

Customer Knowledge Management-Oriented Benchmarking based on AHP Technique: Case Study in Two Shopping Centers in Iran

¹Mahshad Norouzi, ²Mohsen Rahmandoust, ³Elham Barkhordar, ²Ishak Mad shah
and ⁴Nooshia Norouzi

¹Faculty of Management, Kar Higher Education Institute.

²Faculty of Management and Human Resources Development, Universiti Teknologi Malaysia.

³Iran Power Plant Projects Management (MAPNA Group).

⁴Faculty of Entrepreneurship, University of Tehran.

Abstract: Today, the existing knowledge in organizations have considered as their important and valuable asset. Since, one of the most basic stages of using and applying knowledge is to recognize the existing knowledge of individuals; Customer Knowledge Management (CKM) is a way of recognizing organization status in customers' views and getting familiar with customers' need. Benchmarking improve processes and achieve higher performance. Therefore in this paper, by making use of CKM and both Customer Focus Group Interviews and Customer Feedback simultaneously, after extraction of 6 effective factors from 70 customers' perspective and assessing Charles Dennis research by them at age 40 and around 500 dollars salary per month, and possessing at least bachelor degree, which is selected according to stratified sampling, weighting and prioritizing these criteria in the foresaid shopping centers by applying AHP technique and at the end benchmarking by using of this method results. Importance of this research is identifying CKM as a tool to identify strengths, competitive advantages and benchmarking. This technique leads to benchmarking and enhance organizations in a rapid path base on customers view and their satisfaction that is the most important things for organizations survival that was never considered before and just mentioned CKM in identifying customer's need.

Key words: Benchmarking, Knowledge Management, Customer Knowledge Management, Customer Satisfaction, AHP Technique.

INTRODUCTION

Today the only confidence in global economy is the lack of confidence. Customers' increasing demand for improving quality and innovation in products has become a pressure on organizations and meanwhile the only reliable source of stability in competition, is knowledge. Researchers and experts are trying to find out how to collect and manage knowledge sources effectively so that they can be used as a competitive advantage (Österle *et al.*, 2000). Therefore, knowledge is considered as competitive key source in 21st century (Davenport, 1998). Customer knowledge management plays a significant role in identifying competitive advantages and the position of every organization among competitors critical and essential (Chang, 2011). In a way that it helps the organizations to accelerate flexibility, to update itself according to domestic or even global market changes and to meet the customers' needs (Gronover, 2003). After study and research in order to collect results and summary of conducted researches on customer knowledge management, the summary of nearest research subjects performed to this subject is as follows:

Research by Hanna salojarvi *et al.*, "organizational factors enhancing customer knowledge utilization in the management of key account relationships" that the results of this paper show that team working, management involvement, CRM technology improve the utilization of customer knowledge in the management of key account customers of industrial (Salojarvi *et al.*, 2010).

Research by Charles Dennis *et al.*, "Data Mining for Shopping Centers-Customer Knowledge Management Framework that have outlined an effective procedure for measuring and evaluating the 'image' of a shopping center that lead to identify customers and their likes, but does not anticipate customers needs (Dennis *et al.*, 2001).

Regarding the advantages of customer knowledge management such as identifying competitive advantage, using of intellectual capitals, using customers' perspective, creating organizational evolution and preparation for encouraging creativity and innovation and its importance and necessity in survival, growth, keeping organizations competitive position, fulfill customer satisfaction and role of its as a tool for benchmarking, to know the customer knowledge management seems necessary at this time.

Benchmarking:

It is a systematic comparison of approaches with other relevant organizations through which an insight will be provided and helps the organization to take action for its performance improvement (Najmi, 2010). Benchmarking is a tool that can help organizations to improve their performance by required changes understanding (Lai *et al.*, 2011).

Customer knowledge management is a way of benchmarking that shows the position of organization towards the competitors based on customers' wants and by determining improvable areas in comparison with competitors, provides organizations with a model.

Customer Knowledge Management:

Customer Knowledge Management includes the management of processes and using techniques to collect information about customers' wants, expectations, needs for development of and improvement new and innovative products and identify Improvable and strength area. By it, the voice of the customer is heard and lead to a "win/win" situation and a better relationships with customers (Paquette, 2006). More commonly used tools for gathering customers' insights and experiences are: "Customer Feedback and their focus group interviews, Quality Function Deployment and Customer Listening Posts (Paquette, 2006)". The following indicate how process of Customer Knowledge Management assessed: Customer feedback and suggestions, Customer feedback-frequency, Customer Communication and feedback-communication, Customer feedback-review frequency, Community feedback and suggestions, Customer involvement, Customer partnership in product design, Stakeholder focus - planning, Customization and Customer base- change (Paquette, 2006).

AHP Technique:

One of the most efficient decision-making techniques is Analytical Hierarchy Process (AHP) which was first time discussed by Tomas L in 1980. This method is established based on pair comparisons and allows managers to review different scenarios. While facing with a few competitor alternative and decision-making criteria, this method can be used. The discussed criteria can be both quantitative and qualitative (Adel azar, 2008). Decision-making begins with providing hierarchy decision tree. This tree shows the comparable factors and evaluable competitor alternatives in a decision. Then, a series of pair comparisons will be performed. These comparisons specified the weight of every factor according to competitor alternatives. At last the AHP logic integrates the result matrices from pair comparisons with each other and then optimum decision will be the result (Qodsipour, 2002).

Research Methodology:

This article from the way of research implementation point of view is developed in survey method. In a way that by applying customer knowledge management, a survey is conducted about the customers' expectations of the said shopping centers in this paper and the factors which are taken into consideration, at a group meeting and by opinion consensus. In other words, in Customer Knowledge Management in order to collect customers' opinions and needs, the two techniques (Customer Focus Group Interviews and Customer Feedback) is used simultaneously and by assessing framework of "Charles Dennis" and the factors that identified by them. The all foregoing factors are generally divided into 6 criteria. Finally by applying AHP technique, the superior store is determined. Also according to the factors which customers consider them important, improvable areas in every shopping centers are identified and some strategies are suggested. This paper based on the goal of research with using its results point of view is believed to be practical and developmental.

Research Process:

The researchers based on concepts of customer knowledge management, have tried to extract distinction and competitive advantage, their organizational superiority towards the competitors, strengths and improvement opportunities from organizational customers' point of view and by applying AHP technique, according to its flexibility, the two deductive and inductive approaches have been taken into consideration, based on the degree of significance coefficient of each important criteria and its relevant sub-criteria from the customers' perspective, the aim is to prioritize different competitor's organizations and choosing the best alternative for customers. At the end, two major shopping centers, Hyper Star and Shahrvand, which are located at Aria Shahr have been studied. Because shopping centers are the examples of organizations which have the most clients, customers, distributors, and sellers. Moreover, the reason for choosing these stores is their proximity to each other and similar breadth and variety. Also at the end of research regarding to customers' various preferences, strengths and improving opportunities is identified for these two stores.

Population and Sample of Research:

The sample of this research according to stratified sampling, is chosen from different men and women 40 years old, who received around 500 dollars salary per month and possessed at least bachelor degree, they usually

do shopping from these two major shopping centers Hyper Star and Shahrvand. It should be noted that this group were selected as a representative of all customers of these two shopping centers. According to Morgan table the number of required samples for this research is 212 samples and regarding to the research costs, population extent and distribution, and created obstacles, at last 70 customers of these shopping centers have been studied during a group consensus.

Data Analysis Method:

After determining key criteria and relevant sub-criteria on the basis of AHP technique and placed comparisons in different criteria based on the amount of each criteria importance with regard to other criteria, scores in 7 levels of very low, low, some low extent, equal, some high extent, high, and very high was formed that to each of which was assigned $\frac{1}{4}$ (0.25), $\frac{1}{3}$ (0.33), $\frac{1}{2}$ (0.5), 1, 2, 3, 4 scores in order. Weighting sub-criteria was also done in separate tables by pair comparisons and geometric mean method is also used for determining relative weight of each criteria and sub-criteria. It is also given numbers from 0 to 20 for every sub-criterion from customer perspective in both shopping centers.

Finally, upon following stages, the superior shopping center is selected:

- Weight of sub-criteria in its criteria*weight of related criteria = final weight of sub-criteria
- Final weight of sub-criteria/ sub-criteria score = index number for sub-criteria

RESULTS AND DISCUSSION

According to the conducted survey in a group consensus of customers, following factors are identified as customers' main criteria in choosing a shopping center, and in every criterion, some factors are introduced as sub-criteria related to that criteria. In the next stage, weighting criteria, sub-criteria and index number of sub-criteria is specified and thus the position of every sub-criterion in every business center is determined as compared with another business center. On the basis of AHP technique, tables relating to pair comparisons between criteria and sub-criteria related to every foresaid criteria are discussed in details.

Table 1 shows the pair comparisons between main criteria that are needed to say the weight of each criterion (is obtained from each criteria geometric) mean toward the total geometric mean of all criteria.

Table 1: Pair comparisons between main criteria.

Priority of Criteria by AHP	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	geometric mean	Weight of criteria
Criteria 1	1	3	1	2	2	3	1.774	0.258
Criteria 2	0.33	1	2	3	3	4	1.662	0.242
Criteria 3	1	0.5	1	3	3	4	1.588	0.231
Criteria 4	0.5	0.33	0.33	1	2	3	0.839	0.122
Criteria 5	0.5	0.33	0.33	0.5	1	2	0.630	0.091
Criteria 6	0.33	0.25	0.25	0.33	0.5	1	0.404	0.589

First Criteria: The Quality of Goods, Stores and Stands:

1. Goods quality
2. Goods prices
3. Goods classification
4. Goods variety and attractiveness
5. Stores and stands variety

Pair comparisons in relevant sub-criteria to first criteria are shows in table 2. According to calculated index numbers in shopping centers in table 2 and comparing those with each other conclude that:

In terms of quality, prices, variety and attractiveness of goods and variety of stores and stands, Hyper Star shopping center is superior to Shahrvand shopping center and in terms of classification and good arrangement, Shahrvand shopping center is preferable.

So by determining improvable areas based on points of less superiority compared in these two shopping centers, they can define and implement improving strategies to increase quality of their stores, stands and goods and strengths competitive advantage of every shopping centers in compare with the others can be used in order to attract more customers.

Second Criteria: Parking Facilities in Shopping Center:

1. Enough space for parking
2. Capacity for parking space
3. Parking closeness to store

Table 2: Pair comparisons in relevant sub-criteria to first criteria.

Priority of sub-criteria by AHP	sub-criteria 1	sub-criteria 2	sub-criteria 3	sub-criteria 4	sub-criteria 5	Column geometric mean	weight of criteria	Number in HYPER	Number in SHAHRV AND	Final weight	index number in HYPER	index number in SHAHRV AND
Sub-criteria 1	1	3	3	3	4	2.551	0.413	18	16	0.106	169.81	150.94
Sub-criteria 2	0.33	1	3	4	4	1.741	0.282	20	17	0.072	277.77	236.11
Sub-criteria 3	0.33	0.33	1	0.5	0.33	0.45	0.729	18	20	0.188	95.744	106.38
sub-criteria 4	0.33	0.25	2	1	0.5	0.608	0.099	20	18	0.025	800	720
Sub-criteria 5	0.25	0.25	3	2	1	0.821	0.133	20	17	0.034	588.23	500

Pair comparisons in relevant sub-criteria to second criteria are show in table 3. According to calculated index numbers in shopping centers in table 3 and comparing those with each other conclude that:

In terms of Space for parking, these two shopping centers are in the same situation and in terms of sufficient capacity for parking space, Hyper Star shopping center is superior to Shahrvand shopping center and in terms of parking closeness to store Shahrvand shopping center is preferable. Therefore, by determining improvable areas based on points of less superiority compared in these two shopping centers, they can define and implement improving strategies to improve Parking Facilities in Shopping Center and strengths competitive advantage of every shopping center in comparison with the other can be used in order to attract more customers.

Table 3: Pair comparisons in relevant sub-criteria to second criteria.

Priority of sub-criteria by AHP	sub-criteria 1	sub-criteria 2	sub-criteria 3	Column geometric mean	weight of criteria	Number in HYPER	Number in SHAHRVAND	Final weight	index number in HYPER	index number in SHAHRVAND
Sub-criteria 1	1	1	4	1.58	0.457	20	20	0.11	181.81	181.81
Sub-criteria 2	1	1	3	1.437	0.416	20	19	0.1	200	190
Sub-criteria 3	0.25	0.33	1	0.44	0.127	18	20	0.03	600	666.66

Third Criteria: Shopping Center Location:

1. Distance from customers' residence to shopping center
2. Access to shopping center
3. Access to private vehicles

Pair comparisons in relevant sub-criteria to third criteria are done in table 4. According to calculated index numbers in shopping centers in table 4 and comparing those with each other conclude that:

In terms of the distance from customers' residence to shopping center and access to private vehicles, these two shopping centers are in the same situation in customers' views. In terms of ease of access to shopping center and sufficient capacity, Shahrvand shopping center is superior. Therefore, by determining improvable areas based on points of less superiority compared in these two shopping centers, they can define and implement improving strategies to improve shopping center location. For example transportation services should be set up across the city for shopping and strengths competitive advantage of every shopping center in comparison with the other can be used in order to attract more customers.

Fourth Criteria: Sellers and Staff:

1. Deal between staff and customers
2. Extent to which staff access to guide customers
3. Staff personal characteristics

Table 4: Pair comparisons in relevant sub-criteria to third criteria.

Priority of sub-criteria by AHP	sub-criteria 1	sub-criteria 2	sub-criteria 3	Column geometric mean	weight of criteria	Number in HYPER	Number in SHAHRVAND	Final weight	index number in HYPER	index number in SHAHRVAND
Sub-criteria 1	1	0.5	1	0.795	0.256	16	16	0.06	266.66	266.66
Sub-criteria 2	2	1	0.33	0.875	0.281	16	18	0.065	246.15	276.92
Sub-criteria 3	1	3	1	1.437	0.462	15	15	0.107	140.18	140.18

Pair comparisons in relevant sub-criteria to fourth criteria are done in table 5. According to calculated index numbers in shopping centers in table 5 and comparing those with each other conclude that:

In terms of every three criteria related to sellers and staff, these two shopping centers are in the same situation in customers' views. In this case they also can achieve competitive advantage by applying more experienced staff or holding selling and marketing training courses.

Table 5: Pair comparisons in relevant sub-criteria to fourth criteria.

Priority of sub-criteria by AHP	sub-criteria 1	sub-criteria 2	sub-criteria 3	Column geometric mean	weight of criteria	Number in HYPER	Number in SHAHRVAND	Final weight	index number in HYPER	index number in SHAHRVAND
Sub-criteria 1	1	2	3	1.806	0.54	20	20	0.066	303.03	303.03
Sub-criteria 2	0.5	1	2	1	0.3	20	20	0.037	540.54	540.54
Sub-criteria 3	0.33	0.5	1	0.533	0.16	20	20	0.02	400	400

Fifth Criteria: Public Health in Shopping Center:

1. Amount of light in shopping center
2. Ventilation quality in shopping center
3. Public hygiene in shopping center

Pair comparisons in relevant sub-criteria to fifth criteria are done in table 6. According to calculated index numbers in shopping centers in table 6 and comparing those with each other conclude that:

In terms of every three criteria related to public health and hygiene, these two shopping centers are in the same situation in customers' views. In this case they also can achieve competitive advantage by promoting ventilation systems, light and increasing public health or such strategies and pattern world's top shopping centers.

Table 6: Pair comparisons in relevant sub-criteria to fifth criteria.

Priority of sub-criteria by AHP	sub-criteria 1	sub-criteria 2	sub-criteria 3	Column geometric mean	weight of criteria	Number in HYPER	Number in SHAHRVAND	Final weight	index number in HYPER	index number in SHAHRVAND
Sub-criteria 1	1	0.33	0.33	0.533	0.156	20	20	0.014	1428.57	1428.57
Sub-criteria 2	3	1	1	1.437	0.421	20	20	0.038	526.31	526.31
Sub-criteria 3	3	1	1	1.437	0.421	20	20	0.038	526.31	526.31

Sixth Criteria: Atmosphere, Internal Facilities and Green places of Shopping Center:

1. Customers relationships with each other and buyers
2. Spaces for customers to rest
3. Spaces for children to play
4. Stores for access to convenience foods in order to use in shopping center
5. Traffic in shopping center through stores, stands

Pair comparisons in relevant sub-criteria to sixth criteria are shows in table 7. According to calculated index numbers in shopping centers in table 7 and comparing those with each other conclude that:

In terms of friendly atmosphere among customers with each other and other buyers, appropriate spaces for customers to rest, embedded spaces for children to play, these two shopping centers are in the same situation in customers' views and in such cases they can achieve competitive advantage by providing places to rest and for children to play. In terms of stores for access to convenience foods in order to use in shopping center, Hyper Star shopping center is preferable and in terms of Ease of traffic in shopping center through stores, stands and traffic corridors, Shahrvand shopping center is superior.

Therefore, by determining improvable areas based on points of less superiority compared in these two shopping centers, they can define and implement improving strategies to improve and promote atmosphere, internal facilities and green places in their shopping center and strengths competitive advantage of every shopping center in comparison with the other can be used in order to attract more customers.

Table 7: Pair comparisons in relevant sub-criteria to sixth criteria.

Priorit y of sub- criteri a by AHP	sub- criteri a 1	sub- criteri a 2	sub- criteri a 3	sub- criteri a 4	sub- criteri a 5	Column geometr ic mean	weig ht of criteri a	Numb er in HYPE R	Number in SHAHRVA ND	Final weig ht	index numbe r in HYPE R	index number in SHAHRVA ND
Sub- criteri a 1	1	0.33	0.5	0.33	0.25	0.425	0.07	18	18	0.041	439.02	439.02
Sub- criteri a 2	3	1	2	2	0.33	1.32	0.216	18	18	0.127	141.73	141.73
Sub- criteri a 3	2	0.5	1	0.5	0.25	0.66	0.108	10	10	0.064	156.25	156.25
sub- criteri a 4	3	0.5	2	1	0.33	1	0.164	18	15	0.097	185.56	154.63
Sub- criteri a 5	4	3	4	3	1	2.702	0.435	17	18	0.256	66.4	70.31

Discussion:

This paper is one of the new techniques of benchmarking that did not present before in any researches about benchmarking. This technique is customer knowledge management as with benchmarking from competitors in improvement areas assessed by customers that can improve their condition in competitive market. This research encouraged organizations to identify their weaknesses, straightness and improvement areas that resulted from customer knowledge. This method guides organizations in a way that straight lead them in customer satisfaction.

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