Prioritization of Marketing Mix with Use of AHP Technique with Marketing Strategic Planning Approach
(Case Study: Four Major Companies Manufacturing LCD TV (Sony, Panasonic, LG and Samsung) Active in Iran Market

Abolghasem Gholamreza Tehrani[1], Amirabbas Gholamreza tehrani [2], Somaye garjami[3]

University of Management, Azad University North Tehran Branch, Tehran, Iran

ABSTRACT

Marketing and concepts relating to market saw many changes in the present era. Today, customers have been regarded as selector due to precedence of production on demand and customer focus was considered by the present era organizations. Meanwhile, making decision about selection of marketing mix elements (product, price, distribution and elevation) and determination of relative priority each comprising main basis of marketing system are important because they conform to organizational goals and marketing of the related companies in addition to fulfillment of target market needs. The present research aims at compilation of strategy on the basis of strengths, weaknesses, threat and opportunity and prioritizing marketing mix indices for all four companies and importance of each marketing mix element was identified and after identification of criteria effective on selection of marketing mix in the related category with help of questionnaire using paid comparison and its hierarchical analysis with help of SPSS ,EXPERT CHOICE software and finally the necessary strategies were formulated on the basis of SWOT matrix and marketing mix for each one of the companies.

KEY WORDS: customer focus, marketing mix, pair comparison, hierarchical analysis.

1. INTRODUCTION

The world faced considerable changes in early century 21. These changes mean that long business methods will lose their efficiency in future. Companies find that it is difficult to attain reputation and credit and it is very simple to lose it. With a look at history of marketing management, it is evident that existence philosophy of each economic agency is more profitability though this target has been questioned in some sections but the final goal is to obtain profit through sale according to the writer. What has been analyzed and studied and changed during history is access to this profitability. The last way which has been confirmed by all in management texts is to attain satisfaction of the customer. Real mission of the marketers is to understand needs and demands of customers and to present strategies which lead to satisfaction of the customers. The aware companies are the ones which doesn't seek sale but they have targeted at long term satisfaction of the customers through better services to achieve desirable sale in this way (Katler, 2004, P10). What is the meaning of better services and how is customer's satisfaction attained? As it s evident to all, different factors are effective on decision making, purchase, sale, and finally satisfaction of the customers. One of the most important ways of access to customers' satisfaction is use of marketing mix concept. Some management science thinkers believe that this concept was raised for the first time by Borden, but its more scientific method was mentioned later in 80s by McCarthy with use of concept 4p(product , price , promotion and place) which is used for goods . This analysis was attacked later with this argument that different marketing mixes have been raised for different subjects of marketing and finally this concept was broadly accepted by Booms and Bitner in 1981 by passing many changes by expanding framework of 4p to 7p(Product , Price , Promotion , Place , Process , Physical evidence , Personnel). This research intends to prioritize and compare marketing mix elements effective on LCD TV sale with use of customers and experts' views.

2. Statistical population and Sampling method:
2.1. Statistical population
In the related research, statistical population includes:
- Actual customers of LCD TV manufacturing companies which reside in Districts 1 and 2 of Tehran and used the related product from 2008 to 2010.
- The specialists who have at least 10 years of experience and sale in this field.

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*Corresponding Author: Abolghasem Gholamreza Tehrani, University of Management, Azad University North Tehran Branch, Tehran, Iran

In definition of actual customers, we can say that customers who have purchased service from the said company at least for one time , the number of these customers is 96, 99,98 and 85 for SAMSUNG , LG , PANASONIC , SONY companies.

2.2.   Sampling method , statistical sample and sample size (determining sample size)

In the present research, sampling of the said companies customers was done randomly. With regard to the research subject which is prioritization of marketing mix elements (product, price, distribution, promotion) for 4 major companies producing LC TV active in Iran market from the point of view of customers and experts, it is evident that statistical population of the research included actual consumers of LCD and 100 questionnaires will be distributed for each one of the companies and most of LCD TV consumers will be family.

2.3.   Research type

The said research is an applied research in terms of goals of a research and is descriptive method because it we seek to find a solution for the available problem (Hafez Nia, 1998, P40).

2.4.   Time domain

It is important to mention time domain because reader can have more desirable assessment with regard to time interval for performing research regarding analysis and inferences. It is necessary to mention that   this research started since early 2008 and ended to late 1388(2010).

2.5.   Data gathering tools and methods

In order to compile theoretical fundamentals, library studies were used and then questionnaire was prepared and distributed for gathering data while regular interview method was used to fill out the questionnaire. Regular interview is an interview which includes equal questions which were prepared before. In the present research, main method of measurement is questionnaire which is one of the common research methods and direct method for obtaining research data. Questionnaire is a set of questions which gives necessary answer by observing them (Venus et al, 1996, P90 and 96). Questionnaire of this research follows Lickert 5-scale spectrum.

2.6.   Research validity

The second research questionnaire was distributed among sale agents in Tehran city under title of marketing mix hierarchy questionnaire by aiming at identification of the most important components of   marketing mix in LCD TV industry. After receiving 378 questionnaires, its validity was calculated with use of SPSS software. The calculated value for the related questionnaire included 0.728, 0.853, 0.876 and 0.838 for SAMSUNG, LG, SONY, PANASONIC companies respectively indicating high reliability. In Kronbach alpha formula, a value is between 0 and $(0 < a < 1)$ and high validity factor 50% indicates acceptable validity. Diagram 1-1 shows stages of research.

2.7.   Applications of research

The following applications are predicted for performing this research:
A- Planning and making necessary changes in provision of services in the said companies which include a part of marketing mix on the basis of :
-    Communication
-    Importance and prioritization
B- Generation to other LCD TV manufacturing companies in the company for making optimal decision and attention to the related elements.

Research results can be used by the following organizations and companies:
•   All LCD TV manufacturing companies
•   Scientific , university and research centers
•   Ministry of Commerce and Home Appliances Unions

Promotion

Personnel — Place

Eye witness — Identification of marketing mix indices — Price

Proce — Product

Questionnaire design and information gathering → Design of customers and experts questionnaire '

→ Determining validity and reliability of questionnaire

→ Distributing and gathering questionnaire

Information analysis

Conclusion → Prioritizing and comparing brands

Compiling strategy on the basis of SWOT matrix and marketing mix

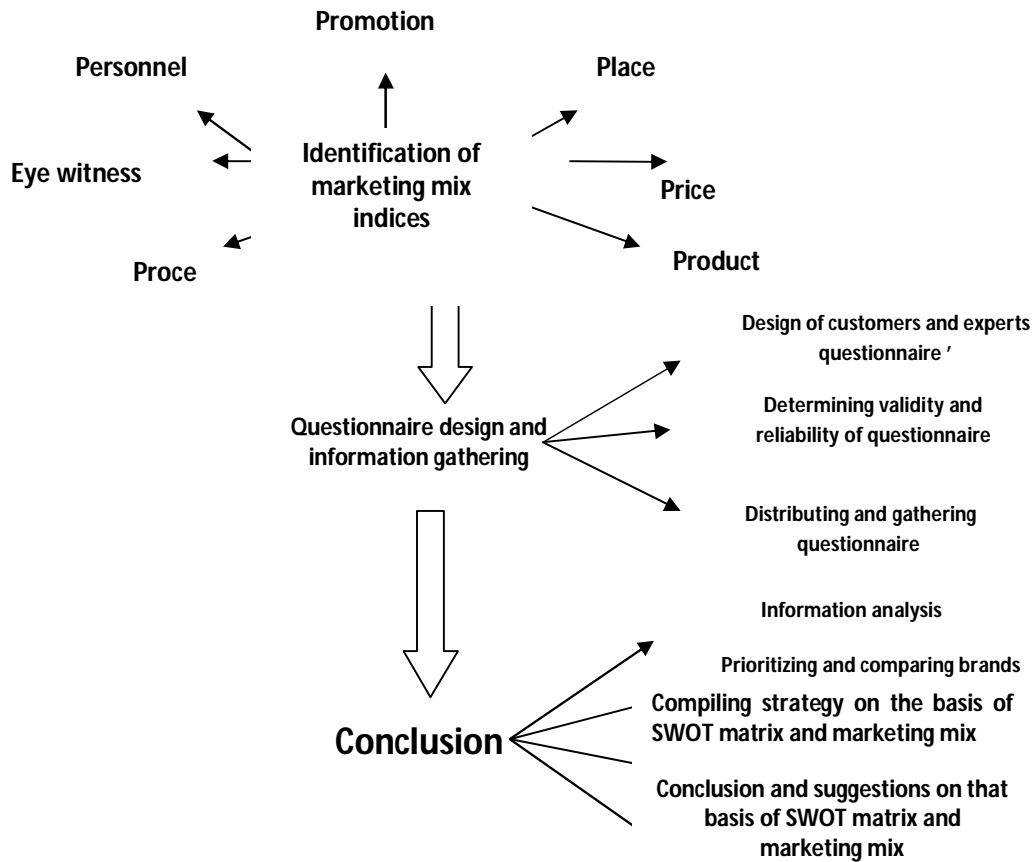Conclusion and suggestions on that basis of SWOT matrix and marketing mix

Diagram 1-1-stages of research

3. Results of customers' views analysis

3.1. Prioritization of marketing mix elements on the basis of brands:

Table 1-1- Prioritization of marketing mix elements on the basis of dispersion coefficient

Prioritization	CV (PANA)	Prioritization	CV (SONY)	Prioritization	CV (SAM)	Prioritization	CV (LG)	Questionnaire items
3	0.356	2	0.321	1	0.322	2	0.364	Quality in terms of life of the system
7	0.394	9	0.408	7	0.389	3	0.380	Quality in terms of easy use
18	0.479	7	0.398	4	0.377	7	0.455	Quality in terms of spare parts
16	0.466	1	0.274	14	0.492	18	0.563	Quality in terms of reputation and trade name of the system
2	0.325	17	0.507	16	0.549	17	0.546	After sale services in terms of timely and sound delivery
21	0.517	19	0.526	18	0.555	13	0.500	After sale services in terms of installation and commissioning
13	0.440	10	0.426	2	0.358	10	0.484	After sale services in terms of consultation given to the purchaser
19	0.487	4	0.337	5	0.386	4	0.385	After sale services in terms of guarantees
14	0.445	12	0.461	8	0.391	2	0.364	Price in terms of discount in return for more purchases
20	0.503	21	0.543	12	0.459	9	0.469	Price in terms of discount in return for cash payment
10	0.424	5	0.382	3	0.361	5	0.41	How is Price of the product in LCD market?
4	0.369	16	0.500	11	0.456	15	0.53	Sale condition in terms of receiving price of the system with cash discount
15	0.463	15	0.492	10	0.453	14	0.526	Sale condition in terms of receiving price of the system on credit with price increase percentage
6	0.381	20	0.531	17	0.552	13	0.500	Sale condition in terms of receiving price of the system including cash and credit
5	0.374	18	0.525	19	0.558	6	0.435	Sale condition in terms of paying some part of system transportation costs by the seller
9	0.415	8	0.400	15	0.494	1	0.321	Advertisement in mass media
8	0.409	14	0.488	13	0.460	8	0.466	Sale incentives such as gifts etc
12	0.433	6	0.394	20	0.569	15	0.530	Use of the experts aware of product and market conditions
17	0.471	13	0.481	12	0.459	14	0.526	The number of sale agencies in the region
11	0.426	11	0.443	9	0.450	12	0.498	Easy access to sale agencies
1	0.276	3	0.327	6	0.387	11	0.485	Purchase from other centers and chain stores

(Table 1-1- prioritizing marketing mix elements for each one of the brands)

3.2. prioritizing each one of the brands in terms of indices

Table 2-1-importance of the trade marks for each one of the questionnaire items from right to left:

Prioritizing the companies in terms of each item from right to left				Questionnaire items
PANASONIC	LG	SAMSUNG	SONY	**Quality in terms of life of the system**
SONY	PANASONIC	SAMSUNG	LG	**Quality in terms of easy use**
PANASONIC	LG	SONY	SAMSUNG	**Quality in terms of spare parts**
LG	PANASONIC	SAMSUNG	SONY	**Quality in terms of reputation and trade name of the system**
LG	SONY	SAMSUNG	PANASONIC	**After sale services in terms of timely and sound delivery**
PANASONIC	SONY	SAMSUNG	LG	**After sale services in terms of installation and commissioning**
PANASONIC	LG	SONY	SAMSUNG	**After sale services in terms of consultation given to the purchaser**
PANASONIC	SAMSUNG	LG	SONY	**After sale services in terms of guarantees**
PANASONIC	SONY	SAMSUNG	LG	**Price in terms of discount in return for more purchases**
SONY	PANASONIC	SAMSUNG	LG	**Price in terms of discount in return for cash payment**
PANASONIC	LG	SONY	SAMSUNG	**How is Price of the product in LCD market?**
SONY	LG	SAMSUNG	PANASONIC	**Sale condition in terms of receiving price of the system with cash discount**
SONY	PANASONIC	LG	SAMSUNG	**Sale condition in terms of receiving price of the system on credit with price increase percentage**
SONY	SAMSUNG	LG	PANASONIC	**Sale condition in terms of receiving price of the system including cash and credit**
SAMSUNG	SONY	LG	PANASONIC	**Sale condition in terms of paying some part of system transportation costs by the seller**
SAMSUNG	PANASONIC	SONY	LG	**Advertisement in mass media**
SAMSUNG	SONY	LG	PANASONIC	**Sale incentives such as gifts etc**
SAMSUNG	LG	PANASONIC	SONY	**Use of the experts aware of product and market conditions**
PANASONIC	LG	SONY	SAMSUNG	**The number of sale agencies in the region**
LG	SONY	PANASONIC	SAMSUNG	**Easy access to sale agencies**
LG	SAMSUNG	SONY	PANASONIC	**Purchase from other centers and chain stores**

Table 2-1: prioritizing the trade marks on the basis of indices elements

3.3. prioritizing indices in terms of trademarks

Table 3-1- prioritizing indices on the basis of dispersion coefficients:

Prioritizing	Dispersion coefficient (PANA)	Prioritizing	Dispersion coefficient (SAM)	Prioritizing	Dispersion coefficient (SONY)	Prioritizing	Dispersion coefficient (LG)	indices
4	0.423	1	0.395	1	0.350	3	0.440	**Quality**
5	0.442	4	0.462	4	0.449	4	0.478	**After sale services**
6	0.457	2	0.403	5	0.462	1	0.414	**Discounts**
2	0.396	5	0.504	6	0.512	5	0.497	**Sale conditions**
3	0.419	6	0.507	2	0.427	2	0.439	**Promotion**
1	0.391	3	0.432	3	0.432	6	0.503	**Distribution place**

(Table 3-1- prioritization of indices)

4. results of experts' views analysis

With regard to the fact that data analysis method is based on hierarchical analysis process, incompatibility of the paid comparisons of the respondents was controlled with certainty about acceptable incompatibility rate (lower than 0.1) and paid comparisons matrix was extracted which can be found in the following tables:

With regard to experts' views analysis, we reach the following results in table 1-2 and 2-2:

Prioritizing trademarks in terms of indices					
Distribution place	Promotion	Sale conditions	Price	After sale services	Quality
SONY	SAMSUNG	LG	SAMSUNG	SAMSUNG	**SONY**
SAMSUNG	SONY	SAMSUNG	LG	PANASONIC	**LG**
PANASONIC	LG	PANASONIC	SONY	LG	**PANASONIC**
LG	PANASONIC	SONY	PANASONIC	SONY	**SAMSUNG**

Table 1-2- experts' views analysis

Final prioritization in terms of all indices
SONY
SAMSUNG
LG
PANASONIC

(Table 2-2, final prioritization in terms of all indices in general case)
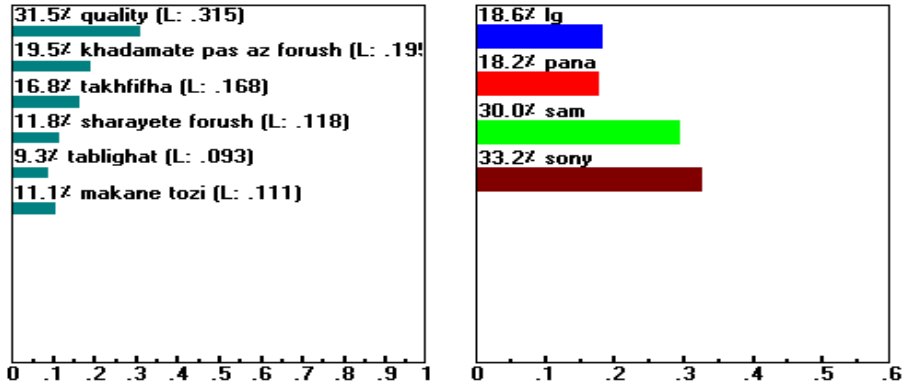

Diagram 1-2- importance of each trademark and index

Table 3-2- changes of each index from the primary state to the optimal state:

Table 4-2- pair comparison of each trademark in terms of indices

Distribution place		Advertisement		Sale conditions		Discounts		After sale services		Quality		Increase of indices
1	0.111	1	0.093	1	0.118	1	0.168	1	0.195	1	0315	Brands values
9.9%	20.1%	11.2%	20.1%	28.6%	20.1%	26.9%	20.1%	13.2%	20.1%	23.9%	20.1%	LG
13.9%	17.1%	8.7%	17.1%	23.8%	17.1%	14.1%	17.1%	29.1%	17.1%	12.4%	17.1%	PANA
28.3%	29.9%	49.5%	29.9%	26.3%	29.9%	42.5%	29.9%	46%	29.9%	9.4%	29.9%	SAM
47.9%	32.9%	30.6%	32.9%	21.4%	32.9%	16.5%	32.9%	11.7%	32.9%	54.3%	32.9%	SONY

General estimation of indices	Distribution place	Advertisement	Sale conditions	Discounts	After sale services	Quality	Comparing priority of each trademark I terms of indices	
✓		✓	✓	✓		✓	PANA	LG
❖			✓			✓	SAM	
❖			✓	✓	✓		SONY	
❖	✓				✓		LG	PANA
❖						✓	SAM	
❖			✓		✓		SONY	
✓	✓	✓		✓	✓		LG	SAM
✓	✓	✓	✓	✓	✓		PANA	
❖		✓	✓	✓	✓		SONY	
✓	✓	✓				✓	LG	SONY
✓	✓					✓	SAM	
✓	✓	✓		✓		✓	PANA	

(Table 4-2- pair comparison of each trademark in terms of indices)

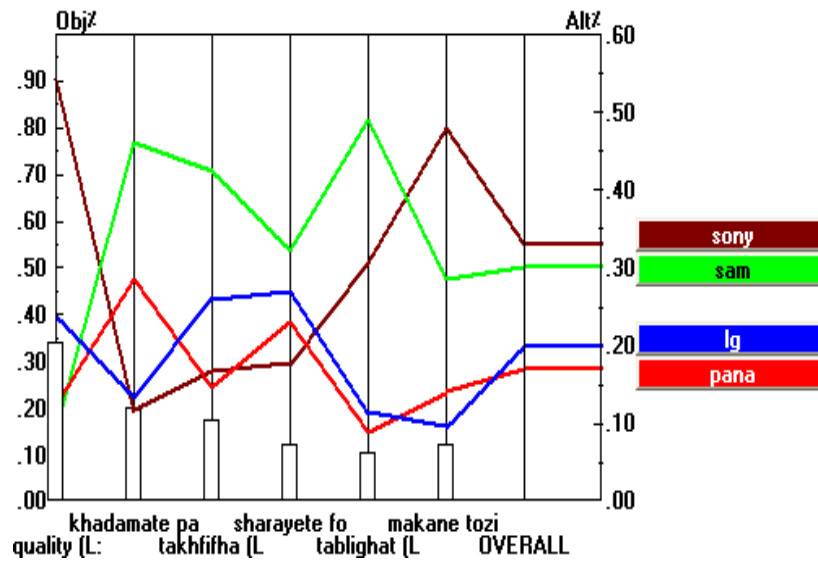Diagram 2-2-importance of each trademark in terms of indices:

Diagram 2-2-importance of each trademark in terms of indices

Table 5-2- pair comparison of each trademark in terms of indices in optimal state :

General estimation of indices	Distribution place	Advertisement	Sale conditions	Discounts	After sale services	Quality	Comparing priority of each trademark I terms of indices	
✓		✓	✓	✓		✓	PANA	
❖						✓	SAM	LG
❖			✓	✓	✓		SONY	
❖	✓				✓		LG	
❖						✓	SAM	PANA
❖			✓		✓		SONY	
✓	✓	✓	✓	✓	✓		LG	
✓	✓	✓	✓	✓	✓		PANA	SAM
✓	✓	✓	✓	✓	✓		SONY	
✓	✓	✓				✓	LG	
❖	✓					✓	SAM	SONY
✓	✓	✓		✓		✓	PANA	

Table 5-2- pair comparison of each trademark in terms of indices in optimal state
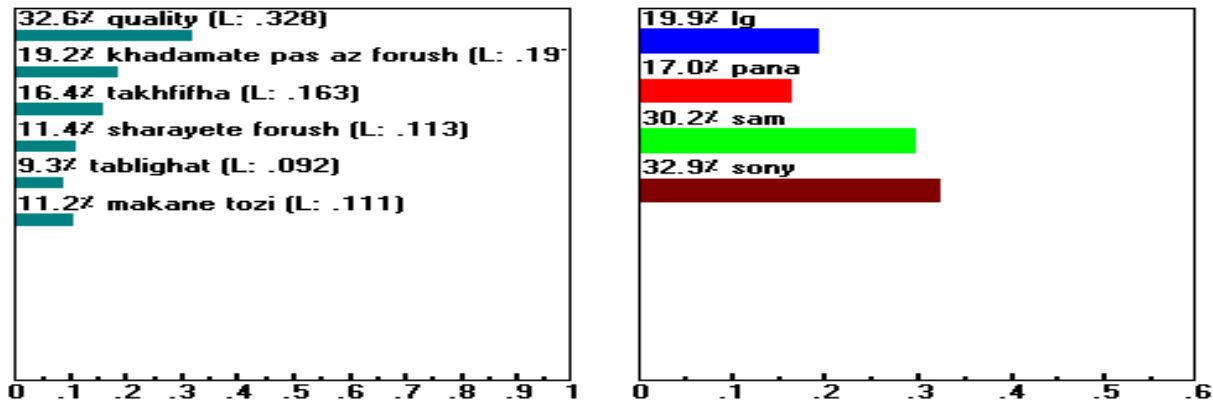
5. Results of customers and experts' views

With regard to the performed calculations, we reach the following general prioritization:

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Marks	Rank
SAMSUNG	1
SONY	2
LG	3
PANASONIC	4

Table 1-3- combination of customers and experts' results

6. conclusion about sensitivity analysis

Diagram 1-4: frequency (importance) of each trademark and index in optimal state:

(Diagram 1-4- frequency (importance) of each trademark and index in optimal state:

Table 1-4- changes of each index in two primary and optimal cases :

Distribution place	Advertisement	Sale conditions	Discounts	After sale services	Quality	Indices
L=0.111	L=0.093	L=0.118	L=0.168	L=0.195	L=0.315	Primary state
L=0.111	L=0.092	L=0.113	L=0.163	L=0.191	L=0.328	Optimal state
0	-1.08%	-4.42%	-2.97%	-2.09%	4.1%	Changes percentage

Table 1-4- changes of each index in two primary and optimal cases

Table 2-4- changes of each trademark in two primary and optimal case;

SONY	SAMSUNG	PANASONIC	LG	Trademarks
L=0.329	L=0.299	L=0.171	L=0.201	Primary state
L=0.330	L=0.302	L=0.170	L=0.199	Optimal state
0.303%	0.993%	-0.588%	-1.005%	Changes

(Table 2-4- changes of each trademark in two primary and optimal case)

7. Compiling strategy in terms of SWOT matrix and marketing mix :

After different interviews with sale managers of the companies and distribution of the questionnaires among the sale agencies managers and experts for four Sony , Samsung, LG and Panasonic companies , strength ,weakness , threat and opportunity were identified and prioritized in table 1-5 which indicated SWOT matrix.

Weaknesses		Strengths		SWOT Matrix
Shortage of Capacity and capabilities	W1	Capacity and capabilities	S1	
Shortage of power and competition	W2	Competitive advantage	S2	
Reputation, attendance in the field	W3	exclusivity	S3	
Financial discussions	W4	sources , asset , personnel	S4	
Knowledge vulnerability	W5	financial reserves and potential	S5	
Time limitation and scale	W6	incomes	S6	
Liquidity flow and its consumption	W7	marketing , distribution and	S7	
Durability and resistance	W8	recognition region	S8	
Effect on main activities	W9	innovation aspect	S9	
Capabilities of main activities	W10	geographical place	S10	
Data reliability	W11	price and quality	S11	
Ability to predict plans	W12	credits and competencies	S12	
Morale, commitment and leadership	W13	processes and competencies	S13	
Credits	W14	processes and systems	S14	
Processes and systems	W15	cultural, behavioral and attitude	S15	
Lack of the managers' support	W16	information and communication technology of the managers		
WO Strategies		SO Strategies		Opportunities

Correction and reinforcement of teamwork through education and culture building	WO1	Presentation and introduction of abilities on the basis of customer's need	So1 So2 So3	Market development	O1
	WO2		So4	Competitors vulnerability	O2
Development of skills and specialties education relating to market labor	WO3	Presentation of the proposed projects	So5	Industry trends or life methods	O3
Customer communication management	WO4	Development of information and labor market information	So6	Technology development	O4
Manpower planning for completing positions	WO5	Clarification of the budget performance and relation of budget	So7	Global credit	O5
	WO6			New markets	O6
Concluding memorandum of understanding between sale center and other organizations	WO7	with projects		Export and import	O7
	WO8	Information management relating to the customers		New exclusivity	O8
Reinforcing physical factors and equipments of the center according to the assumed missions	WO9	Exploitation of statistical specialized experiences in sale market		Large contracts	O9
				Business and product development	O10
Delegating power to personnel				Information and research	O11
Self assessment				Partnerships and agencies	O12
				Seasonal effects , climate , economic status	O13 O14
WT Strategies		**ST Strategies**		**Threats**	
Following establishment of independent information technology structure and planning in immobile units	WT1	Reinforcing information position of labor market by providing independent site commissioning services	ST1 ST2 ST3 ST4 ST5	Political effects	T1
	WT2			Legal effects	T2
				Environmental effects	T3
Correction of executive processes on the basis of missions and duties	WT3	Concluding memorandum of understanding between manufacturing centers and other manufacturing centers		Information technology development goals and intentions of the competitors	T4
Extending quality management certificate	WT4			market demand	T5
	WT5			technology	T6
Promoting iso certificate to efqm		Participation in implementation of information system		new products , services and ideas	T7
Development of communication with deputy and independent units , feasibility study and section of communicating experts		Merging information technology unit with other market information centers		critical supports	T8
				trading partners	T9
				confronting with un-removed barriers and threats	T10 T11
				local and foreign economy	T12
				seasonal effects , climate etc	T13

(table 1-5-swot matrix)

8. Compiling strategy in terms of marketing mix :

With regard to table 1-2, we can reach the above results which have been gathered table 2-5 on the basis of priority and importance.

Priority 6	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1	Companies
Promotion	Price	After sale services	Distribution place	Sale conditions	Quality	**Samsung**
Quality	Sale conditions	Promotion	Price	Distribution place	After sale services	**Sony**
Sale conditions	Price	Quality	Promotion	After sale services	Distribution place	**LG**
After sale services	Distribution place	Sale conditions	Quality	Promotion	Price	**Panasonic**

Table 2-5, prioritization of marketing mix for strategic planning

9. Conclusion and suggestions

Selection of suitable and dynamic marketing mix is one of the main challenges of marketing managers. In this article, we try to specify components of marketing mix with use of review of literature and then to study and rank them with use of a field research. Sony, Samsung, LG and Panasonic companies should proceed according to tables 1-5 and 2-5 in order to achieve these goals in the fields of marketing mix and utilization of strength, weakness, and opportunity and to prevent weakness and strength.

10. REFERENCES

1- bagharian, Mohammad (2001), wise decision-making: new approach to modeling in management; the first edition, Tehran, governmental management educational center
2- Bloorian , Tehrani , Mohammad(1999), marketing and market management , second edition , Tehran ,
3- Hagh Parast , Mohammad Reza (2000), study and selection of promotion mix suitable for marketing research companies (on the basis of group decision-making method (AHP), master's thesis , faculty of humanities , Tarbiat Modarres University
4- Katler , Philip and Armstrong , Gary (2001), marketing principles , translated by Bahman Froozandeh, third edition , Esfahan :Atropat Press
5- Gohar Pakhsh , Jalal(1999|), analysis of the presented methods for determining relative advantage of industries with use of AHP technique , master's thesis faculty of industrial engineering , Amir Kabir University
6- Monzavi , Mohammad Reza (1995), design of optimal strategy of Noba Company through AHP model , master's thesis , faculty of industrial engineering, Sharif University of Technology

7-   Vahdati , Hojat (2001), study on priority of marketing mix elements effective on consumption of foreign goods, master's thesis , Faculty of Humanities, Tarbiat Modarres University

8-   Ahmad Roosta , Davar Venus , Abdolhamid Ebrahimi , marketing management , Samt Press, 1996, P247 to 252

9-   Bazargan , Abbas et al , research methodologies in behavioral sciences, publication place, Agah Press , 1997

10- Khaki , Gholamreza, research methodology with approach to thesis writing, publication place: Tehran, State Scientific Research Center Press

11- David Olsen : multivariate decision-making methods , translated by Dr. Ali Khatami Firooz Abadi , Marandiz Press , P91-122

12- Godwing Udo, G. (2000). Using analytical hierarchy process to analyze the information technology out sourcing decision. Industrial Management and data systems, Vol 100, NO.9.

13-   Kotler. Philip (1997). Marketing management: analysis, planning implementing and control (9th ed). International edition, Prentice Hall.

14- Muller. Mark H; Fairlie Clark. (2001). Using the AHP to determine the correlation of productive issues to profit. European journal of marketing, Volume35,No.7.