

# Identifying and Evaluating the Criteria's Affecting of Customer Experience Using Fuzzy Dematel Approach

## (Case Study: Branches of Bank Melli in Tehran)

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### Abstract

Customer experience is one of the most important factors that maintains the customer for banks and turns him into a loyal customer in the competitive marketplace conditions. This concept includes any type of interaction, feelings, perceptions, reactions, thoughts and other related cases from customers about the organization especially in the circumstance of service organization. In this study, 7 factors were identified as key determinants or constructs in the customer experience that according to the methodology of use the technique of fuzzy dematel, the most influential factor is the diversity of services and facilities provided in the bank. Other affecting factors include staff and managers of banks dealing with customers and quickness and easiness of using the bank's services. The factors that are affected are the communication system with the customers in the bank, services environment in bank and advertising as well as the bank's reputation. According to the results, the most influential factor in the customer experience of the bank services is in fact the diversity of services and facilities provided by the bank and how the bank directors and staff deal with customers indicating that for customers the main services of bank and how the staff deal with them is very important and these two factors should be focused to increase better experience of customers.

**Keywords:** customer experience ,fuzzy dematel, criteria evaluation , Iran melli Bank

### 1. Introduction

In today's competitive world that customer is the prerequisite for survival, growth and development of any organization, special attention to customers and the key factors that will keep them has a very vital role. In the previous literature lots of studies have been done about customer satisfaction, but in this research we will study a step beyond customer satisfaction. Customer experience is actually a step beyond customer satisfaction. In this study, key factors affecting the customer experience at the Bank were classified in seven factors and then by use of the experts' opinion and use of fuzzy dematel techniques, the impact of each of these factors and how much they are affected as well as their significance were determined.

Although there are several definitions about the customer experience, but all agree that the customer experience should include the interaction between people, processes or system of organization. Customer experience is a set of all customer interactions with products, services and people who are related to an organization with a particular brand. Customer experience involves all the points that the client encounter with organization, product or service. Janfarsa (2008) first examined the rational decision by the customers and then examined the factors focusing on aspects of customer behaviour (Holbrook & Hirschman, 1982). Customer always have a real experience of the organization in mind (Mascarnhas et al., 2006); as well as an attitude and a feeling and symbolic mode that creates by marketer and customer in meaningful, worth mentioning and pleasant modes that this experience can be created as touchable or untouchable one (voss et al., 2007). The definition of customer experience as a fascinating action that has been jointly created between the creator and the customer and where the customer understands the value and keeps it in the memory. The customer must have five characteristics or features that includes freshness, learning, personal communication, surprising and engaging of customers

(Paulson & Lee, 2004). Customer experience is known as perception or feeling of a service that the customer gets away from it, or is faced with it (Carbon & Hakl, 1994).

## 2. Problem Statement

Customer in services business is the key and most important factor of profitability and survival. In fact, businesses can track improvement and excellence in today's turbulent world that they know their customers and provide success critical factors in satisfying them. Banks that are in fact the business services are no exception and it is the client that causes a bank to be able to flourish. Customer experience is one of the factors that make customers to gradually become loyal to a particular brand and prefer it to other brands. The importance of this discussion can be assumed that the customer experience and its management can be considered as a strategy.

Many factors may play a role in customer experience but the main focus of the Bank should be on which one is one of the most important issues of this research that will be discussed. In fact, the factors that affect customer experience are divided into two categories: Affecting factors and affected factors and thereby would make better planning and a wider view to upgrade plans of the customer experience of the banking services.

## 3. Research Theoretical Literature

In recent years, the creation and management of the customer experience is a key area for most of firms, especially for companies operating in the service sector and the subject of customer experience has attracted much attention from research marketing to practical marketers (Lywood et al., 2009). Sharma and Chaubey (2014) claim the customer experience is as the only and most important aspect of successful companies in all industries. Customer research shows that the experience occurs when customers search for products, buy and receive services and when they use them (Brakus et al., 2009).

Pine and Gilmore (1998) described the experience in this way: A customer receives a unique, evocative and appropriate service and product over time.

Whatever the customer experience is more and makes it unique we can lead the company and organization toward differentiation and competitive advantage. Customer experience creates emotional, relational and cognitive value that can replace the functional value (Schmitt, 1999).

Thus creating the customer experience to enhance relationships with customers and earn their loyalty and ultimately create economic value for organizations is indispensable (Barkos et al., 2009).

To differentiate itself on traditional elements such as quality of products, quality of service and price is no longer an appropriate business strategy, and companies need new strategies to gain competitive advantage by focusing on their customer experience management (Pullman & Gross, 2004).

Lawrence and colleagues conducted a study in 2015 and measured and evaluated the impact of customer experience management on business performance. Variable used in this study are: client's logical experience, client's emotional experience, prerequisites and logical training of logical experience, prerequisites and training of emotional experience, use of customer insight, customer contact point and support senior executives (Gronholdt et al., 2015).

In another study that was conducted by the Garg et al. in 2014, the impact of factors and indexes affecting the customer experience in the banking was measured. The main variables used in this research are: Environment of services, primary services, customization, value added, convenience, marketing mix, staff, speed, service projects, customer interaction, the presence of other customers, online aesthetics and online functional elements (Garg et al., 2014).

## 4. Methodology

The research method of this study is practical in terms of type and in terms of gathering information is a survey and descriptive one. In this study, first the factors affecting the customer experience were gathered using comparative studies and literature review and were generally screened and confirmed by the opinion of Bank experts. Then the factors were screened and finally were evaluated using fuzzy dematel technique. The questionnaire that has been designed was completed by experts and managers of 10 branches in northern Tehran.

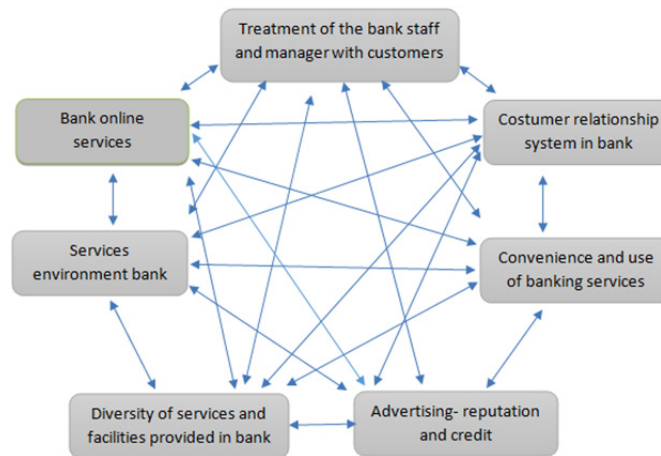


Figure 1. Variables and the model

### 5. Dematel Technique

Dematel technique is one of the ways to make decision based on paired comparisons that provides mutual interaction with the benefit of expert judgment in the extraction of a system factors and systematic structuring to them applying the principles of Graph Theory, hierarchical structure of the available factors in system along with relations, so that defines the impact of these relationships as a numerical score. To address the ambiguities for assessments made by man, the scale used in certain modes is changed and the fuzzy linguistic scale is used that in various studies, with varying degrees of “influence” in 5 linguistic words “very high, high, low, very low and without impact” are expressed.

Table 1. DEMATEL Linguistic and fuzzy variables (Wu, L., 2007)

Triangular fuzzy numbers	The values of linguistic scales
(0.75, 1, 1)	Very high impact
(0.5, 0.75, 1)	High impact
(0.25, 0.5, 0.75)	Low Impact
(0, 0.25, 0.5)	Very low impact
(0, 0, 0.25)	With no impact

#### Four steps were identified to do fuzzy dimatel technique:

1) Direct correlation matrix (M)

When we use the point of view of some people, we use the simple average of opinions and we constitute the opinions matrix mean.

2) Normalizing the direct relation matrix

$$N = K * M$$

Which in this formula K is calculated as follows; first the sum of all rows and columns is calculated. Reverse of the largest number forms row and column of k.

$$K = \frac{1}{\max \sum_{j=1}^n a_{ij}}$$

3) Calculation of full relation matrix

$$T = N * (1 - N)^{-1}$$

4) Formation of causal diagram

- Total elements of each row (D) for each factor indicates the effectiveness of that factor on other factors of system (how much variables have impact).

- Total elements of the column (R) for each factor reflects the influence of that factor from other factors of the system (how much variables are affected).
- Therefore, the horizontal vector (D+R) is the impact of the interaction of system. In other words, as much as the amount of D+R of a factor is high, that factor has more interaction with other factors of the system.

Vertical vector (D-R) indicates the strength of influence of each factor. Generally, if (D-R) is positive, a variable is a causal variable. If it is negative, it is considered to be an effect.

### 6. Data Analysis and Findings

Factors that were approved by experts include:

Factor 1: Treatment of staff, employees and managers of banks with customers

Factor 2: Web and online services of bank

Factor 3: Services Environment in Bank

Factor 4: Diversity of services and facilities provided at the Bank

Factor 5: Advertising - reputation and credit

Factor 6: Comfort and speed of use of banking services

Factor 7: Customer relationship system at the bank

	Agent 1			Agent 2			Agent 3			Agent 4			Agent 5			Agent 6			Agent 7			R
Agent 1	0	0	0	1	2	3	0.5	1.25	2.25	1.5	2.5	3.5	0	0.5	1.5	0.5	1.5	2.5	0.25	1	2	14.75
Agent 2	1	1.75	2.75	0	0	0	1	1.75	2.75	2.75	3.75	4	1.5	2.5	3	2.5	3.5	4	2	3	3.5	20
Agent 3	1.25	2.25	3.25	1	1.5	2.5	0	0	0	1	1.75	2.75	0.25	1.25	2.25	1	1.5	2.5	2.25	3.25	3.75	17
Agent 4	0.5	1.5	2.5	0.5	1.5	2.5	0	0.75	1.75	0	0	0	0	0.5	1.5	2	3	4	1.5	2.5	3.25	15.5
Agent 5	0	0.5	1.5	0	0.25	1.25	0	0.75	1.75	0	0	1	0	0	0	0	0	0	1	0	1	8.5
Agent 6	1	2	3	0.5	1.5	2.5	0.5	1.25	2.25	0.5	1.5	2.5	0	0.5	1.5	0	0	0	0.25	1.25	2.25	14
Agent 7	1	2	3	2	3	4	1.25	2.25	3.25	1.75	2.75	3.75	1	1.75	2.75	1.75	2.75	3.75	0	0	0	20.5
																						20.5

Figure 2. Average opinions of experts

	Agent 1			Agent 2			Agent 3			Agent 4			Agent 5			Agent 6			Agent 7		
Agent 1	0	0	0	0.0488	0.098	0.146	0.0244	0.061	0.1098	0.073	0.122	0.171	0	0.0244	0.0732	0.024	0.0732	0.122	0.01	0.049	0.0976
Agent 2	0.049	0.085	0.134	0	0	0	0.0488	0.085	0.1341	0.134	0.183	0.195	0.073	0.122	0.1463	0.122	0.1707	0.195	0.1	0.146	0.1707
Agent 3	0.061	0.11	0.159	0.0488	0.073	0.122	0	0	0	0.049	0.085	0.134	0.012	0.061	0.1098	0.049	0.0732	0.122	0.11	0.159	0.1829
Agent 4	0.024	0.073	0.122	0.0244	0.073	0.122	0	0.037	0.0854	0	0	0	0	0.0244	0.0732	0.098	0.1463	0.195	0.07	0.122	0.1585
Agent 5	0	0.024	0.073	0	0.012	0.061	0	0.037	0.0854	0	0	0.049	0	0	0	0	0	0	0.049	0	0.049
Agent 6	0.049	0.098	0.146	0.0244	0.073	0.122	0.0244	0.061	0.1098	0.024	0.073	0.122	0	0.0244	0.0732	0	0	0.024	0.01	0.061	0.1098
Agent 7	0.049	0.098	0.146	0.0976	0.146	0.195	0.061	0.11	0.1585	0.085	0.134	0.183	0.049	0.0854	0.1341	0.085	0.1341	0.183	0	0	0

Figure 3. Matrix of initial direct impact has become without scale

	Agent1	Agent2	Agent3	Agent4	Agent5	Agent6	Agent7	D	R	D+R	D-R
Agent 1	0.01555	0.09427	0.0695	0.05318	0.107	0.0824	0.05002	0.472	0.2855	0.7575	0.1865
Agent 2	0.02077	0.01538	0.0233	0.03938	0.0781	0.0757	0.0534	0.30601	0.41277	0.7188	-0.1068
Agent 3	0.04492	0.00679	0.0074	0.00257	0.005	0.0057	0.0576	0.13005	0.37643	0.5065	-0.2464
Agent 4	0.12842	0.12774	0.1526	0.01804	0.1608	0.1242	0.09298	0.80472	0.19352	0.9982	0.61121
Agent 5	0.04576	0.02952	0.0061	0.00486	0.0082	0.0285	0.02656	0.1495	0.43891	0.5884	-0.2894
Agent 6	0.0249	0.09092	0.0377	0.0712	0.0735	0.0178	0.04676	0.36283	0.3716	0.7344	-0.0088
Agent 7	0.00519	0.04815	0.0798	0.00428	0.0062	0.0373	0.00832	0.18926	0.33564	0.5249	-0.1464

Figure 4. Matrix of total relations (lower limit)

	Agent1	Agent2	Agent3	Agent4	Agent5	Agent6	Agent7	D	R	D+R	D-R
Agent 1	0.06354	0.1902	0.1566	0.12894	0.2009	0.1785	0.14214	1.06082	0.67544	1.73626	0.38539
Agent 2	0.08601	0.05941	0.0759	0.09679	0.1499	0.1563	0.12054	0.74889	0.87892	1.6278	-0.13
Agent 3	0.09035	0.05218	0.029	0.02938	0.0284	0.05	0.10855	0.38781	0.75287	1.14068	-0.3651
Agent 4	0.22292	0.23562	0.2356	0.06515	0.2649	0.232	0.17656	1.4327	0.51259	1.94529	0.92011
Agent 5	0.09196	0.07488	0.0267	0.02315	0.0325	0.0827	0.06805	0.39993	0.87459	1.27452	-0.4747
Agent 6	0.09725	0.1784	0.1092	0.14023	0.1621	0.0683	0.1207	0.87619	0.84515	1.72134	0.08104
Agent 7	0.02341	0.08823	0.1159	0.02895	0.0359	0.0774	0.028	0.39777	0.76454	1.16231	-0.3668

Figure 5. Matrix of total relations (medium)

	Agent1	Agent2	Agent3	Agent4	Agent5	Agent6	Agent7	D	R	D+R	D-R
Agent 1	0.23403	0.40967	0.3595	0.32099	0.3926	0.3913	0.37	2.47809	1.91234	4.39043	0.56575
Agent 2	0.27745	0.23434	0.2769	0.27194	0.3444	0.3592	0.32848	2.09273	2.25836	4.35109	-0.1656
Agent 3	0.24586	0.22918	0.1513	0.1765	0.1968	0.2223	0.27729	1.49919	2.00487	3.50406	-0.5057
Agent 4	0.42573	0.47355	0.436	0.24018	0.4535	0.4536	0.42412	2.9067	1.67041	4.57711	1.2363
Agent 5	0.24856	0.25129	0.1927	0.17141	0.1594	0.2536	0.24088	1.51788	2.10688	3.62476	-0.589
Agent 6	0.29278	0.39238	0.3095	0.30999	0.3514	0.2416	0.33553	2.23314	2.17454	4.40768	0.0586
Agent 7	0.18793	0.26797	0.2789	0.1794	0.2089	0.2529	0.1746	1.55056	2.1509	3.70146	-0.6003

Figure 6. Matrix of total relations (high)

	D+R	D-R
Agent 1	2.15511	0.38076
Agent 2	2.08137	-0.1331
Agent 3	1.57297	-0.3705
Agent 4	2.36648	0.92193
Agent 5	1.69055	-0.4569
Agent 6	2.1462	0.02798
Agent 7	1.63775	-0.3701

Figure 7. The final table of impacts of importance and influence, and being influenced of each factor

### 7. Conclusion and Recommendations

Factors affecting on other factors:

The most influential factors in order are factor 4: The diversity of services and facilities provided by the bank. Then factor 1: Treatment of employees and managers of banks with customers and finally 6: Web and online services of bank.

The factors being affected by other factors:

The most affected one is advertising-reputation and credit of the bank. Then, factor 3: Services environment at bank and thus factor 7: Customer relationship system at the bank and finally, factor 2: Convenience and speed of using services in the bank.

Importance of factors in order:

- 1)Factor 4: Diversity of services and facilities
- 2)Factor 1: Treatment of staff, employees and managers of banks with customers
- 3) Factor 6: Comfort and speed of use of banking services
- 4)Factor 2: Web and online services of bank
- 5)Factor 5: Advertising - reputation and credit
- 6)Factor 7: Customer relationship system at the bank
- 7)Factor 3: Services Environment in Bank

As you can see, the factor diversity of services and facilities provided by the bank is the most influential and important factor in the experience of the bank's customers. In fact, this factor suggests that bank customers are looking for a variety of services, and choice of services and banking facilities from banks bring a good experience for them. Appropriate and timely information to customers, and gifts and prizes intended for them can play a very important role in the customer experience.

The second factor that plays a key role in customer experience is treatment of bank employees and managers with customers. Banks are service institutions that human resources play a key role in them. So having employees who know how to deal with customers in different conditions could be useful in creating a good experience for customers.

The third key factor is the convenience and speed of service. Customers seek to take maximum advantage of banking services in shortest time possible.

The fourth factor is web and online services of bank that can increase a better experience for customers, but this factor is a factor being influenced by other factors affecting the customer experience. This means that web and online services of bank makes the customer a better experience and other factors should be good and in order to improve it we should consider other factors to be improved. So factor advertising-reputation and credit is placed in the fifth position and the factor Customer relationship system systems with customers is placed in the fifth position and finally the bank environment is placed in the final position.

Although the environment may be key factors in creating a positive experience for customers for businesses such as food complexes and restaurants-chain stores and so on, but about the bank it cannot be a critical success factor in the customer experience.

Suggestions for future research:

It is suggested that the relationships between the variables affecting the customer experience to be performed through other techniques such as structural equation modelling and path analysis.

It is recommended that this research be conducted in other banks.

It is suggested that the impact of customer experience on other organizational issues such as customer loyalty, customer satisfaction, customer trust, organizational efficiency and so on to be examined in other research.

#### **The questionnaire is completed as follows:**

For example, we want examine the effect of factor one (treatment of staff, employees and managers of banks with customers) on other factors. Obviously, factor one does not affect on its own. But the influence of factor one (treatment of staff, employees and managers of banks with customers) on factor two (Web and online services of bank) can be scored as follows.

If a factor have an impact on other factors enter the number 0

If a factor have a very low impact on other factors enter the number 1

If a factor have a low impact on other factors enter the number 2

If a factor have a high impact on other factors enter the number 3

If a factor have a very high impact on other factors enter the number 4

For example, an expert estimates the impact of treatment of the bank's employees and managers on online web service is low inserts number 2 at the intersection of row one treatment of staff and managers and column two inserts online web services.

Numerical Example: For example, an expert believes that the effectiveness of diversity of services and facilities provided (factor 7) on advertising and reputation (factor 5) is very much so we insert 4 at the intersection of row

7 and column five.

Table 2. Numerical Example

	Agent 1	Agent 2	Agent 3	Agent 4	Agent 5	Agent 6	Agent 7
Agent 1	.						
Agent 2		.					
Agent 3			.				
Agent 4				.			
Agent 5					.		
Agent 6						.	
Agent 7					4		.

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## Appendix A

### Indices of factors used in the research

#### Indicators of treatment of employees and managers of banks with customers

- 1) Appropriate treatment of employees and managers of banks with customers.
- 2) Willingness of the employees and managers of banks to solve customer problems.
- 3) Launch customers as soon as possible.

#### Indicators of comfort and speed of using banking services

- 1) Responding immediately to customers' requests by bank.
- 2) Failure to wait in long queues in banks.

#### **Indicators of Services Environment in Bank**

Hygiene conditions and cleanliness of Bank.

External visual appearance of bank and its being appealing.

Bank environmental conditions such as temperature, ventilation, odour in the bank.

#### **Indicators of diversity of services and facilities offered:**

- 1) Diversity of loans and its reimbursement by the Bank.
- 2) Proper information to clients about all the services provided by the Bank.
- 3) Gifts and awards and cash and non-cash incentives for customers.
- 4) Customization of services for clients.

Indicators of advertising - reputation and credit

Being attractive advertising of bank for customers

Others' recommendations about bank

The number of bank customers

Social prestige and credibility of the bank

Indexes of web and online services of bank

Easy to use and user-friendly electronic services

Speed and the proper functioning of the web pages of the company website

## **Appendix B**

### **Fuzzy dematel questionnaire for customer experience in bank**

The purpose of this questionnaire is to obtain relations affect and are influenced at whole set of factors and determine how important they are.

Any of the factors identified in the customer experience that is seen in the following list:

Factor 1: Treatment of staff, employees and managers of banks with customers

Factor 2: Web and online services of bank

Factor 3: Services Environment in Bank

Factor 4: Diversity of services and facilities provided at the Bank

Factor 5: Advertising - reputation and credit

Factor 6: Comfort and speed of use of banking services

Factor 7: Customer relationship system at the bank

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