A Study of Applying Quality Function Deployment & Service Quality Model to Service Quality of Credit Department of Farmers' Association – a Case Study in Taiwan

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Abstract

Customers of the Credit Department of Farmers' Association A in Taiwan were the object of study with a view to explore the gap between service quality expected and that actually perceived by customers of the farmers' association. 420 copies of the questionnaire were distributed and 372 valid copies were retrieved. The PZB's SERVQUAL model was adopted as the basis of designing the service quality scale in this research. Methods of importance performance analysis (IPA) and quality function deployment (QFD) were utilized to analyze the service items of the credit department for an understanding of the attributes of service quality and transforming customers' expectations into technical requirements. Finally, the priority of improving service techniques in compliance with the results of the research was proposed. According to the results, the top three service items emphasized by the customers most are customer privacy protected without disclosure of customer information, safe and confidential transactions guaranteed and goodwill. As for feelings actually perceived, the three most satisfactory service items are safe and confidential transactions guaranteed, customer privacy protected without disclosure of customer information and goodwill. For the gap of service quality, it was found the gap value of all items was negative, which implies service perceived actually was lower than the expected level. The top three items with the greatest difference in service quality gap are convenient parking facilities, convenient transportation to the service office and customer privacy protected without disclosure of customer information. The empirical IPA results reveal that the most advantageous service items are commitments to customers fulfilled within time and good and comfortable furnishings for customers while waiting. It is found through QFD that service and image of the credit department for the marketing department, overall operation planning of the credit department for the management level, disposal of service errors for the department of public relations and personnel expertise training for the operation department are the places that need to be improved first so as to increase customer satisfaction.

Keywords: PZB quality model, SERVQUAL scale, IPA, QFD.

I.   Introduction

I.1 Research Background and Motive

Open financial control and management specifications, slowed down agricultural development, changed social structure and accelerating international trends contributed to establishment of a great number of private financial organizations in 1991 in Taiwan.

Regional cooperatives changed to become business banks one after another. When demand remained but supply increased on the market, credit departments of many farmers' associations were challenged by unprecedented competition. In addition to eruptions of financial crises from time to time that revealed severely deficient competitiveness, other critical factors included declining agriculture, aging members, shortage of internal talents and decreasing regional populations year by year, which was no doubt a serious impact on credit departments that were mainly engaged in depositing and loaning activities. The researchers consider the typically stereotyped impression of the credit department in a farmers' association has to be changed to overcome the predicament at present, including establishment of an innovative brand and image, development of talents, marketing planning and risk control and management. Besides, strategies related to the industrial environment need to be made as the foundation of reformation. It is expected not only the short-term objective of a stable regional position can be achieved, but also contributions to the overall agricultural development in Taiwan can be made via a series of industrial transformations and customer-oriented marketing in this generation of flourishing global trade and internet communication.

I.2 Research Purposes

Tang and Cheng (2001) indicated the key to success of a business in a customer-oriented time was to provide products and service that met customer requirements. Customer requirements for service quality of the credit department in a farmers' association were explored and suggestions for improvement based on the results were proposed in this research for reference of the management while making decisions. Accordingly, the purposes of this research are as follows:

1. To study service quality customers expect and the gap between their expectation and perception,

2. To classify service items provided by the credit department via importance satisfaction analysis and present improvement strategies, and

3. To convert customer requirements for service quality of the credit department for reference of emphasis or improvement.

I.3 Research Limitation

Being limited to human and material resources and time, a more comprehensive exploration can't be made in this research though business offices of the farmers' associations are available in each area around the island. Customers of the credit department of farmers' association A will be aimed only.

II.   Literature Review

II.1 Definition of Service Quality

Oliver (1981) considered service quality was different from satisfaction since the former was a continuation of customer evaluations and the latter was a customer's temporary response. Lewis and Booms (1983) thought service quality was the coincidence between service provided and expected and both should be consistent. Parasurman, Zeithamal and Berry (1988) defined service quality as an attitude, which was a comparison before and after receiving service. Shu (2011) indicated service quality was based on viewpoints of customers rendering to an evaluation consumers made after comparing service they expected and received. Liu (2008) claimed service quality played a critical role for the success of a business, which was the most powerful weapon for competition. Pena, Silva, Tronchin and Melleiro (2013) deemed this model was an important assessment tool for the management to know how to improve and suggested studies of this area needed to be conducted.

II.2 Researches Related to Quality Function Deployment

Quality function deployment (QFD) is using a series of HOQ matrix analyses to achieve the objective of quality improvement; however, QFD is not limited to any single industry, but can be applied to every field extensively. The following table is a summary of studies on QFD made by domestic and foreign scholars.

Table 1: QFD Writings of National & Foreign Authors

Author	Research Subject	Research Contents
Chuang	Study of Applying Kano 2D Quality Model and QFD to Brand Imaging of Shoe-making Industry	QFD can be applied to the shoemaking industry and the most popular brand can be analyzed through the HOQ. Recommendations based on the results can help the manufacturer to know well about customer requirements and satisfaction.
Shu	Study of Technology Transfer and Management inside a Business – Applying QFD	The process of technology transfer inside a business is analyzed by applying QFD to ensure internal quality elements meet customer requirements.
Cheng and Lin	The overall service quality of a hospital is designed by QFD.	Outpatients' expectations and cognition of Fengyuan Hospital were collected via a questionnaire survey. The priority of the service items to be improved was established via QFD.
Wang	A Study of QFD Application – a Case Study of Service Quality of	The most efficient strategy to improve service quality of a business can be located

	Convenience Store A in Northern District	by using QFD. An objective evaluation approach is provided to connect customer requirements to quality improvement techniques more closely.
Wu, Chen and Chou	A Comparative study of Using Grey Relational Analysis in Multiple Attribute Decision Making Problems.	If customer quality requirements are seen as evaluation attributes and their corresponding quality techniques are alternatives, the relation matrix can be converted to the original decision-making matrix. The priority of the characteristics of quality techniques can be aligned via MCDM.
Sularto	User requirements analysis for restaurant POS and accounting application using quality function deployment. Procedia-Social and Behavioral Sciences.	Gourmets' demands can be known and their consumption willingness will be affected by order taking speed and ways of payment by applying QFD to the ordering system in a restaurant. It is suggested relevant strategies can be made to attract customers.
Huang	A Study of Applying QFD to Design of Ready-made Garments	QFD is a process of converting customer quality demands to deploy every attribute of a product or service. The customer-oriented concept needs to be stressed during the transformation process to ensure the resultant product, design or manufacture truly meet customer requirements.

III.   Methodology

Design of the questionnaire was based on the SERVQUAL scale and the object under study was the credit department of farmers' association A in Taiwan with a view to probing the gap between expected importance and actual satisfaction to assess the distribution of the characteristics of the service items provided by the credit department via IPA analysis. Rank order and total weight were used to analyze the retrieved data and calculate the weight of service quality and the order of importance. Last, simple additional weight of MCDM was utilized to determine the order of improving service techniques of the credit department.

III.1 Design of Questionnaire

A pre-test questionnaire was designed by questionnaire survey and modified in compliance with the results. Opinions of scholars and industrial experts were integrated to complete the formal version. The five major dimensions presented by PZB and the SERVQUAL scale were

adopted for design of the questionnaire. Five dimensions and twenty-six service quality elements were designed in accordance with credit characteristics. The Likert scale was used to score from 1 to 5 according to the expectations and actual perceptions of the question items.

III.2 Object of Study
The customers who went to the credit department for transaction were aimed as the object of study. 430 copies of the questionnaire were distributed and 372 valid copies were retrieved with an effective response rate of 93.2%.

III.3 Descriptive Statistics
Customers' basic information includes gender, age, education, vocation, frequency of visiting the credit department in a month, major business activities with the credit department and the average monthly income. The results reveal female customers are slightly more than male customers accounting for 52.2%. Customers with an age from 51 to 60 are the most accounting for 28.2%. Most of the customers have an education of high or vocational school, accounting for 39.5%. The majority of them work in the service industry making up 37.1%. Most of them visit the credit department two to five times accounting for 48.7%. Deposit is the main business item for 307 people out of 372. A monthly income from NT$20,001 to NT$30,000 accounts the most, making up 29.6%.

III.4 Reliability and Validity Analyses
Reliability analysis was applied to measure the quality of data on the questionnaire and the result indicated cronbach's α of each dimension was greater than 0.7, which implied consistent reliability. For validity, the five major dimensions proposed by PZB and SERVQUAL scale were used to construct the questionnaire. As the theory has a highly respected foundation and a pre-test was made, the question items are valid to a certain extent.

III.5 Weight of Required Service Quality Items
1. Satisfactory attitude: converted expected importance of service quality elements multiplied by actual satisfaction. A smaller weighted satisfaction value shows customers stress that service item but feel dissatisfied. Details are shown in Formula 1 as follows.

$A_j = (B_j - \text{midpoint}) * (C_j - \text{midpoint})$

B_j: expectation importance before conversion

C_j: actual satisfaction before conversion

2. Different index: subtraction of importance ranking and satisfaction ranking of converted

service quality factors is the different index, which represents the difference of service customers expect and really perceive. If the different index is less, it means customers' expectation of the service item is higher than their actual satisfaction giving it priority for improvement due to its higher weight. Refer to Formula 2 for details.

$$D_j = E_j - F_j$$

D_j: importance ranking of service quality items after conversion

F_j: satisfaction ranking of service quality items after conversion

3. Original priority: service quality items are ranked in compliance with the order of improvement. The service item with a smaller different index needs to be improved earlier (priority to the negative value). When the different indexes of service quality elements are the same, ranking will be decided in accordance with satisfaction and items with less satisfaction will be the standard for evaluation. Such ranking is called the original priority.

4. Original weight: the original priority will be converted to the original weight by reverse sorting, shown as the following Formula 3.

$$Q_j = O - O_j + 1$$

O_j: original priority of service quality items required by customers

n: number of required service quality items

5. Standard weight: the sum of original priorities of all question items divided by the original weight is called the standard weight as shown in Formula 4.

$$w_j = \frac{Q_j}{\sum_{j=1}^{n} Q_j}$$

Q_j: original weight of service quality items required by customers

n: number of required service quality items

The standard weight in this research is calculated by the formula above (Lin)

III.6 Service Quality Function Deployment of the Credit Department

The simple additional weight of MCDM is used to determine the priority of quality technical characteristics via multiplying correlation of the relation matrix and the standard weight of customer requirements, which will be an indicator of service quality items to be improved by the credit department. Items with a higher value need to be emphasized or improved first as shown in Formula 5.

$$Si = \sum_{j=1}^{n} WjRij$$

Wj: standard weight of service quality items required by customers

Rij: correlation strength between measurement index i and required service quality item j

IV.   Analysis of Results

Four parts are divided here. The first part is to analyze data of customers' expectation and perception towards service thru factor analysis and reliability testing. In part 2, IPA will be used to assess the attributes of the service items so as to propose improvement strategies. In the third part, sorting and the total weight are applied to calculate the weight of each customer requirement. Finally, the simple additive weighting method (SAW) in MCDM will be used to construct the house of quality (HOQ) to sort the importance of the indexes measuring service quality of the credit department before introducing the correlations of the relation matrix and the standard weight required by customers. Then, the additive weighting scores of the measurement indices will be ranked based on importance or improvement priority.

IV.1 Factor Analysis

Factor analysis was conducted for the 26 question items concerning service of the credit department. The results indicate KMO values of importance and satisfaction are 0.955 and 0.960 respectively and the overall KMO value is 0.954. Besides, significance is less than 0.001, which shows the results of the questionnaires are suitable for factor analysis.

Table 2: KMO and Bartlett Test

		Importance Ei	Satisfaction Si	Overall
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		0.955	0.960	0.954
Bartlett's Test of Sphericity	Chi-square Distribution	6493.705	6961.115	14649.063
	df	325	325	1326
	Significance	0	0	0

IV.2 Reliability and Validity Analyses

Reliability analysis was conducted to measure if the questionnaire was reliable and the coefficient Cronbach's αwas adopted to assess the consistency among question items. Generally, the result is highly reliable when Cronbach's αis higher than 0.7. As each factor

and the overall reliability of analyses on customers or personnel are greater than 0.7, the results of the research are stably consistent. See Table 3.

Table 3: Reliability and Validity of the Questionnaire

	Tangibles	Reliability	Responsiveness	Empathy	Assurance	Overall Reliability
Importance (Ei)	0.86	0.72	0.81	0.78	0.89	0.96
Satisfaction (Si)	0.84	0.79	0.84	0.80	0.91	0.96

IV.3 Service quality Gap of the Credit Department

Quality gaps of the question items on service in this research are measured by Gap 5 in the PZB quality model. The empirical results indicate the gaps of all question items are negative, which implies customers' experienced service is worse than their expected service. The item of "The credit department provides convenient parking facilities" has the greatest gap, followed by "Transportation to the service office is convenient." and "The credit department protects customer privacy without disclosure of customer information." Refer to Table 4 for details.

Table 4: Statistical Analysis Table of Service Quality Gap of the Credit Department

Factor	Question No.	Question Item	Gap	Modulus Ranking
Tangibles	4	The credit department provides convenient parking facilities.	-0.52	1
Tangibles	1	Transportation to the service office is convenient.	-0.40	2
Assurance	24	The credit department protects customer privacy without disclosure of customer information.	-0.38	3
Responsiveness	14	The credit department verifies general loans fast.	-0.37	4
Assurance	25	The credit department protects safe and confidential transactions.	-0.36	5
Empathy	17	The credit department gives priority to customers' rights.	-0.34	6
Assurance	20	Expertise of the personnel in the credit department is good.	-0.33	7
Responsiveness	12	The credit department provides immediate assistance to solve problems.	-0.32	8
Responsiveness	13	Service quality of the personnel in the credit department doesn't reduce due to busy activities.	-0.32	8

Reliability	10	Service provided by the credit department is reliable.	-0.31	10
Reliability	11	The credit department can fulfill commitments to customers within time.	-0.31	10
Responsiveness	15	The attitude of the personnel in the credit department is good.	-0.29	12
Assurance	23	I'm assured of the work handled by the personnel in the credit department.	-0.29	12
Tangibles	2	The automatic teller machine (ATM) is easy to use.	-0.28	14
Assurance	21	Customers feel assured of the quality of the personnel in the credit department.	-0.26	15
Assurance	26	The credit department has a fine reputation.	-0.26	15
Tangibles	9	Good traffic flow in the credit department helps customers to locate service windows easily.	-0.24	17
Empathy	16	The personnel in the credit department provide suitable service to cope with various customer requirements.	-0.24	17
Assurance	22	The overall performance of the credit department satisfies me.	-0.24	17
Empathy	19	The credit department is active in assisting local activities for public good.	-0.22	20
Empathy	18	Business hours of the credit department are convenient for customers.	-0.21	21
Tangibles	5	Employees of the credit department are very polite.	-0.20	22
Tangibles	3	The passbook machine is easy to use.	-0.19	23
Tangibles	8	Good and comfortable furnishings are provided for customers while waiting.	-0.19	23
Tangibles	6	Personnel of the credit department are dressed modestly.	-0.14	25
Tangibles	7	The additional service provided by the credit department (e.g. agency receipt of water, electricity and credit card fees) is convenient.	-0.09	26

IV.4 Importance-Performance Analysis (IPA)

Importance-performance analysis (IPA) was conducted to measure the importance and performance of the service provided by the credit department and to analyze the attribute of each service item and the priority of plan implementation. The empirical results are shown in Table 5 and Fig. 1.

Table 5: IPA Quadrant Analysis

Quadrant I - Sustainable	Improvement Strategy
9.Good traffic flow in the credit department helps customers to locate service windows easily.	As service items in this quadrant are emphasized and satisfied by customers, it is suggested they have to be maintained for lasting, steady and satisfactory performance.
10.Service provided by the credit department is reliable.	
11.The credit department can fulfill commitments to customers within time.	
12.The credit department provides immediate assistance to solve problems.	
15.The attitude of the personnel in the credit department is good.	
20.Expertise of the personnel in the credit department is good.	
21.Customers feel assured of the quality of the personnel in the credit department.	
23.I'm assured of the work handled by the personnel in the credit department.	
24.The credit department protects customer privacy without disclosure of customer information.	
25.The credit department protects safe and confidential transactions.	
26.The credit department has a fine reputation.	
Quadrant II – Key Improvement	**Improvement Strategy**
5Employees of the credit department are very polite.	Service items in this quadrant are those that customers consider important, but they don't experience satisfaction. The credit department needs to find out the causes for improvement to increase customer satisfaction.
6.Personnel of the credit department are dressed modestly.	
7.The additional service provided by the credit department (e.g. agency receipt of water, electricity and credit card fees) is convenient.	
8.Good and comfortable furnishings are provided for customers while waiting.	
18.Business hours of the credit department are convenient for customers.	
22.The overall performance of the credit department satisfies me.	
Quadrant III – Low Priority	**Improvement Strategy**
2The automatic teller machine (ATM) is easy to use.	Service items in this quadrant are those that customers consider unimportant and aren't satisfied, either. Such service items don't have to be advanced or improved particularly. Merely maintain the basic service level.
3.The passbook machine is easy to use.	
4.The credit department provides convenient parking facilities.	
13.Service quality of the personnel in the credit department doesn't reduce due to busy activities.	
14.The credit department verifies general loans fast.	
16.The personnel in the credit department provide suitable service to	

cope with various customer requirements.	
19.The credit department is active in assisting local activities for public good.	
Quadrant IV - Oversupply	**Improvement Strategy**
1.Transportation to the service office is convenient.	Customers consider unimportant but feel satisfied with the service items in this quadrant. It is suggested resources need to be redistributed.
17.The credit department gives priority to customers' rights.	
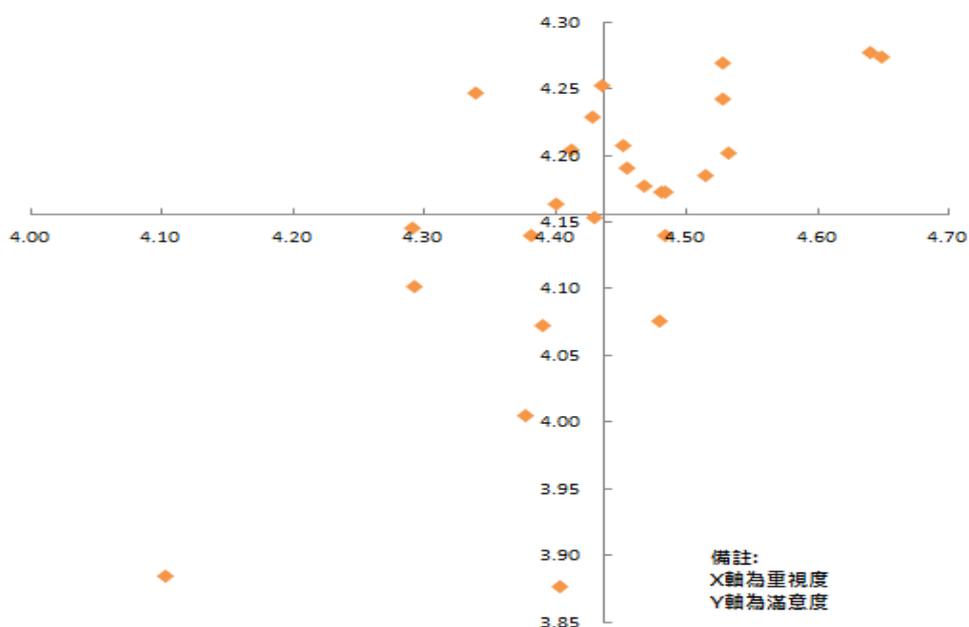
Fig. 1: 2D Graph (IPA)

Note: Axis X means importance. Axis Y refers to satisfaction.

IV.5 Sorting and the total weight

Sorting and the total weight are applied to calculate the weight of each service item provided by the credit department. Refer to Tables 6 and 7 for detailed results.

Table 6: Standard Weight of Service Quality

Factor	Question No.	Question Item	Satisfactory Attitude	Different Index	Original Priority	Original Weight	Standard Weight
Tangibles	1	Transportation to the service office is convenient.	1.60	-15	1	26	0.074
	2	The automatic teller machine	1.64	-2	12	15	0.043

		(ATM) is easy to use.					
	3	The passbook machine is easy to use.	1.42	3	20	7	0.020
	4	The credit department provides convenient parking facilities.	1.23	-7	3	24	0.068
	5	Employees of the credit department are very polite.	1.76	8	24	3	0.009
	6	Personnel of the credit department are dressed modestly.	1.48	7	22	5	0.014
	7	The additional service provided by the credit department (e.g. agency receipt of water, electricity and credit card fees) is convenient.	1.68	19	26	1	0.003
	8	Good and comfortable furnishings are provided for customers while waiting.	1.80	10	25	2	0.006
	9	Good traffic flow in the credit department helps customers to locate service windows easily.	1.75	4	21	6	0.017
Reliability	10	Service provided by the credit department is reliable.	1.73	-7	5	22	0.063
	11	The credit department can fulfill commitments to customers within time.	1.73	-7	4	23	0.066
Responsiveness	12	The credit department provides immediate assistance to solve problems.	1.80	-5	7	20	0.057
	13	Service quality of the personnel in the credit department doesn't reduce due to busy activities.	1.49	-3	9	18	0.051
	14	The credit department verifies general loans fast.	1.39	-3	8	19	0.054
	15	The attitude of the personnel in the credit department is good.	1.90	-3	10	17	0.048
a p	16	The personnel in the credit	1.57	2	19	8	0.023

		department provide suitable service to cope with various customer requirements.					
	17	The credit department gives priority to customers' rights.	1.69	-12	2	25	0.071
	18	Business hours of the credit department are convenient for customers.	1.70	8	23	4	0.011
	19	The credit department is active in assisting local activities for public good.	0.97	1	16	11	0.031
Assurance	20	Expertise of the personnel in the credit department is good.	1.84	-6	6	21	0.060
	21	Customers feel assured of the quality of the personnel in the credit department.	1.73	0	15	12	0.034
	22	The overall performance of the credit department satisfies me.	1.62	2	11	16	0.046
	23	I'm assured of the work handled by the personnel in the credit department.	1.73	-2	13	14	0.040
	24	The credit department protects customer privacy without disclosure of customer information.	2.10	-1	14	13	0.037
	25	The credit department protects safe and confidential transactions.	2.10	1	18	9	0.026
	26	The credit department has a fine reputation.	1.94	1	17	10	0.029

Table 7: SQFD Chart of the Credit Department

◎=5 points; highly correlated ○=3 points; moderately correlated △=1 point; modestly correlated (blank); unrelated		Service Quality Technical Factor							
		Operation Sector				Marketing Sector			
		1	2	3	4	5	6	7	8
		Personnel Expertise Training	Personnel Service Training	Personnel Independent Work	Personnel Communication Training	Organizational Culture of Credit Dept.	Hardware & Software Provided by Credit Dept.t	Service Items Provided by Credit Dept.	Brand Image of Credit Dept.
Tangibles	Transportation to the service office is convenient.					△	◎	○	△
	The automatic teller machine (ATM) is easy to use.	△	△				○	◎	△
	The passbook machine is easy to use.	△	△				○	○	△
	The credit department provides convenient parking facilities.	△	△				○	○	△
	Employees of the credit department are very polite.	◎	○	△	◎	○		△	◎
	Personnel of the credit department are dressed modestly.	○	△	△	△	△		△	◎
	The additional service provided by the credit department (e.g. agency receipt of water, electricity	△	△		△		△	○	△

	and credit card fees) is convenient.							
	Good and comfortable furnishings are provided for customers while waiting.	△	△		△	△	○	○	○
	Good traffic flow in the credit department helps customers to locate service windows easily.	△	△		△	△	○	○	○
Reliability	Service provided by the credit department is reliable.	○	○	△	△	△		◎	○
	The credit department can fulfill commitments to customers within time.	○	◎	△	○	△	△	○	◎
Responsive-ness	The credit department provides immediate assistance to solve problems.	◎	○	○	○	△	△	△	○
	Service quality of the personnel in the credit department doesn't reduce due to busy activities.	○	◎	○	△	△		○	○
	The credit department verifies general loans fast.	○		△	○	△	△	○	△
	The attitude of the personnel in the	○	○	△	○	○		○	○

	credit department is good.							
Empathy	The personnel in the credit department provide suitable service to cope with various customer requirements.	◎	○	○	◎	△	△	◎	○
	The credit department gives priority to customers' rights.	○	△	△	△	△	△	○	○
	Business hours of the credit department are convenient for customers.	△	△	△		△		○	○
	The credit department is active in assisting local activities for public good.			△		○			◎
Assurance	Expertise of the personnel in the credit department is good.	◎	○		○	○	△	○	○
	Customers feel assured of the quality of the personnel in the credit department.	○	△		○	△		△	◎
	The overall performance of the credit department satisfies me.	△	△	△	○	△	○	○	△
	I'm assured of the work handled by	○	△		△	△	○	△	○

the personnel in the credit department.								
The credit department protects customer privacy without disclosure of customer information.	○	○		△		○	○	○
The credit department protects safe and confidential transactions.	△	△				○	○	○
The credit department has a fine reputation.	○	○		△	○		○	◎
Weighted Score of Measurement Indices (Si)	2.279	1.998	0.800	1.529	0.973	1.481	2.733	2.474
Order of Implementation Importance	5	8	16	13	15	14	1	2

Table 8: SQFD Chart of the Credit Department

		Service Quality Technical Factor							
		Information Sector			Public Relations Sector			Management	
		9	10	11	12	13	14	15	16
◎=5 points; highly correlated ○=3 points; moderately correlated △=1 point; modestly correlated (blank); unrelated		Applications & Subsidies of Various Business Activities	Safe Protection of Transactions	Safe Protection of Customer Information	Disposal of Service Errors	Remedies of Service Errors	Improvement Commitment of Service Errors	Overall Operation Planning of Credit Department	Annual Personnel Performance Appraisal
Tangibles	Transportation to the service office is convenient.	△						△	
	The automatic teller machine (ATM) is easy to use.		◎	◎	○	△	△	△	
	The passbook machine is		○	○	△		△	△	

	easy to use.								
	The credit department provides convenient parking facilities.	△						△	
	Employees of the credit department are very polite.	△			◎	◎	◎	△	◎
	Personnel of the credit department are dressed modestly.	△			△	○	△		
	The additional service provided by the credit department (e.g. agency receipt of water, electricity and credit card fees) is convenient.		△	△	△	△	△	△	○
	Good and comfortable furnishings are provided for customers while waiting.		△	△	△	△	△	○	
	Good traffic flow in the credit department helps customers to locate service windows easily.				△	△	△	○	
Reliability	Service provided by the credit department is reliable.	○	◎	◎	○	△	○	○	○
	The credit department can fulfill commitments to customers within time.	○	○	△	○	◎	◎	○	○
Responsive-ness	The credit department provides immediate assistance to solve problems.	○	△	△	◎	◎	△	○	○
	Service quality of the personnel in the credit department doesn't reduce due to busy activities.	○	△	△	○	○	△	△	○
	The credit department verifies general loans fast.	◎	△	○	△	△	△	○	○
	The attitude of the personnel in the credit department is	△		△	○	○	○	△	○

	good.							
Empathy	The personnel in the credit department provide suitable service to cope with various customer requirements.		△		○	○	△	△	○
	The credit department gives priority to customers' rights.	○	○	○	○	○	◎	◎	○
	Business hours of the credit department are convenient for customers.							○	
	The credit department is active in assisting local activities for public good.	○						△	
Assurance	Expertise of the personnel in the credit department is good.	○	○	○	○	○	△	○	◎
	Customers feel assured of the quality of the personnel in the credit department.	△	○	○	○	△	○	○	○
	The overall performance of the credit department satisfies me.	△	○	○	○	○	○	○	○
	I'm assured of the work handled by the personnel in the credit department.	○	◎	○	○			○	○
	The credit department protects customer privacy without disclosure of customer information.	△	◎	◎				△	○
	The credit department protects safe and confidential transactions.	△	◎	◎				△	○
	The credit department has a fine reputation.	○	△	○	○	○	○	◎	△
Weighted Score of Measurement Indices (Si)		1.805	1.859	2.062	2.281	1.819	1.604	2.344	2.251
Order of Implementation Importance		11	9	7	4	10	12	3	6

V.   Conclusion and Suggestions

Customers' expected and experienced service quality items provided by the credit department are investigated in this research to examine the gap between expectation and perception. Distribution of the attributes of various service items provided by the credit department is analyzed by IPA. QFD and correlations of every corresponding measurement index are made for an understanding of the items that have the priority of importance or improvement.

V.1 Service Gap Expected and Experienced

The top three service items emphasized by the customers most are customer privacy protected without disclosure of customer information, safe and confidential transactions guaranteed and goodwill. As for feelings actually perceived, the three most satisfactory service items are safe and confidential transactions guaranteed, customer privacy protected without disclosure of customer information and goodwill. The results indicate customers are satisfied with the safety of transactions and protection of their privacy. In summary, it is suggested decision makers of the credit department may refer to the service quality gap analysis and the corresponding strategies in IPA of this research for decision making.

V.2 Suggestions to the Proprietor

According to the QFD results, the items to be concerned or improved most are service items provided by the credit department in the marketing sector, the brand image of the credit department in the marketing sector and operation planning of the credit department in management, which are followed by disposal of service errors in the public relations sector and personnel expertise training in the operation sector.

1. Service items provided by the credit department

It goes without saying that customers are directly affected by the type and quality of service items provided by the credit department, which also implies the willingness of customers to continually choose the credit department of farmers' association as their service platform. Besides, the basic information of customers shows people who visit a farmers' association for business activities don't have an occupation in agriculture, forestry, fishing or livestock industries; instead, they are service providers and housewives mainly. As business activities related to agriculture are not the mainstream on the market, service items that are closer to different customer requirements should be increased and new customer sources need to be developed in addition to maintenance of the present customer groups.

2. Brand image of the credit department

The quality of a brand image is usually an important reference for customers to evaluate service, which can be inferred from the highly correlated question items in the QFD table like

"The credit department is active in assisting local activities for public good.", "Customers feel assured of the quality of the personnel in the credit department." and "The credit department has a fine reputation." Besides, customers' expectation and experienced perception reveal "The credit department has a fine reputation." is also one of the top three service items. Such result further verifies customers put much emphasis on the image of the credit department. Consequently, it is suggested service items with a higher customer expectation and those with a lower satisfaction that need to be improved first based on QFD can be assessed together for priority choice of importance or improvement so as to enhance the brand image of the credit department.

3.   Overall operation planning of the credit department

According to the correlations among the indices of measuring overall operation planning of the credit department and their corresponding service quality items on the QFD table, experts consider most of the service items are correlated. "The credit department gives priority to customers' rights." and "The credit department has a fine reputation." are highly correlated, which indicates personnel think overall operation planning influences the quality of each service item. Therefore, the management may refer to the priority order of service items when making decisions.

4.   Disposal of service errors

Disposition of service errors in the credit department mean the performance of loss control in time and affects customers' repurchase willingness and their impression of the brand. Thus, it was rated the fourth place by the experts. "Employees of the credit department are very polite." and "The credit department can fulfill commitments to customers within time." are highly correlated. To verify experts' assessment, studies on customers' expected service items were also taken into consideration and it was found"The credit department can fulfill commitments to customers within time." was also one of the question items that were stressed by customers with an expectation value of 4.48. Therefore, the researchers deem disposition of service errors is quite critical to the credit department and suggest while executing decisions or improvement, the management may integrate personnel expertise and communication training to reinforce the implementation ability of personnel when dealing with service mistakes.

5.   Personnel expertise training

Experts also assessed personnel expertise training as highly correlated and their corresponding service items in this research like "Employees of the credit department are very polite." "The credit department provides immediate assistance to solve problems." "The personnel in the credit department provide suitable service to cope with various customer

requirements." and "The attitude of the personnel in the credit department is good." were also highly correlated, which implies experts consider these service items are necessary for the professional capacity of the personnel. Furthermore, verification was also made through customers' expected service items and it was found "The credit department provides immediate assistance to solve problems." and "The attitude of the personnel in the credit department is good." were rated as the third and the sixth places respectively. As a result, the researchers suggest the credit department should take personnel expertise training as an indicator of priority importance or improvement.

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