

Designing a New Model in Order to Convey the Voice of

Employees and Customers to Organization's Processes

Maedeh Rabbanimehr (Corresponding author) Master of Industrial Management, Department of Management, University of Isfahan, Isfahan, Iran, Hezarjarib St., 81746-73441, Isfahan, Iran Tel: +98-311-793-5224 Email: m.rabbanimehr@yahoo.com

> Ahmad Jaafarnejad Full Professor, faculty of management, Tehran University, Iran Tel: +98-311-793-5224 Email: jafarnjd@ut.ac.ir

Sayyed Mohsen Allameh Professor, Department of Management, University of Isfahan, Isfahan, Iran Hezarjarib St., 81746-73441, Isfahan, Iran Tel: +98-311-793-5224 Email: dr_allameh@yahoo.com

Sayyed Mohammadreza Davoodi Department of management, dehaghan branch, Islamic Azad University, Isfahan, Iran Hezarjarib St., 81746-73441, Isfahan, Iran Tel: +98-311-793-5224 Email: smrdavoodi@yahoo.com

Accepted: October 03, 2012 Published: November 24, 2012 Doi:10.5296/ijld.v2i6.2752 URL: http://dx.doi.org/10.5296/ijld.v2i6.2752

Abstract

Purpose of this paper is to create a model for designing a new model in order to convey the voice of employees and customers to organization's processes. Historical study and field study methods are used to collect data and questionnaire is tool of data collection. Descriptive and inferential statistics methods, ranking and matrix analysis method in Quality Function Deployment have been used for data analysis. The outcomes imply that prioritization of European Foundation for Quality Management enablers and employees and customers satisfaction factors are different before and after the use of Quality Function Deployment. Also, other outcomes include reduction of gap between managers and employees and customers; creation of a suitable atmosphere for the development of effective and coordinated relationship between managers and employees and customers; and development of the European Foundation for Quality Management model.

Keywords: Quality Function Deployment, European Foundation for Quality Management, Enablers, voice of employees and customers

1. Introduction

The European Foundation for Quality Management (EFQM), is a model for better management of organizations for maximizing productivity and quality of products and services and for responsiveness to this question witch how manages a excellence organization, its personnel



and special senior managers of organization what have skills and how the organization move to excellence (Ignacio & Castilla,2008).

This model introduced in 1991 and the new version of EFQM model mentioned in 2003 that use in organizations at present (Davies, 2008).

Quality Function Deployment (QFD) is a set of matrix tools, which are used in product development in deploying customer requirements into a product, service and business operations. QFD seemed to be interesting method which could be elaborated to a implementation vehicle of TQM^{1} (Jiang et al.,2007; Chen&Kom,2008; Herrzwurm & Schockert, 2003).

The concept of QFD was introduced in Japan by Yoji Akao in 1966. QFD originated by professor Mizuno in 1972 to help design super tankers at Mitsubishi's Kobe shipyard site, Japan. In1978, the first book on the subject was published in Japanese, which resulted in a large increase in the use of QFD in Japan. By 1986 a survey of larger number companies of the Union of Japanese Scientists and Engineers (JUSE) showed that over half of them were using QFD (Politis, 2005; Ginn et al.,1998). The employees of organization as the most important organizational resource and the element to achieve the competitive advantage and also management of organization as the promoter and conductor of implementation of organizational projects, have considerable importance for success of organizations and promoting the quality and productivity level. According to the importance of employees and management is what important and necessary.

Yet, QFD has combined whit other tools such as TRIZ (Russian theory of inventive problem solving), Taguchi method, AHP^2 , FMEA³,... (Jiang et al., 2007).

In this research, is tried to convey the voice of employees and customers to organization's processes(Designing a new model(EFQM-QFD)). For this purpose, OFD is used and customer needs are replaced by customers and employees satisfaction factors and technical requirements are replaced by EFQM enablers. Also is tried for the comparison of prioritization of enablers and customers' and employees' satisfaction factors, according to the given integrated approach and their prioritization based on the usual method.

In the following, EFQM model and QFD technique are briefly introduced. The research hypotheses and new methodology is then developed and proposed and examined in a case study. Finally, the results are analyzed and discussed and respectively, conclusions are addressed.

2-EFQM model

Organizations and people will always be motivated to achieve continuous improvement. The EFQM model is an optimal orientation for excellence (Klefsjo et al, 2008). The European Foundation for Quality Management (EFQM) is a membership based, not for profit organisation, created in 1988 by 14 leading European businesses, with a mission to be the driving force for sustainable excellence in Europe and a vision of a world in which European organisations excel. Today EFQM has more than 800 members in 38 European countries. EFQM launched the European Quality Award Model in 1991 and invited at the same time companies in Europe to apply for the European Quality Award based on their own self-assessment following the model's fundamental concepts and criteria (Park, 2008; Conti, 2007; Vernero et al., 2007).

¹ Total Quality Management

² Analytical Hierarchy Process

³ Failure Mode and Effects Analysis



The EFQM excellence model (see Figure 1) is a non-prescriptive framework with nine dimensions, called criteria, of which five are enablers (leadership, policy and strategy, people, partnerships and resources and processes describe how things are done in the organisation) and four results criteria (customers, people, society and key performance describe what is achieved by the enablers) (Conti, 2007; Jacobs & Suckling, 2007; Davies, 2008).

The "Enabler" criteria cover what an organization does. The "Result" criteria cover what an organization achieves. "Enablers" cause "Results". The "Enabler" criteria cover what an organization does. The "Result" criteria cover what an organization achieves. "Enablers" cause "Results". Each of the nine criteria has a definition and a number of sub-criteria. The sub-criteria pose a number of questions that should be considered in the course of an assessment (Asare et al., 2005; Mora et al., 2006).



Figure1. EFQM model (2003)

3-Quality function deployment

Quality function deployment is a planning process for purpose of translating customer needs into appropriate organizational requirements (Shen and Xie, 2000). QFD offers a structured approach to integrating customer requirements with products and service design specifications, through the use of charts and matrices. The resultant "House of quality" is made up of two principal portions – the horizontal portion comprising information related to the customer and the vertical portion, comprising information related to the supplier inputs. A set of items, "the whats" (customer requirements), is assigned to the rows of a matrix and a set of related items, "the hows" (design characteristics), is assigned to the columns (Almannai et al., 2006). QFD is also referred to as "House of Quality (HOQ)". The reason for this is that matrixes in QFD fit together to form a house-shaped diagram (Jiang et al., 2007 ; Killen et al., 2005). Figure 2 shows QFD matrix.





Figure 2. QFD matrix (Gover and Philips, 1994)

4-Research hypotheses

The major hypotheses:

1) There are different between prioritizing the EFQM enablers before and after applying the proposed model.

2) There are different between prioritizing employees' and customers' satisfaction factors before and after applying the proposed model.

The minor hypotheses:

1. There are different between prioritizing the leadership area of enablers before and after applying the proposed model.

2. There are different between prioritizing the policy and strategy area of enablers before and after applying the proposed model.

3. There are different between prioritizing the Human resources area of enablers before and after applying the proposed model.

4. There are different between prioritizing the partnerships and resources area of enablers before and after applying the proposed model.

5. There are different between prioritizing the processes area enablers before and after applying the proposed model.

6. There are different between prioritizing customers' satisfaction factors before and after applying the proposed model.

7. There are different between prioritizing employees' satisfaction factors before and after applying the proposed model.

5-New methodology

This research is typically descriptive-survey and attempts to develop an integrated approach including EFQM and QFD technique. The method of data collection, in theoretical study is library based and in the case study is field based. The data collection tool is questionnaire. The Statistical population includes employees and customers of Iran Polyacryl Co. and the method of sampling of employees is grouping method and of customer is simple random samplying. For examining the research hypotheses, three questionnaires are used, including importance questionnaire of EFQM enablers from the point of managers. In order to assess the



reliability of the first two questionnaires, the Cronbakh alpha coefficient are calculated as follows, with satisfactory values of 0.823 and 0.751 for the first and the second questionnaires, respectively. The validity of the two questionnaires has also been approved using content analysis. The third questionnaire is standard and has been filled by the entire population, i.e. 16 senior managers. This research is kind of integrated modeling, the presented integrated model and relationships between variables will be explained in the case study perfectly. Necessary steps and procedures for implementation of this article is shown in figure 3:



Figure3. Implementation steps of research



6-Case study and findings

Iran Polyacryl Co. is selected for case study. This company which was established in 1974 is located in Isfahan province and is one of the largest manufacturers of Yarn and Tops Polyester and is the only factory that produces Acrylic Fiber in the country.

The general overview of this research and relationship between the variables is illustrated in Figure 4; On top of the matrix, the five criteria of EFQM enablers are located and on left side, the customers and employees satisfaction factors are addressed. (In order to summarize figure 4 these variables are shown in table 1). The column indicating absolute weight is the average value of evaluation computed based on the data gathered via two questionnaires with five point Likert spectrum. One questionnaire is used to determine performance of customers' satisfaction factors. The result is entered into the matrix.

																						EF	FQM	l en	able	rs		
]	Lead	ersh	ip	Ро	licy	Stra	and tegy				Hum ourc		Pa	rtne	rship Res	s a sour				Pro	ocess	es		
		Absolute weight	1	2	3	4	5	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	Sum	Pri orit ies
	1	3.15	9			3	1	9	9	9	9	3					3	3	3	3	3				1	9	242.25	4
	2	1.4	3	9		1			1			9				1						1	9	3	1	9	65.8	18
	3	1.3	9	1	1	3	9	1	1	1	1						3	3	3	3	3				3	3	62.4	19
	4	1.1			1	3							3	1	9											3	22	27
	5	1.75			9	3	1							9	9	1	3							1		9	78.75	13
	6	1.66			3									9	9		3	3	3	3	3			3		9	79.68	12
	7	1.05						1									1	1	1	1	1						6.3	30
	8	1.4	3					3				3		3		1	3	1	9	3	3		3	1			50.4	23
	9	1.8	9	1		1	9	3	3	3	9	3	9	1		1	9	9	3	3	9		9				169.2	6
DIS	10	1.15	9	3		1	3	1	1	1	1	3		9			3	3	3	3	3		3	3	3	9	74.75	14
cto	11	1.2	9	3			1	9	3			3					1	3			3		9	9		9	74.4	15
fa	12	1.4			9										9						3			9		9	54.6	20
uc	13	1.15	3					3				9				3	1						1	9		1	34.5	25
customers and employees satisfaction factors	14	2.04	9	9	3	1	1	3	3	1	3	3	3	1	1		3	9	1	3	9					1	136.68	7
fa	15	1.9	3				1		1					3	9	1	1										36.1	24
tis	16	1.33	1	3	9		3							9	9		1	3			1						51.87	22
sa	17	1.17			3				1	3						3											11.7	29
Se	18	1.15	9		3		1	9	9	3	3	9					1	1			1						73.5	16
/e	19	1.28			0	9	1	1	9			9	9	3	9	9					9						87.04	11
<u>0</u> .	20	1.77 1.95		9	3	9 3	1		1	3	3	3	3	9 3	9	9 3				1	3	1	3	3	9	1	93.81 118.95	10 8
d	22	1.95		9	5	1	5	3	9	9	5	3	5	5	1	1		3		1	5	1	1	1	3	1	54.18	21
en	23	1.20		É	3	3	-	5	1	Ĺ.		3		1	3	1	1						-	-	5		20.8	28
рц	24	1.6	9	3	-	3	3	9	9	3	9	9			1		3	3			1		1			3	110.4	9
ar	25	2.45	9	3	3	9	9	9	9	9	9	9	3	3	1	1	1	3		1	1	1	3	3	1	3	252.35	3
SIS	26	1.18			3	1		3				1		9	9	3	9							9		9	66.08	17
me	27	1.11			1	3		1				3	3	1	9	1											24.42	26
[0]	28	2.95		3	9	3	3	9	3	1	3	3	9	9	9	3	3	<u> </u>		<u> </u>	3			9		9	268.45	2
usı	29	2.5		9	9	9	9	3	3	3	3	1	0	_	0		9				3	1	3	9		9	207.5	5
5	30	3.27	1	9	9	9	3	9	9	3	3	9	9	9	9	9					3	1	3	5	1	10	353.16	1
	Abso weig		167.86	146.92	167.37	158.89	123.79	184.96	177.9	110.55	126.08	191.39	109.65	168.73	198.24	96.45	112.2	83.81	42.87	42.95	125.11	11.57	81.77	123.66	38.95	183.55		
	prior	Tilled	7	10	%	6	13	4	5	16	Ξ	2	17	9	1	18	15	19	22	21	12	24	20	14	23	3		

Figure 6. Filled QFD

Table 1. EFQM enablers and customers and employees satisfaction factors

Cu	stomers' and employees' satisfaction factors		EFQM enablers
	A) employees' satisfaction factors		A) Leadership
1.	Participation in organizational issues	1.	Codification of perspective by leaders.
2.	Facilities and Services	2.	Making sure from applying of
3.	Workplace conditions		improvement systems.
4.	Counterpart relationship	3.	Leaders' interaction with customers

Macrothink Institute[™]

	2012, Vol. 2, No. 6
 5. Development and preferment of job 6. Appreciation 7. Policy and impacts of environment 8. status of job Immune and security 9. Creation of equal opportunities 10. Organizational communications 11. Training and developing of human resource 12. Change management 13. Employee empowerment 14. Salary 15. Appropriate employment conditions 	 and stakeholders. 4. Reinforcement of excellence culture in the organization. 5. Perception and support of leaders from organizational evolution B) Policy and Strategy 1. Codification of strategies based on present and future of stakeholders. 2. Focusing on information about performance management and codification of strategies and policies. 3. Reviewing and updating of policies. 4. Focusing on key processes and on spreading of strategies
 B) customers' satisfaction factors 1. Warranty 2. Willingness to purchase other products 3. product life cycle 4. Accountability 5. Innovation in product design 6. Product Reliability 7. Product training 8. Environmental aspects 9. Willing to introduce Organization to others 10. Appropriate communication 11. Availability 12. Technical Support 13. Just in time delivery of products 14. Investigation of Customer complaints 15. Providing quality products 	 C) Human resources Planning and improving of human resources Recognizing of staff knowledge Participation of staff in organization problems. Making a reciprocal Conversation between staff and organization. Appreciation of staff D) Partnerships and Resources External partnerships management. Finances resources management. Buildings, equipment and materials management. Information and knowledge management.
	 E) Processes Designing and managing of processes systematically. Improving of Processes, as needed. designing and developing based on customer needs Producing and supporting of Products and services Managing and Enhancing of Customer



relationships

The relationship among customers' and employees' satisfaction factors and enablers are determined using interviews with responsible staff of the company. Three levels are assumed for the interrelationships, i.e. 9 as strong, 3 as moderate and 1 as weak. Then, the interrelationship weight and correspondent absolute weight of customers' and employees' satisfaction factors are multiplied and the results are sum up and the total scores on the bottom of the matrix are used for prioritizing EFQM enablers. Similarly this can be done for prioritizing customers' and employees' satisfaction factors on right side of the matrix.

7-Discussion

This part of article is corresponding to case study and is about research hypotheses. Table 4, is based on QFD matrix (figure 3) and illustrates the prioritization of EFQM enablers before and after applying proposed model. The column of before applying proposed model resulted from questionnaire of enablers importance corresponding to idea of organization's managers.

Table 4. The compression between priority of EFQM enablers after and before using QFD

Row	After using the QFD	Before using the QFD
1	Making a reciprocal Conversation between staff and organization.	Finances resources management.
2	Planning and improving of human resources	Codification of perspective by leaders.
3	Managing and Enhancing of Customer relationships	Producing and supporting of Products and services
4	Codification of strategies based on present and future of stakeholders.	Making sure from applying of improvement systems.
5	Focusing on information about performance management and codification of strategies and policies.	Focusing on information about performance management and codification of strategies and policies.
6	Participation of staff in organization problems.	Reinforcement of excellence culture in the organization
7	Codification of perspective by leaders.	Leaders' interaction with customers and stakeholders
8	Leaders' interaction with customers and stakeholders	Managing and Enhancing of Customer relationships
9	Reinforcement of excellence culture in the organization	Participation of staff in organization problems.
10	Making sure from applying of improvement systems.	Perception and support of leaders from organizational evolution
11	Focusing on key processes and on spreading of strategies	Codification of strategies based on present and future of stakeholders.

Macrothink Institute™

ISSN 2164-4063 2012, Vol. 2, No. 6

12	Information and knowledge management	Recognizing of staff knowledge
13	Perception and support of leaders from organizational evolution	Making a reciprocal Conversation between staff and organization.
14	Designing and managing of processes systematically	Planning and improving of human resources
15	External partnerships management	Information and knowledge management
16	Reviewing and updating of policies.	Improving of Processes, as needed.
17	Recognizing of staff knowledge	designing and developing based on customer needs
18	Appreciation of staff	External partnerships management
19	Finances resources management	Technology management.
20	Improving of Processes, as needed.	Reviewing and updating of policies.
21	Technology management.	Focusing on key processes and on spreading of strategies
22	Buildings, equipment and materials management	Appreciation of staff
23	Producing and supporting of Products and services	Buildings, equipment and materials management
24	designing and developing based on customer needs	Designing and managing of processes systematically

According to table 4, the first major hypothesis is accepted. Difference between two states, before and after QFD, indicates that there is a gap between the ideas of organization's management and the ideas of organization's employees and customers. The management function is to minimize this gap, Utilizing of this suggested model helps her/him in this work. In addition to decreasing of this gap, help to organizations to better managing customers and employees and noticing to their needs.

Table 5. The compression between priority of customers' and employees' satisfaction factors after and before using QFD

	After using the QFD	Before using the QFD
1	Providing quality products	Providing quality products.
2	Just in time delivery of products	Participation in organizational issues
3	Appropriate communication	Just in time delivery of products
4	Participation in organizational issues	Investigation of Customer complaints
5	Investigation of Customer complaints	Appropriate communication
6	Creation of equal opportunities	Salary
7	Salary	Product Reliability
8	Product Reliability	Appropriate employment conditions

Macrothink Institute™

9	Willing to introduce Organization to others	Creation of equal opportunities
10	Innovation in product design	Innovation in product design
11	Accountability	Development and preferment of job
12	Appreciation	Appreciation
13	Development and preferment of job	Willing to introduce Organization to others
14	Organizational communication	status of job Immune and security
15	Training and developing of human resource	Facilities and Services
16	product life cycle	Change management
17	Availability	Warranty
18	Facilities and Services	Workplace conditions
19	Workplace conditions	Environmental aspects
20	Change management	Accountability
21	Product training	Product training
22	Warranty	Training and developing of human resource
23	status of job Immune and security	Availability
24	Appropriate employment conditions	Willingness to purchase other products
25	Employee empowerment	product life cycle
26	Technical Support	Employee empowerment
27	Counterpart relationship	Organizational communication
28	Environmental aspects	Technical Support
29	Willingness to purchase other products	Counterpart relationship
30	Policy and impact of environment	Policy and impact of environment

According to table 5, the second major hypothesis is accepted, there is difference between prioritization of employees' and customers' satisfaction factors in before and after applying the proposed model. This confirms that an organization which it's goal is to achieve excellence can be emphasize on the last column priorities of the integrated matrix output. Also, this table illustrates that, the higher prioritization given to customers' satisfaction criteria, indeed customers' satisfaction in directing the organization to better quality play a considerable role.

Tables 6-12 are presented for examine the minor hypotheses which all of them are indicated the confirmation of research hypotheses.

Table 6- The difference between prioritization of Leadership area of EFQM enablers after and before using the QFD technique



		Leadership area
row	Before using the QFD	After using the QFD
1	Codification of perspective by leaders	Codification of perspective by leaders
2	Leaders' interaction with customers and stakeholders	Making sure from applying of improvement systems.
3	Reinforcement of excellence culture in the organization.	Reinforcement of excellence culture in the organization.
4	Making sure from applying of improvement systems.	Leaders' interaction with customers and stakeholders
5	Perception and support of leaders from organizational evolution	Perception and support of leaders from organizational evolution

The studying of leadership literature shows that the leaders who obey of the method of personnel – based, are more acceptable. If organization's management pays attention to the employees' priorities for guiding and managing the most important organization capitals, it can provide a good environment to make an efficient and harmonic relations between the manager and employees. According to this table, in sub-criteria 3, 1, 5 is not any differences between priorities of before and after using QFD. But rows of 2, 4 are settled completely vice versa of each other. It indicates that making sure from applying of improvement systems have more priorities in leadership area for organization managers, but in employees and customers view, this criterion is settled in the second row. In other word, organization managers should know that executing the improvement systems is not possible unless without cooperation of beneficiaries and employees specially.

Table 7 illustrates that the prioritization of Policy and Strategy area in two states of before and after QFD is completely opposed. In QFD model, the most important factor is Codification of strategies based on present and future of stakeholders, In spite that in organization's managers view focusing on information about performance management and codification of strategies and policies is more importance. The result of this table indicates that Policy and Strategy should be based on present and future of stakeholders, because it will make a commitment for stakeholders to do policies and strategies and the performance management will be meaningless unless strategies to be based on present and future of stakeholders.

	Policy and Strate	gy area						
row	Before using the QFD	After using the QFD						
1	Codification of strategies based on present and future of stakeholders	Focusing on information about performance management and codification of strategies and policies.						
2	Focusing on information about performance management and codification of strategies and policies.	Codification of strategies based on present and future of stakeholders						
3	Focusing on key processes and on spreading of strategies.	Reviewing and updating of policies.						

Table 7- The difference between prioritization of human resources areas of EFQM enablers after and before using the QFD technique



4 Revi	ewing and updating of policies	Focusing spreading	on of st	key rategi	processes es.	and	on
--------	--------------------------------	--------------------	-------------	---------------	------------------	-----	----

Table 8- The difference between prioritization of human resources areas of EFQM enablers after and before using the QFD technique

	Human resources area							
Row	Before using the QFD	After using the QFD						
1	Making a reciprocal Conversation between staff and organization.	Participation of staff in organization problems						
2	Planning and improving of human resources	Recognizing of staff knowledge						
3	Participation of staff in organization problems	Making a reciprocal Conversation between staff and organization.						
4	Recognizing of staff knowledge	Planning and improving of human resources						
5	Appreciation of staff	Appreciation of staff						

Human resources area is the most importance of enablers area, consideration to prioritization of this area based on employees satisfaction factors lead to increasing efficiency and effectiveness of human resources performance, consequently increase the teamwork morale in organization.

Table 8 confirms that for organizational personnel, internal rewards is more importance of external rewards, As seen in the prioritization of human resources area, appreciation of staff is settled in last row and instead the cases such as making a reciprocal conversation between staff and organization, participation of staff in organization problems and recognizing of staff knowledge are in higher priorities. In this table, in spite of the fact that prioritizations is almost different but completely shows that also organization managers have more inclination to create motivation in employees through internal rewards rather than to give the external rewards to employees.

Table 9- The difference between prioritization of Partnerships and Resources areas of EFQM enablers after and before using the QFD technique

	Partnerships and Resources area							
Row	Before using the QFD	After using the QFD						
1	Information and knowledge management.	Finances resources management						
2	External partnerships management	Information and knowledge management.						
3	Finances resources management	External partnerships management						
4	Technology management	Technology management						
5	Buildings, equipment and materials management	Buildings, equipment and materials management						



In the case of prioritization of enablers partnerships and resources area, if organization management uses of organizational personnel and customers ideas, he/ she can direct the organization to the excellence side easier and faster by applying with the participative management advantages. As seen in the table 9, both of approaches are same on the priorities of criteria 4 and 5. The importance point, is attention to first row of prioritization after the QFD that from the perspective of QFD personnel orientation, information and knowledge management is more importance of external partnerships and finances resources management.

Processes area is related to designing and productions and relationship with customer. If organization management adjusts this enablers area without regard to employees and customers expectations and based on himself/ herself individual idea that often is without relationship with organization customer, and not uses idea of employees that are related to organizational processes in directly; will be spending more time and cost. Table 10, shows the prioritizations in organizational processes area.

In the state of after applying QFD, it can be seen that personnel have more interaction with customers, attention to customer expectations and designing and developing based on customers needs has a higher priority than Producing and supporting of Products and services. In fact without considering to the customers needs, design and product will be meaningless.

Table 10- The difference between prioritization of Processes areas of EFQM enablers after and before using the QFD technique

Processes area				
row	After using the QFD	Before using the QFD		
1	Designing and managing of processes systematically.	Managing and Enhancing of Customer relationships		
2	Improving of Processes, as needed	designing and developing based on customer needs		
3	designing and developing based on customer needs	Improving of Processes, as needed		
4	Producing and supporting of Products and services.	Producing and supporting of Products and services		
5	Managing and Enhancing of Customer relationships	Designing and managing of processes systematically		

Table 11- The difference between prioritization of customers' satisfaction factors after and before using the QFD technique

	After using the QFD	Before using the QFD
1	Providing quality products	Providing quality products.
2	Just in time delivery of products	Just in time delivery of products
3	Appropriate communication	Investigation of Customer complaints
4	Investigation of Customer complaints	Appropriate communication
5	Product Reliability	Product Reliability
6	Willing to introduce Organization to others	Innovation in product design
7	Innovation in product design	Willing to introduce Organization to



		others
8	Accountability	Warranty
9	product life cycle	Environmental aspects
10	Availability	Accountability
11	Product training	Product training
12	Warranty	Availability
13	Technical Support	Willingness to purchase other products
14	Environmental aspects	product life cycle
15	Willingness to purchase other products	Technical Support

Table 12- The difference between prioritization of employees' satisfaction factors after and

before using the QFD technique

	After using the QFD	Before using the QFD
1	Participation in organizational issues	Participation in organizational issues
2	Creation of equal opportunities	Salary
3	Salary	Appropriate employment conditions
4	Appreciation	Creation of equal opportunities
5	Development and preferment of job	Development and preferment of job
6	Organizational communications	Appreciation
7	Training and developing of human resource	status of job Immune and security
8	Facilities and Services	Facilities and Services
9	Workplace conditions	Change management
10	Change management	Workplace conditions
11	status of job Immune and security	Training and developing of human resource
12	Appropriate employment conditions	Employee empowerment
13	Employee empowerment	Organizational communications
14	Counterpart relationship	Counterpart relationship
15	Policy and impact of environment	Policy and impact of environment

Tables 11 and 12 illustrate that minor hypotheses 6 and 7 are asserted.

Confirmation of minor hypotheses is an emphasis on this matter that personnel and customers ideas not only are affective in priority of enablers but also they have a critical role in each of 5 areas of EFQM enablers. Attention to the confirmed hypotheses, illustrates that considering staffs and customers ideas as the most important organizational recourses in statement of expectation from management- is one of the key factors of organization successes and can be reckoned as a prerequisite in implementation of this model, for those organizations which use EFQM. According to this matter can be developed EFQM model as figure (6).





Learning and innovation Learning and innovation

Figure6, illustrates that as the results area are derived from the enablers, and getting feedback from results can help improving enablers, the customers' and employees' satisfaction factors can also be count as a preparing item for using enablers. And feedback from enablers to the customers' and employees' satisfaction factors is effective in learning and innovating within organization.

According to mentioned cases, can be state the advantage of proposed integrated model as follows:

- reducing the gap between customers and employees and organization, which in turn leads to improvement of quality level and excellence in the organization;

- making a suitable data base for future evaluations;
- avoiding discrimination;
- higher motivation and participation of employees;
- changing organization from vertical to horizontal in structure;

- the proposed model is complement of new subjects such as delegation of authority, participative management, omitting different managerial layers and emphasizing on team working;

- development of the EFQM model.

8-Conclusions

In this paper, the main purpose was prioritization of EFQM enablers and customers and employees satisfaction factors applying with QFD and suggesting an integrated model of EFQM–QFD, to achieve this purpose at first were described EFQM and QFD then new methodology, case study and discussion was noted. In discussion section, research hypostases based on that there are different between prioritizing the EFQM enablers and customers' and employees' satisfaction factors before and after applying the QFD technique were supported. Of the other results of this research can be mentioned to decreasing the gap between organization and employees and customers. Doing this research was faced with several limitations such as having many variables and to big integrated matrix and difficult to solve it. The implementation of this model has advantages such as: increasing responsiveness of managers, Omitting of numerous managerial layers and emphasizing on team work, delegation of authority and power, participative management. Of the suggestions that can be mention for future researches is consist of developing the proposed model with other managerial models and techniques, studying and comparison of application of this model in different

Figure 6: developed EFQM model



manufacturing and servicing organizations, using of software for solving the difficult to big of matrix proposed model. Collectively, this model helps excellence-oriented organizations.

References

Almannai, B. and Greenough, R. and Kay J. (2006), "A decision support tool based on QFD and FMEA for the selection of manufacturing automation technologies", *Robotics and Computer-Integrated Manufacturing*, Vol.12, PP. 151-177.

Asare E., Longbottom D. and Murphy W. D. (2005), "Leadership best practices for sustaining quality in UK higher education from the perspective of the EFQM Excellence Model", *Quality Assurance in Education*, Vol. 13, No. 2, PP. 148-170.

Chen ,L.H., Kom, W.C.(2008)," Fuzzy linear programming models for new product design using QFD with FMEA", *Applied Mathematical Modelling*, Vol. 11, No. 5, PP. 46-58.

Conti, T. A. (2007), "A history and review of the European Quality Award Model", *The TQM Magazine*, Vol. 19, No. 2, PP.42-61.

Davies, J. (2008),"Integration: is it the key to effective implementation of the EFQM Excellence Model?", *International Journal of Quality & Reliability Management*, Vol. 25, No. 4, PP. 383-399.

Ginn, D.M., Jones, D.V., Rahnejat, H., and Zairi, M. (1998), "The QFD/FMEA interface" *European Journal of Innovation Management*, Vol. 1, No. 1, PP. 7–20.

Gover, C., & Philips, M. (1994), "Policy Formulation by Use of QFD Techniques", *International Journal of Quality & Reliability Management*, Vol. 7, No. 4, PP. 46-58,

Herrzwurm, G., Schockert, S. (2003), "The Leading Edge in QFD for software and electronic business", *International Journal of Quality& Reliability Management*, Vol.20, No.1, PP. 36-55.

Ignacio, J. & Castilla, M. (2008),"EFQM model: knowledge governance and competitive advantage", *Journal of Intellectual Capital*, Vol. 9, No. 1, pp. 133-156.

Jacobs, B., Suckling, S. (2007) ,"Assessing customer focus using the EFQM Excellence Model: a local government case", *The TQM Magazine*, Vol. 19, No. 4, PP. 368-378.

Jiang, J.C., Shiu, M.L., Hsiung, T. M.(2007), "Quality function deployment(QFD) technology designed for contract manufacturing", *The TQM Magazine*, Vol. 19, No. 4, PP. 291-307.

Killen, C. P., and Walker, M., and Hunt R. A., (2005), "Strategic planning using QFD", *International Journal of Quality & Reliability Management*, Vol. 22, No. 1, PP. 17-29.

Klefsjo B., Bergquist B., and Garvare, R. (2008), Quality management and business excellence, customers and stakeholders Do we agree on what we are talking about, and does it matter?, *The TQM Journal*, Vol. 20, No. 2, PP. 120-129.

Mora, C. A., Leal, A. and Rolda, J. L. (2006)," Using enablers of the EFQM model to manage institutions of higher education", *Quality Assurance in Education*, Vol. 14, No. 2, PP. 99-122.

Park, D. (2008), "Reviewing the European excellence model from a management control view", *The TQM Journal*, Vol. 20, No. 2, PP. 98-119.

Politis J. D. (2005), "QFD, organisational creativity and productivity", *International Journal of Quality & Reliability Management*, Vol. 22, No. 1, PP. 59-71.



Shen, K.C. and Xie, M. (2000), "Benchmarking in QFD for quality improvement ". *Benchmarking: An International Journal*, Vol. 7 No. 4., PP. 282-291.

Vernero, S., Bragonzi, G., Rebelli, A. and Molinar, R. (2007), "A two-level EFQM self-assessment in an Italian hospital", *International Journal of Health Care Quality Assurance*, Vol. 20 No. 3, PP. 215-231.