

# RISK MANAGEMENT IN DEVELOPING COUNTRIES

Master's (One Year) Thesis in Quality and Environmental Management

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## RISK MANAGEMENT IN DEVELOPING COUNTRIES

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## **Abstract**

My thesis will focus on risk management practically in developing countries. In this research study, first a literature review about the concept of risk management and its concerns is provided which is the output of extensive review of resources such as journal papers, books and research studies. Then a case study will be reviewed in Iran which is considered as a developing country. In this step, the researcher attempts to extract needed information for her research based on the theory of frames. After gathering needed information the findings which are extracted from practical environment are compared to the academics material to answer the questions which are defined in the primary steps. Meanwhile, the main purpose of this study is reviewing the conditions of work environment in developing countries and extract main concerns and compare them to the standards, methodologies and tools and techniques of risk management to improve the efficiency and effectiveness of using these tools in performing risk management in developing countries.

**Keywords:** Risk management, Porter analysis, PESTLE analysis, SWOT method, Steering Box, Automotive industry

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# **1 INTRODUCTION**

This chapter designed to describe the main reasons why the researcher wants to conduct this study and the real problem. In this chapter, all the information needed to understand and use this research study is provided in a structured view which gives an overall view to the reader of the study.

## **1.1 Background**

In today's highly competitive business environment, succession is getting more and more difficult and many organizations fail to consistently deliver successful projects. The consequences of failing to meet project objectives is significant in competitive business environments specially in developing countries where the risks of finishing projects successful is much more higher. To consider all the success and failures factors of projects, a new specific management area emerged which is Risk management. To make projects successful, considering this area has an important value for companies and according to (Project Management Institute, 2008) Risk management is among the primary activities of project managers.

Academics and practitioners have tried to define risk management and its role in the projects success. The result is various standards (APM, 2004; AFNOR, 2003; IPMA, 2006; IRM,2002; ISO, 2012; OGC, 2007; PMBOK, 2008; TSO, 2009) with the aim of helping project managers to be successful in running projects. However, incorporating all the concerns in projects is not an easy job especially when considering the environment of business is important. In fact, when it comes to a challenging business environment with variety of factors the story will be much more complicated.

## **1.2 Problem Discussion**

Although many academics and practitioners have tried to consider risk management from different perspectives, it is needed to fit this concept for every working environment when it comes to implementation. The main problem of applying standards and global methodologies in different countries specially in developing countries is usually the parameters in implementation is completely different from mature environment in developed countries,. This difference requires the practitioners to tailor the standards and methodologies for different environment based on the need of the business.

## **1.3 Purpose of the Study and expected outcome**

This research study is considered both a theoretical and empirical study. The researcher first has a deep review of risk management concept in academic resources. This will help to have a common understanding of this important area for the rest of the study. Then surveying a case study in a developing country gives an appropriate material to the researcher for following her

study and reaching to the goal which is proposing a suitable framework for applying risk management in developing countries.

### **- Main objectives**

- Giving an overview of risk management and its tools and techniques
- Comparison of different tools and techniques to extract the strengths and weaknesses of them
- Determining the current status of risk management in developing countries with reviewing a case study
- Comparing the academic findings with practical environment to propose a suitable framework applicable in developing countries

## **1.4 Research questions**

The researcher in this thesis seeks to answer some specific questions. These questions mainly can be summarized in two categories:

### **- How can Risk Management help organization to meet their objectives?**

- What is Risk Management? (The needs of Risk Management and its concerns)
- What are Strengths, Weaknesses, Opportunities and threats considering obtained results from PESTLE and PORTER outcomes?

### **- What are the main concerns in developing countries regarding risk management? How can these concerns be addressed?**

## **1.5 Target group**

From the early steps of this study, the researcher has tried to address the concerns of two groups of people.

First, this research study would be beneficial for academics who want to increase their knowledge about Risk Management and its importance in projects success. The researcher tries to fulfill this need with having a vast review on academic resources about risk management and its related concepts. Meanwhile, reviewing many academic sources such as different journal papers and books to gather the appropriate information is the primary objective of this study.

Second, as mentioned in the purpose of study part the other objective of researcher in this study is reviewing the status of risk management and its barriers and concerns in developing countries. So, this study would be helpful for practical experts who want to work in these environment. As all the information gathered in this study are presented in a structured format based on risk management concerns it can be said this study is a useful reference for practitioners in this area.

## **1.6 Background of Author**

Mahsan Memari as the researcher of this study, finished her bachelor degree in Industrial Management from Jahad University in Tehran in 2009. Immediately after graduation she started working in project management area in TKC Co. which was the R&D of Iran Khodro company as the main automobile manufacturer in Iran. During this period the main focus of Mahsan was performing project management tasks into projects such as planning, risk issues and project execution. Currently, Mahsan is taking Master's degree in Quality management 60 ECTS at Högskolan I Borås.

## **1.7 Delimitations**

As mentioned, the researcher of this study determined a goal for her study which is covering both theoretical and empirical part of the risk management in developing countries. To achieve this, there are some barriers for performing the job completely. These barriers mainly can be categorized in two groups. First, there are many books, articles and standards published in the area of risk management concept and the author has to carefully select some specific parts to review based on his goals. Second, as the researcher decided to run a case study in a practical environment she needs to gather information as much as possible. This needs a high cooperation of companies which usually is not possible because of some issues such as confidentially and time. Therefore, the researcher delimited the empirical part to some interviews and information which he gathered herself from practical environment.

## 1.8 Structure of the thesis

<b>Introduction</b>	In introduction part, the infrastructure of the thesis is discussed. Some Issues like the background of the research, purpose of the study, research questions and target group are provided.
<b>Methodology</b>	The methods which author applied to his research study are discussed in methodology part. The methods for data collection, strategies for validating the thesis and analysis method are the parts which are presented by author in this section.
<b>Theoretical frame of references</b>	In theoretical frame of references chapter, the author presents concepts which he mentioned in his goals and makes the theoretical structure with reviewing previous academic works to use in analysis part.
<b>Empirical study</b>	In empirical study chapter, the author tries to gather some practical information about the risk management to use in analysis part with running some interviews with companies.
<b>Analysis</b>	In this part, the author makes connection between theoretical and empirical part. Different information gathered from theoretical and empirical part will be analyzed in this part with using mentioned methodologies.
<b>Discussion</b>	In discussion section, the conclusion of the study and its implication are provided by the author. Moreover, in this part the researcher evaluates the research and presents ideas for developing the concept.

## **2 METHODOLOGY**

In this chapter, a description of the methods, approach and strategy of the thesis will be provided. Moreover, the researcher will describe the way of validity and reliability of the research in this chapter.

### **2.1 Scientific Perspective**

#### **2.1.1 Research approach**

According to (Kumar 2005), there are mainly two different scientific paradigms. Mainly, a paradigm is a representative of the people's value, judgment, norms, standards, perspectives, myths, theories, frames of reference and approved procedures which govern their thinking and action. The two paradigms are:

- 1- Positivist
- 2- Hermeneutic

Positivism refers to a type of explanatory science. The nature of positivism paradigm is tangible, objective and scientific. The researcher in this type of paradigm makes the basis of his/her research on experiments, quantitative measurement and logical reasoning. In this type of research study, it is tried to conduct the whole study on the basis of rational, logical and reasonable approach and issues like emotions, beliefs and feelings are not applied as they are not rational and tangible issues. Meanwhile, we can say the researcher' approach in this type is logical and analytic based on theories.

Hermeneutics is another type of paradigm which is in opposite of positivist. In this type of paradigm, the researcher presents his/her own understanding from theories with providing the description of the concept. Hermeneutics is considered as the review and development of theories and the interpretation and understanding of texts. The researcher in this type of study collects data from different theories and develops it to uncover the meaning, values and explanations. Meanwhile, hermeneutics is supposed to be a kind of comprehension science.

The researcher in this study employed the hermeneutics approach to conduct her study by starting with the construction of theoretical frame of reference and then collecting empirical information. As mentioned above, hermeneutic approach is based on the researcher understanding and interpretation. So, the researcher first focuses on reviewing the academic resources and builds her understanding about the concept of risk management and its tools and techniques concept. Then she tries to apply extracted information in empirical part for developing her understanding and answer the defined research questions.

## 2.1.2 Research strategy

Mainly there are two different types of research: Explorative and Evolutionary.

(Babbie 1995) mentioned that an explorative research is the type when the subject is relatively new and unexplored. In this type of study, the researcher attempts to define the problem clearly and solve it with different methods. Therefore, explorative research can create new knowledge in the research area. For conducting this type of study, some specific data gathering methods such as interview and observation are more common. Because of the nature of this type of study, generalization to the population at large is not common and the outcomes of this study are not reliable enough for decision-makings. (www.wikipedia.org)

The another research strategy which is evolutionary, the researcher conducts the study based on defined steps and in develop the research based on the results of these steps. Meanwhile, a chain of steps with specific result makes the research study rational and logical.

This research study can be considered as an explorative one because its nature and the methods researcher applied for conducting the study. According to the purpose of this study, the researcher first tries to figure out the concept of risk management from academic resources. Second, she tries to explore the practical environment by performing some observations and some informal and formal discussions with employees and managers through in-depth interviews.

## 2.2 A quantitative or a qualitative study?

From a point of view there are two types of researches:

**Quantitative research** which is a type of research focuses on numerical data and in most of cases the main purpose of this study is relating two or more variables. Therefore, the purpose in this type of study is more developing *mathematical models, theories and/or hypotheses pertaining to phenomena*.

The other types of study which is **Qualitative researches** the approach is more subjective. Four main methods are employed to conduct this study: observation, analyzing text and documents, interviews, recording and transcribing.

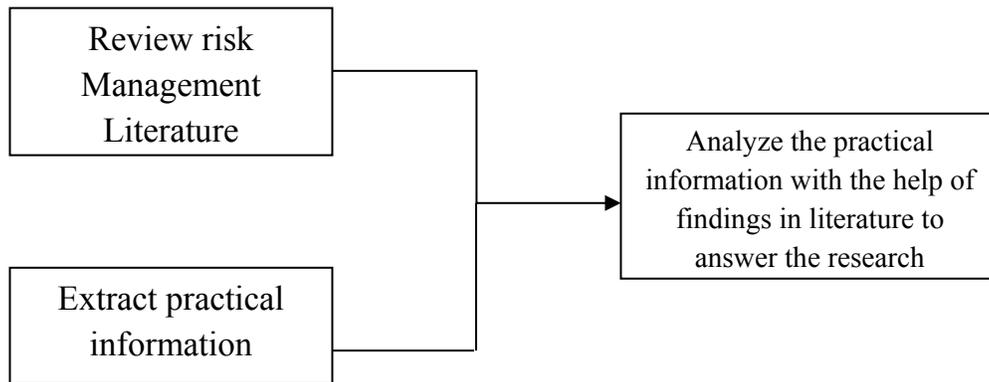
It can be said that the differences between these two methods are summarized in:

- Qualitative researches have more a “subjective” view and quantitative ones have “objective” view
- In qualitative researches it is very important to have a rich descriptions from validated resources while in quantitative ones the researchers do not persist on such detail information and more tries to extract the outcome from some quantitative basis.

In this research, as the nature of the risk management is more managerial and the defined goal by the researcher are more qualitative it can be said that the researcher conducts a qualitative research.

## 2.3 Data Collection

To achieve the defined goal of the research and answer to the questions, it is needed to have enough information from scientific sources and practical environment. It can be said that there are mainly two types of data: primary and secondary data.



### 2.3.1 Primary data

Primary data comes from personal experiments such as direct observation and in-depth semi-structured interviews. The research in this study, employed these two methods for gathering information. In the observation method, all the objects are important for the researcher and she documents all the findings in practical environment for using in the research. For the interviews, the researcher settled a specific purpose. This purpose is the interviews will be executed till the point where more interviews cannot add any important information for the subject.

### 2.3.2 Secondary data

The other type of data which secondary data is referred to information extracted from scientific sources such as documents, biographies, websites, textbooks, scientific articles and other historical and documentary records. With the help of this information the researcher builds the foundation of her study which helps her to answer the defined research questions.

In this research, the researcher used both the primary and secondary types of data. First, the researchers collect data primary data from practical environment with the help of related tools and techniques such as interviews and her observation. Second, the secondary data about risk management concept is extracted from validated scientific resources. This data extracted from different scientific sources in the area of risk management such as articles, textbooks and websites.

## 2.4 Analysis method

To answer the defined questions of the research, it is needed to analyze all the data gathered from academics and practical environment. (Backman 1998) mentioned that in qualitative research the only complicate task is data analysis. Meanwhile, with this statement he wanted to say that in qualitative study the researcher needs to consider the data analysis much more than the quantitative research.

The researcher in this study employed the Ricoeur's theory for analyzing the data. Based on this theory there are mainly three mimetic moments: Pre-figuration, configuration, and re-figuration. (Heather, Wilson et al. 2009) describes these three as below:

- **Pre-figuration**: In this step an analysis of the structures and norms from existing text are provided by the researcher.
- **Configuration**: in this phase the researcher provides a presentation of the real world regarding the selected concept.
- **Re-figuration**: in this last step the researcher connects the two last phases to interpret them.

## 2.5 Strategies for validating findings

It is said that the reliability of a research can be assessed with the same findings and conclusions in the subject area. (Mehrens and Lehmann 1987) defined the reliability as: "The degree of consistency between two measures of the same". To make this research reliable, it is important to perform data gathering and analysis correctly. Practically, the researcher first reviews the reliable articles and textbooks related to the risk management. Then for gathering data from practical environment reliable experts are selected for interviews in the company with high skills and extensive knowledge related to the risk management concept. Moreover, a plan has been developed for conducting the interviews in a systematic way to diminish any unwanted mistakes from both the researcher and selected groups for interviews.

Mainly, academics defined two types of validity: External and Internal validity.

When the connection between the theoretical framework and the empirical study is correct we can say we have internal validity. From this point of view, for validating this research study the interviews should be conducted by experts who have enough knowledge and qualification about risk management. For making this possible, reliable experts have been chosen for interviews.

The external validity is considered as a concept which refers to the generalization of the research. When the results of a research can be useful in future it is said that the research has generalization. In this research study, the researcher tries to consider generalization with covering both academic and practical aspect of the risk management concept and designing the research questions based on the need of this concept in the these areas. Therefore, this research study would be valid and fruitful for both academics and practitioners who seek the same concern in the real world.

From another point of view, according to (Larsson 1994; Lind 2005) three main criteria can be defined to increase the validity of a research:

- ***The criteria of validity:*** this research study as mentioned has as mentioned a hermeneutic approach. In this approach, aspects such as consistency, heuristic value and empirical value have a high priority for the researcher. To increase this, an appropriate connection between the literatures and results validation has been built by the researcher.
- ***The quality of outcomes:*** the richness of meaning, the structure and theoretical findings are considered by the researcher in this category of the validity.
- ***The quality of the presentation and the text as a whole:*** the concern in this validity category is the structure of the research and the way of reporting it which will be described in next section.

## **2.6 Result presentation method**

For presenting the research and its result a written format has been selected. The reason of selecting this method refers to the purpose of the research which contains reviewing different academic resources and provide the outcomes. To make the presentation more effective, the researcher incorporated tables and figures in her research. Tables have a high value in this research study as all the findings of the researcher are summarized in these tables. This method also helps to better making comparison between different concepts. For referring the sources, the researcher employed Harvard system. In this method of referring, the name of author and the publish date are provided together.

### 3 THEORETICAL FRAME OF REFERENCES

In this chapter, the researcher provides the basis of the research study which is from academic resources about risk management. To perform this tasks comprehensively, the researcher selected validated scientific sources such as books and articles. This section is started with an overview on risk management concept. Then an overview of different tools and techniques will be provided by the researcher. Finally, a review of risk management in developing countries will be provided.

#### 3.1 Definition of Risk Management

Many academics provided texts about Risk management concept. This concept shouldn't be considered new as risk management techniques like risk reduction through quality control, alternative risk financing and insurance have been inexistence for a long time. (Doherty, 2000). So many definitions can be found about. According to (Hubbard, 2009) "Risk management is the process of identification, assessment and prioritization of risks followed by the coordinated and economic application of resources to minimize, monitor and control their probability and/or impact."

In a point of view, it can be said that risk management is a complex process whose complexity depends on the size of the project regarding quality and quantity factors. Nowadays, project managers have to control the key scales of the project like schedule, cost and quality. Through this view, different risks which make changes in the main parameters of the projects play an important role. In recent decades, because of the changing/volatile environment organizations a threat to the value maximization process accrued in organizations. In fact, risk management considered as a separate discipline in the corporate world since the 1990s. (Shveta Singh\*, 2015)

However, nowadays in companies the risk management procedures are more reactive rather than proactive (Rekhi, 2011). According to (Ranganath, 2011), the team of risk management should consider bringing a sense of urgency in taking actions to mitigate the impact of potential risk not only being aware of them.

According to (Rachel Yim, 2015), there are many definitions for project success:

<i>Definition</i>	<i>Reference</i>
The success is defined by a set of criteria that the outcome or the solution must meet to be considered 'successful' (p. 19)	<a href="#">(Babu, 2011)</a>
Keeping to an efficient schedule will lead to a more successful project. (p. 187)	<a href="#">(Clift, 1999)</a>
Project success is an objectively measureable state describing how well the project performed. (p. 445)	<a href="#">(De Bakker, 2012)</a>
A project is successful when the objectives are met. (p. 516)	<a href="#">(Maylor, 2008)</a>
Project success is made up of how successful project management and the end product are. (p. 2)	<a href="#">(Van Der Westhuizen, 2005)</a>

In project risk management first step is to identify and categorize the project risks. In the related risk literature many different categorization of the risk are provided. (K., 2002) According to these resources, the risks of a project are categorized in 3 main areas which are: type of the risk, risk class and the risk level.

If the project risks are considered based on environment which they happen, the categorization would be like below: (M, 2005)

**Project risk:** in fact this risk is a kind of indoor risk, which is related to the different organizational responsibilities like the sourcing and timing software. Project risk usually is considered as controllable risks.

**External risk:** this kind of risk comes from outside of the project which cannot be considered as an input or output processes of the project. Natural disasters are example of this risk. External risks usually are incontrollable.

**Consortium risk:** this risk is between internal and external risk as regarding environment happens outside of the project but has close relationship with the internal project parts. This type of the risks relate to areas like customers, suppliers or contractors. In fact consortium risk is a risk related to identified inputs and outputs of the project. For instance, delay in raw materials from supplier is an example of this risk.

Based on the influence of the happened risk on different parts we can categorized them: (Project, 2005)

**Risks related to executive issues, project purpose, quality and technical issues of the project:** This kind of risks influences the direction of project completion. Technical problems increase the cost and the time of the project. Executive risks also lead to cost and time risks finally.

**Schedule risk:** this risk causes delay in the determined finish time of the project. Impacts of these risks influence cost and executive risks directly.

**Cost risk:** this risk causes deviation from the approved budget. Cost risk has close relation with time risk. Also this risk can lead to executive risk.

**Incremental risk:** these kinds of risk are not important independently but their aggregation could be important. For instance, a little increase in cost of a contractive work has not enormous impact on the budget consuming but if the project faces with a lot of contractors, the outcome of the increase would be crucial.

**Catastrophic risk:** this class includes the risks which independently have crucial impacts and could influence other risks. Although the probability happening of these risks are very low their impacts are very high. For example, the crisis technologies for disposal waste materials are related to these kinds of risks which need special equipment.

**Environmental, health and safety risk:** these types of risks relate to the Detrimental effects of the project on the environment. The accident of these risks would have crucial impacts on schedule and cost.

Categorizing project risks, related to the size, type and the project condition have been defined in below. It is important to mention the criterion for this categorization relates to the type of the risk.

**Technical risk:** includes technological risks like old methods risks in production.

**Human risk:** includes risks that relate to the human part of the project like experts work experience

**Financial risk:** the risks which are related to the project finance system. Like financial documentations.

**Economics/Political risks:** risks that are related to the economic/political situation of the project environment like inflation

**Lack of support risk:** the lack of shareholders support could influence the process of the project implementation and lead it to the increase in project goal and/or lack of acceptable performance of project departments.

Categorizing project risk is not confined to these issues. For instance, external risk could be foresighted or not (R.M., 1992). Also based on the project lifetime, the lifetime of project product and the place of the project many risks could be identified (Revill S., 2003). Moreover, based on the commercial process of the project risks can be categorized (Anon., 2001). If we based the probability for categorizing, these categorizes are identified: known risk (risk and its impacts are known), unknown risk (the risk is known but its impacts are not visible) and unknown risk (risk and its impacts are unknown).

## 3.2 Risk Management Processes

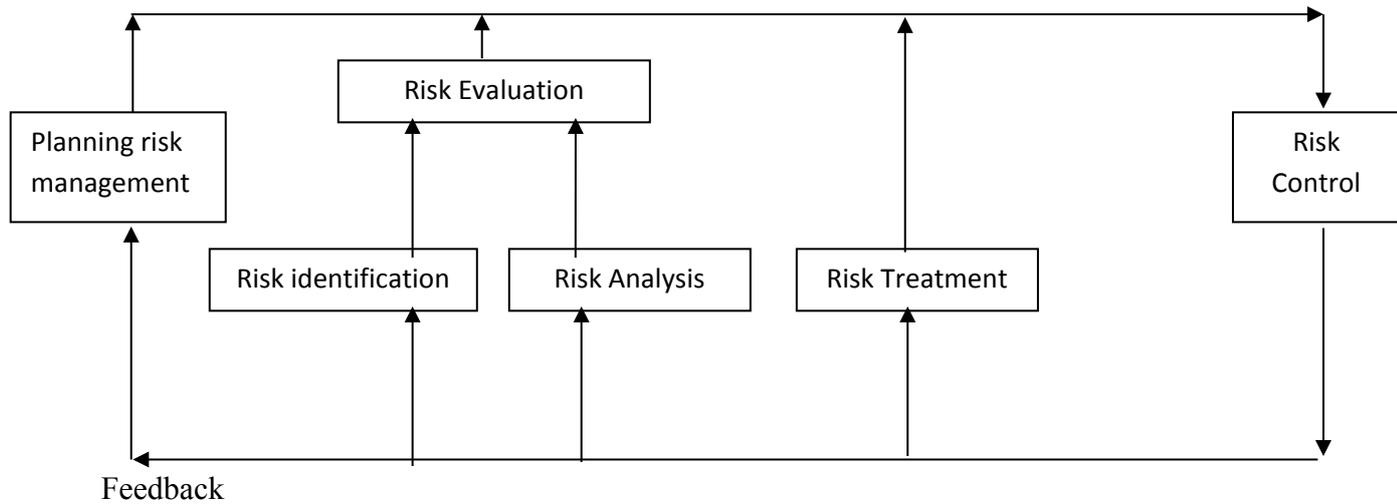


Figure 1- Risk management Processes

### 3.2.1. Risk Management planning

Like every systematic management, risk management also needs to reach and make an agreement on the process purposes before entering to executive part of the work. In this way, clarifying responsibilities, reviewing methods and work result report are essential. In fact, this preparation part of the risk management process which called underlying risk or planning project risk management ensures that the project purposes are completely described and understood. This phase includes below activities:

- structuring the purpose of project risk management based on organization purposes
- determining project resources regarding time, source and way of supplying
- identifying project and activities which are included in the risk identification
- identifying risk criterions, evaluating risk and accepting that
- identifying the extent and the scope of the risk management activities

### 3.2.2. Identifying risk

In this phase which is called risk recognition also the lists of probable events and causes with different probable scenarios are provided. The inputs of this phase are: risk management plan, outputs of project planning (the structure of broken activities, resource planning, the logic and schedule...), experiences and documentations and formal reports of the project.

There are many methods for identifying risk like brainstorming meetings, checklist, questionnaire and interview, Delphi groups method, dynamic systems, influence chart, system analysis methods, threats analyze, weaknesses and strengths and cause and effect diagram. Usually in identifying risk using a combination of methods is suggested and also desirable for companies.

### **3.2.2.1 Brainstorming Method**

Brainstorming is the most common method for identifying risk and is considered as one of basic tools for risk management. The purpose is to reach a list of risks which are usable in analysis process. Usually this method is performed with the project team or some of expertise. With reviewing different suggestions from different parts the risk resource is identified then risks based on their characteristics are categorized.

Brainstorming is sharing information between people without focusing on special issue which is selected by the facilitator. This method receives and records people information without evaluating them.

The main stages of this method are:

- establishing the brainstorming hypothesis: the facilitator people should have enough skills in taking and recording information from the group at a same time. Also the questions should not be oriented.
- selecting right people: the people which are selected should actively participate in the meetings and have valuable ideas.
- describing meeting rules for the group
- taking information, ideas and suggestions of the group
- reviewing information
- relating information to all members

### **3.2.2.2 Delphi Method**

Delphi method is a tool for project experts for reaching to a agreement on a problem like project risk. In this method, expert people are determined but their identity will be concealed.

The facilitator person uses a questionnaire to take related information to the important project risks. The answers are being exchanged between members to gather more suggestions and comment. Agreement on the main project risks is achieved in early stages of this process. The advantages of this method are related: the decrease in biased information and not affecting the process with unrelated issues.

It is suggested to use this method in situations when: the project experts cannot set the schedule for participating in information gathering process, the geographic distance separates them or gathering them in place will make some challenges.

### **3.2.2.3 Interview Method**

Risks can be identified through interviews with experienced project managers or experts. The person who is responsible for identifying risks selects appropriate people and informs them regarding the project situation. Then provide them some information like infrastructure of the project and the project hypotheses list. Interviewees identify project risks based on their experience, project information and other useful resources.

It is rational when asking about project risks from experts to follow the ways for reacting to the risks, reviewing other options information regarding the probability of the accidents.

Interview has two requirements: first interviewer should prepare him/her self regarding the issue and the work plan. Second, interviewees should have enough time to talk about detailed information and answer to the analyzer or manager questions.

#### **3.2.2.4 SWOT Analysis**

The main difference of this method from others is: SWOT analysis considers risks and threats from organization view not from inside of the project environment.

The facilitator person of analyze discusses 4 main questions which their answers should be short and clear.

The stages of SWOT analysis are:

- Identifying and selecting appropriate people for analysis. It is better to work with people who have right perception from project and the organization
- Asking about organization strengths. This question is asked about the organization not project. For example, which tasks are better done in the firm? The strengths should be reviewed from customer view or other organizations who work with the firm.
- Asking about organization weaknesses. Information about tasks which have not successfully been done is important. Honestly is very crucial in answering to these questions. This question should not be considered as an opportunity to complaint organization, rather the organization weaknesses should be identified from staffs and customers view.
- Asking about project opportunities. This issue is not limited only to financial matters. The finance value of the project is important but it is not the only reason to continue the work. Does any progress opportunity exist? Do any opportunities exist for motivating inside organization people?
- Asking about threats which endanger the project. Not identifying the project threats would damage the project and in future the organization.

#### **Resources for SWOT analysis:**

- Facilitator person: this person has two responsibilities: listening and documenting. As SWOT analysis questions are standard, the main task of facilitator is getting participants ideas.
- Participants. The main task of these people is to express their ideas about the project and organization in a complete and clear way.
- Network: network is a standard shape for getting early project documentations.
- Cost: the cost of SWOT analysis is very low. Because documentations are designed in a way that expert's comments are gathered clearly and shortly. Also as this method does not need any special skill for facilitating, it does not have any facilitator person cost.

- Time: the time consuming for SWOT analysis is depended to the number of participant. But in general this time is very short.

As SWOT analysis is shifted all the attentions to the organization and the project is under influence of organization, this tool is more valuable from risk analysis itself. Also if the manager tends to analyze information in higher level of the organization, this method is appropriate.

### **3.2.2.5 Graphing techniques**

The common feature of all graphing techniques is all of them are a figurative guidance of the risks which they are not considered in the documentation. If graphs are drawn in a good way, more information about the risks will be provided to the organization. Also the knowledge of the team and their perception about project will be increased.

### **3.2.2.6 Cause and effect diagram**

This diagram is used for identifying different major or minor causes and effects. This tool determines the relation between risks cause and effect clearly. In this technique, graphs are designed which show the way of relation between different causes with creating potential problems.

Stages for using this graph are:

- Considering a hypothesis for analysis. The size of graph should be determined to draw in a wide or narrow shape.
- drawing the early structure of the graph
- Identifying causes and the cause of causes. The purpose of this graph is identifying the main cause. When a cause is identified, this question should be asked: what is the cause of this cause? This process will continue until all the causes are identified.

After identifying risks they should be structured. The project risk matrix is suggested as a tool for structuring identified risks. In this three-dimensional matrix which is capable to develop based on the project size and needs, the risks are put in the matrix cells based on their category, type or level. As showing three-dimension form of this graph is impossible, we can draw different two-dimension matrix with risk level and type axis for each items of category (Project, 2005). The project risk matrix can be drawn in the project or product lifetime.

In one of this matrix axis there is a set of risks (like risk type, risk levels...) and in other axis project lifetime and/or product lifetime exists. In generalization of these two matrixes, the column of product lifetime or project lifetime can be developed according to the structure of activities breakdown.

### **3.2.3 Risk Analysis**

Risk analysis includes identifying factors of risks which inherently occur in the process. In this phase we should analyze risks which have been identified in previous phase. It is important to mention that in risk management terminology, the two phases of identifying and analyzing risk are named risk evaluating. For analyzing risk a given event should be determined:

- What is the probability of event occurrence and what are the consequences?
- What is the performance level of the existence control system in relation to that event?
- How are the results of analyzing heightened sensitivity to event risk?
- What are the terrific risks of event?

In general risk analysis is performed from two view: Qualitative risk analysis and quantitative risk analysis.

In qualitative risk analysis tools like Pareto chart, **Risk probability and impact assessment**, probability matrix and effect of the risk are used. According to table 1 in probability and risk effect technique, for each risks a two-dimension matrix is formed which is known as risk level matrix. In dimensions of this matrix there are: probability of the risk and its effect, result or the risk severity. (Conrow, 2002).

Risk probability demonstrates the occurrence chance of the event and the risk severity shows the importance degree of risk effect or in other words the results of events related to the risks. In risk context the indicator of meeting the risk exists.

Probability/Effect	Unimportant	Little important	Important	Critical	Catastrophic
Rare	L	L	M	S	S
Improbable	L	L	M	S	H
Fifty-Fifty	L	M	S	H	H
Probable	M	S	S	H	H
Almost certain	M	S	H	H	H

Sign	L	M	S	H
Risk level	Low	Medium	Significant	High

The quantitative risk analysis is looking for evaluating the quantitative effects of identified risks on project purposes. In quantitative risk analysis, the probability of each risk and its effects on project purpose is analyzed quantitative. This analysis follows below goals:

- Determining the probability of not reaching to project purpose
- Quantifying the limits of meeting risk
- Determining the quantity of deviations in cost, schedule and quality
- Determining the high importance risks
- Quantitative targeting of real cost/schedule/quality accessibly and tangibly

For quantitative risk analyzing, tools like Multi variety statistical models, decision tree, dynamic systems, sensitivity analysis, simulating models, second moment analysis and analysis based on reviewing and evaluating program are used. All quantitative techniques can be used for calculating positive and negative effects of unreliability.

Because these techniques estimate the amount of variables value like schedule, cost, resources and...

### 3.2.4 Responding to risk

The concept of responding to risk is to react appropriately to the risk. Planning for reacting to the risk is very important as decisions which are made in this stage impact the project risk directly. In this regard 4 actions are defined. The first two of them include prevention and limiting (pacifying) actions. Prevention actions are used for decreasing the risk probability and limiting actions are used for decreasing the threats effect. The next two of them are defined for opportunities. One of them is used for increasing the risk probability and other is used in increasing opportunities effect. The set of prevention and limiting actions are called risk threat. For each of them a set of actions can be designed. This planning on suggested actions are called action plan. Below some of these actions are provided:

**Risk avoidance:** In this action, the unreliability is removed from project. In other words it tries to minimize the risk probability or the occurrence probability of event in the project. This action is considered as prevention action.

**Risk transfer:** it means finding a person who has better skill in managing the risk or the one who accepts the responsibility of taking action. Like giving a work to a contractor which its goal can be transferring the risk to him. This action is considered as a prevention one.

**Risk diversification:** in this manner, with decomposing risk the dignity of risk is decrease. In fact, the occurrence probability of the event is broken to some separate probabilities. For example, raw materials can be bought from different suppliers instead of buying from only one supplier.

**Risk mitigation:** decreasing the risk in order to making it acceptable for the project or organization with decreasing risk effect or probability.

**Risk acceptance:** these risks should be accepted and the organization should react to them whether actively with appropriate cost allocation or passively like doing nothing.

**Financial protection:** with using possibilities like insurance services the project can be guaranteed from occurrence of threatened event. Insurance does not prevent the risk event but it prevents from whole or part of its effects.

**Contractual cases:** the responsibilities can be defined in project contracts with contractors and employer in way that decrease the severity of risk effect. This action can be very important and basic and its effects scope can be very wide.

**Alternative solutions:** with this approach, from technical view we change the way of performing work. It is possible that secondary manner will not meet the operational requirements or even will be more expensive from basic manner. But with considering losses of event occurrence the final outcome of approach will be economic.

The actions according to respond to opportunities are suggested below. In fact these actions are a result of threat actions:

**Risk utilization:** this action is parallel to risk avoidance which is action for removing the uncertainty. This action attempts to make the occurrence of opportunities. In other words the probability of event occurrence is approaching to 100 percent.

**Sharing in risk:** This is an action for transferring or resigning responsibility to a third party which can better control threats around organization. In this manner, we are looking for a situation which the control of opportunities is better. This needs a person who can maximize the opportunity occurrence and increase its potential benefits. Like transferring action which transfers threats, this strategy also allocates opportunities equally.

**Exacerbating risk:** in parallel to risk mitigation there is opportunity exacerbation. Reduction decreases the threat degree with decreasing the probability or the effect. While the risk exacerbation looks for increasing the probability in order to maximize the project benefits.

**Ignoring risk:** the risk acceptance action considers only threats which affect the project and has not any plan for other threats. So, small opportunities also can be considered as ignoring strategy. In this action, a reactive manner without doing a specific operation is done.

Performing preventive actions usually in case of event occurrence or not is costly, but limitation actions are costly only when an event occurs. However, limitation actions are more expensive than preventive actions but this issue is solved with its benefits.

### 3.2.5 Risk control

The goals of final risk management procedure are: supervision on the situation of identified risks, new risks, assuring that reactions are performed correctly and reviewing them regarding their efficiency and also control the risk changes in all stages of project development.

Risk control includes activities like risk monitoring, risk reporting and following it. Risk control uses performance reports to provide documents alleged. In risk control below questions are answered:

- Do determined strategies for risk run according to executive plan?
- Have response implemented been effective?
- What new responses are needed?
- Do risk hypothesis still exist?
- What are correct policies for following?

Tools like checklists, earned value analysis and evaluating operation techniques are used for controlling risk management. One of controlling phase of risk management responsibilities is recording risks. This includes documenting them also. Recording risk includes a following risk system which follows the procedure of project development especially regarding critical activities of the project.

### **3.3. PORTER Method**

Risk definition consists tasks including gathering preliminary data about risk sources, which was performed according to PORTER method. PORTER method presents logical questions to direct the market study in correct way to be purposive. PORTER method emphasizes its questions in five categories as follows:

- 1- Competitors
- 2- Supplier Bargaining Power
- 3- Customer Bargaining Power
- 4- Threat by New Comers
- 5- Threat by Substitute Product

Each category includes several questions to investigate its relative subject and answers provide appropriate feed for SWOT analysis.

The PORTER method usually has been used by strategists of new businesses for qualitative evaluation of target market.

However PORTER method helps to obtain classified framework of present situation and future landscapes but still is just a frame work.

Several deficiencies such as relation between buyers, competitors and suppliers has been noted as a weakness of PORTER method.

### **3.4. PESTLE Method**

On the other hand while economical affair and especially the market situation easily could be influenced by political, social and legal affair, to obtain better vision, PESTLE analysis applied in this study. PESTLE tries to get appropriate analysis about Political, Economic, Social, Technical, Legal and Environmental conditions which may affect market.

For each field PESTLE provides a list of factors that may affect the business and then the consequence of factor will be described. Finally the effect of time (How long it may be effective?), type of effect (If the effect is positive or negative), dynamic effect (Effect significance towards to increase, decrease or be stationary) and relative importance of the factor will be specified.

For risk analysis, SWOT method was applied. While SWOT analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture, Strengths, Weaknesses, Opportunities and Threats were arranged according to PORTER and PESTLE outcomes.

Afterwards Internal and External factor evaluation was applied to realize the ability of organization to use its capabilities.

Internal Factors are strengths and weaknesses of organization and External Factors are opportunities and threats presented by the external environment to the organization.

In IFE method for each Strength or Weakness, Importance amount and organization capability must be define according to Brain storming in organization by elite personnel. Afterward the relative importance of each item must be calculated by

dividing all the importance amounts to the total values of importance. Then by multiplying relative importance amount to organization capability -grade- final point will be reached. Total amount of final points illustrate the general condition of organization against internal factors. If the final point be more than 2.5 then the organization has appropriate ability to use its internal capabilities.

The EFE method is as same the IFE while it analyzes opportunities and threats. Similarly to IFE analysis if the final point be more than 2.5 it means that the organization has adequate capabilities to use opportunities and resist against threats.

After IFE and EFE analysis it's time to define the strategies according to previous obtained results.

Strategies could be categories in to 4 groups as described below:

- 1- Offensive strategies: combination of strengths and opportunities
- 2- Conservative strategies: combination of weaknesses and opportunities
- 3- Competitive strategies: combination of strengths and treats
- 4- Defensive strategies: combination of weaknesses and treats

Finally when the list of strategies obtained, to sort them regarding to their priority, another grading method was applied. This grading was according to evaluating Employee Satisfaction, Customer Satisfaction, Shareholder Satisfaction and Expansion of the Supply Chain for each strategy.

## 4 Empirical Foundation

In this chapter a case study of one of the active projects about to reach the operational stage shall be dealt with. The aforementioned organization is TAHA Co. which is one of the Ezam part manufacturing group of companies located in Iran.

### 4.1. Introduction to TAHA Co.

The company was established in 1997 under the name of TAHA Trading Co. Ltd. with the object of import of the part requirements of Ezam Motorcar Part Group subsidiary companies and began its activities with the said object. However, the company remained inactive between the years 1999 to 2006 due to changes in its management policy. In 2006, through re-definition of its policies the company embarked upon the manufacture and assembly of drive shafts for domestically manufactured motorcars and at present is one of the major suppliers of drive shafts in the AM market of the country.

TAHA Manufacturing and Support Industries Company products comprise of two sections for the manufacture of various types of drive shaft and steering box in two different sites in Shamsabad Industrial Town in the city of Qom. The process of manufacture of both types of products at present consists of assembly and packing. The drive shaft section has reached the operational stage in a plant with the area of 4,020 sq.m. and covered area of 3,000 sq.m. with the assembly capacity of 300,000 sets per annum. With respect to the steering box section, the technical know-how has been purchased from the Korean company MANDO and at present the main customer of this product is SAPCO Company. The management of the company is presently engaged in establishment of the required infrastructures for construction of a plant for manufacture of the said product.

The Peugeot 405 and 206 hydraulic steering box manufacturing plant is under construction in a plot of land with the area of 20,000 sq.m. in Shamsabad Industrial Town with the planned production capacity of 500,000 steering boxes per annum. The plant will reach the operational stage in 2011 with the initial capacity of 300,000 steering boxes per annum with its main customers comprising of such motorcar manufacturers as Iran Khodro, with an agreement concluded with SAPCO Company for the supply of three years' steering box requirements.

The process of manufacture of steering boxes in the country is mainly in the form of assembly and packing and the few manufacturing companies are only active in the OE market. Parsazan and Shetabkar Companies are the foremost companies in the field of manufacture of 405 steering box neither of which are under licence and have acquired the process of assembly on an experimental basis and are only active in the OE market.

With respect to the 206 steering box, SAPCO has directly undertaken import of this product in the form of pack and there is no other source.

In view of the foregoing, TAHA Company shall endeavour to manage the know-how of this industry in order to be able to have full management over its establishment, continuation and improvement. Therefore, TAHA Company has for the first time undertaken purchase of technical know-how under the licence of Korea and the line will become operational in 2011.

TAHA Company has a three-year agreement and purchase guarantee with SAPCO Company in the field of manufacture of hydraulic steering boxes for Peugeot 405 and 206. Moreover, TAHA Company intends to enhance its technology with a view to greater customer satisfaction and gaining a greater share of the motorcar manufacturing market as well as becoming the forerunner in the field of assembly of new motorcar manufacturer products in the field of steering boxes.

In the next chapter, for the purpose of project risk management, as mentioned in previous chapters, initially risks will be identified through utilization of the PORTER Model and PESTLE risk analysis tables. Information used in the following section and obtained via both field study and company official reports.

## 4.2. Observations

### PORTER Model

Competitive market studies were undertaken using the PORTER Model with respect to the Peugeot 405 and 206 hydraulic steering box and the following SWOT tables and IFE and EFE matrices extracted:

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (405)	Competitors	Number of competitors	The lesser the number of competitors	Partsazan and Shetabkar Companies as manufacturers in OE and Jtech Co. which in addition to OE is also active in the AM market	At present there are 3 companies engaged in the manufacture of model 405 steering box and in addition to meeting car manufacturer requirements, also feed the AM market. There are also numerous and varied brands present in the AM market. The organization is considered a newcomer in the steering box market and plans to enter the OE market through manufacture under the licence of MANDO of Korea and in view of the existing agreement with SAPCO, and thus also penetrate the AM market.	The existing agreement between the organization and SAPCO as well as transfer of technical know-how for the manufacture of steering box from the reputable MANDO Co. is an appropriate opportunity for entry into the OE market and thus acquiring a considerable share of the AM market. Considering that none of the manufacturers at present have the capability for design of the steering mechanism, the acquired know-how can be used for cooperation in new car manufacturing products as well as cooperation with other motorcar manufacturers.
		Growth of the organization as compared to competitors	The greater the growth of the organization as compared to competitors	The organization has no record of manufacture		
		Fixed costs and warehousing as compared to competitors	As less as possible	The organization has no record of manufacture		
		Product distinction as compared to competitors	As great as possible	The product in question is envisaged to be manufactured under licence of MANDO Co. of Korea		
		Product properties	As more specialized and unique	Capable of meeting PSA Standard requirements		
		Foreign competitors	The fewer the number of competitors	DHB, Chinese and American companies which are only active in the AM market		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (405)	Supplier Bargaining Power	Number of major suppliers	The greater the number of major suppliers	The product shall be supplied in the form of CKD by MANDO Co. for 2 years	According to the existing plan, manufacture will be on the basis of assembly of parts imported in CKD form from MANDO during the initial two years and then gradual domestic manufacturing of the parts. Considering that manufacture will be under licence, MANDO Co. will have a significant role in the final quality and profitability of the organization in particular in the initial two years.	In view of the special political circumstances and international sanctions, cooperation with the Korean company is very risky. Therefore, it is exigent that the process of transfer of technical knowledge as well as progress toward domestic manufacture of parts be undertaken as expeditiously as possible in order that in case of any problem the least amount of damage be caused to the organization. Moreover, the possibility of finding substitute parts must be explored to avoid any potential problem.
		Possibility of substitution of supplier products	As great as possible	The possibility exists for electrical steering box (EPS) substitution		
		Distinction of goods or cost of substitution of supplier	The lesser the amount of distinction and cost of substitution	In case of substitution of electrical steering box the substitution cost shall be rather high		
		Supplier threat in connection with progressive integration	The lesser the amount of threat	At present there is no such threat		
		Organization threat in connection with regressive integration	The greater the amount of threat	There is a plan for domestic manufacture of the parts		
		Share of suppliers in the final quality and amount of services	The lesser the share	Has a high share in the final product quality		
		Share of suppliers in the profitability of the organization	The lesser the share	Has a high share in the profitability of the organization		
		Importance and share of the organization in the profitability of suppliers	As great as possible	Effective by not much		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (405)	Customer Bargaining Power	Number of major customers	As great as possible	SAPCO Co. in the OE market and not applicable in the AM market	The major customer of the products of the organization is SAPCO Co. which has concluded a three-year agreement in this connection and is reliable to a great extent. In the AM market, considering the presence of various brands, there is great choice for customers.	Since usually parts used by the car manufacturer (original parts) are in general more preferred by customers in the AM market, at the same time, the manufacturer for car manufacturers, a capability must also be envisaged in the AM market in order to strengthen and stabilize the position of the organization in the AM market.
		Capability of substitution of organization products by the customer	As less as possible	The possibility of substitution is weak in the OE market in view of the 3-year contract with the purchaser, however, in the AM market considering the diversity of products and number of suppliers the possibility is great.		
		Cost of substitution of the organization by the customer	The greater the cost of substitution	Of no great cost in the AM market, however, there is not a great possibility in the OE market in view of the existing agreement		
		Threat of regressive integration by the customer	The lesser the amount of threat	At present there is no such threat		
		Threat to the organization with respect to progressive integration	The greater the amount of threat	It is envisaged by the organization to become active in the AM market in addition to meeting motorcar manufacturer requirements		
		Share of the organization in the quality of products and level of services provided to the customer	The greater the amount of share	Not applicable in the AM market, however, in the OE market the safety manufactured part has been evaluated and will have a significant share in the quality level of the customer product		
		Share of the organization of the total costs of the customer	The lesser the amount of share	No high		
		Capability of customer profitability	As great as possible	According to available data the profit margin of the purchaser (SAPCO) is estimated at about 6-7%		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (405)	Threat by Newcomers	Scale of production for being economical	The more is achieved in the number of product	High (Approx. 160,000 sets per annum)	At present IHI Co. intends to manufacture the Pride steering box under licence of MANDO. It is possible that the said company may redirect its production line toward manufacture of hydraulic steering box of the Peugeot family. Also the possibility exists for present manufacturing companies to move toward enhancement of the level of their products through under licence production and transfer of technical know-how.	In view of under licence manufacture of well-known brand as well as access of the organization to the sale network, the threat of newcomers does not appear to be serious. However, in order to prevent potential threats, expeditious and effective presence in the AM market through utilization of all the points of strength of the organization is the best course of action.
		Distinction of product compared to the newcomer product	The greater the amount of distinction	Products manufactured by the organization are under licence and rely on technical know-how		
		The organization brand is well-known	As great as possible	The organization has a well-known brand		
		Capital required for entry into the market	As much as possible	A rather high amount of capital is required		
		Access of the newcomer to the distribution network	The lesser the amount of access to the extensive distribution network	No data available		
		Access of the newcomer to modern technology	The lesser the amount of access to modern technology	No data available		

		Access of the newcomer to talents	The lesser the amount of access to talents	No data available		
		Importance and effect of experience in the quality and sale of product	As great as possible	Very much		
<b>Hydraulic Steering Box (405)</b>	<b>Threat by Substitute Goods</b>	Availability of similar substitute goods	The lesser the amount of availability	Non-existent in the market at present	The electric steering box is recognized as a substitute for the hydraulic steering box and is being substituted in the products of major world motorcar manufacturers. At present none of the domestic car manufacturers have started using this system and do not have plans for its use. Moreover, none of the imported parts for domestically manufactured motorcars include the said system.	Since at present domestic motorcar manufacturers have no plans for substitution of the electric steering box, the threat of substitution of this product is not serious. However, considering that the project for manufacture of hydraulic steering box is based on transfer of technical know-how, it would be advisable to plan for transfer of electric steering box technology in order to be prepared in case motorcar manufacturers turn to use of electric steering.
		Cost of change and substitution of product for consumers	As great as possible	Bears a rather high cost		
		Profitability of manufacturers of substitute goods	The lesser the amount of profitability	No data available		
		Value of substitute goods	The lesser the value	Has a higher value		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (206)	Competitors	Number of competitors	The lesser the number of competitors	There is no domestic competitor and at present the set in question is imported by SAPCO for the OE market	At present no domestic manufacturer has undertaken manufacture of the 206 steering box and all part requirements for the OE market are directly imported by SAPCO. Furthermore, the organization intends to undertake manufacture of this steering box under licence of MANDO Co.	In view of the untouched nature of this market for domestic products, should be steering box manufactured be superior to the imported steering box from the aspects of quality and price, it will be able to readily dominate the domestic market.
		Growth of the organization as compared to competitors	The greater the growth of the organization as compared to competitors	The organization has no record of manufacture		
		Fixed costs and warehousing as compared to competitors	As less as possible	The organization has no record of manufacture		
		Product distinction as compared to competitors	As great as possible	In view of non-existence of domestic manufacturers, there is no competitive product, however, in general the product manufactured by the organization is manufactured under the licence of MANDO Co. of Korea		
		Product properties	As more specialized and unique	Capable of meeting PSA Standard requirements		
		Foreign competitors	The fewer the number of competitors	According to available data, the sole supplier in the OE and AM markets is SAPCO Co. which undertakes import of the set		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (206)	Supplier Bargaining Power	Number of major suppliers	The greater the number of major suppliers	The product shall be supplied in the form of CKD by MANDO Co. for 2 years	According to the existing plan, manufacture will be on the basis of assembly of parts imported in CKD form from MANDO during the initial two years and then gradual domestic manufacturing of the parts. Considering that manufacture will be under licence, MANDO Co. will have a significant role in the final quality and profitability of the organization in particular in the initial two years.	In view of the special political circumstances and international sanctions, cooperation with the Korean company is very risky. Therefore, it is exigent that the process of transfer of technical know-how as well as progress toward domestic manufacture of parts be undertaken as expeditiously as possible in order that in case of any problem the least amount of damage is caused to the organization. Moreover, the possibility of finding substitute partners must be explored to avoid any potential problems.
		Possibility of substitution of supplier products	As great as possible	The possibility exists for electrical steering box (EPS) substitution		
		Distinction of goods or cost of substitution of supplier	The lesser the amount of distinction and cost of substitution	In case of substitution of electrical steering box the substitution cost shall be rather high		
		Supplier threat in connection with progressive integration	The lesser the amount of threat	At present there is no such threat		
		Organization threat in connection with regressive integration	The greater the amount of threat	There is a plan for domestic manufacture of the parts		
		Share of suppliers in the final quality and amount of services	The lesser the share	Has a high share in the final product quality		
		Share of suppliers in the profitability of the organization	The lesser the share	Has a high share in the profitability of the organization		
		Importance and share of the organization in the profitability of suppliers	As great as possible	Effective by not much		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (206)	Customer Bargaining Power	Number of major customers	As great as possible	SAPCO Co. in the OE market and not applicable in the AM market	The major customer of the products of the organization is SAPCO Co. which has concluded a three-year agreement in this connection and is reliable to a great extent. In the AM market also, SAPCO Co. is the major distributor.	Since usually parts used by the car manufacturer (original parts) are in general more preferred by customers in the AM market, at the same time as manufacture for car manufacturers, a capacity must also be envisaged for manufacture and presence in the AM market in order to strengthen and stabilize the position of the organization in the AM market.
		Capability of substitution of organization products by the customer	As less as possible	The possibility of substitution is weak in the OE market in view of the 3-year contract with the purchaser, however, in the AM market considering the diversity of products and number of suppliers the possibility is great.		
		Cost of substitution of the organization by the customer	The greater the cost of substitution	Of no great cost in the AM market, however, there is not a great possibility in the OE market in view of the existing agreement		
		Threat of regressive integration by the customer	The lesser the amount of threat	At present there is no such threat		
		Threat to the organization with respect to progressive integration	The greater the amount of threat	It is envisaged by the organization to become active in the AM market in addition to meeting motorcar manufacturer requirements		
		Share of the organization in the quality of products and level of services provided to the customer	The greater the amount of share	Not applicable in the AM market, however, in the OE market the safety manufactured part has been evaluated and will have a significant share in the quality level of the customer product		
		Share of the organization of the total costs of the customer	The lesser the amount of share	No high		
		Capability of customer profitability	As great as possible	According to available data the profit margin of the purchaser (SAPCO) is estimated at about 6-7%		

Product Name	Competition Parameter	Item Assessed	Ideal State	Situation at Present	Analysis of Present Status	Courses of Action
Hydraulic Steering Box (206)	Threat by Newcomers	Scale of production for being economical	The more is achieved in the number of product	Non-existent	-----	Considering that it is possible that any of the present manufacturers of steering box for the 206 model through application of changes in the production line, penetration of the organization in the OE and AM markets must be in such manner that access of potential newcomers to the consumer market is very insignificant.
		Distinction of product compared to the newcomer product	The greater the amount of distinction			
		The organization brand is well-known	As great as possible			
		Capital required for entry into the market	As much as possible			
		Access of the newcomer to the distribution network	The lesser the amount of access to the extensive distribution network			
		Access of the newcomer to modern technology	The lesser the amount of access to modern technology			
		Access of the newcomer to talents	The lesser the amount of access to talents			
		Importance and effect of experience in the quality and sale of product	As great as possible			
	Threat by Substitute Goods	Availability of similar substitute goods	The lesser the amount of availability	Non-existent in the market at present	The electric steering box is recognized as a substitute for the hydraulic steering box and is being substituted in the products of major world motorcar manufacturers. At present none of the domestic car manufacturers have started using this system and do not have plans for its use. Moreover, none of the imported parts for domestically manufactured motorcars include the said system.	Since at present domestic motorcar manufacturers have no plans for substitution of the electric steering box, the threat of substitution of this product is not serious. However, considering that the project for manufacture of hydraulic steering box is based on transfer of technical know-how, it would be advisable to plan for transfer of electric steering box technology in order to be prepared in case motorcar manufacturers turn to use of electric steering.
		Cost of change and substitution of product for consumers	As great as possible	Bears a rather high cost		
		Profitability of manufacturers of substitute goods	The lesser the amount of profitability	No data available		
		Value of substitute goods	The lesser the value	Has a higher value		

## 5 Analysis

### 5.1. Analysis of Peripheral Circumstance Affecting the Industry & the Market

Considering that most of the manufactured and assembled parts of the company are supplied through suppliers abroad and external factors, including political and governmental factors, have a significant effect on the market of this product, numerous factors influence this market the most important of which are presented in the PESTLE analysis tables.

The definition of the phrases and marks used in the said tables are as follows:

- **Effect of Time**
  - N:** Effective at present, with the effect possibly diminishing or halting within the next 6 – 12 months;
  - N/F:** Effective at present and continuing to effect up to the next 6 – 12 months;
  - F:** Not effective at present but will be effective in the next 6 – 12 months;
  - I:** Effective at different time.
  
- **Type Effect**
  - +:** If the effect is positive;
  - :** If the effect is negative.
  
- **Dynamic Effect**
  - > :** Effect toward increase of significance (goal);
  - < :** Effect toward decrease of significance;
  - = :** Effect in non-change of significance.

**Political**

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Customs tariffs of imported parts	Following taking office of the new government there was an increase in the stance position of protectionism which encompasses protection of customs tariffs with a view to the growth of domestic industries. The said stance prevented importation of certain parts and in some cases, due to severe laws and regulations, even causes problems for imports of parts. Assuming that such cases do not include CKD parts.	N/F	+	>	<b>Important</b>
Customs tariffs of imported motorcars	With the approval of a law by the Consultative Assembly pertaining to severance of the existing monopoly in the motorcar industry of Iran, the rate of tariffs of imports of foreign motorcars decreased and this trend, by virtue of law, shall continue on gradual and annual decrease basis. In 2007 the tariff on imports of motorcars was 100% but decreased to 90% in 2008.	N/F	-	>	<b>VERY Important</b>
Trend of exports of motorcars	According to Customs statistics, during the first quarter of 1389 [2 <sup>nd</sup> quarter of 2010] domestic motorcar manufacturers experienced a decline in exports. On the other hand, although during the said period exports of motorcars declined from the aspects of weight, number and value, statistics show a growth in the price of exported motorcars during the same period. According to certain motorcar experts the difference between the weight and value of exported motorcars is due to the difference in the price of the euro to the dollar, since motorcar manufacturers are compelled to purchase the required parts in dollars and export their manufactured cars in euro, which causes increase of the value of exported motorcars. However, the high price of exported motorcars causes diminishment of the export market of the said manufacturers. Imports of motorcars during the first two months of	N/F	-	>	<b>Important</b>

	<p>the current year [Apr./May 2011] in comparison with the similar period in the previous year, experienced a 216.40% increase with respect to number, in such manner that during the said period a total of 12,814 foreign manufactured motorcars were imported which in comparison with the 4,050 motorcars imported in the previous year show a significant growth during the first two months of 1389. The total value of imported motorcars during the first quarter of the current year amounted to \$224,098,000/- which in comparison with \$80,087,000/- value of imported motorcars in the previous year, experienced a 202.94% growth from the aspect of value in the current year.</p>				
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**Political**

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Relations with other countries	Due to its political differences with certain industrial and advanced countries, Iran has faced some difficulties in the field of supply of parts and exchange of technological information. For instance, the lack of possibility of exchanges with the United States of America, has caused problems in the supply of certain machinery parts. Furthermore, in view of the differences due to the uranium enrichment process in the country and aggravation of economic and political sanctions, Iranian relations with the industrial countries of the world has encountered problems. At the same time, some countries, such as Russia and China, have embraced the opportunity and paved the way for investment in Iran. However, the future of such actions cannot be viewed optimistically, since the amount of production projected by such companies cannot replace the absence of such major companies as Peugeot, Renault, etc. Although, the effects of economic and political sanctions on the motorcar manufacturing sector is dependent on the types of sanctions. In any case, even non-economic restrictions can cause great damage to the motorcar manufacturing industry sector.	N/F	-	>	<b>VERY Important</b>
Relations with scientific centers	The lack of visit to technological and scientific centers, and exhibitions and foreign part manufacturers by companies, weakness of the amount of preparedness of various units of organizations for international operation, deficiency in the amount of familiarity of personnel with	N/F	-	>	<b>VERY Important</b>

	methods of conversation and composition of specialized documentation in international languages, deficiency of utilization of Internet connection facilities, deficiency of the amount of familiarity with principles of commercial negotiations and international relations, are a number of cases threatening most public organizations.				
Other threats in the field of foreign relations	The beliefs and mentality of various countries of the world toward Iran, high marketing and market study costs, lack of data banks for competitive analysis of the market, and lack of familiarity with foreign scientific centers comprise major obstacles in the path of identification and expansion of the market. However, the problems may be overcome to a certain extent in view of the export development plans of the government and the manner of protection of the issues of joint pacts.	N/F	-	>	<b>VERY Important</b>

### Economical

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Investment risks	The low amount of liquidity in the country, increase of the share of investment of the private sector in the motorcar and part manufacturing industry, projection of future problems of the motorcar industry of Iran, increase of the rate of inflation, low rate of investment profitability, increase of advance sale of motorcars, increase of imports of motorcars and purchase of parts from abroad, manner of protection of manufacturers by banks, non-specific order plans of motorcar manufacturers, non-payment of the liabilities of part manufacturers on time, as well as instability of the security situation and economic and political situation of the country and the Middle East, for investment, high customs expenses and trade risks, have had a significant negative effect on the amount of domestic and foreign investment which will have a negative effect on the trust of investors. This has lead to a decrease in the interest in investment in the field of manufacture, leading most investors toward such commercial plans with immediate yield as housing, imports, etc. On the other hand, increase of international pressures and unstable political conditions have turned Iran into the least favoured trade environment for investment in the Middle East, to the extent that in 2007 the country ranked 9 among 10 Middle Eastern countries from the aspect of investment risk, and in 2008 its ranking dropped to the last rank.	N/F	-	>	Very IMPORTANT
Stability of governmental policies with respect to the industry of Iran	The trend of increase of the manufacture of motorcars in the country, free trade zones, bank facilities, particular geographical situation of Iran (decrease of freight charges), private nature of the part manufacturing industry of the country, propensity to direct foreign investment and strategic partnerships, efforts of motorcar manufacturers for increase of the percentage of domestic manufacture of motorcars, untouched Eurasian and North African markets, state of the domestic market, share of the part manufacturing industry in the	N/F	+	=	Very IMPORTANT

	GDP, and uniformity and co-direction of policies adopted by the government in connection with industry, have contributed to the stability and progress of motorcar manufacturing industries, which shall serve to ensure existence of a suitable market for sale of company products. Also, at present, despite political pressures and the danger of sanctions, the government continues to insist on its protective policy of the motorcar industry and increase of motorcar manufacture in the country.				
Membership in the free trade zone	In case of membership in the free trade zone and import of foreign motorcars with appropriate prices, the sale of domestic motorcars and consequently sale of parts of the company will decrease. On the other hand, import of cheap raw materials without customs tariffs shall affect the finished cost of products and lead to increased competition of companies with equal manufacture. Even so, despite such decrease in the price of raw materials, technological deficiencies and inequality of the capabilities of domestic manufacturers and foreign competitors, will render continuation of the existence of domestic manufacturers uncertain.	<b>I</b>	-	>	<b>Critical</b>

### Social

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Customer satisfaction	Motorcar manufacturer satisfaction of received products will cause raise of the organization grade, receipt of more orders and enhancement of sale. Such satisfaction will also significantly assist in the more successful presence in the AM market and introduce the company product and serve as publicity for it. Consumer and final consumer satisfaction has a direct effect on the amount of sale of company products.	N/F	+	=	Very Important
Viewpoint of the mass media toward the motorcar industry	Expansion of advertisements of the products of domestic motorcar manufacturers will cause the tendency of customers to purchasing motorcars and, as a result, entail increase of the sale of motorcars and consequently increase in the sales of the organization. At present, such protective outlook of the domestic motorcar industry exists in the Iranian mass media.	N/F	+	=	Significant
Jobs related to the industry and its concentration	With the increase of jobs related to the motorcar industry, including individuals engaged at work in the field of suppliers or customers who are considered motorcar manufacturers, the base for establishment of a more appropriate position for the motorcar industry and its suppliers will be created in the society. At present, this industry has a pronounced role in the Iranian society as a basis of employment. Moreover, the culture of consumption, coefficient ratio of urbanization and the situation with regard to immigration to cities, ratio of motorcar supply and demand in the society, population structure, etc. have created an appropriate basis for use of motorcars and increase of consumption.	N/F	+	=	Significant
Traffic congestion	The trend of marriage and formation of family, consumption culture, rate of population growth as well as urbanization coefficient and situation with regard to immigration to cities have caused use of motorcars to increase which has in turn has led to traffic congestion in greater cities and large towns, which negatively affects expansion of the use of motorcars. Although this phenomenon is due to lack of appropriate urban infrastructures, it still has and continues to have a negative effect on the demand for motorcars in the country.	N/F	-	>	Important

Attitude toward saving and investment	The attitude of the Iranian family towards the motorcar is changing from a capital good to a consumer good which causes decrease of the average life of use of the motorcar, thus, paving the way for increase of demand.	N/F	+	>	<b>Important</b>
Age composition of the population and its rate of growth	According to the 2006 census, the population rate of growth in Iran is 1.6% per annum. Approximately one third of the Iranian population is under the age of 30 which indicates the youngness of the population and can be a good potential for demand for motorcars in the Iranian market. Also, the number of families in Iran is approx. 18,000,000 which considering the 7,000,000 motorcars in the country, it can be seen that there is almost one motorcar per 3 families in Iran. According to estimates, irrespective of all limiting factors, the Iranian market has the potential for 2,000,000 motorcars per annum. Furthermore, during recent years the number of educated and career ladies has had a significant increase. Such change in the composition of employed individuals in the society, considering the tendency of ladies toward owning a motorcar, has led to an increase in the rate of demand for motorcars in the society.	N/F	+	>	<b>Important</b>

## Social

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Rate of unemployment	According to official statistics published by the government, in November 2008 there were approx. 200,000 unemployed individuals in the country. The Minister of Labour claims that due to the decreasing trend of grant of facilities, the rate of unemployment in the spring of the current year reached 9.6%, increased to 10.2% at the end of the summer and it is projected that this trend will reach 11% by the end of the year.	N/F	-	=	<b>Important</b>
GDP growth and per capita income	The GDP growth rate of Iran in 2007 was 5.4% and with a decreasing trend is expected to reach 3.5% by 2012. However, the per capita income of the Iranian family in 2007 was \$3,886/- which will increase to \$9,220/- by 2012.	N/F			
Education and Its effect on individual taste	The taste of individuals in the society for selection of various goods, including motorcars, depends on numerous factors, including the level of education. With the increase of the level of education and knowledge of the public, greater attention and consideration is paid to the selection and purchase of required goods. This is also true in the case of motorcars. Considering the significant growth of the number of educated individuals in the country and their familiarity with the possibilities and standards of motorcar models, expectations of domestically manufactured motorcars for meeting such standards has also increased which will gradually force domestic motorcar manufacturers to manufacture motorcars with more possibilities.	N/F	-	>	<b>Important</b>

### Technical

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Access to Licensing Patent Technology	Government policies pertaining to industrial self-sufficiency forced motorcar manufacturers to undertake manufacture of parts required by the society. However, due to the lack of appropriate technology and necessary equipment for quality control of the products, the said companies were forced to manufacture motorcar parts under the licence of foreign motorcar manufacturers supplying parts. In view of the requirements of motorcar manufacturing companies concerning part supplier organizations being under licence, the access of this company to higher technology through licence of MANDO Co. is one of the outstanding advantages of the organization.	N/F	+	=	Very Important
Machinery and Equipment Technology (Manufacture Technology)	Machinery and equipment, whether used for manufacture, control or laboratory, play a considerable role in the speed of manufacture and quality of products. Through use of up-to-date technology and exchange of information with other manufacturers and upgrading of manufacturing and control equipment positive steps may be taken toward improvement of the quality and increase of the sale of products. Utilization of up-to-date and equipped machinery, such as assembly, packing and drive shaft test machinery, will lead to increase of production capacity and decrease of human errors. In this company, utilization of appropriate machinery and equipment in production lines, vacant capacities, diversity of production, procurement of technical know-how and under licence manufacture, application of appropriate design and engineering software, technological trainings, identification of technology transfer methods, proper access to required technical information and data sources, attraction of experts in the part manufacturing industry, are considered points of improvement in the manufacture of products.	N/F	-	>	Important
	At present, with a view to innovation and provision of new products and services for expansion of their markets and customer	N/F	-	>	Very IMPORTA

<p>Research Budget and Cost of Projects</p>	<p>satisfaction, successful companies allocate part of their income to research and upgrade of technologies. The said allocation is currently between 3 – 9% of annual sales.  Non-allocation of budget and definition of research activities, as well as the amount of allocation of credit by the government and banks to D&amp;R in the industry sector, amount of specialized relations of the part manufacturing industry with the scientific centers of the country and the amount of technological advances and changes in the world, relative protection offered by the Ministry of Industry in the field of establishment of D&amp;R and attraction of up-to-date world technology, the decreasing trend of subsidies in case of entry into the World Trade Organization, import of similar foreign parts, competitive environment and decrease of the share of the domestic market can lead to loss of the relative advantages of companies.</p>				<p><b>NT</b></p>
<p>Technological Advancements</p>	<p>On the basis of the latest technological changes in the motorcar steering box industry, the motorcar industry has moved toward motorcars with electric steering boxes. Although this has not yet become obligatory for motorcar manufacturers or turned into a general shift in motorcar manufacturing, the next 5-year perspective of the motorcar industry points to considerable changes in the steering box technology.</p>	<p><b>F</b></p>	<p>-</p>	<p>&gt;</p>	<p><b>Critical</b></p>

### Technical

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Copyright By-laws	Lack of copyright laws will lead to exploitation of the designs of manufacturers and vitiation of the rights of owners of designs	N/F	-	>	Important
Internet, E-mail, Electronic Training	Use of Internet services for exchange of information, receipt of orders, knowledge of the status of cargo at any given time, placement of orders with suppliers, use of video conference for avoidance of waste of time and excess costs is very useful and effective. Moreover, use of electronic trainings makes access to different training methods and transfer of a large volume of data possible.	N/F	-	>	Significant
Distribution Technology	Existence of a safe and fast transportation system for receipt of raw materials from suppliers and forwarding of product to motorcar manufacturers is one of the important factors considered by customers. In line with this issue, motorcar manufacturing companies have undertaken equipment of the transportation fleet with the GPRS system for tracking the position of and estimation of the time arrival of cargo.	N/F	-	>	Significant
Value Cycle Technology	Application of new technologies, such as the ERP System and similar systems which are mostly expanding in various industries on the basis of the IT technology, play an important role in the decrease of expenses, increase of the speed of provision of services, increase of the productivity of manpower and resources, and coordination of all the integral parts of the value chain in organizations. Also, in view of the use of order placement methods, quality notifications, PPM notification, etc. through the Internet by the motorcar manufacturer customer, application of a comprehensive information system and resource planning in part manufacturing companies in the direction of conforming their technological status with their motorcar manufacturing customers is inevitable.	N/F	-	>	Important
Other Threats in the Field of	Insufficient credit allocations by the government and banks to D&R in the industry sector, insufficiency of the amount of specialized	N/F	-	>	Important

Technology	relations of the part manufacturing industry with the scientific centers of the country, low scientific level of motorcar design, engineering and part and set supplier companies, increase of the amount of technological advances and changes in the world, method of part manufacturer grading methods, insufficient relative protection offered by the Ministry of Industry in the field of establishment of D&R and attraction of world up-to-date technologies, decrease of the share of the domestic market, import of similar foreign parts, growth of international exchanges and strengthening of political and economic relationships.				
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## Legal

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Tax Incentives Law Article 132 of the Direct Taxation Act	<p>The income of production units for which, as of the date of approval of this law, establishment card or licence is issued by the Ministries of Heavy Industry or Mines and Metals shall be exempt from payment of tax for a period of one year as of the date of start of operation stated in the case file and the said period of exemption shall be increased as follows in case of qualifying for any of the conditions herein below:</p> <p>1. Two years in case at least 75% or more of the raw materials used by the production unit is not imported and one year in case less than 75% and over 40% thereof is produced in Iran. 2. Six years in case the product of the production unit is comprised of capital goods and three years in case such product is comprise of intermediate goods. 3. One year in case of engagement of 20 or more workers at work at the production unit. 4. Two years in case of situation of the production unit in semi-deprived areas and four years in deprived areas. Note 2: The exemption subject of this article shall not apply to income generated from production units located within the 120km. radius of the center of Tehran and 50km. radius of the centers of Isfahan, Khorasan, East Azerbaijan and Central Provinces. Production units located within the township boundaries of the centers of other provinces, with the exception of centers of Chahar Mahal va Bakhtiyari and Kohkilooyeh va Boyerahmad Provinces.</p>	N/F	-	>	Important
Government Circular	In accordance with the approval of the government, in case of employment of personnel through employment agencies accredited by the Ministry of Labour, employers shall be exempt from payment of their share of insurance premium (23%) and only the 7% share of the insured shall be paid.	N/F	+	<	Important
Determination of Salary & Wage by the Government	On the basis of Ministry of Labour laws the minimum salary and wage of the work force shall be notified to all companies every year upon approval by the Cabinet and shall be enforcement prescribed. The injudicious policies of the government in determination of the wage level have led to imposition of unforeseen and considerable expenses upon employers.	N/F	-	>	Important
Value-added Tax	On the basis of the approval of the government, as of September 2008 every economic enterprise is obligated to pay 3% value added tax on its products and services. This 3% tax has replaced the previous tax and charges and does	N	-	>	Important

	not impose any expense upon producers. However, from the dimension of the time of payment, in view of the obligation of payment at the beginning of every season at the latest within 15 days, it has caused problems with respect to cash turnover for companies. Considering the existing cash crisis in the country this issue can place companies under greater pressure.				
Interest Rate	Inconsistent government policies in connection with determination of the rate of bank interest, has rendered obtainment of facilities uneconomical for companies. From the viewpoint of motorcar consumers also this trend will have a negative effect on their purchasing power.	N/F	-	=	<b>Important</b>
State of Productivity	According to available statistics, the industrial processes of Iran have a low degree of productivity and are faced with serious danger in view of the increasing trend of manpower costs.	N/F	-	>	<b>Very Important</b>
Internal Cash Flow of the Industry	Availability of circulating funds in the motorcar industry assists the organization in meeting its financial obligations toward suppliers and also renders timely forwarding of products to customers possible, thus, avoiding costs due to late delivery of goods. At present, delays on the part of motorcar manufacturers in making timely payments to suppliers have caused many financial problems for supplier companies. According to the Society of Motorcar Part Manufacturers, up to mid-2008 motorcar manufacturing companies owed close to one billion dollars to part manufacturers.	N/F	-	>	<b>Important</b>

**Environmental**

External Factors Affecting TAHA	Consequences of External Factors	Relative Importance of the Consequences of External Factors			
		TIME	TYPE	Dynamic	Relative Importance
Environmental Regulations	Due to production of such pollutions as industrial waste, sound pollution, etc., all industries are obligated to observe certain environmental laws and regulations. Non-utilization of environmental pollutants is considered an advantage point for the organization.	N/F		>	Important

## 5.2. SWOT Matrices – Peugeot 405 / 206 Hydraulic Steering Box

With due regard to the information obtained from the PORTER Model as well as information collected in the PESTLE Tables, the SWOT matrices for both project products will be formed and, further, the related analyses will be made through use in the IFE & EFE matrices.

<b>Opportunities / Threats (Peugeot 405)</b>			
<b>Item</b>	<b>Opportunities</b>	<b>Item</b>	<b>Threats</b>
B.1	Small number of manufacturers in the field of manufacture of Peugeot 405 hydraulic steering box	B.12	Numerous competitors in the AM market which provide customers with numerous choices with respect to price and quality
B.2	Substitution of hydraulic steering box with electric steering box is rather costly for customers	B.13	In the first two years production will be in the form of assembly of CKD parts imported from Korea
B.3	At present electric steering box does not exist in the domestic motorcar market and motorcar manufacturers have no plans for its use in the near future	B.14	The supplier has a high share in the final quality of the product and profitability of the organization
B.4	Entry into the hydraulic steering box sale market is rather costly	B.15	The possibility exists for customers to substitute the product with electric steering box
B.5	The importance of experience is of great effect in the quality and sale of product	B.16	The organization has a low share in the profitability of the supplier
B.6	Access to newcomers to the distribution network is rather difficult	B.17	The only major customer in the OE market is SAPCO Co.
B.7	The organization has an agreement with SAPCO Co. for supply of the steering box requirements of the motorcar manufacturer for three years	B.18	Effect of the rate of inflation on the economy of investment in production, finished cost of goods and profit margin of the manufacturer
B.8	Steering box is considered a safety set in the motorcar and is of great effect in the final quality of the product of the motorcar manufacturer	B.19	The electric steering box has considerable technological advantages in comparison with the hydraulic steering box
B.9	On the basis of initial estimates, the customer will have a good profit margin through transaction with the organization	B.20	Limitations due to international sanctions for cooperation with foreign partners
B.10	The volume of production for reaching the breakeven point is high	B.21	Foreign exchange fluctuations
B.11		B.22	Effect of the economic plans of the government on the supply and demand cycle
<b>Strengths / Weaknesses (Peugeot 405)</b>			
<b>Item</b>	<b>Strengths</b>	<b>Item</b>	<b>Weaknesses</b>
B.23	The organization has a recognized brand	B.26	The organization is considered a newcomer in the Peugeot 405 hydraulic steering box sale market
B.24	The organization has a rather extensive sale network	B.27	
B.25	The product will be manufactured under the licence of a reputable company	B.28	

Information and results obtained from Porter and Pestle analyses was utilized to shape and prepare SWOT matrixes and consequently, IFE and EFE analysis were prepared according to aforementioned chain of data.

### 5.3. IFE & EFE Analysis

The following points must be noted in connection with the IFE and EFE analyses:

In the table of internal factors which comprises the points of strength and weakness of the organization, the importance of each factor will be examined and its relative importance calculated. Further, utilizing the outcome of the opinion of the elite of the organization, the grade of each factor will be specified with a value between 1 – 5. The greater the dimension of the weakness or strength in the organization the closer its grade will be to the figure of 5.

Moreover, in connection with the table of external factors, comprising of opportunities and threats, following determination of the degree of importance of factors, the amount of capability of the organization in management of each factor and its capability in exploitation of each opportunity and threat will be specified with a value between 1 – 5. The greater the strength of the organization in the related field the greater will be its grade.

**Internal Factors Evaluation Matrix (P405)**

Item	Strengths & Weaknesses	Degree of Importance (10 – 100)	Relative Importance	Grade	Final Point
<b>Strengths</b>					
B.23	The organization has a recognized brand	70	0.23	4	0.92
B.24	The organization has a relatively extensive sale network	75	0.25	3	0.74
B.25	The product will be manufactured under the licence of a reputable company	80	0.26	4	1.05
<b>Weaknesses</b>					
B.26	The organization is considered a newcomer in the Peugeot 405 hydraulic steering box sale market	80	0.26	3	0.79
<b>Total Points</b>				<b>3.49</b>	

### External Factors Evaluation Matrix (P405)

Item	Opportunities & Threats	Degree of Importance (10 – 100)	Relative Importance	Organization Response	Final Point
<b>Opportunities</b>					
<b>B.1</b>	Small number of manufacturers in the field of manufacture of Peugeot 405 hydraulic steering box	<b>80</b>	<b>0.06</b>	<b>3</b>	<b>0.17</b>
<b>B.2</b>	Substitution of hydraulic steering box with electric steering box is rather costly for customers	<b>70</b>	<b>0.05</b>	<b>3</b>	<b>0.15</b>
<b>B.3</b>	At present electric steering box does not exist in the domestic motorcar market and motorcar manufacturers have no plans for its use in the near future	<b>70</b>	<b>0.05</b>	<b>3</b>	<b>0.15</b>
<b>B.4</b>	Entry into the hydraulic steering box sale market is rather costly	<b>70</b>	<b>0.05</b>	<b>3</b>	<b>0.15</b>
<b>B.5</b>	The importance of experience is of great effect in the quality and sale of product	<b>80</b>	<b>0.06</b>	<b>3</b>	<b>0.17</b>
<b>B.6</b>	Access to newcomers to the distribution network is rather difficult	<b>70</b>	<b>0.05</b>	<b>3</b>	<b>0.15</b>
<b>B.7</b>	The organization has an agreement with SAPCO Co. for supply of the steering box requirements of the motorcar manufacturer for three years	<b>80</b>	<b>0.06</b>	<b>4</b>	<b>0.23</b>
<b>B.8</b>	Steering box is considered a safety set in the motorcar and is of great effect in the final quality of the product of the motorcar manufacturer	<b>70</b>	<b>0.05</b>	<b>3</b>	<b>0.15</b>
<b>B.9</b>	On the basis of initial estimates, the customer will have a good profit margin through transaction with the organization	<b>55</b>	<b>0.04</b>	<b>3</b>	<b>0.12</b>
<b>B.10</b>	The volume of production for reaching the breakeven point is high	<b>60</b>	<b>0.04</b>	<b>3</b>	<b>0.13</b>
<b>Threats</b>					
<b>B.12</b>	Numerous competitors in the AM market which provide customers with numerous choices with respect to price and quality	<b>70</b>	<b>0.05</b>	<b>2</b>	<b>0.10</b>
<b>B.13</b>	In the first two years production				

	will be in the form of assembly of CKD parts imported from Korea	<b>75</b>	<b>0.05</b>	<b>2</b>	<b>0.11</b>
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<b>Item</b>	<b>Opportunities &amp; Threats</b>	<b>Degree of Importance (10 – 100)</b>	<b>Relative Importance</b>	<b>Organization Response</b>	<b>Final Point</b>
B.14	The supplier has a high share in the final quality of the product and profitability of the organization	<b>50</b>	<b>0.04</b>	<b>2</b>	<b>0.07</b>
B.15	The possibility exists for customers to substitute the product with electric steering box	<b>40</b>	<b>0.03</b>	<b>3</b>	<b>0.09</b>
B.16	The organization has a low share in the profitability of the supplier	<b>70</b>	<b>0.05</b>	<b>2</b>	<b>0.10</b>
B.17	The only major customer in the OE market is SAPCO Co.	<b>80</b>	<b>0.06</b>	<b>2</b>	<b>0.11</b>
B.18	Effect of the rate of inflation on the economy of investment in production, finished cost of goods and profit margin of the manufacturer	<b>70</b>	<b>0.05</b>	<b>2</b>	<b>0.10</b>
B.19	The electric steering box has considerable technological advantages in comparison with the hydraulic steering box	<b>45</b>	<b>0.03</b>	<b>3</b>	<b>0.10</b>
B.20	Limitations due to international sanctions for cooperation with foreign partners	<b>75</b>	<b>0.05</b>	<b>2</b>	<b>0.11</b>
B.21	Foreign exchange fluctuations	<b>70</b>	<b>0.05</b>	<b>2</b>	<b>0.10</b>
B.22	Effect of the economic plans of the government on the supply and demand cycle	<b>60</b>	<b>0.04</b>	<b>2</b>	<b>0.09</b>
<b>Total Points</b>				<b>2.62</b>	

Analysis of the internal and external factors for the Peugeot 405 hydraulic steering box product based on the SWOT matrix indicates that the organization has an appropriate status from the aspect of internal factors and that its points of strength are superior to its points of weakness. With respect of evaluation of external factors which show the capability of the organization for appropriate response to opportunities and threats the total points reached is over 2.5 and, in general, the organization has the capability for management of the opportunities and threats that it is faced with, however, in this respect it has not reached the ideal state.

<b>Analysis of the SWOT Matrix &amp; Extraction of Possible Strategies (405 Hydraulic Steering Box)</b>						
<b>Strength</b>				<b>Weakness</b>		
<b>Offensive Strategies</b>				<b>Conservative Strategies</b>		
<b>Opportunities</b>	<b>Organization Opportunities Code</b>	<b>Organization Strengths Code</b>	<b>Strategy Title</b>	<b>Organization Opportunities Code</b>	<b>Organization Weaknesses Code</b>	<b>Strategy Title</b>
	B 1-5-7-8-9	B 23-25	A			
	B 1-4-6-10-5	B 23-24-25	F			
<b>Competitive Strategies</b>				<b>Defensive Strategies</b>		
<b>Threats</b>	<b>Organization Threats Code</b>	<b>Organization Strengths Code</b>	<b>Strategy Title</b>	<b>Organization Threats Code</b>	<b>Organization Weaknesses Code</b>	<b>Strategy Title</b>
	B 12-17-22	B 23-24-25	B	B 13-14-16-20-21	B 26	C
	B 12-15-19-20-22	B 23-24-25	D	B 12-15-17-18-19-20-21-22	B 26	G
	B 15-19-22	B 23-25	E			

Product Strategies	Type of Strategy	Strategy Weight Matrix (Peugeot 405)						
		Employee Satisfaction	Customer Satisfaction	Shareholder Satisfaction	Expansion of the Supply Chain	Total	Weight	Priority
		0.1	0.25	0.5	0.15			
A. Partnership in the design and manufacture of the steering system of the new products of motorcar manufacturers	Offensive	1	4	5	5	4.35	0.15	2
B. To maintain and expand the sale network	Competitive	1	4	5	5	4.35	0.15	3
C. Identification of substitute reputable suppliers and manufacturers	Defensive	1	2	5	3	3.55	0.13	7
D. Increase of sales and share of the market through publicity and expansion of the sale network	Competitive	1	3	5	5	4.1	0.15	4
E. To undertake the design and manufacture of electric steering in cooperation with the motorcar manufacturer	Competitive	2	4	4	3	3.65	0.13	6
F. Selection, evaluation and promotion of sale agents	Offensive	1	2	5	4	3.7	0.13	5
G. Decrease of the finished cost	Defensive	1	5	5	4	4.45	0.16	1

<b>Opportunities / Threats (Peugeot 206)</b>			
<b>Item</b>	<b>Opportunities</b>	<b>Item</b>	<b>Threats</b>
C.1	Non-existence of domestic manufacturer in the field of manufacture of Peugeot 206 hydraulic steering box	C.10	In the first two years production will be in the form of assembly of CKD parts imported from Korea
C.2	Substitution of hydraulic steering box with electric steering box is rather costly for customers	C.11	The supplier has a high share in the final quality of the product and profitability of the organization
C.3	At present electric steering box does not exist in the domestic market and motorcar manufacturers have no plans for its use in the near future	C.12	The possibility exists for customers to substitute the product with electric steering box
C.4	Lack of product variety in the AM market	C.13	The only major customer in the OE market is SAPCO Co.
C.5	The importance of experience is of great effect in the quality and sale of product	C.14	Effect of the rate of inflation on the economy of investment in production, finished cost of goods and profit margin of the manufacturer
C.6	On the basis of initial estimates, the customer will have a good profit margin through transaction with the organization	C.15	The electric steering box has considerable technological advantages in comparison with the hydraulic steering box
C.7	The organization has an agreement with SAPCO Co. for supply of the steering box requirements of the motorcar manufacturer for three years	C.16	Limitations due to international sanctions for cooperation with foreign partners
C.8	Steering box is considered a safety set in the motorcar and is of great effect in the final quality of the product of the motorcar manufacturer	C.17	Foreign exchange fluctuations
C.9	SAPCO is currently the only supplier of 206 steering box	C.18	Effect of the economic plans of the government on the supply and demand cycle
<b>Strengths / Weaknesses (Peugeot 206)</b>			
<b>Item</b>	<b>Strengths</b>	<b>Item</b>	<b>Weaknesses</b>
C.19	The organization has a recognized brand	C.22	The organization is considered a newcomer in the Peugeot 206 steering box sale market
C.20	The organization has a rather extensive sale network	C.23	
C.21	The product will be manufactured under the licence of a reputable company	C.24	

**Internal Factors Evaluation Matrix (P206)**

Item	Strengths & Weaknesses	Degree of Importance (10 – 100)	Relative Importance	Grade	Final Point
<b>Strengths</b>					
C.19	The organization has a recognized brand	70	0.24	4	0.95
C.20	The organization has a relatively extensive sale network	75	0.25	3	0.76
C.21	The product will be manufactured under the licence of a reputable company	80	0.27	4	1.08
<b>Weaknesses</b>					
C.22	The organization is considered a newcomer in the Peugeot 206 hydraulic steering box sale market	70	0.24	1	0.24
<b>Total Points</b>				<b>3.04</b>	

**External Factors Evaluation Matrix (P206)**

Item	Opportunities & Threats	Degree of Importance (10 – 100)	Relative Importance	Organization Response	Final Point
<b>Opportunities</b>					
<b>C.1</b>	Non-existence of domestic manufacturer in the field of manufacture of Peugeot 206 hydraulic steering box	<b>70</b>	<b>0.06</b>	<b>4</b>	<b>0.23</b>
<b>C.2</b>	Substitution of hydraulic steering box with electric steering box is rather costly for customers	<b>70</b>	<b>0.06</b>	<b>3</b>	<b>0.17</b>
<b>C.3</b>	At present electric steering box does not exist in the domestic market and motorcar manufacturers have no plans for its use in the near future	<b>70</b>	<b>0.06</b>	<b>2</b>	<b>0.11</b>
<b>C.4</b>	Lack of product variety in the AM market	<b>65</b>	<b>0.05</b>	<b>4</b>	<b>0.21</b>
<b>C.5</b>	The importance of experience is of great effect in the quality and sale of product	<b>65</b>	<b>0.05</b>	<b>2</b>	<b>0.11</b>
<b>C.6</b>	On the basis of initial estimates, the customer will have a good profit margin through transaction with the organization	<b>55</b>	<b>0.04</b>	<b>3</b>	<b>0.13</b>
<b>C.7</b>	The organization has an agreement with SAPCO Co. for supply of the steering box requirements of the motorcar manufacturer for three years	<b>80</b>	<b>0.07</b>	<b>4</b>	<b>0.26</b>
<b>C.8</b>	Steering box is considered a safety set in the motorcar and is of great effect in the final quality of the product of the motorcar manufacturer	<b>70</b>	<b>0.06</b>	<b>3</b>	<b>0.17</b>
<b>C.9</b>	SAPCO is currently the only supplier of 206 steering box (OE market)	<b>90</b>	<b>0.07</b>	<b>4</b>	<b>0.29</b>

<b>Threats</b>					
C.10	In the first two years production will be in the form of assembly of CKD parts imported from Korea	<b>75</b>	<b>0.06</b>	<b>3</b>	<b>0.18</b>
C.11	The supplier has a high share in the final quality of the product and profitability of the organization	<b>50</b>	<b>0.04</b>	<b>2</b>	<b>0.08</b>
C.12	The possibility exists for customers to substitute the product with electric steering box	<b>60</b>	<b>0.05</b>	<b>3</b>	<b>0.15</b>
C.13	The only major customer in the OE market is SAPCO Co.	<b>70</b>	<b>0.06</b>	<b>2</b>	<b>0.11</b>

<b>Item</b>	<b>Opportunities &amp; Threats</b>	<b>Degree of Importance (10 – 100)</b>	<b>Relative Importance</b>	<b>Organization Response</b>	<b>Final Point</b>
C.14	Effect of the rate of inflation on the economy of investment in production, finished cost of goods and profit margin of the manufacturer	<b>60</b>	<b>0.05</b>	<b>2</b>	<b>0.10</b>
C.15	The electric steering box has considerable technological advantages in comparison with the hydraulic steering box	<b>70</b>	<b>0.06</b>	<b>3</b>	<b>0.17</b>
C.16	Limitations due to international sanctions for cooperation with foreign partners	<b>75</b>	<b>0.06</b>	<b>2</b>	<b>0.12</b>
C.17	Foreign exchange fluctuations	<b>70</b>	<b>0.06</b>	<b>3</b>	<b>0.17</b>
C.18	Effect of the economic plans of the government on the supply and demand cycle	<b>60</b>	<b>0.05</b>	<b>2</b>	<b>0.10</b>
<b>Total Points</b>				<b>2.88</b>	

Analysis of the internal and external factors for the product Peugeot 206 hydraulic steering box based on the SWOT matrix shows that the organization has a very favourable status from the aspect of internal factors and that its points of strength are superior to its points of weakness. With respect of evaluation of external factors which show the capability of the organization for appropriate response to opportunities and threats the total points reached is over 2.5 and, in general, the organization has the capability for management of the opportunities and threats that it is faced with, however, in this respect it has not reached the ideal state.

<b>Analysis of the SWOT Matrix &amp; Extraction of Possible Strategies (206 Hydraulic Steering Box)</b>						
<b>Strength</b>				<b>Weakness</b>		
<b>Offensive Strategies</b>				<b>Conservative Strategies</b>		
<b>Opportunities</b>	<b>Organization Opportunities Code</b>	<b>Organization Strengths Code</b>	<b>Strategy Title</b>	<b>Organization Opportunities Code</b>	<b>Organization Weaknesses Code</b>	<b>Strategy Title</b>
	C 1-5-7-8-9	C 19-21	A			
	C 1-5	C 19-20-21	F			
<b>Competitive Strategies</b>				<b>Defensive Strategies</b>		
<b>Threats</b>	<b>Organization Threats Code</b>	<b>Organization Strengths Code</b>	<b>Strategy Title</b>	<b>Organization Threats Code</b>	<b>Organization Weaknesses Code</b>	<b>Strategy Title</b>
	C 13-18	C 19-20-21	B	C 10-11-16-17	C 22	C
	C 12-15-16-18	C 19-20-21	D	C 12-13-14-15-16-17-18	C 22	G
	C 12-15-18	C 19-21	E			

Product Strategies	Type of Strategy	Strategy Weight Matrix (Peugeot 206)						
		Employee Satisfaction	Customer Satisfaction	Shareholder Satisfaction	Expansion of the Supply Chain	Total	Weight	Priority
		0.1	0.25	0.5	0.15			
A. Partnership in the design and manufacture of the steering system of the new products of motorcar manufacturers	Offensive	1	4	5	5	4.35	0.15	2
B. To maintain and expand the sale network	Competitive	1	4	5	5	4.35	0.15	3
C. Identification of substitute reputable suppliers and manufacturers	Defensive	1	2	5	3	3.55	0.13	7
D. Increase of sales and share of the market through publicity and expansion of the sale network	Competitive	1	3	5	5	4.1	0.15	4
E. To undertake the design and manufacture of electric steering in cooperation with the motorcar manufacturer	Competitive	2	4	4	3	3.65	0.13	6
F. Selection, evaluation and promotion of sale agents	Offensive	1	2	5	4	3.7	0.13	5
G. Decrease of the finished cost	Defensive	1	5	5	4	4.45	0.16	1

#### 5.4. Summation & Compilation of the Macro Strategies of the Organization

Based on the information obtained from environmental and market analyses as well as application of competitive models and SWOT tables as presented in previous chapters and with due consideration of the strategies examined in this chapter, the tables of macro strategies of the organization are presented herein below:

Macro Strategies	Relationship with SWOT	Strategy Weight Matrix							
		Employee Satisfaction	Customer Satisfaction	Shareholder Satisfaction	Expansion of the Supply Chain	Point	Weight of Strategy	Type of Strategy	Priority
		0.1	0.25	0.5	0.15				
Decrease of the finished cost of products	Defensive (WT)	1	5	5	4	4.5	0.080	Marketing & sale / Operations	1
Maintain and expanding the sale network (AM & OE)	Competitive (ST)	1	4	5	5	4.4	0.078	Marketing and sale	2
Partnership in the design and manufacture of the hydraulic steering system of the new products of motorcar manufacturers	Offensive (SO)	1	4	5	5	4.4	0.078	Expansion / Operations	3
Enhancement of the quality level through interaction with the supplier	Defensive (WT)	1	5	5	3	4.3	0.077	Operations	4
Entry into the hydraulic steering box OES market	Offensive (SO)	1	3	5	5	4.1	0.074	Marketing and sale	5
Increase o sales and share of the market through publicity and marketing	Competitive (ST)	1	3	5	5	4.1	0.074	Marketing and sale	6
Improvement of the purchasing process	Defensive (WT)	1	3	5	3	3.8	0.068	Operations	7
Undertaking the design and manufacture of electric steering	Competitive (ST)	2	4	4	3	3.7	0.066	Expansion / Operations	8
Identification and increase of substitute suppliers	Defensive (WT)	1	2	5	3	3.55	0.064	Marketing and Sale	9

## 6 DISCUSSION

### 6.1. Conclusion

Market study and risk analysis about establishing the new production line in TAHA was successfully performed. The final results demonstrated the new production line to produce steering box can help TAHA to expand its market and market overview for this production is prosperous. In addition, the outcome from analysis introduces a list of strategies which could provide better conditions for organization. Such strategies mainly lie in the field of marketing and sales and then operations.

The obtained strategies comprised from market analysis by PORTER and PESTLE method were followed by organization analysis via SWOT method. This step attempted to observe all risks of new production by categorizing strength and weakness of organization against opportunities and threats of the new market.

Then Internal and External factors evaluation matrixes were applied to generate a list of all available strategies. According to the mentioned flow of data analysis, in both P405 and P206 steering boxes, the followings were considered as TOP3 important strategies:

- 1- Decrease of the finished cost
- 2- Partnership in the design and manufacture of the steering system of the new products of motorcar manufacturers
- 3- To maintain and expand the sale network

These strategies are defensive, offensive and competitive respectively.

Also high priority Macro strategies of organization were considered as follows:

- 1- Decrease of the finished cost of products
- 2- Maintain and expanding the sale network (AM & OE) Partnership in the design and manufacture of the hydraulic steering system of the new products of motorcar manufacturers.

### 6.2. Implications for the subject area

According to the purpose of this research and defined questions, mainly two groups of people can benefit from this study:

- 1. Academics who are seeking to understand the concept of risk management and its related subjects.**

Referring to one of the research questions which was describing the risk management concept and its tools and techniques, the researcher reviewed resources about in this area and the results presented in the theory of reference section. Academics who want to have an overall view on risk management, its definitions, processes and methods in this area can benefit from this research. There are many methods, tools and techniques in risk management area. For those who want to compare these methods and find out their differences this research is beneficial.

## **2. Business owners and practitioners who want to have an overview of risk management in developing countries.**

For practitioners in risk management area, this research can be beneficial from two aspects. First, as presented in the imperial foundation part many fruitful information about the running automobile projects in Iran as a developing country are provided. These information can be an input to many future studies in this area and can help practitioners to find out answers to their concerns. Second, in the analysis part the researcher incorporated PESTEL and PORTER methods for analyzing the gathered information. With running these methods, many beneficial outcomes can be achieved regarding the limitations of running businesses in developing countries. As presented in the conclusion part and analysis part, some special parameters have more weight in developing countries and concerns such as the instability of businesses and the primary needs of consumers should be considered more.

### **6.3. Method Evaluation**

As mentioned in the chapter two of this research, the main purpose of the researcher in theoretical part was reviewing the resources about risk management concept. To better performing this task, the researcher defined a structure for reviewing these resources based on their relevance to the research. At first, the researcher did the review on the definition of risk management itself and provided the outcome in the related section. Then the processes of risk management are provided. For doing this, related standards and guideline such as PMBOK reviewed by the researcher. Finally, the different methods in risk management area such as PESTEL and PORTER are presented.

As one of the research questions was reviewing the situation of risk management in developing countries, the researcher performed a case study in Iran as a developing country. Based on the review of resources in previous chapter, the researcher did this task and made her analysis. Interviews and observations methods selected by the researcher to gather information from practical environment. In interviews method, the researcher attempted to have meetings with well-known related experts to decrease the possibility of receiving poor quality answers. As the researcher wasn't an expert in the technical part there was a risk to decrease the effectiveness and efficiency of the interviews. So the researcher determined some specific questions to ask from the interviewees which made the job easier and conducted. Moreover, the researcher decided to perform the interviews in person and face to face. This manner helped the researcher to better conduct the method and gather appropriate and comprehensive information.

The other method employed by the researcher to gather information from practical environment is observation. To validate the information gathered in previous method, this method chosen by the researcher. She used her knowledge about risk management in observations and gathered more information which wasn't mentioned in the interviews method. The recognized obstacle in observation method is coordination with companies to have structured and scheduled visits. To solve this problem, the researcher wrote a schedule for her visits and provided to the managers of different sections at the beginning of the task. Moreover, she attached a description of the research and its importance to the schedule.

#### **6.4. Result Evaluation**

As mentioned in section 2.5, there are three validity criteria for evaluation of the research. Some phrases are mentioned: the richness of meaning, the structure and theory contribution.

Making integration between different parts of the research and the degree of details provided are two factors when the richness of meaning of the research is evaluated. To increase the richness of meaning of the research, first the researcher attempted to consider different perspectives in risk management area. From the risk definition to different information gathering method in this area provided by the researcher. To make integration between different parts, the researcher considered the defined questions of the research in all performing parts. In contrast to richness of meaning, when the structure of the research comes to account simplicity and low complexity are important. For fulfilling this validity parameter, the researcher defined a structure for her research with breaking down of different parts and providing information in a structured manner. Regarding the theory contribution parameter, the researcher considered it during her research with extracting the needs of the academics in risk management area and the leakages in developing countries. Applying PESTEL and PORTER method to a developing country with considering the risk management concerns was a new job performed by the research. There are few researches with the same approach which applied both method in a developing countries.

#### **6.5. Ideas for future study**

The present investigation analyzed the Risk Management for TAHA Company, using Porter and PESTLE methods. This research can be extended as follows:

- In this research, the role and risk of international sanctions against Iranian companies was not investigated, but the future research may be extended considering significant risk of international sanctions which has recently been imposed against Iran. This can be studied in many aspects such as risk of technical link halt between TAHA Company and related foreign companies as well as difficulty in import of raw material and etc.
- Present investigation is developed on a simple model and does not consider foreign currency rate fluctuations to analyze investment risks, but future research may be extended considering recent dramatic fluctuations of Iranian Rials against foreign currencies which caused depreciation of Iranian Rials to almost 300% in few weeks. (Since then, Iranian Rials currency has experienced daily instability and fluctuations beyond normal global limits).

## Works Cited

- Anon., 2001. *Risk management*, Australia: Department of sport and recreation.
- Anon., 2007. *Tutorial notes: the australian and new zeland standard on risk management, AS/NZS 4360:2004*, s.l.: Broadleaf capital international PTY LTD.
- Anon., 2011. *Management of Risk (M\_o\_R®)*. [Online]  
Available at: [www.maventraining.co.uk/media/74/574-mor-quick-guide.pdf](http://www.maventraining.co.uk/media/74/574-mor-quick-guide.pdf)
- Conrow, E. H., 2002. *Development of risk management defense extensions to the PMI Project Management Body of Knowledge (PMBOK)*, s.l.: Defense Acquisition University.
- David T. Hulett, P., 2011. *Risk Management : Harmonizing the Methodologies of PMI and APM*, s.l.: PMI Riisk Management; Speciiific Interest Group.
- Doherty, N., 2000. *Integrated Risk Management – Technologies & Strategies for Managing*. New York: McGraw-Hill.
- Hubbard, D., 2009. *The Failure of Risk Management: Why It's Broken and How to Fix It*. USA: John Wiley & Sons.
- K., K., 2002. Risk Management: A powerful tool for improving efficiency of Project oriented SMEs. *Manufacturing Information Systems*, .
- Konstantinos K., n.d. "Risk Management: A powerful tool for improving efficiency of bbb.
- M, S., 2005. Risk Management Processes for Projects and Business. *Risk Reasoning Ltd*.
- Project, U. D. o. E., 2005. The Owner's Role in Project Risk Management. *ISBN: 0-309-54754-7*.
- R.M., W., 1992. Project and program risk management: a guide to managing project Risks and opportunities. *PMI, US, Pennsylvania*.
- Rajabi, M. A., n.d. *Project Risk Management (PMBOK Guide)*, s.l.: Dept. of Geomatics Eng., University of Tehran.
- Ranganath, M., 2011. Risk Management for Competitive Advantage. *India Kellogg Wordpress*.
- Rekhi, 2011. Do our companies understand financial risk?’, The Hindustan Business Line. <http://www.thehindubusinessline.com/todays-paper/tp-opinion/article1621246.ece>.
- Revill S., G. B., 2003. *Risk Management Strategies for Future-Proofing Infrastructure Projects*”. s.l., s.n.
- Shveta Singh\*, S. S. Y. a., 2015. Risk management practices – empirical evidence. *Int. J. Risk Assessment and Management*, 18(2), p. 173.
- زرگرپور, س. ز. پ. ح., 2008. بررسی و تجزیه و تحلیل ریسک در پروژه های سرمایه گذاری. تهران, گروه پژوهشی آریانا, p. چهارمین کنفرانس بین المللی مدیریت پروژه.

سجادي, س. م. ش. ح. پ. س. ا., 2011. مدل مدیریت پروژه بر اساس استاندارد *PMBOK*, مکان نشر نامشخص:  
مؤلف نامعلوم