Article

Applying the Kano model and QFD to improve the service quality of Kinmen County government's overseas residents service centers in Taiwan

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Abstract: This study explores the attributes of service quality for overseas residents provided by island county governments, using the example of the Kinmen County Government's service center in central Taiwan. This research aims to identify key service elements that can enhance the satisfaction of Kinmen overseas residents. Drawing upon the SERVQUAL scale and a comprehensive literature review, service quality is divided into five dimensions: "administrative service," "life counseling," "information provision," among others, comprising 24 service quality elements. A total of 311 valid questionnaires were collected through a survey, and Kano's two-dimensional quality and IPA analysis were used to classify service factors. The Kano two-dimensional quality analysis revealed that "employment counseling," "entrepreneurship counseling," and "setting up service counters at airports and terminals during festivals" belong to attractive quality. Nine elements were classified as "one-dimensional quality" and "must-be quality," including "one-stop service," "exclusive consultation hotline," and "exclusive website reveals information." Through Quality Function Deployment (QFD), service elements that align with Kano's two-dimensional quality and IPA priority improvement were selected for detailed study, including "financial assistance in emergencies," "subsidy for transportation expenses back home," "subsidies for education allowances," and "various subsidy application information." Following expert discussions and questionnaire surveys, eight strategies for improving key service quality elements were identified. This research not only provides actionable insights for the Kinmen County Government but also offers valuable strategies that can be applied to similar contexts globally, where remote and rural populations require specialized governmental support.

Keywords: service elements; Kano model; IPA; QFD; service quality

1. Introduction

Due to its remote location and various constraints in terms of transportation, geography, and environmental factors, as well as the historical turmoil and cross-strait tensions, the outlying islands of Taiwan are comparatively disadvantaged in terms of development compared to the main island (Yeh et al., 2022). Similar challenges are faced by remote and rural areas worldwide, where residents often migrate to urban centers for better education or employment opportunities (Chi and Chi, 2019). This study focuses on the residents of Kinmen, an outlying island of Taiwan, who often form organized formal groups such as hometown associations due to their local emotional connections (Wang, 2020). Many countries with significant rural-urban migration patterns see the formation of similar support networks, making this research relevant internationally.

Hometown associations in Taiwan are mostly spontaneously formed grassroots organizations, with varying degrees of effectiveness in assisting outlying islanders with certain affairs. To provide more direct support for Kinmen residents traveling to Taiwan, the Kinmen County government has established service centers in various locations across Taiwan. However, disparities often exist between the perceived service quality by the general public and that perceived by government agencies (Wang, 2016). This issue is not unique to Taiwan, as governments globally strive to align their services with public expectations, often constrained by cost or technological limitations (Lin et al., 2018).

The Kinmen County government's deployment of service centers in Taiwan aims to serve Kinmen residents by providing essential assistance. Understanding the exact needs of these residents and providing services that precisely meet these needs is crucial. Given the significant number of Kinmen residents living outside Kinmen, there is a need for the government to offer specialized support in various aspects of their lives. Whether the services provided by these centers meet the needs of Kinmen residents is a critical consideration for their continued operation.

This study focuses on the service center located in central Taiwan, established by the Kinmen County government, which serves the Kinmen communities in Taichung City, Changhua County, and Nantou County. The primary research subjects are Kinmen residents in these areas. The analysis is conducted using data gathered from questionnaires administered to these residents. Improving the service quality of these centers to enhance satisfaction can be achieved by measuring the residents' satisfaction with the services provided. This research can serve as a model for other regions facing similar challenges.

Past literature has explored various methods to measure service satisfaction and improve service quality. Many studies have combined the Kano model and Quality Function Deployment (QFD) techniques (Chen et al., 2018). However, these studies often focus on one-dimensional quality aspects, neglecting deeper insights into service qualities such as attractive quality, expected quality, reverse quality, and indifferent quality. This study aims to integrate the two-dimensional quality of the Kano model, Importance-Performance Analysis (IPA), and QFD service quality improvement models to propose a comprehensive service quality improvement model for outlying island service centers in Taiwan. By analyzing user satisfaction, identifying quality elements that can enhance satisfaction and reduce dissatisfaction, and summarizing the findings, this research provides relevant recommendations for government agencies.

Given the universal nature of the issues addressed, the findings from this research can offer valuable insights for improving service quality in similar contexts globally, where remote and rural populations require specialized governmental support. This study thus contributes to a broader understanding of effective service delivery for disadvantaged and geographically isolated communities.

2. Literature review

2.1. Service quality of government agencies

The measurement of service quality is commonly based on the conceptual model

proposed by Parasuram et al. (1985). This model, known as the "PZB model," was developed through focus group interviews with managers and relevant consumers from industries such as banking, credit card companies, securities brokers, and repair shops. It conceptualizes service quality as the mutual relationship between customers' pre-service expectations and post-service perceptions. Emphasizing customers as the most important and sole determiners of service quality, the study identified ten key determinants of service quality evaluation, including tangible, access, reliability, understanding, courtesy, responsiveness, competence, communication, credibility, and security. Parasuram et al. (1988) further condensed the original ten dimensions into five major dimensions: tangible, reliability, responsiveness, assurance, and empathy, to measure service quality. When customers perceive the quality to exceed their expectations, it is considered excellent service quality, leading to customer satisfaction. Conversely, if the perceived quality falls below expectations, customers are dissatisfied with the service quality.

Government-provided public affairs and services fall within the realm of "services," and industries collectively producing "services" are termed the "service industry." Therefore, broadly speaking, governments are also part of the "service industry," and they constitute the largest segment of the service industry within a country. Osborne (1993) suggests that entrepreneurial government, characterized by an entrepreneurial spirit, can effectively enhance the productivity of government units at all levels. An entrepreneurial government is capable of fostering innovative ideas and possessing change-driven characteristics in its institutional framework and operational processes. Governments can then translate these innovative ideas into concrete plans and implement them to assist government agencies in handling affairs and addressing related policies and issues (Chiang, 1998).

Especially with the changing trends of the times, the expansion of government functions, and the increasing participation of the public in public affairs, the general demand for government service quality from the public is gradually rising (Chen et al., 2021). As the primary recipients of services, users' perceptions of service quality are crucial within the overall service system (Wang, 2016). Government agencies are established to serve the people, and their daily administrative operations are inseparable from the rights and obligations of the people. Government agencies should provide service oriented towards the people to meet their needs effectively, thereby enhancing the people's perception and satisfaction with the quality of government agency services (Tseng and Chao, 2014). If government organizations aim to strengthen national competitive advantage, they must have good "administrative efficiency" and "service quality" as a backing to respond to people's needs and strive for recognition through performance demonstration (Bason, 2010; Lee, 2017; Lin et al., 2018).

While numerous studies have combined the Kano model and Quality Function Deployment (QFD) techniques to measure service satisfaction and direct quality improvements, many of these studies primarily focus on one-dimensional quality aspects. Other service quality types, such as attractive quality, expected quality, reverse quality, and indifferent quality, remain underexplored. This research gap signifies a need for a more holistic approach to understanding and improving service quality in government services, especially for overseas residents from remote and rural

areas. Recent studies have emphasized the evolving nature of government services from "quality management" to "quality creation," necessitating a shift in focus to meet the diverse needs of the public (Pollitt and Bouckaert, 2017). Additionally, research by Löffler and Vintar (2013) highlights the importance of citizen-centric services, advocating for a more inclusive approach that considers varying regional needs and expectations.

2.2. Service elements of outlying island government agencies in Taiwan

This study focuses on the Kinmen County Service Center in Taiwan as the main research unit. Due to its recent establishment and the limited literature on the services required by outlying island residents traveling to Taiwan, this study not only explores the service needs of outlying island residents traveling to Taiwan but also utilizes research related to government units, immigration units, social welfare units, and similar organizations as the theoretical basis for examining the service elements of the Kinmen Outlying Island Service Center.

Wang and Lai (2009) conducted research on the welfare service needs of foreign spouses, listing service items including children's living allowances, children's education subsidies, emergency living assistance, legal assistance for lawsuits, living assistance for illness, medical assistance, childcare allowances, entrepreneurship loan subsidies, emergency relief, funeral assistance, and return transportation subsidies. Their findings showed that over forty percent of new immigrants had high demand for items such as return transportation subsidies, explanations of related regulations for temporary stays and settlement, children's education subsidies, life skills training, and children's living allowances, with economic security and employment needs being the most urgent.

Lee (2014) pointed out the service items provided to new immigrants in Taiwan, including one-stop services, life adaptation counseling, living information in Taiwan, service hotlines, counseling funds to enhance care counseling work, caring visits, promotion of service plans, construction of network resources, outreach services, and service staff education and training.

Jang et al. (2014) conducted a study on the family welfare service needs of households in Wang'an Township and Qimei Township, Penghu County. The research found that residents' needed service items included "medical services," "meal delivery services," "social welfare counseling," "social assistance," "disability welfare," "after-school counseling," "parenting education," and "educational training."

Fu and Chiu (2014) studied the information needs and behavioral characteristics of the elderly residents and found that the life and information needs of seniors are highly simplified, with the need for improvement in access to medical and health information being the most pressing. In addition to personal needs, they also care about public issues within the community, with oral communication being the most prevalent and important channel for information dissemination.

The service scope of the Kinmen County Service Center in Taiwan includes various services such as welcoming native conscripts from Succeeding Ridge for military training, setting up service counters for compatriots at airports and Taichung Harbor during the Spring Festival, Qingming Festival, and Mid-Autumn Festival to

provide beverages, water, and assistance in arranging emergency return flights for compatriots, assisting in initiating palliative care or returning the deceased to their hometowns, providing emergency transport to major hospitals for medical treatment in Kinmen, visiting and assisting with hospitalization procedures, etc. Given the aim of this study to explore the key service quality elements of the Kinmen County Service Center, and considering the characteristics of the target population being Kinmen residents traveling to Taiwan, we have adopted the implications of the "SERVQUAL" scale proposed by Parasuraman et al. (1988) and made modifications based on the research direction and relevant literature. Specifically, we have revised the original five dimensions as follows:

1) Administrative service: Tangibles, referring to the physical facilities provided by the service center for compatriots traveling to Taiwan.

2) Life counseling: Reliability, the ability to reliably and accurately deliver promised services, indicating the service center's ability to provide prompt counseling and assistance to help compatriots integrate into life on Taiwan and handle daily living needs.

3) Emergency assistance: Responsiveness, the ability to respond quickly to compatriots' needs, indicating the service center's capacity to promptly assist compatriots facing sudden emergencies, enabling them to overcome difficulties and quickly return to normal life through temporary relief measures.

4) Information provision: Assurance, professional knowledge instills confidence in compatriots regarding the service, indicating the service center's provision of various rights, obligations, and relevant information and communication channels to compatriots.

5) Emotional care: Empathy, providing individualized care for compatriots, indicating the service center's emotional connection and concern for compatriots' daily emotional needs, facilitating their integration into local life and emotional support.

2.3. Kano two-dimensional quality model

In the research conducted by Dr. Noriaki Kano of Japan, it was found that consumers' perception of quality does not adhere to the traditional one-dimensional quality model, but rather to a two-dimensional quality model (Kano et al., 1984; Wu and Huang, 2023). The two-dimensional quality model represents the degree of possession of a quality attribute on the horizontal axis, with possession indicated to the right and lack to the left. This means that the further to the right, the more abundant the quality attribute, while the further to the left, the more lacking the quality attribute. Simultaneously, the vertical axis represents consumer satisfaction, with higher levels indicating greater satisfaction and lower levels indicating lower satisfaction (Feng et al., 2018). The Kano model can be applied to product development to improve consumer satisfaction and enhance competitiveness (Matzler and Hinterhuber, 1998).

Kano (1984) categorized product quality attributes into five types: attractive quality, one-dimensional quality, must-be quality, indifferent quality, and reversal quality. These five elements are described as follows: (1) Attractive quality (A): This is a quality element that customers find attractive but do not necessarily expect. If

achieved, it can lead to customer satisfaction. (2) One-dimensional quality (O): Customers will be satisfied if this quality element is present. The higher the degree of presence, the more satisfied the customer will be. Conversely, customers will be dissatisfied if the quality element is absent or provided to a lesser extent, showing a linear relationship between customer satisfaction and element provision. (3) Must-be quality (M): Customers will be dissatisfied if this quality element is not present. It is considered an essential quality element by customers, and its presence does not necessarily lead to satisfaction. (4) Indifferent quality (I): Customers do not care whether this quality element is present or not. It does not affect their satisfaction or dissatisfaction. (5) Reversal quality (R): The presence of this quality element can lead to customer dissatisfaction, but its absence can lead to satisfaction.

Past research has shown that the Kano two-dimensional quality model is an effective method for exploring service elements (Chen et al., 2018; Pai et al., 2018). Therefore, this study applies the Kano two-dimensional quality model to analyze the service elements of the offshore stationed service center in Taiwan.

2.4. Importance-performance analysis

The Importance-Performance Analysis (IPA) method, proposed by Martilla and James (1977), involves plotting the importance and performance scores of research variables on a two-dimensional matrix to analyze their relationship and provide different management strategies and recommendations. IPA is a multi-attribute assessment method that is relatively simple to operate and can be applied to measure the importance and performance of product or service attributes. It analyzes the correlation between customer importance ratings of quality attributes and the performance levels of enterprise services (Lee et al., 2017).

The IPA model is constructed as a matrix graph with two-dimensional coordinates. In the matrix, the horizontal axis represents the perceived "importance" of consumers, while the vertical axis represents the "satisfaction" or performance of consumers. The importance (I) and performance (P) are calculated as the overall means of the respective attributes, with Hollenhorst et al. (1992) suggesting that using the total mean of importance and performance levels as a dividing point is more discerning than using the midpoint. The matrix is divided into four quadrants: "keep up the good work," "possible overkill," "low priority," and "concentrate here" (Wong et al., 2011).

IPA analysis helps business managers clarify the strengths and weaknesses of product attributes, facilitating adjustments to their management strategies. It has been widely used in business decision-making analysis and in analyzing the advantages and disadvantages of products, services, or establishment of sales points. Researchers like Dwyer et al. (2016), Wu (2015) and Yang and Liang (2011) have applied IPA analysis to various industries for strategic planning and improvement prioritization.

Pai et al. (2018) and Wong et al. (2011) have shown that IPA analysis is an effective method for classifying service elements. Löffler and Vintar (2013) highlight the importance of citizen-centric services, advocating for a more inclusive approach that considers varying regional needs and expectations. This approach aligns with the necessity to tailor services to meet the specific needs of different communities,

including those in remote or rural areas. Moreover, recent studies emphasize the need for a dynamic approach to service quality improvement, incorporating emerging theories and methodologies. For example, Chen et al. (2021) stress the importance of integrating customer feedback loops in continuous service improvement strategies, ensuring that evolving needs are met promptly. Lee (2017) advocate for innovative public sector approaches that adapt to changing societal demands, enhancing the relevance and effectiveness of government services.

Therefore, this study applies IPA analysis in combination with the Kano Model to analyze the key quality factors of the services provided by the stationed service center in Taiwan. This integrative approach aims to provide a comprehensive framework for service quality improvement that addresses both immediate and long-term needs of Kinmen compatriots in Taiwan.

2.5. Quality Function Development

Quality Function Deployment (QFD) began development in Japan in 1966 and was further refined by the Japanese quality management experts Akao and Mizuno in 1972 at Mitsubishi's Kobe Shipyard Site (Ansari and Modarress, 1994). QFD is a structured method for product planning and development that allows the R&D team to clearly identify customer voices and needs, evaluate the impact of each product design technique on customer requirements (CRs), and ultimately ensure that product quality meets customer needs (Chang and Lu, 2007).

Akao (1990) defined QFD as a systematic approach to producing products that satisfy customer requirements. QFD translates customer needs into engineering characteristics (ECs) or technical measures, understanding customer needs to convert them into surrogate characteristics and establish product design criteria to ensure that product quality is consistent with customer expectations. Bicknell and Bicknell (1995) defined QFD as a systematic method that integrates customer requirements into definable and measurable production steps using matrices, quantitative, and qualitative techniques. Hashim and Dawal (2012) believe that the basic concept of QFD is to believe that products can reflect customer needs. Therefore, designers, engineers, manufacturing personnel, and salespeople need to cooperate with each other during the product conceptualization stage to help companies pre-design and manufacture products that will satisfy customers and continue to purchase in the future.
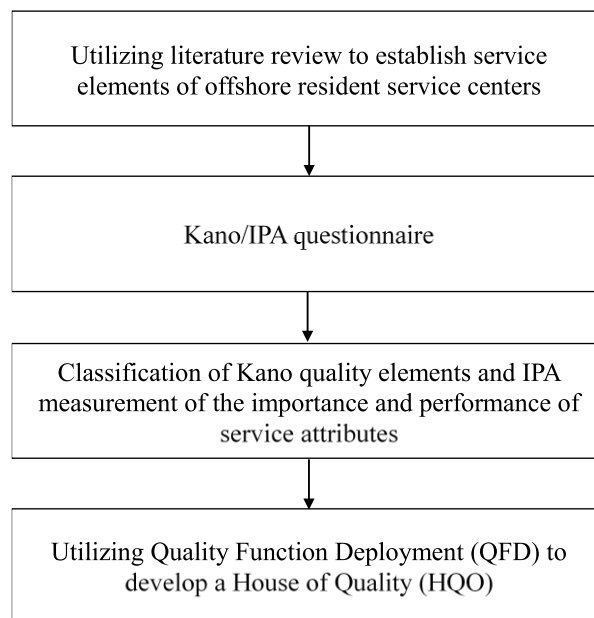
Franceschini et al. (2015) regard QFD as adopting logic to determine how to utilize available resources, discussing customer voices through team cooperation to understand customer needs, and adopting the best methods to achieve customer requirements. They design new products or services based on customer needs and continuously survey market feedback on product or service design and incorporate it back into the system. Therefore, QFD has the characteristics of comprehensiveness, importance, and consistency. QFD is widely applied in both academic research and industry domains because it can quickly integrate customer needs, product design, and manufacturing information and establish accurate quality standards for product or service design, significantly reducing product development time and achieving superior quality (Chan and Wu, 2002; Chang and Lu, 2007). QFD is a systematic method that can rapidly grasp customer needs and effectively transform them into

standards for product or service quality design. It has been widely used in various fields and government departments to improve and enhance key factors of organizational functionality.

3. Research methods

3.1. Research structure

This study first identifies the service elements of the Outlying Islands County/City Government Service Center in Taiwan through literature review. Utilizing the Kano Model, it identifies the key factors that need priority improvement. Subsequently, the quality house method is employed to determine the sequence of importance of service elements. The research framework is shown in **Figure 1**.

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│ Utilizing literature review to establish │
│ service elements of offshore resident    │
│ service centers                          │
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│         Kano/IPA questionnaire           │
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│ Classification of Kano quality elements  │
│ and IPA measurement of the importance    │
│ and performance of service attributes    │
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│ Utilizing Quality Function Deployment    │
│ (QFD) to develop a House of Quality (HQO)│
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Figure 1. Research framework.

3.2. Classification of Kano model quality factors

The Kano two-dimensional model utilizes questionnaires to investigate customer needs, where each quality attribute in the questionnaire consists of a set of positive and negative questions, exploring customers' perceptions and satisfaction levels under both the presence and absence of a certain quality element (Chiang et al., 2016; Kano et al., 1984). Through questionnaire surveys, respondents' individual perceptions of quality attributes under both present and absent conditions are obtained. Then, the Kano model is modified and a revised "two-dimensional quality attribute classification table" is proposed by Matzler and Hinterhuber (1998), wherein the classification of quality attributes is based on cross-referencing the options chosen by respondents for each service element. For example, if the answer to a positive question is "extremely liked" and to a negative question is "indifferent," then the quality attribute is classified as an attractive quality. However, different respondents may have different assessments of the same quality attribute. Therefore, as more respondents fill out the questionnaire, different opinions may arise regarding the same quality attribute (Wang

et al., 2006). Different customers may have varying perceptions of quality attributes for different items, and the classification is ultimately based on the "relative majority" in statistics, meaning that the category chosen by the most people is considered to represent that attribute (Matzler and Hinterhuber, 1998; Schvaneveldt et al., 1991).

3.3. Questionnaire design and data collection

This study focuses on the Kinmen County Resident Service Center in Taiwan as the primary research unit. Due to its recent establishment, there is limited existing literature on the services required by residents of outlying islands traveling to Taiwan. Therefore, this study relies on research related to service quality elements of government units, immigration units, social welfare units, and similar organizations as the theoretical basis for exploring the service elements of the Kinmen Island Resident Service Center in Taiwan.

After reviewing past literature and considering the characteristics of the target population, which are Kinmen County residents traveling to Taiwan, this study categorizes service quality items into five dimensions: "administrative services," "life assistance," "information provision," "emergency assistance," and "emotional support." Through literature review and the compilation of relevant service items, 24 service elements were identified, as shown in **Table 1**. Based on this, the questionnaire for the Kano-IPA methodology in this study was developed.

Table 1. Kano-IPA questionnaire items on service quality factors of Kinmen County Service Center in Taiwan.

Dimensions	Service quality elements	Related literature
Administrative services	1) One-stop service 2) Exclusive consultation hotline 3) Professional service personnel	(Bason, 2010; Lee and Lin, 2006; Lee, 2014; Lin et al., 2018)
Life counseling	4) Employment counseling 5) Educational counseling 6) Entrepreneurship counseling 7) Life adjustment counseling	(Chao, 2013; Fairchild, 2004; Jang et al., 2014; Lee, 2014)
Emergency assistance	8) Emergency medical evacuation services 9) Provide care at the hospital and assist with hospitalization and other procedures 10) Assistance for palliative care or body return to hometown 11) Financial assistance in emergencies 12) Assistance with emergency transportation needs 13) Subsidy for transportation expenses back home 14) Subsidies for education allowances	(Fairchild, 2004; Jang et al., 2014; Nagler, 2017; Wang and Lai, 2009)
Information provision	15) Various subsidy application information 16) New policy information 17) Hometown news 18) Exclusive website reveals information 19) Forward messages in social groups	(Dadashzadeh, 2010; Fu and Chiu, 2014; Jang et al., 2014)

Table 1. (*Continued*).

Dimensions	Service quality elements	Related literature
Emotional care	20) Conduct regular home visits	(Lee, 2014; Fu and Chiu, 2014)
	21) Organize regular social exchange activities	
	22) Condolences to rural servicemen for enlistment training	
	23) Set up service counters at airports and terminals during festivals	
	24) Proactively send messages of concern	

To reduce the burden on respondents and increase their willingness to participate, the questionnaire design for the IPA section followed the method outlined by Pai et al. (2018). The importance was defined using the positive questions from the Kano two-dimensional model to assess cognitive importance. Only satisfaction-related questions were included in the questionnaire to measure respondents' satisfaction with service quality.

The Kano-IPA questionnaire was distributed to residents of the central region of Kinmen County, which includes the administrative areas of Taichung City, Nantou County, and Changhua County. Additionally, there are four hometown associations in central Taiwan: the Kinmen Hometown Association in Taichung City, the Wujiang Kinmen Hometown Association in Taichung City (formerly Taichung County), the Kinmen Hometown Association in Changhua County, and the Kinmen Hometown Association in Nantou County. The questionnaires were distributed to relatives visiting the service center, with the assistance of hometown associations and through online groups, in March 2020. A total of 338 questionnaires were collected, and after removing 27 invalid questionnaires, there were 311 valid responses.

3.4. Quality function development questionnaire design

Based on the results of the Kano-IPA two-dimensional model questionnaire, this study extracted service elements that simultaneously belong to the "one-dimensional quality" and "priority improvement" categories. These elements were selected as the basis for designing the expert questionnaire in this step. Considering that the main business of the Kinmen County Residency Service Center mainly involves social welfare aspects, the experts targeted for the questionnaire distribution were set to be officials from hometown associations or supervisors from government social welfare agencies. These experts were chosen based on their seniority and experience, ensuring they possess a certain level of proficiency in service design.

4. Research results

4.1. Sample analysis and reliability

According to the 311 valid questionnaire responses collected reliability analysis was conducted, and descriptive statistics were performed for demographic variables and related services used. This study employed Cronbach's α coefficient to measure the consistency of questionnaire variables. A higher α coefficient indicates greater internal consistency among the questionnaire variables. Cooper and Schindler (2008) suggested that a Cronbach's α coefficient greater than 0.7 indicates high reliability. In

this study, the Cronbach's *α* coefficients for each dimension ranged from 0.702 to 0.963, indicating high reliability of the questionnaire.

4.2. Kano two-dimensional model analysis results

According to the 311 valid questionnaire responses collected reliability analysis was conducted, and descriptive statistics were performed for demographic variables and related services used. This study employed Cronbach's *α* coefficient to measure the consistency of questionnaire var.

Based on the questionnaire results, all perceptions of the services provided by the Kinmen County Residency Service Center were classified according to the two-dimensional classification method cited by Matzler and Hinterhuber (1998). The related service items were categorized as follows: attractive quality (A), one-dimensional quality (O), must-be quality (M), indifferent quality (I), invalid quality (Q), and reversal quality (R). The classification results based on the majority opinion are presented in **Table 2**.

Table 2. Kano two-dimensional mode attribute classification table.

Dimensions	Service quality elements	A	O	M	I	Q	R	Classify
Administrative services	1) One-stop service	40	57	146	68	0	0	M
	2) Exclusive consultation hotline	40	66	143	62	0	0	M
	3) Professional service personnel	30	136	86	59	0	0	O
Life counseling	4) Employment counseling	149	52	33	77	0	0	A
	5) Educational counseling	62	73	21	155	0	0	I
	6) Entrepreneurship counseling	159	59	36	57	0	0	A
	7) Life adjustment counseling	103	55	19	135	0	0	I
Emergency assistance	8) Emergency medical evacuation services	26	261	14	8	2	0	O
	9) Provide care at the hospital and assist with hospitalization and other procedures	42	227	25	16	1	0	O
	10) Assistance for palliative care or body return to hometown	19	251	20	19	2	0	O
	11) Financial assistance in emergencies	57	190	28	36	0	0	O
	12) Assistance with emergency transportation needs	30	241	21	17	2	0	O
	13) Subsidy for transportation expenses back home	65	179	26	41	0	0	O
	14) Subsidies for education allowances	67	179	14	50	1	0	O
Information provision	15) Various subsidy application information	51	193	29	38	0	0	O
	16) New policy information	58	47	76	130	0	0	I
	17) Hometown news	39	64	55	153	0	0	I
	18) Exclusive website reveals information	50	71	110	78	1	1	M
	19) Forward messages in social groups	50	79	44	137	0	1	I
Emotional care	20) Conduct regular home visits	61	46	21	169	4	10	I
	21) Organize regular social exchange activities	46	62	32	166	0	5	I
	22) Condolences to rural servicemen for enlistment training	24	86	17	181	0	3	I
	23) Set up service counters at airports and terminals during festivals	173	54	39	43	1	1	A
	24) Proactively send messages of concern	34	69	36	169	1	2	I

The results showed that there were 3 service elements classified as "attractive quality," including "employment counseling," "entrepreneurship counseling," and "set up service counters at airports and terminals during festivals". Additionally, there were 9 elements classified as "one-dimensional quality," namely "professional service personnel," "emergency medical evacuation services," "provide care at the hospital and assist with hospitalization and other procedures," "assistance for palliative care or body return to hometown," "financial assistance in emergencies," "assistance with emergency transportation needs," "subsidy for transportation expenses back home," "subsidies for education allowances," and "various subsidy application information". Furthermore, there were 3 elements classified as "must-be quality," including "one-stop service," "exclusive consultation hotline," and "exclusive website reveals information." Lastly, there were 9 elements classified as "indifferent quality," which included "educational counseling" and "life adjustment counseling," "conduct regular home visits," "organize regular social exchange activities," "condolences to rural servicemen for enlistment training," and "proactively send messages of concern."

4.3. Importance satisfaction analysis results

Based on the questionnaire results, this study summarizes the importance and satisfaction of all service items of the Kinmen County Taiwan Service Center as shown in **Table 3**. The overall importance and satisfaction average of the 24 service elements were plotted on the IPA four-quadrant matrix diagram, as shown in **Figure 2**. Then Kano model and IPA were comprehensively analyzed to find out the key service elements.
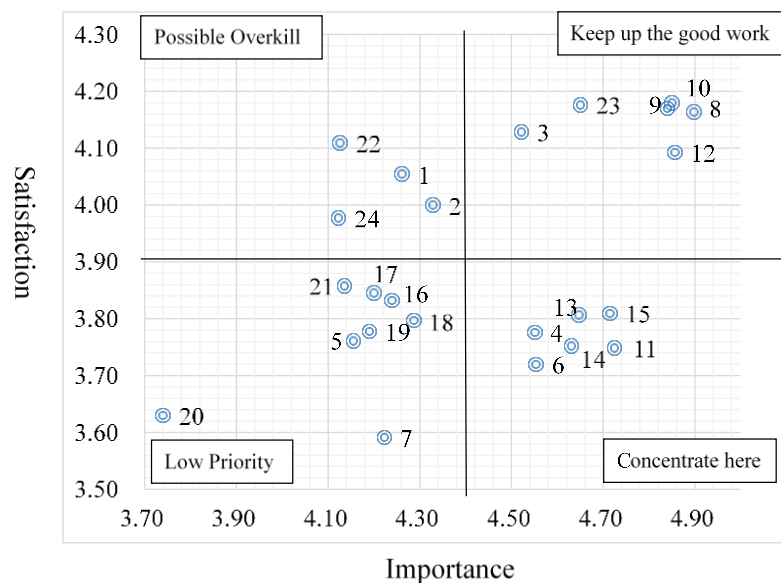
Figure 2. Importance-satisfaction question item distribution chart.

Combining the results of Kano's two-dimensional model and IPA analysis, the analysis results show that in the administrative service dimension, "one-stop service" and "exclusive consultation hotline" are areas of must-be quality and possible overkill, indicating that foreigners consider this service to be a service center The basic characteristics that should be possessed, and the services currently provided by the

service center have exceeded the demand; "professional service personnel" belongs to the one-dimensional quality and keep up the good work area, indicating that the current service quality is satisfactory to overseas residents, and the service center should continue to maintain service standards.

Table 3. Importance-satisfaction statistics and summary table.

Dimensions	Service quality elements	Importance	Satisfaction	Kano classification	IPA classification
Administrative services	1) One-stop service	4.26	4.05	Must-be quality	Possible overkill
	2) Exclusive consultation hotline	4.33	4.00	Must-be quality	Possible overkill
	3) Professional service personnel	4.52	4.13	One-dimensional quality	Keep up the good work
Life counseling	4) Employment counseling	4.55	3.78	Attractive quality	Concentrate here
	5) Educational counseling	4.15	3.76	Indifferent quality	Low priority
	6) Entrepreneurship counseling	4.55	3.72	Attractive quality	Concentrate here
	7) Life adjustment counseling	4.22	3.59	Indifferent quality	Low priority
Emergency assistance	8) Emergency medical evacuation services	4.90	4.16	One-dimensional quality	Keep up the good work
	9) Provide care at the hospital and assist with hospitalization and other procedures	4.84	4.17	One-dimensional quality	Keep up the good work
	10) Assistance for palliative care or body return to hometown	4.85	4.18	One-dimensional quality	Keep up the good work
	11) Financial assistance in emergencies	4.72	3.75	One-dimensional quality	Concentrate here
	12) Assistance with emergency transportation needs	4.86	4.09	One-dimensional quality	Keep up the good work
	13) Subsidy for transportation expenses back home	4.65	3.81	One-dimensional quality	Concentrate here
	14) Subsidies for education allowances	4.63	3.75	One-dimensional quality	Concentrate here
Information provision	15) Various subsidy application information	4.71	3.81	One-dimensional quality	Concentrate here
	16) New policy information	4.24	3.83	Indifferent quality	Low priority
	17) Hometown news	4.20	3.85	Indifferent quality	Low priority
	18) Exclusive website reveals information	4.29	3.80	Must-be quality	Low priority
	19) Forward messages in social groups	4.19	3.78	Indifferent quality	Low priority
Emotional care	20) Conduct regular home visits	3.74	3.63	Indifferent quality	Low priority
	21) Organize regular social exchange activities	4.14	3.86	Indifferent quality	Low priority
	22) Condolences to rural servicemen for enlistment training	4.13	4.11	Indifferent quality	Possible overkill
	23) Set up service counters at airports and terminals during festivals	4.65	4.18	Attractive quality	Keep up the good work
	24) Proactively send messages of concern	4.12	3.98	Indifferent quality	Possible overkill
Average		4.43	3.91		

In the dimension of life counseling, "employment counseling" and "entrepreneurship counseling "are attractive quality and concentrate here areas, which shows that overseas residents believe that this service is a service project that the

service center should strive for in the future. If the service quality is increased, satisfaction will be improved; "educational counseling" and "life adjustment counseling" both belong to the same quality and low priority area, indicating that these two service qualities are less in demand for overseas Chinese, and the service center does not need to carry out too many services for these two services. Service resource investment.

In the dimension of emergency assistance, "emergency medical evacuation services", "provide care at the hospital and assist with hospitalization and other procedures", "assistance for palliative care or body return to hometown" and "financial assistance in emergencies" belong to the one-dimensional quality and keep up the good work area. It shows that the more these 4 services provide to foreigners, the more satisfied they are, and the quality of the current service provided by the service center is just right for users, and more services should be continued or provided; "financial assistance in emergencies", "subsidy for transportation expenses back home" and "subsidies for education allowances "belong to the one-dimensional quality and concentrate here area, which shows that the more these three services are provided to overseas compatriots, the more satisfied they are. This is a situation where the emphasis is high but the current level of satisfaction is low, the service center should strengthen and improve this service item.

In the dimension of information provision, "various subsidy application information" belongs to the one-dimensional quality and concentrate here area, which shows that overseas Chinese believe that the amount of information currently provided for subsidy application information does not meet their expectations; "exclusive website reveals information" belongs to the must-be quality and low priority. It shows that overseas Chinese believe that website services are services provided by the service center as a matter of course, and the quality of the services currently provided does not need to be greatly improved; other "new policy information", "hometown news" and "forward messages in social groups" and so on belong to the area of indifferent quality and concentrate here area, which shows that foreigners think that they have no great feelings about whether it is provided or not, and the quality of the currently provided services does not need much improvement.

In the dimension of emotional care, "conduct regular home visits" and "organize regular social exchange activities" belong to the indifferent quality and low priority areas, which shows that overseas Chinese people think that providing home visits and social exchanges and not providing them are of great importance to them. Neither of them has much experience, and the quality of the services currently provided does not require much improvement; "condolences to rural servicemen for enlistment training" and "proactively send messages of concern" belong to the areas of indifferent quality and possible overkill area, indicating that the service is provided to fellow travelers abroad. The center does not have much experience with whether it can provide messages of comfort and care to drafted men, and the current volume of services provided exceeds its importance. The service center can transfer service resources to other projects; "set up service counters at airports and terminals during festivals." It belongs to the attractive quality and keep up the good work area, which shows that if this quality can be achieved, the service satisfaction of overseas residents can be improved, and the service quality currently provided is appropriate and should be

continued to be provided.

4.4. Quality function development analysis results

Through the Kano two-dimensional model and the IPA questionnaire results, we extracted the "efficiency improvement service quality factors" that fall in the areas of highly increasing customer satisfaction and highly reducing customer dissatisfaction in the Kano customer satisfaction coefficient matrix, and in the IPA matrix, falling in the area. The "priority improvement of service quality factors" in high-importance and low-performance areas, which possess both service quality factors at the same time, are the key customer service quality factors for the development of quality functions in this study. Four service quality factors, including "financial assistance in emergencies", "subsidy for transportation expenses back home", "subsidies for education allowances" and "various subsidy application information", meet two standards, so they were selected for quality function analysis.

After obtaining customer demand factors based on Kano-IPA analysis, we commissioned experts to conduct a QFD questionnaire survey and analyzed the results of the expert questionnaires to identify priority improvement strategies for the Kinmen Taiwan Service Center. In order to obtain the degree of relationship between customer needs and "service design elements" in the quality function development relationship matrix, this study invited 9 experts to help fill in the correlation between the two. The experts were cadres of the hometown associations and managers of government social welfare-related agencies The personnel have a very high level of understanding of service design, so the inference research results have reliability and validity. The list of quality function development analysis experts is shown in **Table 4**.

Table 4. List of quality function development analysis experts.

Number	Name	Service units	Job title	Seniority
1	Mr. Hong	Kinmen County Government	Former County Advisor	4 years
2	Mr. Dong	Kinmen County Government	Director of Social Affairs Department	2 years
3	Mr. Sun	Kinmen County Government Service Center in Taiwan	Director	1.5 years
4	Mr. Wang	Kinmen Association of Taichung City	Secretary General	2 years
5	Mr. Hong	Wu Zhou Kinmen Association of Taichung City	Consultant	4 years
6	Mr. Lin	Wu Zhou Kinmen Association of Taichung City	Chairman	3.5 years
7	Mr. Cai	Kinmen Association of Nantou County	Chairman	8 years
8	Mr. Hong	Wu Zhou Kinmen Association of Taichung City	Honorary Chairman	9 years
9	Mr. Zheng	Kinmen Association of Taichung City	Vice Chairman	9 years

Fill in the relationship matrix of the house of quality based on the correlation between customer needs and service design elements filled in by experts, as shown in **Table 5**. Then calculate the absolute weight of the service design elements, and divide the correlation scores (◎ symbol 5 points; ○ symbol 3 points; and the △ symbol is 1 point), multiplied by the IPA importance in the right column and summed up, the weighted weight of each engineering technology can be obtained, and the priority order of improvement of the service center can be ranked based on the weighted weight.

Table 5. Quality performance expansion table.

Improvement strategy / Customer need	Increase the scope of subsidies	Simplified qualification review	Provide promotional materials for service projects	Provide application template	Complete list of fellow travelers in Taiwan	Send messages through multiple channels	Exclusive subsidy project	Immediate referral of cases	Needs assessment
Financial assistance in emergencies	◎	○	○	○		○	◎	◎	4.72
Subsidy for transportation expenses back home	△	○	○		○	△	△	○	4.65
Subsidies for education allowances	○	○	○	○		△	○	○	4.63
Various subsidy application information	○		○	○	○	◎			4.71
Weighted weight	56.27	42.00	56.13	42.18	28.08	46.99	42.14	51.44	
Improve prioritization	1	7	2	5	8	4	6	3	

◎: 5 points; ○: 3 points; △: 1 point.

4.5. Discussion

This study takes the Kinmen County Government's service center in central Taiwan as an example to explore the attributes of the service quality items of the outlying island county government for overseas residents and identify the key service items for Kinmen outlying island residents when using the service center services. Based on the literature and Parasuraman et al.'s (1988) SERVQUAL scale, we revised the original five dimensions into "administrative services," "life counseling," "emergency assistance," "information provision," and "emotional care," resulting in 24 service quality elements. These elements were classified using Kano's two-dimensional quality and IPA analysis.

The results of Kano's two-dimensional quality research indicate that the attractive quality consists of three service elements: "employment counseling," "entrepreneurship counseling," and "setting up service counters at airports and terminals during festivals." Effective employment and entrepreneurship counseling provided by the service center can significantly help villagers integrate into life in Taiwan. Additionally, due to the inconvenience of transportation on outlying islands, especially during festivals, the establishment of service counters at airports and terminals can provide crucial support, enhancing the villagers' perception of care from the service center.

Nine items were identified as one-dimensional quality, highlighting the necessity of emergency relief services due to the lack of medical resources on outlying islands and the unfamiliarity of villagers with the main island of Taiwan. "One-stop service," "exclusive consultation hotline," and "exclusive website reveals information" are must-be quality items, reflecting the basic administrative services expected by the villagers.

According to the IPA research results, six service items fall into the "keep up the good work" category, indicating high satisfaction with the current medical assistance, transportation assistance, and professionalism of service personnel. However, six other items, including "employment counseling," "entrepreneurship counseling," "financial assistance in emergencies," "subsidy for transportation expenses back

home," "subsidies for education allowances," and "various subsidy application information," were identified as areas needing concentrated improvement.

The quality function deployment method selected service items that met both Kano's "efficiency improvement service quality elements" and IPA's "priority improvement service quality elements." After expert discussions and an expert questionnaire survey, eight countermeasures were identified to improve key service quality factors, including "increase the scope of subsidies," "simplified qualification review," "provide promotional materials for service projects," "provide application templates," "complete list of fellow travelers in Taiwan," "send messages through multiple channels," "exclusive subsidy project," and "immediate referral of cases."

5. Conclusion

This study focuses on Kinmen compatriots residing in central Taiwan, analyzing information collected through questionnaires to assess and improve the service quality of the Kinmen County Government's service centers in Taiwan. By measuring the satisfaction of these overseas residents, we aim to establish a basis for enhancing the service quality of these centers. While past research has often combined the Kano model and Quality Function Deployment (QFD) techniques to measure service satisfaction and direct quality improvements, many studies have primarily focused on one-dimensional quality aspects. This research aims to integrate Kano's two-dimensional quality model, Importance-Performance Analysis (IPA), and QFD to propose a comprehensive service quality improvement model for the service centers.

The findings of this study underscore the importance of addressing the specific needs of Kinmen compatriots using the service center in central Taiwan. Expanding the scope of subsidies and simplifying the application process are shown to significantly enhance service satisfaction. Although the Kinmen County Service Center in Taiwan currently provides a variety of subsidy services, there is potential for further improvement to more effectively meet the diverse needs of each villager. Due to constraints in manpower, time, and funding, this study focused solely on Kinmen compatriots served by the service center in central Taiwan. Future researchers are encouraged to expand the study sample to include other regions, which would help determine if there are differences in the service needs of Kinmen compatriots across different areas. This would make the research more comprehensive and inferential. Additionally, employing qualitative research methods such as case studies, field observations, and in-depth interviews can diversify data collection, thereby enhancing the depth and breadth of the research and making the results more rigorous and comprehensive.

References

Akao, Y. (1990). Quality function deployment: integrating customer requirements into product design. Productivity Press, Cambridge, MA.

Ansari, A., & Modarress, B. (1994). Quality function deployment: The role of suppliers. International Journal of Purchasing and Materials Management, 30(3), 27–35. Portico. https://doi.org/10.1111/j.1745-493x.1994.tb00271.x

Bason, C. (2010). Leading public sector innovation: co-creating for a better society. Bristol, UK: The Policy Press.

Bicknell, B. A., & Bicknell, K. D. (1995). The road map to repeatable success-using QFD to implement change. Boca Raton, FL: CRC Press.

Chan, L. K., & Wu, M. L. (2002). Quality function deployment: a literature review. European Journal of Operational Research, 143, 463–497.

Chao, Y. (2013). Building a new Macau for new immigrants: interview with Deng Xuchun, president of the Macau new citizens association. Magdiction, 73, 10–13.

Chen, C., Liu, J., & Tseng, M. (2021). A dynamic approach to service quality improvement: Integrating customer feedback loops. Journal of Service Management, 32(3), 445–467.

Chen, D. Y., Yang, S. W., & Lu, C. J. (2021). Contest and reform: the problem of effectiveness in government service quality award via Facebook management. Journal of Civil Service, 13(1), 105–140.

Chen, K. J., Yeh, T. M., Pai, F. Y., et al. (2018). Integrating refined Kano model and QFD for service quality improvement in healthy fast-food chain restaurants. International Journal of Environmental Research and Public Health, 15(7), 1310. https://doi.org/10.3390/ijerph15071310

Chi, C. C., & Chi, H. C. (2019). Strategies and achievements of off-islands governance: The perspective of governing rule in Taiwan. Journal of Chinese Local Autonomy, 72(4), 3–34.

Chiang, M. C. (1998). A New Interpretation of Entrepreneurial Government. Theory and Policy, 12(2), 63–82.

Chiang, T. Y., Perng, Y. H., Su. N. (2016). Applying Kano model analysis to explore the service quality of property management. Journal of Property Management 7(2), 53–65.

Cooper, C. R., & Schindler, P. S. (2008). Business research methods, 10th ed. Boston: McGraw-Hill.

Dadashzadeh, M. (2010). Social media in government: from eGovernment to eGovernance. Journal of Business & Economics Research, 8(11), 81–86. https://doi.org/10.19030/jber.v8i11.51

Dwyer, L., Dragićević, V., Armenski, T., et al. (2016). Achieving destination competitiveness: an importance-performance analysis of Serbia. Current Issues in Tourism, 19(13), 1309–1336. https://doi.org/10.1080/13683500.2014.944487

Fairchild, A. L. (2004). Policies of Inclusion: immigrants, disease, dependency, and American immigration policy at the Dawn and Dusk of the 20th century. American Journal of Public Health, 94(4), 528–539. https://doi.org/10.2105/ajph.94.4.528

Feng, Z., Zhang, L., & Shen, T. (2018). Research on the way to improve the service quality of Shanxi government WeChat. In: Proceedings of the 4th Annual 2018 International Conference on Management Science and Engineering. pp. 245–251.

Franceschini, F., Maisano, D., & Mastrogiacomo, L. (2015). Customer requirement prioritization on QFD: A new proposal based on the generalized Yager's algorithm. Research in Engineering Design, 26, 171–187. https://doi.org/10.1007/s00163-015-0191-2

Fu, Y. R., & Chiu, M. H. (2014). Information needs & information seeking behaviors of elderly residents in Pinxi District. New Taipei City, University Library Quarterly, 18(1), 106–125.

Hashim, A. M., & Dawal, S. Z. M. (2012). Kano model and QFD integration approach for ergonomic design improvement. Procedia-Social and Behavioral Sciences, 57, 22–32. https://doi.org/10.1016/j.sbspro.2012.09.1153

Hollenhorst, S., Olson, D., & Fortney, R. (1992), Use of importance-performance analysis to evaluate state park cabins: The case of the West Virginia State Park system. Journal of Park and Recreation Administration, 10(1), 1-11.

Jang, L. J., Chao, S. R., Wang, S. T., & Lu, A. Y. (2014). A study of the demands of family welfare services in the Wangan and Chimei areas of Penghu County. NPUST Humanities and Social Science Research, 8(2), 1–29.

Kano, N., Seraku, N., Takahashi, F., & Tsuji, S. (1984). Attractive quality and must-be quality. Journal of the Japanese Society for Quality Control, 14(2), 39–48.

Lee, C. C., & Lin, Y. C. (2006). A study on service quality improvement in the public sector: an analysis on the department of land administration using the quality function deployment model. Journal of Housing Studies, 15(1), 43–58.

Lee, C. P. (2017). The influencing factors of various types of policy innovation: a longitudinal analysis of Taiwan local

governments (1999–2013). Soochow Journal of Political Science, 35(2), 139–206.

Lee, G. (2017). Government Innovation and Performance: The Role of Leadership and Stakeholder Engagement. Public Management Review, 19(2), 198–216.

Lee, T. H., Jan, F. H., Liu, J. T., & Lei, H. S. (2017). Eco-environmental innovation: a competitive importance-performance analysis of forest ecological resorts. Journal of Outdoor Recreation Study, 30(4), 95–133.

Lee, Y. J. (2014). Exploring public sector service quality needs using the Kano two-dimensional quality model: a case study of a migrant service center [Master's thesis]. Yu Da University of Science and Technology.

Lin, Y. N., Lee, Y. M., & Chan, C. H. (2018). The relationship among service innovation, service quality, experiential value and customer loyalty—The Case of New Taipei City government. Journal of Chinese Creativity, 9(1), 26–42.

Löffler, E., & Vintar, M. (2013). Evaluating the Quality of Public Services: A Citizen's Perspective. Edward Elgar Publishing.

Martilla, J. A., & James, J. C. (1977). Importance-performance analysis. Journal of Marketing, 41(1), 77–79. https://doi.org/10.1177/002224297704100112

Matzler, K., & Hinterhuber, H. H. (1998). How to make product deployment projects more successful by integrating Kano's model of customer satisfaction into quality function deployment. Technovation, 18(1), 25–38.

Nagler, E. (2017). Filling the gaps: inequitable emergency preparedness and disaster relief policies serving immigrant and refugee communities. The International Undergraduate Journal for Service-Learning, Leadership, and Social Change, 6(2), 10–22.

Osborne, D. (1993). Reinventing government. Public Productivity & Management Review, 16(4), 349–356. https://doi.org/10.2307/3381012

Pai, F. Y., Yeh, T. M., & Tang, C. Y. (2018). Classifying restaurant service quality attributes by using Kano model and IPA approach, Total Quality Management and Business Excellence, 29(3), 301–328. https://doi.org/10.1080/14783363.2016.1184082

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. Journal of Marketing, 49(4), 41–50. https://doi.org/10.1177/002224298504900403

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12–40.

Pollitt, C., & Bouckaert, G. (2017). Public management reform: A comparative analysis-into the age of austerity. Oxford University Press.

Schvaneveldt, S. J., Enkawa, T., & Miyakawa, M. (1991). Consumer evaluation perspectives of service quality: evaluation factors and two-way model of quality. Total Quality Management, 2(2), 149–162. https://doi.org/10.1080/09544129100000016

Tseng, K. C., & Chao, S. H. (2014). Investigating the factors affecting the service quality of street-level bureaucracies: an analysis of the applicants and winners of government service quality award. Journal of Public Administration, 47, 35–72.

Wang, G. X. (2016). Exploration of the relationship between the service delivery quality of community care stations and successful aging: the moderation of cognition on government role. Journal of Public Administration, 50, 77–115.

Wang, H. N. (2020). A comparative study of Kinmen clan associations in Taiwan. The Journal of Chinese Public Administration, 27, 75–84.

Wang, S. M., & Lai, H. S. (2009). The needs of financial security and employment of new immigrant families—experience of I-Lan County. Community Development Quarterly, 127, 55–68.

Wang, W. L., Lu, T. H., Huang, C. F., & Liu, A. C. (2006). The application of Kano model in the study of e-service quality. Journal of Information Technology and Applications, 1(1), 37–45.

Wong, M., Hideki, N., & George, P. (2011). The use of importance-performance analysis (IPA) in evaluating Japan's e-government services. Journal of Theoretical and Applied Electronic Commerce Research, 6(2), 5–6. https://doi.org/10.4067/s0718-18762011000200003

Wu, C. M. (2015). Exploring the agricultural management competence of vegetable young farmers in Tainan district: an application of importance performance analysis. Research Bulletin of Tainan District Agricultural Improvement Station, 65, 69–81.

Wu, Y. S., & Huang, C. H. (2023). Research on quality attributes of coffee gift box packaging design based on KANO two dimensional quality model. Takming University Journal, 46, 58–76.

Yang, W. S., & Liang, G. S. (2011). Evaluating the service value of international port logistics centers in Taiwan: an application of importance-performance analysis. Maritime Quarterly, 20(4), 25–61.

Yeh, T. M., Chang, Y. T., Tseng, P. H., et al. (2022). The key factors affecting the residents' willingness to use food delivery

platforms in outlying islands. Journal of Tourism and Leisure Management, 10(1), 68–86.