints
	0.669	Real-time flight information
	0.633	Airport shower facilities
	0.582	Information systems for transit passengers
	0.572	Fast and accessible mobile internet
	0.569	Efficient Airport Wayfinding
Factor 4: Spatial design innovation		
% of variance explained = 3.593	0.725	Modern security systems
Eigenvalue = 1.257	0.659	Efficient transportation links
	0.628	Comfortable passenger boarding lounges
	0.594	Noise reduction technologies
	0.585	Cultural and flora-fauna displays
Factor 5: Tech-driven process upgrade		
% of variance explained = 3.019	0.773	Unified identity verification systems
Eigenvalue = 1.057	0.686	Modern passenger identification technologies
	0.635	Advanced baggage X-ray systems
Cumulative percentage of variance at 70.835		

4.3 Mean and gap analysis

Table 2 shows the results of the gap analysis, including the mean scores and standard deviation, reflecting affluent passengers' perception of importance and performance regarding airport's HVS attributes. Overall, the passengers placed the highest importance on spatial design innovations among the five dimensions ($\bar{x}$ = 3.68), followed by the standard product and process development ($\bar{x}$ = 3.62), tech-driven process upgrade

($\bar{x}$ = 3.42), automated process initiative ($\bar{x}$ = 3.36), and cutting-edge product and service creation ($\bar{x}$ = 3.07). When considering individual attributes, the passengers placed highest importance to the following five attributes: modern security systems ($\bar{x}$ = 4.06), fast and accessible mobile internet ($\bar{x}$ = 4.03), comfortable passenger boarding lounges ($\bar{x}$ = 3.77), information systems for transit passengers ($\bar{x}$ = 3.66), and noise reduction technologies ($\bar{x}$ = 3.65). Meanwhile, virtual concierge for shopping services ($\bar{x}$ = 2.95) demonstrated lowest importance. In terms of performance (perception scores), the passengers rated the highest performance for the dimension of spatial design innovation ($\bar{x}$ = 3.15), followed by the standard product and process refinement ($\bar{x}$ = 2.94), the tech-driven process upgrade ($\bar{x}$ = 2.86), the automated process initiative ($\bar{x}$ = 2.79), and the cutting-edge product and service creation ($\bar{x}$ = 2.70). When considering individual attributes, the passenger perceived highest performance on the following attributes: modern security systems and comfortable passenger boarding lounges ($\bar{x}$ = 3.36), noise reduction technologies ($\bar{x}$ = 3.17), information systems for transit passengers ($\bar{x}$ = 3.16), and efficient transportation links ($\bar{x}$ = 3.13), while metaverse travel experiences ($\bar{x}$ = 2.46) demonstrated the lowest level of performance.

Furthermore, a gap analysis of the airport's HVS component was conducted for further illustration. The results indicate that the gap mean scores of all components were negative, indicating that the performance mean scores were lower than the importance mean scores. The three dimensions exhibiting the largest gaps were standard product and service development (gap = -0.68), tech-driven process upgrade (gap = -0.62), and automated process initiative (gap = -0.58). When considering individual attributes, the five largest gaps were among the following attributes: fast and accessible mobile internet (gap = -1.026), airport shower facilities (gap = -0.723), self-check-in and ticketing kiosks (gap = -0.723), modern passenger identification technologies (gap = -0.709), and modern security systems (gap = -0.703). Meanwhile, the HVS components were ranked by number in parenthesis. The paired t-test demonstrated statistically significant differences between passengers' importance and performance toward all components (p-values < 0.001). These significant differences suggested that these HVS may have been the most disappointing for affluent passengers.

Table 2: Results of the gap analysis of HVS

High-value services	Importance (I)		Performance (P)		P–I	t
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	Gap	
Cutting-edge product and service creation (CP) (5)	**3.07**	**1.03**	**2.70**	**0.876**	**-0.37**	**6.414**
Metaverse travel experiences (CP1)	2.98	1.188	2.46	1.132	-0.520	7.590
Virtual concierge for shopping services (CP2)	2.95	1.266	2.47	1.159	-0.480	6.818
Robotic service provision (CP3)	2.97	1.273	2.49	1.227	-0.477	6.712
Artificial intelligence (AI) in passenger interaction (CP4)	3.02	1.221	2.59	1.171	-0.426	6.159
Digital entertainment and information (CP5)	3.17	1.152	2.60	1.065	-0.569	8.906
Social media for airport experience (CP6)	3.25	1.043	2.69	1.090	-0.557	9.036
Innovative relaxation services (CP7)	3.13	1.175	2.56	1.148	-0.569	8.568
Automated process initiative (AP) (3)	**3.36**	**0.961**	**2.79**	**1.086**	**-0.58**	**9.303**
Self-service baggage systems (AP1)	3.31	1.165	2.67	1.157	-0.640	9.127
Self-boarding services (AP2)	3.25	1.125	2.80	1.190	-0.449	6.552
Advanced baggage tracking (AP3)	3.41	1.098	2.85	1.204	-0.554	8.318
Self-check-in and ticketing kiosks (AP4)	3.29	1.187	2.57	1.304	-0.717	9.003
Electronic luggage tags (AP5)	3.36	1.077	2.84	1.205	-0.517	7.992
Automated immigration channels (AP6)	3.42	1.067	2.79	1.283	-0.634	8.866
Mobile boarding pass accessibility (AP7)	3.51	1.040	2.99	1.243	-0.529	8.352
Standard product and service development (SP) (1)	**3.62**	**0.755**	**2.94**	**0.962**	**-0.68**	**12.807**
Technology in airport lounges (SP1)	3.42	1.051	2.91	1.234	-0.511	7.036
Quick response to online inquiries and complaints (SP2)	3.39	1.045	2.87	1.103	-0.517	8.104
Real-time flight information (SP3)	3.59	1.061	3.05	1.278	-0.534	8.196
Airport shower facilities (SP4)	3.43	0.945	2.70	1.205	-0.723	9.659
Information systems for transit passengers (SP5)	3.66	0.903	3.16	1.093	-0.497	7.821
Fast and accessible mobile internet (SP6)	4.03	0.760	3.00	1.268	-1.026	15.005
Efficient airport wayfinding (SP7)	3.45	1.055	2.91	1.184	-0.546	8.069
Spatial design innovation (SD) (4)	**3.68**	**0.774**	**3.15**	**0.909**	**-0.54**	**10.275**
Modern security systems (SD1)	4.06	0.751	3.36	1.095	-0.703	12.175
Efficient transportation links (SD2)	3.63	1.083	3.13	1.108	-0.500	7.727
Comfortable passenger boarding lounges (SD3)	3.77	0.972	3.36	1.116	-0.409	6.697
Noise reduction technologies (SD4)	3.65	1.010	3.17	1.127	-0.477	7.585
Cultural and flora–fauna displays (SD5)	3.31	1.050	2.71	1.205	-0.603	8.491

Table 2: Results of the gap analysis of HVS (continued)

High-value services	Importance (I)		Performance (P)		P–I	t
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	Gap	
Tech-driven process upgrade (TP) (2)	**3.48**	**1.032**	**2.86**	**1.225**	**-0.62**	**7.866**
Unified identity verification systems (TP1)	3.46	1.181	2.83	1.367	-0.629	7.244
Modern passenger identification technologies (TP2)	3.39	1.257	2.69	1.440	-0.709	7.708
Advanced baggage X-ray systems (TP3)	3.59	1.022	3.07	1.184	-0.520	7.448
Overall	**3.41**	**0.794**	**2.84**	**0.918**	**-0.57**	**10.453**

$^{**}p < 0.001$

4.4 Importance and Performance Analysis (IPA)

Figure 1 shows the locations of the airport's HVS attributes in a matrix layout, with "importance" values on the vertical axis and "performance" values on the horizontal axis. The attributes are categorized into four quadrants, namely: quadrant 1: keep up the good work, quadrant 2: concentrate here, quadrant 3: low priority, and quadrant 4: possible overkill. The results indicated that all attributes fell in all quadrants. Three attributes fell in quadrant 2, which were considered important HVS for affluent passengers but failed to satisfy them. The attributes included automated immigration channels, airport shower facilities, and unified identity verification systems, which must be improved first. Ten attributes dropped in quadrant 1, mostly associated with the standard product and process development and spatial design innovation factors. The result indicated that passengers perceived these services as important and satisfactory. These services included modern security systems, comfortable passenger boarding lounges, information systems for transit passengers, and fast and accessible mobile internet. Consequently, these services should be maintained. Twelve attributes in quadrant 3 were valued as having low importance and satisfaction and were mostly associated with the cutting-edge product and service creation factor, such as metaverse travel experiences and virtual concierge for shopping services. Airport operators can consider investing efforts and resources in these services as their last priority. However, these services should not be discontinued, as digital technology is increasingly integral to our daily lives. Meanwhile, only two attributes fell in quadrant 4: quick response to online inquiries and complaints and electronic luggage tags. This notion indicated that the passengers placed low importance on these services but perceived them at a high level of satisfaction. Airport operators are not required to invest in these services to improve passengers' satisfaction. The results of the IPA model have provided valuable insights. Nevertheless, caution is advised when interpreting these results due to the minimal variation in the values.

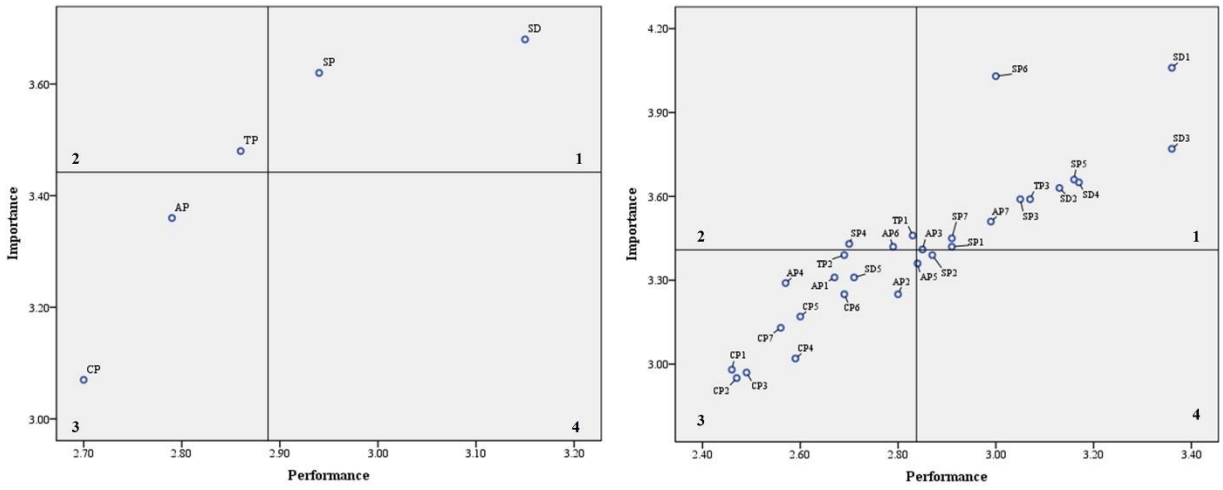

Figure 1: IPA results of the HVS dimensions (left) and attributes (right)

4.5 Hypothesis testing

The univariate one-way ANOVA was utilized to examine the influence of the affluent passengers' characteristics: general profile and personality (gender, age group, education, occupation, information source, travel purpose, and personality type). The results in Table 3 revealed no statistically significant differences among groups of affluent passengers based on gender (F = 0.721, p-value = .487), age group (F = 2.480, p-value = .061), and occupation (F = 2.882, p-value = .112) in terms of their overall expectation toward airport's HVS. Five variables were identified as significant factors influencing overall HVS expectation. Statistically significant

differences were found between groups of affluent passengers based on nationality (F = 15.011, p-value = .000), education (F = 4.090, p-value = .018), and personality type (F = 5.473, p-value = .005). A post hoc test was conducted using Scheffe's method to reflect the different expectations among groups of affluent passengers. Hence, the hypothesis was partially supported.

Table 3: Comparison of the expectations toward HVS among different groups of respondents

Variables	Source of variance	Sum of squares	df	MS	F	P-value	Post hoc (Scheffe)
Gender	Between groups	.911	2	.456	.721	.487	-
	Within groups	219.233	347	.632			
	Total	220.145	349				
Age group	Between groups	4.635	3	1.545	2.480	.061	-
	Within groups	215.510	346	.623			
	Total	220.145	349				
Nationality	Between groups	17.529	2	8.765	15.011*	.000	Thai > Asian Thai > Westerner
	Within groups	202.615	347	.584			
	Total	220.145	349				
Education	Between groups	5.070	2	2.535	4.090*	.018	Bachelor's > lower than bachelor's Bachelor's > higher than bachelor's
	Within groups	215.075	347	.620			
	Total	220.145	349				
Occupation	Between groups	10.565	6	1.761	2.882	.112	-
	Within groups	209.579	343	.611			
	Total	220.145	349				
Personality type	Between groups	6.732	2	3.366	5.473*	.005	Mid-centric > psychocentric
	Within groups	213.412	347	.615			
	Total	220.145	349				

5. DISCUSSION AND CONCLUSION

HVS are crucial to airport operators because they reflect passengers' experiences and satisfaction in various ways. However, airport operators occasionally provide services that do not fully align with passengers' needs, particularly those of affluent passengers. Consequently, airport operators must understand the critical airport HVS attributes that serve this segment of passengers. The results indicated that HVS plays a significant role in shaping passenger experiences. The introduction of new products and services were the most important, reflecting the growing demand of passengers who seek unique technological experiences. This finding aligns with the study of Poulaki et al. (2021), who stated that technological transformation influenced customer interactions in airports. Halpern et al. (2021) emphasized the importance of assessing an airport's technological and organizational readiness for digital transformation in relation to enhancing passenger experience. The balanced importance placed on automated processes and standard product and service innovations indicates that even though technological advancements are valued, traditional service quality remains a key component of passenger satisfaction. Achieving an effective balance between technology and human interaction is essential for maintaining passenger satisfaction across diverse groups (Ali et al., 2016). Furthermore, innovations in the physical environment and technological processes play a significant role, as these environments have a significant influence on overall passenger satisfaction (Bogicevic et al., 2017; Ma et al., 2022).

Furthermore, this study found that affluent passengers expect HVS regardless of their nationality, educational level, or personality type. The results are likely to support previous studies, such as Kosiba et al. (2020), which demonstrated that passengers' demographics influence their expectations of airport services and the attributes of airport products or services, in relation to decision-making when selecting an airport (Carstens & Heyns, 2012). The findings demonstrated that affluent Thai passengers with a bachelor's degree have higher expectations, which aligns with the study by Suwannakul et al. (2024). Furthermore, the findings prompted the researcher to conduct further research and gain extensive understanding of the high expectations of Thai affluent passengers. In a study conducted by Booranakittipinyo (2020), Thai passengers reported lower satisfaction with the quality of airport services than international passengers, suggesting that the airport is unable to meet the expectations of Thai passengers. Furthermore, personality type influences expectations. Mid-centric affluent passengers, who value novelty and new experiences, have higher expectations of airport services than psychocentric travelers, who prefer familiar and predictable environments (Reyes et al., 2021).

In the gap analysis, the difference between affluent passengers' expectations and perceptions of HVS reflects the performance of service providers and indicates the level of passenger satisfaction. Accordingly, airport operators must close the gaps in HVS to improve the airport's performance and provide appropriate services that meet the needs of passengers. The findings revealed that affluent passengers were primarily

satisfied with cutting-edge product and service creation. Meanwhile, the lowest level of satisfaction were reported for standard product and process development factors, which primarily included ordinary innovative services at the airport. Airport operators should focus on common innovations, such as fast and accessible mobile internet and shower facilities, to meet the basic needs of passengers. Operators must prioritize investment in these innovative services. The IPA revealed the need for immediate improvements in automated immigration channels, airport shower facilities, and unified identity verification systems. Improving these services can close the gap between expectations and actual service performance, thereby improving the overall airport experience.

This study contributes to the literature by identifying specific HVS that affluent passengers expect from airports, addressing a significant gap in the existing research. Previous studies have broadly categorized passenger needs based on frequency of travel or service quality. Meanwhile, this study provides a nuanced understanding of the expectations of affluent passengers. Airport operators must improve their service performance by integrating HVS and innovative characteristics into their airport services, aiming to close the performance gap, and investing in ordinary innovations or traditional products and services to facilitate and maintain affluent passengers. This emphasis underscores the importance of cutting-edge technological innovations and traditional services, highlighting how these passengers value a balanced service offering. For instance, offering modern security systems, comfortable passenger boarding lounges, and efficient transportation links should be considered a top priority, as passengers have high expectations. These factors are important in airport space design innovation. Moreover, these factors not only help in bridging the gap in airport service quality research, especially concerning affluent passengers, but also offer actionable insights. Furthermore, the findings of this study can benefit not only U-Tapao International Airport, as the Eastern region's hub, but also other domestic and international airport operators and government sectors. The results of significant HVS can serve as a guideline to improve service performance efficiency, better meet the specific needs of affluent passengers, and enhance the airport's competitiveness with other domestic and regional airports.

6. IMPLICATIONS

The findings provide important implications for airport operators to profoundly understand the key HVS dimensions, affluent passengers' expectations, and the airport's current performance. This study revealed the significant gaps between expectations and performance of key HVS, which include automated immigration channels, airport shower facilities, and unified identity verification systems. Airport operators should enhance their performance by promptly upgrading tech-driven processes, such as seamless digital identity verification systems and AI-powered security screening. These improvements will reduce wait times and enhance safety perceptions, ultimately increasing overall passenger satisfaction. In addition, the emphasis on balancing between innovative and traditional services must be maintained as affluent passengers also prioritize spatial design innovation. Airports should focus on improving boarding lounge comfort, incorporating noise reduction technology, and introducing cultural and nature-inspired installations to enhance airport ambiance and passenger engagement. Meanwhile, the initiative of the automated process, such as self-check kiosks and biometric boarding systems, are vital for improving operational efficiency. Furthermore, airport operators should prioritize immediate investment in mobile internet infrastructure to ensure that passengers experience seamless and high-speed connectivity throughout the airport facilities, addressing one of the most critical service gaps identified in this study. Investing in these areas will enhance not only the digital engagement of passengers but also the overall convenience of their airport experience. This approach will enable airport operators to cater to a wide range of passengers' preferences, potentially increasing satisfaction and fostering loyalty. Additionally, these valuable insights are applicable to other domestic and international airport operators considering essential service improvements to enhance their competitiveness and effectively attract and retain affluent passengers over the long term. Adopting the results as a guideline can help airports in strengthening their service performance and increasing their competitiveness in the global aviation context.

7. LIMITATIONS AND FUTURE RESEARCH

This study, acknowledges its limitations. Specifically, this study surveyed 350 affluent passengers, in accordance with the research design. However, the sample population may not fully represent the entire affluent passenger demographics. Additionally, this study focuses solely on U-Tapao International Airport, which may limit the broader applicability to other airports with different operational environments and passenger demographics. Although this study contributes to the body of knowledge regarding airport's HVS as a whole, it only provides insights of affluent passengers. Future research should be conducted with diverse

passenger segments and expand to multiple airports to refine the identification of HVS and strategic improvements. Moreover, although the findings highlight the importance of digital transformation in passenger satisfaction, future research should explore its influence across different airport settings, particularly investigating the optimal balance between technology-driven and traditional service elements. Furthermore, applying confirmatory factor analysis to test and validate the proposed factor components will help strengthen the robustness of the findings. Lastly, future studies should include a comparative analysis across diverse income segments to assess variations in HVS expectations. Such an expansion would provide broader and more meaningful perspectives on HVS within airport environments, enabling tailored service strategies for diverse passenger demographics.

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