



UNIVERSITY OF BORÅS
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Stakeholders analysis of
Mashhad House
Manufacturing Factory
(Karkhane Khane Sazi Mashhad)

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Stakeholders analysis of Mashhad house manufacturing factory

Intressenters analys av Mashhad hus tillverkning fabric

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Abstract

Quality management systems based on ISO 9000 series are significantly focused on customers who include a range of aspects from identification and determination of customer requirements to improving the customers' satisfaction. Complexity of the business environment in these decades has forced to focus not only on customers but also other groups, organizations, individuals or aspects interacting with the organization. Nongovernmental organizations (NGO) and environmental aspects of the organizations activities are examples. These are not acting as usual customers but the organizations shall consider and address their requirements and expectations. So an effective quality management system requires a broader focus on stakeholders including the customers as ISO 9004 recommends.

In this project, analysis of stakeholders has been carried out at Mashhad House Manufacturing Factory aimed to an effective quality management system planning based on ISO 9001:2008. The results of the project show the factory interacts with a broad variety of stakeholders thus the implementation of an effective quality management system mandate understanding all stakeholders' requirements and expectations. This project also proposes a matrix and a model for integrating the Stakeholders analysis methodology in quality management system planning.

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Introduction

Certifiable quality management systems based on ISO 9001 series have got a global interest and the number of issued certificates have been exceeded than one and half million by 2009. This standards including certifiable technical specifications such as ISO/TS 16949 mandate focus on customers and establishing of a process oriented system in organizations willing to be certified to these standards and technical specifications.

The business environment has been so changed that the organizations requires not only considers the customers requirements and expectations but also take to account the needs and interest of other organizations, groups and individuals interacting with the organization. These organizations, groups, individuals and other role players as well as customers are referred as stakeholders. Stakeholders have been addressed in ISO 9004 as “interested parties” but this standard is not intended for certification purposes and only provides a wider focus on quality management than ISO 9001.

Stakeholders analysis is a practical methodology for identification of all potential groups, organizations, individuals as well as aspects which are related to the organization activities and performance so called stockholders. This also provides the organizations with a mechanism for identification of stakeholders’ needs, expectations and interests for integrating in the organization’s strategies.

The project team consisted of University students as well as managers at the factory. One of the team members is also a certified quality lead auditor with more than 250 certification audits experiences. The study is a fully empirical work which its team members learn from practise.

The aim of this study is to apply Stakeholders analysis in planning of the quality management system based on ISO 9001:2008 toward certification to this international standard. The study has been carried out at Mashhad House Manufacturing Factory which has strategic plans for implementation of the certifiable integrated management systems based on ISO 9001, ISO 14001 and ISO 18001. This project also investigates the compatibility of Stakeholders analysis process with planning of the process oriented quality managing systems by proposing a model as well as a matrix.

Background

Project overview

Senior managers at Mashhad House Manufacturing Factory had decided to establish certifiable quality and environmental management system since 2006 but all efforts in this manner had been failed or not followed to the result. At the beginning of 2009, the CEO at MHMF decided to establish certifiable quality, environmental and safety management system based on ISO 9001:2008, ISO 14001:2004 and ISO 18001:2007. Then the company looked for consultants in this field and after a month of data exchange, they decided to run the project as a University work.

The decision for establishing certifiable Integrated Management Systems (IMS) was modified later to establishment of ISO 9001:2008 in the first stage; and the establishment of environmental management system as well as occupational safety management system was re planned to an appropriate time after certification to ISO 9001:2008.

Mashhad House Manufacturing Factory

Mashhad House Manufacturing Factory (MHMF) is located in Mashhad, Iran and has been established in 1978 and inaugurated in 1981 as a part of sister factories specialized in manufacturing of apartments by pre moulded concrete panels. The manufacturing processes at MHMF are based on Russian manufacturing technology and all machines and equipment used for production as well as supporting installations have been imported from Russia (former Soviet Union). Other sister factories are located in main cities such as Tehran, Ahwaz and Isfahan. MHMF is the largest factory and the most active among all similar factories in Iran.

The factory has been established in 870,000 m² land and uses several building as manufacturing sites and administration offices, totally 17,000 m² covered area. Figure 1 show the satellite photo of the factory with all manufacturing sites and offices as well as employees apartments.

The number of employees has experienced huge variations since its establishment and about 180 employees were working there at early 2009. The main parts of manufacturing and installation activities have been outsourced since 10 years ago and there are both internal and external suppliers and contractors.



Figure 1: Satellite photo of Mashhad House Manufacturing Factory (Google maps ©)

MHMF is owned by national land and house organization which is a governmental organization and due to this fact, the factory follows special legislations. The ministry of building and urbanism is acting as the direct supervising organization for the company.

The product list of MHMF includes more than 400 types such as pre moulded concrete blocks, walls, panels and bars. The majority of products such as concrete walls or panels are installed on site by MHMF technicians and contractors. Figure 2 shows some important products.



Concrete foundations for railway



Joint part for buildings



Separators for highways



Concrete wall



Water transfer system



Bars for electricity cables

Figure 2: Samples of MHMF products (Kharkhane Khanesazi Mashhad, 2009)

The company also builds apartments by pre moulded concrete panels. Due to decrease in demand of pre moulded concrete apartments, new system of production has been replaced since 2004. In this system, the foundations are moulded in the factory but walls and roofs are built and installed at the project site. Figure 3 shows two types of concrete apartments with old and new manufacturing technology.



Figure 3: Two types of manufacturing systems of apartments at MHMF.
A) Apartments with pre moulded panels. B) Apartments with pre moulded foundations
 (Kharkhane Khanesazi Mashhad, 2009)

Project structure and method

This project is a fully empirical study which applies knowledge and experiences of team members toward achievement of the target. The preliminary analysis of the existing quality management system at MHMF showed that the company's business processes interact with a wide range of organizations, individuals and groups both internal and external. The experiences of several failed efforts for establishing certifiable quality management systems as well as the complexity of the processes encouraged the team members to start the project by study and analysis of stakeholders before any changes or modification to the current quality management system. The reason for applying Stakeholders analysis as prerequisite to quality management system planning is summarized as follow:

- Complexity of customers relations to the company
- Nature of the owners and managing activities (governmental)
- Large number of applicable rules and laws which are mainly obligatory
- Nature of employees (different applicable rules, age, expectations and competency)

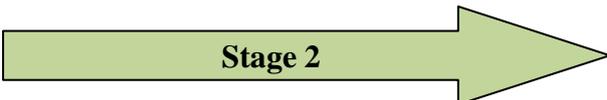
The team consisted of five key members with related competencies, authorities, responsibilities and key roles in the project as well as MHMF. Table 1 shows the team and a short summary of their role in the project. The team also involved other managers and employees especially those with responsibilities in commercial and marketing as well as production departments.

Table 1: the project team for establishing of ISO 9001:2008 at Mashhad House Manufacturing Factory

Name, Position Education	Responsibilities
Hamidreza Soleimanpour , Project leader ISO 9001 Lead auditor Student of industrial engineering	<ul style="list-style-type: none"> • Design and implementation of QMS • Trainer
Reza Zehtabchian , Team member Student of industrial engineering	<ul style="list-style-type: none"> • Implementation of QMS
Hamid Asaadi , CEO and managing director BA in business administration	<ul style="list-style-type: none"> • Supporting the project • Responsible for management processes • Provision of resources
Mehdi Mehrabi , Commercial manager BA in commercial management	<ul style="list-style-type: none"> • Responsible for customer processes
Ali Madadi , Production and technical manager BA in mechanical engineering	<ul style="list-style-type: none"> • Responsible for internal processes • Technical supporter
Hamed Kamali , Quality manager BA in civil engineering	<ul style="list-style-type: none"> • Responsible for internal processes • Technical supporter

The project was planned to be done at the first stage by certification to ISO 9001:2008 based on the timeline at table 2. All intended activities were updated by the project leader in a form called “The summary of the project tasks” prior to distribution to team members.

Table 2: the project timeline for establishing of ISO 9001:2008 at Mashhad House Manufacturing Factory

Apr-May 2009	May-Oct 2009	Oct-Dec 2009	Dec 2009
			
Stage 1 <ul style="list-style-type: none"> • Defining and review and updating the project timeline • Gap analysis of the system based on ISO 9001:2008 requirements • Identification of stakeholders and preparing the primary list of stakeholders • Basic training for the employees and managers • Initial draft of business process map • Finding the critical points of the quality management system in adoption with the factory management systems 			
Stage 2 <ul style="list-style-type: none"> • Data gathering and analysis of data including the trends of processes • Corrective and preventive actions based on findings in gap analysis • Review of stakeholders and deploying their needs and interests • Preparation of procedures and instructions • Training of employees and managers • Initial draft of the quality manual 			

Stage 3

- Training of internal auditors
- Conducting the internal audit
- Corrective and preventive actions as a result of internal audit
- Data analysis and follow up actions
- Management review
- Preparation for certification audit

Information required for this project has been collected by following methods:

- Full time involvement in the management system of the factory include management meetings, training courses as well as daily based activities
- Analysis and study of the management system through gap analysis, quality internal audits as well as management review
- Interview with all employees and managers
- Comparison with previous experiences in implementation of quality management systems as well as third party quality audits

Due to delay risk in the project, this thesis work was planned to focus on Stakeholders analysis. Therefore other activities toward certification of the factory are not discussed here. However in time of preparing this text, the factory was successfully certified to ISO 9001:2008. Among all requirements as well as mandatory documents required for a certifiable quality management system, following tasks are included in the thesis text:

- Process model for MHMF quality management system
- List of stakeholders
- Stakeholders mappings based on their power and interest to the activities of MHFM
- Compacted list of stakeholders' needs
- Proposed tool for integrating the stakeholders into business processes at MHMF
- Proposed model for integrating the Stakeholders analysis into process management model in ISO 9001 and ISO9004

The entire documents have been prepared in Persian language for use in the factory, but the information required for this text has been translated in English. Some documents in Persian language have been attached to this thesis as appendix of this thesis work to be useful for application in similar project in Iran. All information reported in this text fulfils the MHMF's requirements for confidentiality of information.

Gap Analysis

The project started by a gap analysis based on ISO 9001:2008 requirements. A team of two auditors investigated all processes and department during two working days and the results were reported to the managing director. The main outcomes can be described as following:

- **Poor documented quality management system**; there are groups of activities which are not documented or recorded as the factory procedures instruct. There are also parts of the management system which do not conform with requirements of ISO 9001:2008 as stated in elements under 4.2

- ***Low awareness about the quality management system;*** the audit showed that there is no awareness about the quality management systems as well as the requirements of ISO 9001:2008. In contrast, all audited employees were aware of the requirements of their job as well as general requirements of the factory.
- ***Low enthusiasm for change in activities (resistance to change);*** similar to other state companies, there is no inspiration for change in the management system and the way of working.
- ***Lack of awareness about the process orientation;*** No one among the audited employees knows about process approach. The nature of the company which is owned by the government is the most important factor for implementation of a duty oriented management system instead of a process oriented system.
- ***Combination of educated and uneducated employees;*** one of the important characteristic of the factory is the type of human resources. There are employees with more than 20 years experience with basic knowledge of writing and reading working with a group of university educated young employees with less than five years work experiences.
- ***Suitable system for manufacturing and production (knowledge and technology);*** the gap analysis showed that the product related processes including the production and design processes are the main advantage of the factory in view point of technical awareness. This comes from a combination of experienced employees as well as technological resources available in the factory such as laboratory test equipments, production line as well as proper infrastructure.
- ***Ambitious top manager for implementation of the certifiable quality and environmental management systems;*** The Company is running by an ambitious managing director who is fully interested and motivated to establish internationally recognized quality and environmental management systems.

In addition to above gap analysis outcome, there are some findings that are important for design and implementation of an effective quality management system such as:

- The company is recognized as the best producer of concrete materials and mortar in east of Iran due to high quality and compliance to specifications
- Availability of a wide range of machines and production facilities although they are mainly old
- Considerable amount of land for development plan (870,000 m²)
- Low flexibility in managing activities due to governmental requirements
- The company is experiencing a fall in production and sale volume since 2007 after a peak in early 2007
- The last try for implementation of ISO 9001:2000 had not been followed

All evidences gathered within the gap analysis audit were recorded and maintained as the first internal audit records of the factory.

Investigations and Analysis

Process Model of Mashhad House Manufacturing Factory

Quality management system requires a process approach to be implemented in the organization, according to ISO 9001. “The application of a system of processes within an organization, together with the identification and interactions of these processes, and their management to produce the desired outcome, can be referred to as the *process approach* (ISO 9001:2008, clause 0.2 and element 4.1).

As the first step for modelling the business processes at MHMF, the activities of the companies and the existing processes were discussed and listed during three brain storming meetings with all managers and supervisors. Identified activities were listed regardless of their importance, popularity, and frequency of occurrence. The primary list of activities consists of more than 450 independent tasks (Appendix 1).

The list of activities was categorized into nine groups based on type and responsible department. This stage was carried out by five key members during two meetings. Then primary business process model was prepared, reviewed and revised by team members and managing director. The primary business process map was revised later (Appendix 2). A simplified English version of the business process map has been shown in figure 4 (Courtesy of Claes Berlin at RUAG Space AB for the format of the model).

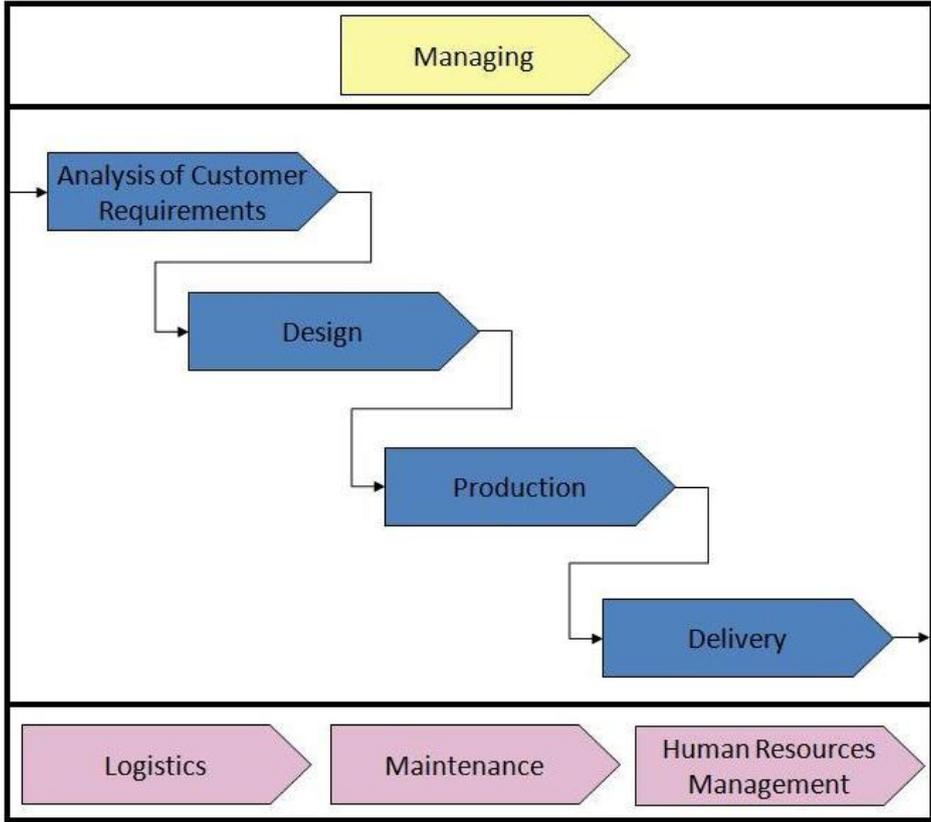


Figure 4: Business process map of Mashhad House Manufacturing Factory

Product realization processes are shown by BLUE pentagons, the PINK pentagons illustrate supporting or resources provision processes and there is one managing process shown by YELLOW pentagon. Following considerations has been taken within the process modelling of the activities:

- The process map is designed in way that interacts with all [identified] stakeholders.
- The process map has been cross checked by the list of activities (Appendix 1) to ensure that all activities have been considered at least in one process.
- The process map does not address departments, but it considers their effects on the processes and relevancy of their activities.
- The size of all processes have been considered to be similar regarding to some criteria such as the number of employees involved in the process, frequency of the process occurrence, importance for stakeholders especially the customers, the value added creation as well as the resources required.
- The original process map (Appendix 2) fulfils the requirements of ISO 9001:2008 (element 4-1 b) for determination of the sequence and interaction of processes by an easy to understand model.

Stakeholders analysis

Stakeholders analysis is the process of identification and investigation of groups and individuals who can affect or is affected by the organization or the system (12 Manage, 2009). There are different approaches to Stakeholders analysis. Eden and Ackerman (1998), believe that stakeholders analysis shall take into account all customers, employees, communities as well as all other groups, organizations, and societies which have power to interact or affect on investigated systems. Nutt and Backoff (1998) believe that a broader array of people, groups and organizations shall be considered regardless of their power. Stefan Book mentioned in a lecture at University of Borås (2008), silent stakeholders should also be considered in analysis. Environment and future generations are typical silent stakeholders which have no common communication facilities. Figure 5 shows potential stakeholder for a typical project.

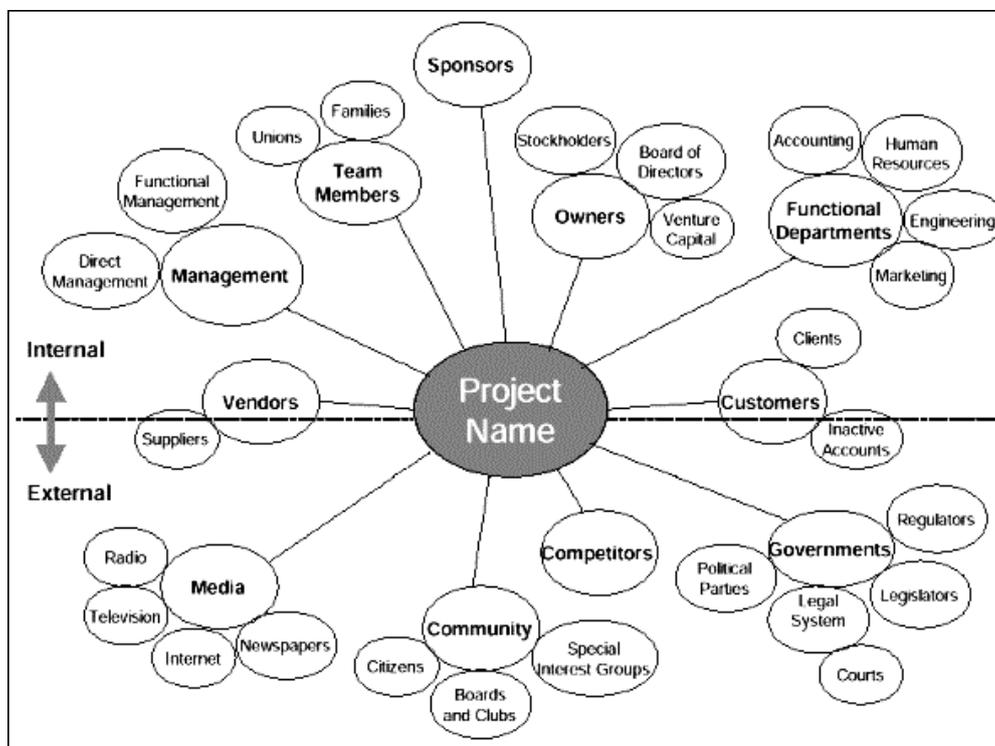


Figure 5: Example of stakeholders for a typical project (Smith, 2000)

Stakeholders analysis is a tool for deploying all stakeholders as well as their need. The outcomes of stakeholders' analyses are valuable for strategic planning of the organizations and make a foundation to quality and environmental management systems. There are four general steps for Stakeholders analysis as follow:

- Identification of stakeholders
- Understanding stakeholders' needs and interests, classification of them into meaningful groups, and mapping them
- Prioritization, balancing and reconciling the stakeholders
- Integrating stakeholders needs into organizations strategies and to its actions (12 Manage, 2008)

The stakeholders-Q/E Management model in figure 6 which has been proposed by Beizavi and Soleimanpour (2009) represents the role of Stakeholders analysis in planning of quality and environmental systems. The model does not consider start point for the cycle, which means that the planning of quality and environmental management systems can be started either by Stakeholders analysis or after monitoring and measurement of the quality objectives. The planning of the quality objectives is a main part of quality management system planning.

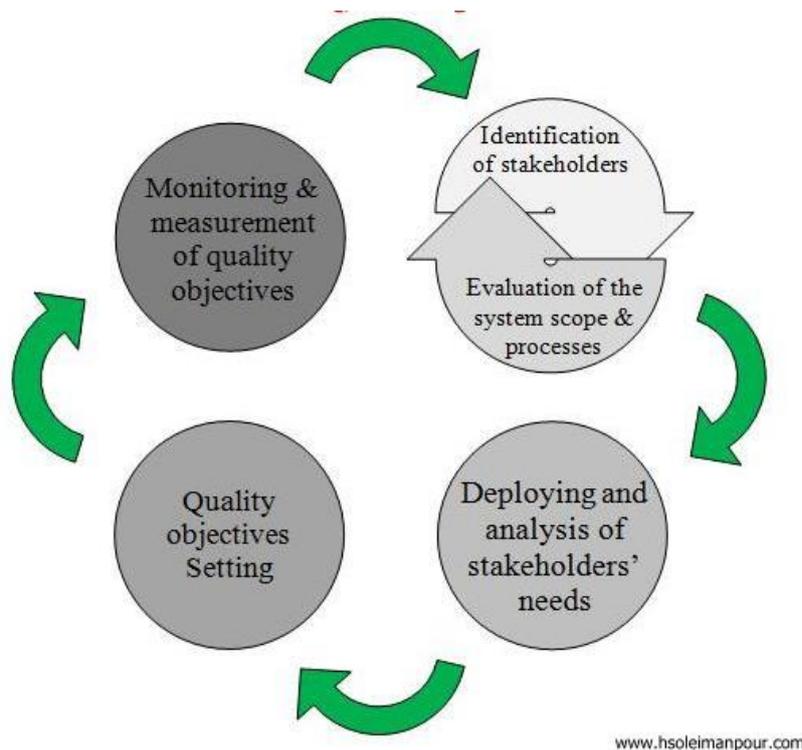


Figure 6: Stakeholders-Q/E Management model which represent the situation of Stakeholders analysis in quality and environmental management systems (Soleimanpour, 2009)

Identification of stakeholders

The list of stakeholders prepared after two meetings with all managers, engineers, and technician in the factory (Appendix 3). Brain storming was used as a tool for motivating participant to share their idea and information about all stakeholders interacting with MHMF. Table 3 shows identified stakeholders of MHMF with no priority and order.

Table 3: Stakeholders of MHMF

External suppliers	Employees Basij
Regional hygiene authority	City police authority
Internal suppliers	Workers house organizations
Regional office of labor and social affairs	Local police station incl. of local traffic police
Blue collar employees	Khorasan science and technology park
White collar employees	Transportation companies
Regional social security organization	Industrial Managers Association
Task masters	Factory doctor and hygiene office
Municipality offices (Local and city hall)	Regional electric company
Non contracting customers	Regional cooperative organization
Regional tax office	Regional fire fighting and emergency services
Insurance Companies	Regional department of environment
Astane e Qods e Razavi	Society in a general term
End users (Who live in houses)	Local finance
Banks	National land and house organizations
Investors	Employees consumer cooperative
Regional water authority	Media
National Iranian oil product distribution Co.	Consultants
Regional gas company	Iran Audit Organization
Industries ministry	Roads Police authority
Shareholders	Universities and all research partners
Ministry of road and transportation	Emkan cooperative
Budget and planning authority	Visitors and summer students
Transportation and terminals organization	Regional telecommunication company
Ministry of house and urban development	Leisure complex in Sary
Test and validation laboratories	Independents Bodies e.g. Certification bodies
General, regional and district office of the governor	
Iran Technical & Vocational Training Organization	
Emergency services which interacts with apartments	
End users of products such as traffic blocks and bridges	
Regional organization for donation and charity affairs	
Maintenance companies which maintain apartments	
Scientific societies incl. of Concrete society	
President deputy strategic planning and control	
Future generations who interact with houses and facilities	

The result of this step was surprising of the team since it seems that the factory is interacting with a wide range stakeholders varies from governmental organizations to private sector as well as individuals.

Understanding the stakeholders' needs and interests

After identification of all potential stakeholders, they were classified by the team member into some groups as specified in table 4. Classification of stakeholders facilitates deploying the stakeholders' needs and interests. Basic needs and interest were identified for each group of stakeholders.

Table 4: list of stakeholders and their needs at Mashhad House Manufacturing Factory

Group	Stakeholders	Needs and interests
Customers	End users (Who live in apartments)	Effective design of products On time delivery of products and tasks
	End users of products such as traffic blocks and bridges	Compliance to legislations and laws Safety
	Taskmasters	Compliance to the technical specifications Commitment to the agreements Affordable or minimum cost and price
Employees and related organizations	Employees Basij	Compliance to legislations and laws
	Factory doctor and hygiene office	Effective collaborations
	Regional cooperative organization	Commitment to the agreements
	Workers' house (NGO)	Maintaining occupational Safety and hygiene where applicable
	Emkan cooperative	
	White collar employees	
	Blue collar employees	
	Employees consumer cooperative	
	Leisure complex in Sary	
	Iran Technical & Vocational Training Organization	
	Regional hygiene authority	
Regional office of labour and social affairs		
Share holders, investors and supervisors	Municipality offices (Local and city hall)	Compliance to legislations and laws
	Investors	Effective collaborations
	Industries ministry	Commitment to the agreements
	Shareholders	Transparency in operations
	Budget and planning authority	
	Ministry of house and urban development	
	Iran Audit Organization	
	Regional department of environment	
	National land and house organizations	
	General, regional and district office of the governor	
	Independents Bodies e.g. Certification bodies	
President deputy strategic planning and control		
Suppliers and supporting stakeholders	Regional electric company	Compliance to legislations and laws
	Regional water authority	Effective collaborations
	Regional gas company	Commitment to the agreements
	Regional fire fighting and emergency services	Maintaining supplementary resources where applicable
	National Iranian oil product distribution company	Commitment in paying the cost of services
	Regional telecommunication company	
	Transportation companies	
	External suppliers	
	Internal suppliers	
	Consultants	
	Maintenance companies which maintain apartments	
Emergency services which interacts with apartments		

Neighbours and other involved	Regional tax office	Compliance to legislations and laws
	Scientific societies incl. of Concrete society	Effective collaborations
	Visitors and summer students	Commitment to the agreements
	Transportation and terminals organization	Maintaining supplementary resources where applicable
	Projects' neighbours	Minimum disturbing where applicable
	Company neighbours	Minimum and controlled impact
	Regional organization for donation and charity affairs	
	Astane e Qods e Razavi	
	Industrial Managers Association	
	Local police station incl. of local traffic police	
	Khorasan science and technology park	
	City police authority	
	Test and validation laboratories	
	Ministry of road and transportation	
	Regional social security organization	
	Media	
	Roads Police authority	
	Universities and all research partners	
	Banks	
Insurance Companies		
Silent stakeholders	Surrounding environment, land, climate	Minimum disturbing where applicable
	Future generations who interact with houses and facilities	Minimum and controlled impact
	Religious culture and related aspects	Long term planning and execution Taking care of silent stakeholders
	Atheistic aspects of the city and environment	Considering sustainably aspects in planning and execution
	Society in a general term	
	Local finance	

Stakeholders' mapping

Stakeholders mapping has been defined as the process for visualization of stakeholder positions of the factory (12 Manage, 2008). There are several methods for stakeholders' mapping which maps stakeholders regarding to their characteristics such as importance, power, interest, dynamism, legitimacy as well as urgency. Selection of a set of characteristics to use in stakeholders' mapping is dependant to the nature of the organization and the convenience of the result gained by mapping.

Power/ interest model classifies stakeholders regarding to the power that they hold and their interest to the organization activities. Table 5 shows the power/ interest model for stakeholders of MHMF.

Table 5: Power/ interest model applied for analysis of stakeholders at MHMF

	Low Power	High Power
Low Interest	<p>Minimal Effort</p> <p>Leisure complex in Sary Emkan cooperative Media Regional cooperative organization</p>	<p>Keep Satisfied</p> <p>Regional telecommunication company President deputy strategic planning and control Roads Police authority Regional water authority Regional gas company Banks Iran Audit Organization National Iranian oil product distribution company Regional electric company Local police station</p>
High Interest	<p>Keep Informed</p> <p>Scientific societies incl. of Concrete society Maintenance companies which maintain apartments Visitors and summer students Universities and all research partners Test and validation laboratories Transportation companies End users Employees consumer cooperative Iran Technical & Vocational Training Organization Regional department of environment Regional fire fighting and emergency services Factory doctor Blue collar employees White collar employees Industrial Managers Association Future generations who interact with houses and facilities Emergency services which interacts with apartments Khorasan science and technology park Internal suppliers Society in a general term Consultants Independents Bodies e.g. Certification bodies</p>	<p>Key Players</p> <p>External suppliers Regional hygiene authority Regional organization for donation and charity affairs Ministry of road and transportation Budget and planning authority Transportation and terminals organization Shareholders Industries ministry Ministry of house and urban development Investors National land and house organizations General, regional and district office of the governor Astane e Qods e Razavi Customers Regional tax office Task masters Municipality offices (Local and city hall) Regional social security organization Insurance Companies Workers' house (NGO) Regional office of labour and social affairs Local finance</p>

Review of the power/ interest model for MHMF shows that the factory has considered stakeholders' power more than their interest. Investigation on customers complaining system, employees' satisfaction survey result, as well as other available information shows that the factory has not considered the requirements of low power/ high interest stakeholders such as employees as well as end users. In compare, there are records that show some stakeholders from the high power group are satisfied by the organizations activities, although there some negative feedbacks from task masters as a high power/ high interest stakeholder. Application of this model shows some advantages as well as disadvantages. The main advantages of this model are:

- Creating challenge for arrangement of stakeholders which lead to improvement of the quality management system. This model showed that there have been overestimation and underestimation for power and interest of some stakeholders so far.
- Screening the reason of stakeholders' importance. Stakeholders analysis at MHMF revealed that which stakeholders are important because of power and which one is important because of interest. This classification helps the company for proper identification and integration of their needs into quality management system planning.

There are good examples for over estimation of the power and interest. "Regional organizations for donation and charity affairs" as well as "Astane e Qods e Razavi" are powerful stakeholders that have mandates regarding to new projects at MHMF. These two organizations are so powerful that can stop any projects, but whenever their requirements are met, they have no any interaction with the factory as well as end users. In another case, end users have no interactions with the company during design, manufacturing and installation of the apartments but they start interacting with the company (or suppliers which have the responsibility for maintenance) when they receive the ownership of the apartments. The same situation is applicable for traffic organizations which orders and buy traffic blocks but police as well as drivers interact with traffic block later.

Although the power/ interest model give valuable information about stakeholders' situation at MHMF, but this model has a main disadvantages when it applies for MHMF specifically.

- The majority of stakeholders at MHMF are performing as rule makers, controller and service providers but at same time they are customers or they are interacting with final product. In another way, they are not only interacting with the company and its activities but also they are interacting with its product or its customers at same time or with a delay.
- There is no indication for effect of stakeholders. Stakeholders' interactions at MHMF are somehow time dependant, and their power (or interest) changes with time.

Regional electric and water organizations interact with the company because they provide water and electricity of the company but at the same time (or with delay), some departments within these organizations interact with the company regarding to provision of water and electricity for apartments which are manufactured by MHMF or may but apartments for their employees. Another situation is valid for organizations such as police authorities which are interacting with the company and its activities but they are potential customers as well. According to governmental and social structure in Iran, it is usual to accept that these two different interactions are not independent at all. This issue will initiate some conflicts between departments interacting with such stakeholders.

Integration of stakeholders in the quality management system

Stakeholders analysis process provides a road map for integrating the stakeholders' requirements (not only the customers' requirements as ISO 9001 specifies) into organizations quality management planning. ISO 9001:2008 addresses several requirements which can be implemented by application of Stakeholders analysis into quality management system planning. Table 6 shows the relevancy of ISO 9001:2008 requirements and result of Stakeholders analysis.

Table 6: Relevancy of ISO 9001:2008 requirements and stakeholders analysis

Requirements	Relevancy		Note
	Direct	Indirect	
4.1 General requirements		●	
4.2 Documentation requirements		●	
5.1 Management commitment	●		Customers as well as statutory and regulatory requirements shall be considered in the quality management system planning
5.2 Customer focus	●		
5.3 Quality policy	●		
5.4 Planning	●		
5.5 Responsibility, authority and communication		●	
5.6 Management review	●		
6.1 Provision of resources	●		Provision of resources as well as maintaining the work infrastructure shall consider product (service) as well as customer requirements
6.2 Human resources	●		
6.3 Infrastructure	●		
6.4 Work environment	●		
7.1 Planning of product realization	●		Customer requirements as well as all applicable statutory, product, regulatory and disposal requirements shall be considered during interacting with the customer and design and development process
7.2 Customer-related processes	●		
7.3 Design and development	●		
7.4 Purchasing		●	
7.5 Production and service provision		●	
7.6 Control of monitoring and measuring equipment		●	
8 General. Measurement, analysis and improvement	●		Measurement of Customers' satisfaction as the main requirements for the quality management system
8.2 Monitoring and measurement	●		
8.3 Control of nonconforming product		●	
8.4 Analysis of data	●		
8.5 Improvement		●	

As a development to Stakeholders analysis concept and for creating a start point for further development in the quality management system, a matrix of stakeholders-processes

was prepared to ensure that all stakeholders have been considered in process as well as relevant procedures (Appendix 4). The matrix shows the interaction of stakeholders with processes by symbols **I** (as Input) and **O** (as Output). These symbols are defined as table 7. Symbol **I** shows that the typical stakeholder provides some inputs for the process and **O** shows that it receives outputs from the process.

Symbol	Definitions
I	Stakeholders may: <ul style="list-style-type: none"> • Have specific requirements (ISO 9001, 7.2.1 a) • Have requirements not stated but mandatory of the application of intended use (ISO 9001, 7.2.1 b) • Have legitimate expectation and interests • Influence on the organization directly or indirectly • Provide services or products for the organization
O	Organization may: <ul style="list-style-type: none"> • Provide product for the stakeholder • Provide services for the stakeholder • affect on the stakeholder directly and indirectly • May request service or product from stakeholder

This tool ensures implementers that whether all inputs and outputs have been addressed in the quality management system and it is consistent to the model proposed by Soleimanpour and Beizavi (figure 6). Figure 8 shows a part of the matrix.

Stakeholders' groups	Business Management Processes (At two levels)	Managing		Analysis of Customers Requirements		Design		Production		Delivery		Logistics		Maintenance		Human Resources Management								
		Management of Materials of Stakeholders Satisfaction	Strategic Planning	Quality and Financial Aids	Identifying	Inspect & Review of Customer Requirements	Customer's Order Handling	Production & Customer Requirements	Control & Inspection	Production planning	Manufacturing	Hygiene for shipping	Post delivery	Shipping	Transport	Storage	Inventory Evaluation and Control	Inventory of tools	Inventory of material	Human resources and Staffing	Recruiting	Training		
Customers	End users (Who live in apartments)	IO	I	I	IO	IO			IO	IO		IO	IO	IO	IO									
	End users of products such as traffic blocks and bridges	IO	I	I	IO	IO			IO	IO		IO	IO	IO	IO	IO								
	Taskmasters	IO	I	I	IO	IO	IO	IO	IO	IO	IO	IO	IO	IO	IO									
Employees and related organizations	Employees Basij	IO	IO																			IO	IO	IO
	Factory doctor and hygiene office	IO	IO	I							IO												IO	IO
	Regional cooperative organization	IO																					IO	IO
	Workers' house (NGO)	IO	IO	I																			IO	IO
	Emkan cooperative	IO																					IO	IO
	White collar employees	IO	IO	IO																			IO	IO
	Blue collar employees	IO	IO	IO																			IO	IO
	Employees consumer cooperative	IO																					IO	IO
	Leisure complex in Sary	IO																					IO	IO
	Iran Technical & Vocational Training Organization	IO	O																				IO	IO
Regional hygiene authority	IO		IO																			IO	IO	
Regional office of labour and social affairs	IO	O	I																			IO	IO	
Government and supervisors	Municipality offices (Local and city hall)	IO	IO	IO	O	IO	IO	IO	IO		IO	IO	IO	IO			IO							
	Investors	IO	IO	IO	IO							IO						IO						
	Industries ministry	IO	IO	IO	I							IO	IO	IO			I							
	Shareholders	IO	IO	O																				
	Budget and planning authority	IO	IO	IO																				
Ministry of Science and higher development	IO	IO	IO																					

Figure 8: A section of stakeholders/ process matrix for ensuring that all stakeholders have been considered in the quality management system (See appendix 4 for the entire matrix)

Documentation of quality management system planning

As the parallel step to Stakeholders analysis, all procedures, instruction and applicable standards were identified and recorded in the list of documents. The requirement of ISO 9001:2008 for documentations (element 4-2) was considered in this step. Experiences with quality audits at different companies show that there are a group of non conformities mainly titled “documentation does not fulfil customer requirements”. This type of non conformities occurs due to some reasons such as poor communication with the customer for understanding his requirements for documentation. Another reason for such non conformities is poor identification of potential customers. The later cause is valid for MHMF since there are some organizations which act as customer and supervising stakeholders at same time such as governmental stakeholders. Following issues have been considered in documentation of the quality management system:

- The state rules and procedures for documentations and adoption with governmental procedures and acts such as legal requirements for accounting, maintaining the safety records and warehouse inventory
- The customer requirements for adoption with their procedures for contacting, order handling and financial issues
- Requirements of Iranian Standard and Research Institute for complying with documentation of quality control activities
- Other requirements

The quality policy (Appendix 5) of Mashhad House Manufacturing Factory as the most important documented statement of the quality management system was established by the CEO as following:

“Stakeholders satisfaction and its continual improvement through business management consistent with the requirements of applicable regulations”

This quality policy addresses the requirements of ISO 9001 and considers stakeholders instead of customer as previously being considered by the factory. The quality objectives of the factory then determined by the team and approved by the CEO based on the quality policy. Table 9 shows the translation of the quality objectives of the factory (Appendix 5).

Table 9: The quality objectives of MHMF in 2009

Criteria	Sub - Criteria	Target for 2010
Stakeholders satisfaction	Analysis of customer perceptions as weather the factory has met their requirements	No Complaint
	Analysis of employees perceptions (Has the factory has met their requirements?)	10% improvement compare to 2009
	Analysis of other stakeholders perceptions (Has the factory has met their requirements?)	No Complaint
Products quality	Rate of rejected parts	Less than 0.01% of total sale
	Analysis of customer perceptions about the products quality	No Complaint regarding to quality
Continuous improvement	Indicators of all processes	Positive improvement compare to 2009
Conformity to regulations	Analysis of stakeholders perceptions as weather the factory has met the regulations	No Complaint
On Time Delivery (OTD)	Analysis of customer perceptions as weather the OTD has met their requirements	No Complaint regarding to delivery

ISO 9001:2008 requires a quality manual which addresses following parts of the quality management system:

- The scope of the quality management system, including details of and justification for any exclusions
- The documented procedures established for the quality management system, or reference to them
- A description of the interaction between the processes of the quality management system

The quality manual of the factory was established by the CEO and meets the requirements of ISO 9001:2008 (Appendix 6)

Discussion and Conclusion

The result of the project plus experiences gained within the project showed that the Stakeholders analysis is a reliable tool for understanding the internal and external business environments of the factory. This tool can be easily integrated into planning of quality and environmental management and it facilitates the implementation of ISO 9001 for certification purposes and ISO 9004 for improvement in the quality management systems.

The application of Stakeholders analysis into planning of the quality management system at Mashhad House Manufacturing Factory brought the following experiences and outcomes:

- Understanding the concept of stakeholder's analysis by employees is so easy compare to other quality or management concept such as process orientations or problem solving methods. The experiences of conducting training courses for Stakeholders analysis, process orientation and ISO 9001:2008 requirements at the factory showed that the employees understand the Stakeholders analysis and can apply it easily in reality.
- Stakeholders analysis showed not only the complexity of the management system of the factory but also the way for dealing with by making a link between stakeholders needs and requirements of ISO 9001:2008 under elements of management commitment and quality planning.
- Involvement of employees in planning of the quality management system became easier by application of Stakeholders analysis. As a traditional perception to ISO 9001, employees thought that the quality management system only deals with quality of products and management of the quality, but the stakeholder's analysis showed the reason of addressing involvement of people by quality management systems including ISO 9001:2008.
- The designed tools within the projects such as stakeholders-process matrix provided an easy to apply methodology for improvement of the quality management system by continuous evaluation of the processes as well as stakeholders.
- The methodology of Stakeholders analysis created a prioritization system of stakeholders based on their characteristics such as power, interest and legitimacy through a team work.

Stakeholders/Process Management Model

The following model has been proposed for integrating stakeholders' analysis into process management approach (Courtesy ISO 9001 and ISO 9004 standards). The differences of this model to those represented in ISO 9001 and ISO 9004 are:

- Proposing stakeholders analysis as a border to the quality management system
- Changing the word “interested parties” to “stakeholders”
- Considering another input than product related inputs which includes both requirements and expectations (Red box)

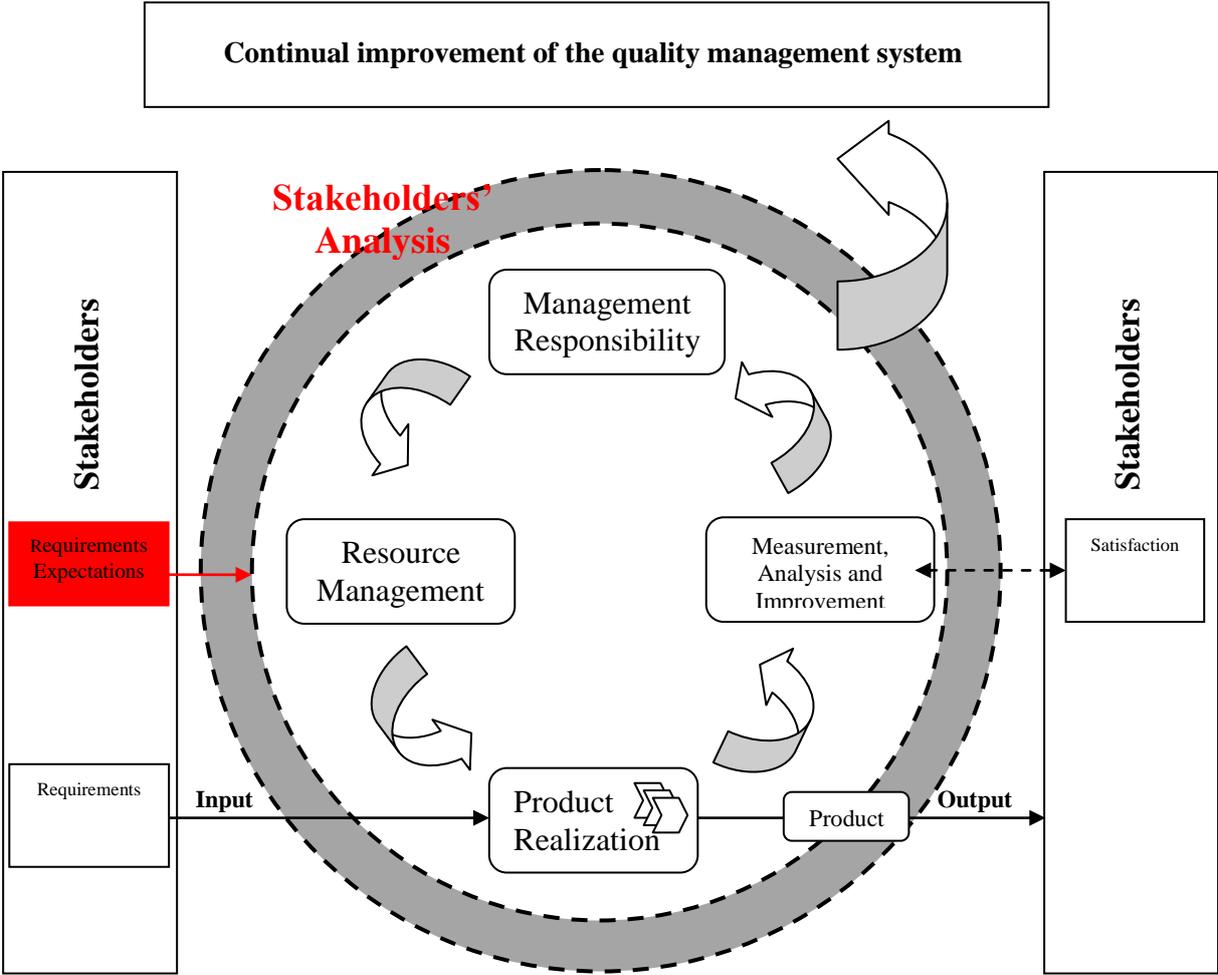


Figure 8: Stakeholder- process management model for integration for Stakeholders analysis into quality management system planning

According to this model, Stakeholders analysis is considered as a tool for evaluating, analysis and understanding all stakeholders’ requirements and expectations even those that are not related to the products.

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