ISTANBUL TECHNICAL UNIVERSITY ★ INSTITUTE OF SCIENCE AND TECHNOLOGY

DEVELOPMENT OF STRATEGIES FOR TURKISH APPAREL INDUSTRY BASED ON SCENARIOS

Ph.D. Thesis by
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Department : Textile Engineering

Programme : Textile Engineering

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ FEN BİLİMLERİ ENSTİTÜSÜ

TÜRK HAZIR GİYİM ENDÜSTRİSİ İÇİN SENARYO BAZLI STRATEJİ GELİŞTİRİLMESİ

DOKTORA TEZİ

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FOREWORD

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Textile Engineer

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ABBREVIATIONS

OPT	: Outward Processing Trade
MFA	:Multi Fiber Agreement
WTO	:World Trade Organization
GATT	:General Agreement on Tariffs and Trade
ITKIB	:Istanbul Textile and Apparel Exporters' Association
IFM	:French Fashion Institute
SME	:Small and Medium Enterprises
TGSD	:Turkish Clothing Manufacturers Association
DPT	:Spate Planning Agency
BCG	:Boston Consulting Group
AHP	:Analytical Hierarchy Process
ANP	:Analytical Network Process
FCM	:Fuzzy Cognitive Maps
MICMAC	:Matrix d'Impacts Croises (Cross Impact Matrix-Multiplication Applied to Classification)
MACTOR	:Matrix of Alliances and Conflicts: Tactics, Objectives and Recommendations
SMIC	:French Acronym for Cross Impact Systems and Matrices
SCM	:Supply Chain Management
FTA	:Free Trade Agreement
MAO	:Matrix of Actor Objectives
MAA	:Matrix of Actor Actor
MDA	:Matrix of Direct Relation among Actors
MIA	:Matrix of Indirect Relation among Actors
QIZ	:Qualified Industrial Zone
EM	:Emerging Market
IWTO	:International Wool Textile Organization

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DEVELOPMENT OF STRATEGIES FOR TURKISH APPAREL INDUSTRY BASED ON SCENARIOS

SUMMARY

Turkish apparel industry is one of the important sectors for Turkey because of its contribution and growth. The industry faced with challenges in recent years because of the trade liberalization on global platform and it began to feel pressure from its low cost competitors. These improvements increased the importance of carefully planned strategies for the industry to be implemented.

The critical step for developing successful strategies is better determination of future, and assessment of these strategies within this future environment.

In this study, it was aimed to develop and assess strategies for Turkish apparel industry. To this aim, an overview of apparel market in Turkey and on global platform was made and a literature review was given on the previous studies for strategy development. The methods that can be used for building future perspective were reviewed focusing the scenarios and scenario planning methods. The scenarios and scenario planning methods were given in detail including the comparisons between different methods and critical points in establishment of scenarios.

For this study, an approach was developed based on scenarios and specifically Godet's scenario planning. Strategy assessment was established benefiting the modular structure of the method. Within this context, the study was established in two parts which were scenario planning and strategy development and assessment with a scope of 10 to 15 years of time in European market.

In the first part, the future perspective was created through scenarios. Godet's scenarios method was applied beginning with identification of key variables and analyzing the actors' strategies. The morphological space involving twenty-two hypothesis was then created based on the previous findings and the facts from the literature. Reducing the number of the hypothesis, six hypotheses established were combined to build scenarios which were in the end, entitled with "All in One", "Fashionable Green Products", "Regional Fast Fashion Brands", "Technological Brands with Shifts on Production Patterns". In the second part, the strategies were developed for each hypothesis forming scenarios. Then, the strategies were assessed to find out their characters within the scenarios they were suggested for, using structural analysis. It was found out that, the reaction of the strategies change according to the environment they should be applied therefore, their importance and priority might change based on the conditions. Nonetheless, it was carried out that some strategies might preserve their attitudes or show either influential or dynamic behavior in different scenarios because of their characteristics.

At the end of the study, the results were overviewed form sector point of view. The outcomes were evaluated within the current situation and suggestions based on the outcomes were made for the industry.

TÜRK HAZIR GİYİM ENDÜSTRİSİ İÇİN SENARYO BAZLI STRATEJİ GELİŞTİRME

ÖZET

Türk hazır giyim sektörü ekonomi ve büyümeye olan katkısından dolayı, Türkiye için önemli sektörler arasında yer almaktadır. Sektör son yıllarda küresel anlamda ticaretin serbestleşmesi sebebiyle, mücadeleci bir ortamla yüzyüze kalmış ve düşük maliyetli üreticiler sebebiyle baskı altına girmiştir. Bu gelişme, sektör için dikkatle planlanmış stratejiler uygulanmasının önemini arttırmıştır.

Başarılı stratejilerin geliştirilmesinde kritik olan, geleceğin iyi bir şekilde belirlenmesi ve stratejilerin bu gelecek içersinde değerlendirilmesidir.

Çalışmada, Türk hazır giyim sektörü için strateji geliştirilmesi amaçlanmıştır. Bu amaçla, hazır giyim sektörünün Türkiye'de ve küresel platformdaki konumu değerlendirilmiş ve sektör için strateji geliştirme üzerine yapılmış çalışmalara değinilmiştir. Gelecek perspektifinin oluşturulmasında kullanılan yöntemlerden bahsedilerek, senaryo ve senaryo planlama yöntemleri üzerinde durulmuştur. Senaryolar, ve senaryo planlama yöntemleri detaylı bir biçimde incelenerek, farklı yöntemler birbirleriyle karşılaştırılmış , senaryo planlama uygulamalarındaki kritik noktalara dikkat çekilmiştir.

Bu çalışma için, senaryo bazlı bir yaklaşım geliştirilmiş ve özel olarak, Godet'nin senaryo planlama yöntemi kullanılmıştır. Strateji değerlendirme söz konusu yöntemin modüler yapısından yararlanmak suretiyle gerçekleştirilmiştir. Bu bağlamda, kapsamı Avrupa pazarına indirgemek ve zaman aralığını 10-15 yıl olarak daraltmak suretiyle, uygulama, senaryo planlama ve strateji geliştirme ve değerlendirme olmak üzere iki aşamalı olarak gerçekleştirilmiştir.

Birinci aşamada, senaryolar aracılığıyla bir gelecek perspektifi yaratılmıştır. Godet'in senaryo metodu, kilit değişkenlern tayini ve aktör stratejilerinin tespiti ile başlayarak uygulanmıştır. Morfolojik uzay yaratılmış ve elde edilen bulgular ve literatürdeki gerçeklerden yola çıkılarak yirmi-iki hipotez geliştirilmiştir. Hipotez sayısı azaltılarak, altı hipotezden "Hepsi bir arada", "Tasarım yeşil ürünler", Bölgesel hızlı moda", "Teknolojik markalarla kayan üretim merkezleri" adları altında dört senaryo oluşturulmuştur. İkinci aşamada, senaryoları oluşturan her bir hipotez için stratejiler geliştirilmiştir. Ardından, yapısal analizle stratejilerin önerildikleri senaryolar içinde gösterdikleri karakterler ortaya konmuştur. Stratejilerin gösterdikleri reaksiyonların uygulandıkları çevreye göre değiştiği; bu sebeple, önem ve önceliklerin de değişen şartlara bağlı olduğu tespit edilmiştir. Bununla birlikte, bazı stratejilerin davranış şekillerini koruyabileceği, sahip olduğu özellikler sebebiyle farklı senaryolarda etkin veya dinamik özellik österebileceği ortaya çıkmıştır.

Çalışmanın sonunda elde edilen sonuçların sektör açısından değerlendirilmesine yer verilmiştir. Sonuçlar mevcut durum için değerlendirilmiş, sektör için çeşitli önerilerde bulunulmuştur.

1. INTRODUCTION

Textile and apparel industry is the one of the indispensable sectors for Turkey due to its contribution on Turkish economy and growth. The production volume of textile goods and apparel was not significant until the implementation of liberal economy and export oriented growth policies in 80's, even though the production had begun in earlier times of the Republic.

Since 80’s, Turkey increased its resources with the investment on both textile and apparel machinery and facilities and improved its performance and capabilities with the knowledge and experience gained in value added production. Today, Turkey is one of the full package providers being counted in the leading textile and apparel producer in the world.

Specifically, Turkey is one of most important partner for European countries in terms of textile and apparel business. Turkey became active in this market since the exports had been initiated firstly in the textile industry and then in the apparel industry. Turkey showed a steady growth on this basis in European market because of being in close neighborhood; having required raw material and input supported by the complementary industries and; employing required labor thanks to its young population. The Customs Union Pact, increased the penetration into European market by allowing the free access of goods on the one hand and expedited the investments made specific for the expansion of the business in order to satisfy the demands, on the other hand. Turkey was remunerated with being ranked at top positions in the European imports. Even the apparel industry got higher shares by time and Turkey became one of the two most important providers of apparel imports, despite the fact that it has to compete with the North African countries having preferential trade agreements with EU countries such as Tunisia and Morocco and the Eastern European economies in which the industry is still in growing phase but has potential and advantage of being to European market both geographically and culturally.

But recently, Turkey started to feel the pressure in textile and apparel business from the liberalization of trade. The textile and apparel trade that was kept under control

between 1974 and 1994 within the rules of MFA , was then subjected to liberalization with the gradual abolishment of volume restrictions. This facilitated the low cost producer countries to penetrate into the leading markets enabling the shifts in production patterns to occur at a faster pace. In this regard, the integration of China into WTO, which can be characterized with the huge production capacity and resources in employment, gave birth to a giant competitor and doubled the impact of the pressure felt. These two improvements coupled with each other, put the Turkish textile and especially the apparel industry on spot of fierce competition to the low cost producers worldwide and mainly China. As a matter of fact, the influences of this situation were already begun to be observed through the change of the rank of top countries in the global trade in few years which provided an evident for that Turkey cannot continue to compete with these countries on low cost basis. Moreover, it seems clear that there will always be some countries competing in the low cost production arena for especially the apparel industry which is highly labor intensive.

The leading actors in Turkish textile and apparel industry realized this situation in advance and put remarkable effort for taking precautions and determining strategies for the transformation of the industry into value added production and getting success in this regard. Many investments on the projects have been made for orienting the industry towards differentiation activities like branding. The development of production clusters for building co-operational activities and seamless supply chain by getting governmental support have also been proposed. It has been suggested to develop production clusters for building co-operational activities and seamless supply chain by getting governmental support. Moreover, valuable reports for positioning of the industry have been established for analyzing the current situation and determining the road map ahead. That issue also drew attention of the academia and many papers, reports, thesis and dissertations were published on this basis.

On the other hand, all these studies by both the industry and academia have common pitfalls and missing parts. First of all, the textile and apparel industry are taken together in hand where the driving factors and life cycles do not coincide well with each other. Secondly, no specific market is identified for determination of the clear objectives towards success in those markets. Thirdly, the future environment is determined based on the past and current data either using trend analysis or

observing the threats and opportunities of the current situation. Finally, the strategies developed are usually taken as output of the studies and they are not subjected to further assessment ignoring the impact of these strategies on each other whereas that kind of analysis can enable to determine the initiation point for better carrying out the problematic issues.

Considering the situation of Turkish textile and apparel industry and the lacking dimensions of the previous studies, the main objectives of the present study was determined to be developing strategies for Turkish apparel industry using an approach including strategy assessment. Although, it was difficult to separate the available data in two parts as textile and apparel, the apparel industry was put into focus because of having been heavily subjected to threats from the shifts in terms of labors and production costs. Moreover, the target market was selected to be the European market with a special emphasis on the developed Western European countries as the purchasing power of this market is high and Turkey may have advantages due to the already established mutual trust between Turkey and the countries in that region. To this aim, an approach was used for building and assessing strategies which were developed within the frame of scenarios. Scenarios were benefited as they were based on the future prospective and could act as future images enabling the coherence of strategies at the development and assessment steps. Strategies were developed and analyzed considering their influence on dependency for each other providing the determination of strategies to create dynamics in each scenario. Within this scope, the study develops and assesses the strategies for Turkish apparel industry in European market using scenarios.

2. TURKISH APPAREL INDUSTRY

2.1 Historical Background of the Textile and Apparel Industry

Textile and apparel industry is known to be the first industry in the early industrialization period of almost all the countries since the Industrial Revolution. The beginning of textile and apparel industry in Turkey dates back to foundation of Turkish Republic being one of the cotton producers.

At the Izmir Economic Congress, which was organized in 1923, textile was placed to be in the protected sectors of the new republic pointing out the crucial role of the woven textiles (Ozben et al, 2004). The development began in 1950s when investments were made by the leadership of privately owned capital. Due to import substitution policy and incentive measures, advanced technology started to be used and the manufactured products were produced between 1960 and 1970 (Ongut, 2007). However, both the textile and apparel industry could be characterized almost exclusively with imports in the textile market until 1950 and clothing until 1970 (Kanat and Atilgan, 2006). The production was primarily focused on the domestic market until 1980s (Kanat and Atilgan, 2006). A major change occurred after 1980 thanks to the liberal economic policies put into operation. Liberalization opened Turkey to the foreign markets; the exports increased in textile in 80's and in clothing in 90's. While Turkey benefited from the already established textile companies at the first half of the 80's, many new entrants were attracted to the industry because of the export incentives. After then, huge amount of companies were founded acting especially in apparel industry because of the low entry barriers of that sector. According to a survey established among textile and apparel companies, 92% of them were founded after 1980 in Istanbul (Riddle, 2005). After 1980, both textile and apparel industry showed a steady growth. Moreover, the companies acting in the field of apparel evolved from simple assembly to full package producers with the experience and developed capabilities especially after 1990s (Tokatli, 2003). Now the industry has reached its mature phase in Turkey. In fact, 74 of textile and apparel companies have been listed among the Top 500 Industrial Enterprises in Istanbul

Chamber of Industry's 2006 ranking (SME Research Center, 2007). Besides, Turkey became one of the countries being known as a qualified full package provider in the world.

2.2 The Significance of the Textile and Apparel Industry for Turkey

The textile and clothing sector has 11 to 12% contribution on the GDP, which constitutes almost 30% of total exports and 12% of total employment (Ozben et al, 2004). For that reason, it has a great impact on the development and growth of Turkey.

2.2.1 Export values for textile and apparel industry

Although there is considerable amount of domestic consumption, most of the textile and apparel products are exported to the foreign countries.

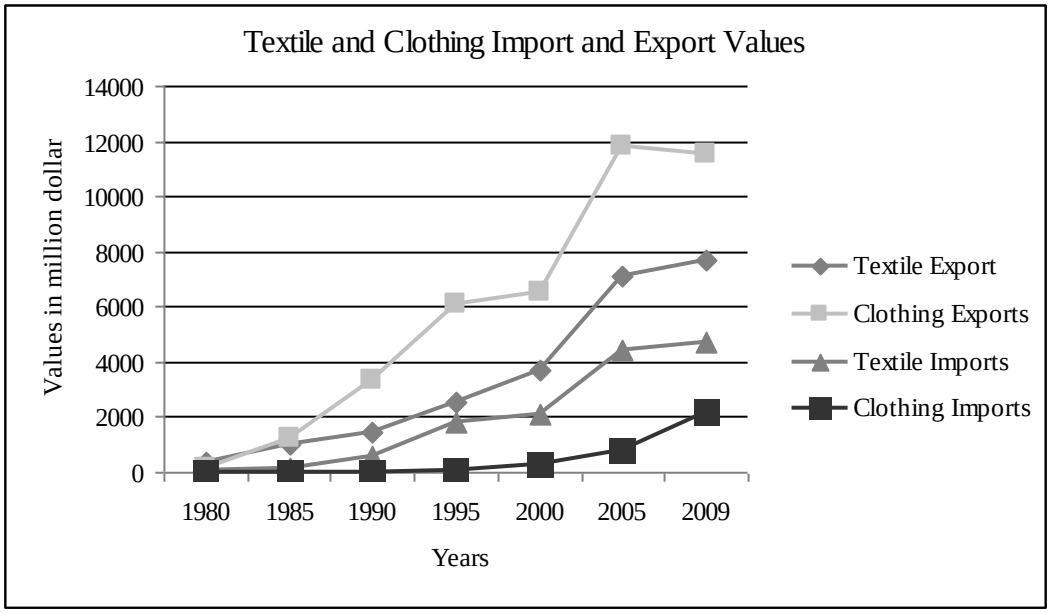


Figure 2.1 : The import and export values of Turkish textile and clothing industry (1980-2009) (WTO Statistics Database).

In Figure 2.1, it is seen that, the export values of Turkey in textile and apparel industry have increased gradually beginning with 80's despite the fluctuations due to the volatile environment of global economy.

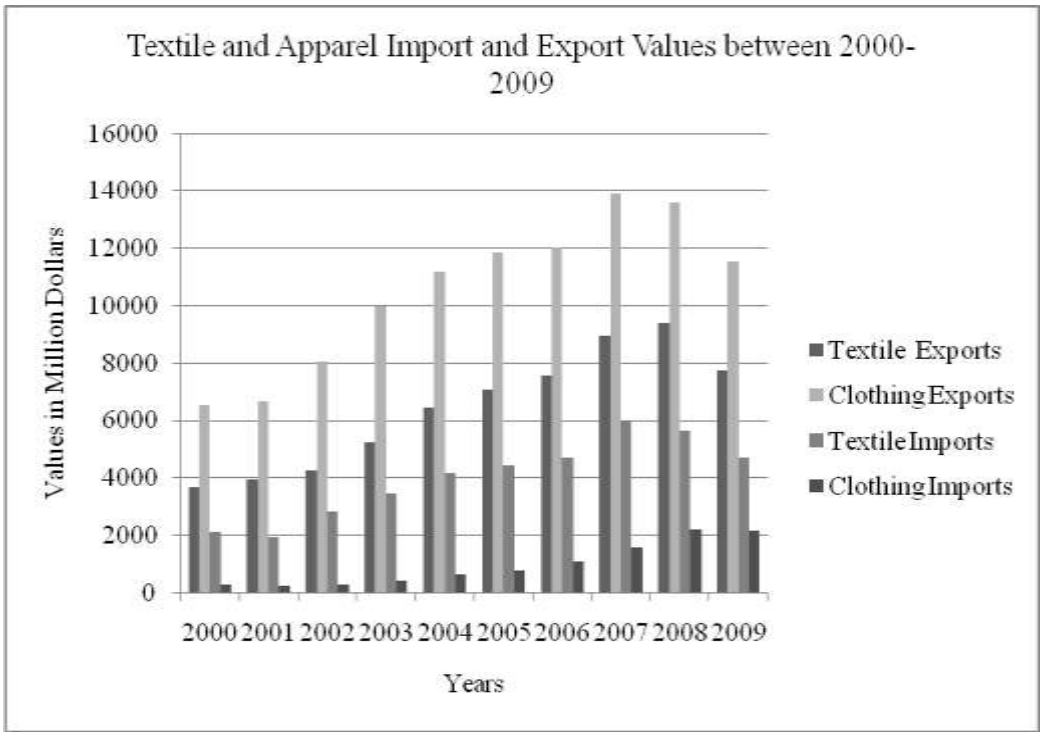


Figure 2.2 : The import and export values of Turkish textile and clothing industry (2000-2009) (WTO Statistics Database).

Figure 2.2 allows to make a closer look to the years between 2000 and 2009. This chart shows that the maximum export value was observed in 2008 for textile and in 2007 for clothing industry. The year 2009 became the year of the start for falling down. The other point is that, the import values for both textile and clothing seemed to increase within the period analyzed.

The value of the total textile and apparel exports has become 21.1 billion dollar in 2010, where 6.5 billion dollar belongs to the textile and 14.6 billion dollar belongs to the apparel industry, causing the textile and apparel industry to be ranked as the top exporting industry (ITKIBa, ITKIBb).

2.2.2 The share of the textile and clothing industry among the other sectors

In Table 2.1, the share of textile and apparel export in whole exports is shown on a yearly basis after 1980. A continued increase is observed in terms of total value of exports, whereas the share of the apparel and textile industries in total exports changes to some extent.

Table 2.1 : The share of textile and apparel exports in total exports of Turkey (ITKIBa, ITKIBb).

Year	Total exports 1000$	Apparel Exports	Share %	Textile Exports	Share %	Textile and Apparel	Share %
1980	2.910.000	106.000	3.6	671.000	23.1	777.000	26.7
1985	7.958.000	936.000	11.8	1.151.000	14.5	2.087.000	26.2
1990	12.959.289	2. 898.349	22.4	1.424.249	11.0	4.322.598	33.4
1995	21.637.041	6. 188.502	28.6	2.130.665	9.8	8.319.167	38.4
2000	27.774.906	7.250.960	26.1	2.845.184	10.2	10.096.144	36.3
2005	73.476.408	13.411.464	18.3	5.477.039	7.5	18.888.503	25.7
2007	107.153.918	15.560.170	14.5	7.355.157	6.9	22.915.327	21.4

From Table 2.1, the share of textile in total exports of Turkey is 23.1% whereas that value is 3.6% for apparel in 1980. The share of the textile exports is seen to lose its ground gradually and to fall below 7% in the year of 2007. Apparel exports gained a rapid increase in first 20 years and reached its top values which are 28.6 and 26.1 in 1995 and 2000 respectively surpassing the textile exports behind. But after 2000, the share of the apparel exports began to decrease in spite of the continued increase in terms of values.

Based on the data given in section 1.2.1, textile and apparel industry has showed an enormous expansion after 1980 and both of the industries have great contribution on Turkish trade and economy. The industry seems to slow down its growth in recent years however.

2.2.3 The employment in Turkish textile and apparel industries

Textile and apparel industry has a significant role in terms of generating employment. There are 40000 companies in the sector, 96% of them are small and medium enterprises and one fourth of them are acting in the export business (Atilgan, 2006). Taymaz (2002) states that the apparel industry showed a gradual increase in the share of employment between the years 1981 and 1996 and reached from 1.7% to 11.4% but that share decreased between the years 1997 and 2000 because of the economic crises.

According to a study established on July in 2006 by Ministry of Labor and Social Security, there are 588.903 workers in the 36811 working place (ITKIB, 2008). Nevertheless, almost 2 millions of people are employed in the textile and apparel industry while 1.5 million of them are exclusively in the apparel industry. The difference between these two data is explained to be the unregistered employment which is very common especially in apparel industry (ITKIB, 2008).

2.3 Turkish Textile and Apparel Industry in Global Market

Turkey became a significant player for textile and apparel industries in the world. Turkey got the 7th rank in terms of textile export values and 4th rank in terms of apparel export values in 2008 (WTO, 2010, 2009, 2006, 2001).

Table 2.2 : The share of Turkish textile exports in world (WTO, 2010, 2009, 2006, 2001).

	Value	Share in worlds export			
Exporter	2008	1980	1990	2000	2008
EU (27)	80.21	NA	NA	36.1	32.1
extra-EU(27) exports	24.17	NA	NA	9.9	9.7
China	65.26	4.6	6.9	10.3	26.1
United States	12.5	6.8	4.8	7	5
Hong Kong China	12.26	NA	NA	NA	NA
domestic exports	0.4	1.7	2.1	0.7	0.2
re-exports	11.86	NA	NA	NA	NA
Korea, Republic of	10.37	4	5.8	8.1	4.1
India	10.27	2.4	2.1	3.5	4.1
Turkey	9.4	0.6	1.4	2.3	3.8
Taipei Chinese	9.22	3.2	5.9	7.6	3.7
Japan	7.34	9.3	5.6	4.5	2.9
Pakistan	7.19	1.6	2.6	2.9	2.9
United Arab Emirates	5.75	0.1	0	2	2.3
Indonesia	3.67	0.1	1.2	2.2	1.5
Thailand	3.21	0.6	0.9	1.2	1.3
Mexico	1.99	0.2	0.7	1.6	0.8
Canada	1.99	0.6	0.7	1.4	0.8

The share of Turkey in world's textile exports were reported to be 3.8% with a value of 9,4 billion dollar in 2008 in Table 2.2. The top countries in textile exports became EU, China, USA, Korea and India with the shares of 32.1, 26.1, 5, 4.1 and 4.1 respectively .

Turkey got higher rank in clothing exports on the global platform by capturing the 4th rank after China, EU countries and Hong Kong as seen in Table 2.3. Although the share of the clothing exports showed a gradual increase in the selected years, it was challenging to see that China almost doubled its share between years 2000 and 2008.

Table 2.3 : The share of Turkish clothing exports in world (WTO, 2010, 2009, 2006, 2001).

	Value	Share in worlds export			
Exporter	2008	1980	1990	2000	2008
China	120	4	8.9	18.2	33.2
EU (27)	112.4	NA	NA	28.4	31.1
extra-EU(27) exports	27.7	NA	NA	6.6	7.7
Hong Kong China	27.9	NA	NA	NA	NA
domestic exports	2.9	11.5	8.6	5	0.8
re-exports	25	NA	NA	NA	NA
Turkey	13.6	0.3	3.1	3.3	3.8
Bangladesh	10.9	0	0.6	2.6	3
India	10.9	1.7	2.3	3	3
Vietnam	9	NA	NA	0.9	2.5
Indonesia	6.3	0.2	1.5	2.4	1.7
Mexico	4.9	0	0.5	4.4	1.4
United States	4.4	3.1	2.4	4.4	1.4
Thailand	4.2	0.7	2.6	1.9	1.2
Pakistan	3.9	0.3	0.9	1.1	1.1
Tunisia	3.8	0.8	1	1.1	1
Cambodia	3.6	NA	NA	0.5	1
Malaysia	3.6	0.4	1.2	1.1	1

2.4 Turkish Textile and Apparel Industry in European Market

Europe was an active market in both production and trade of the textile and apparel market. In spite of losing its share and transforming into high value added products, there were 144.000 textile and clothing companies in 1999 in EU and Europe produced 29% of the textile and 26% of the clothing products in the world market in 1998 (Dunford, 2001). EU27 accounted 80.21 billion dollar in textile exports, 83.96 billion dollar in textile imports, 112.4 billion dollar in clothing exports and 177.7 billion dollar in clothing imports with the shares in the world trade 32.1%, 31.9%, 31.1% and 47.3 % in 2008 (WTO, 2010, 2009, 2006, 2001).

2.4.1 The share of EU market

Although, Turkish textile and apparel industry has been an active exporter on a global platform, EU has become the most important partner for Turkey in both textile and apparel industry based on the geographical proximity.

In 1990, 80%; in 2005, 76% of Turkish exports were made to EU12 and EU15 countries (Kilincel, 2001).

Figure 2.3 : The share of apparel exports to EU countries (ITKIBa).

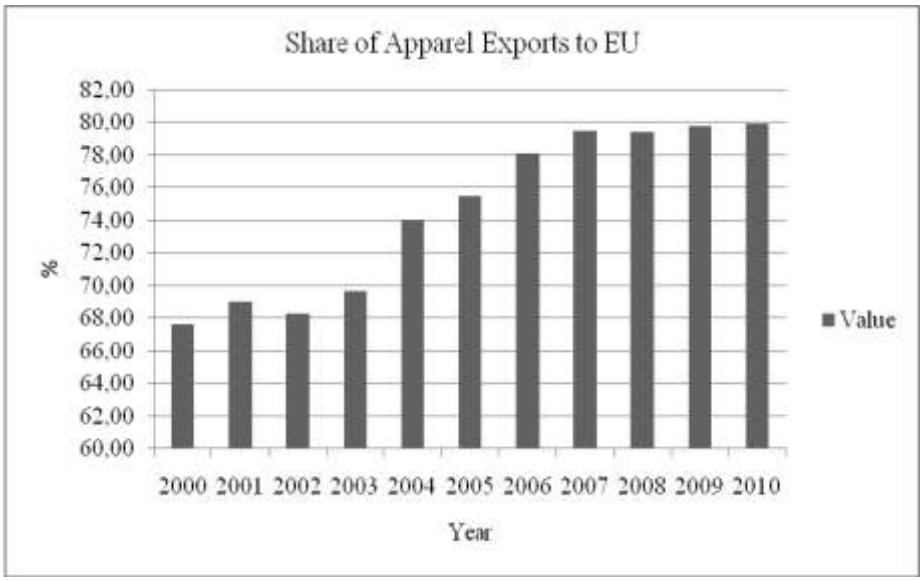


Figure 2.4 : The share of apparel exports to EU countries (ITKIBb).

Figure 2.3 and Figure 2.4 show the percentage of textile and apparel exports to EU in total exports respectively beginning with the year 2000. Fig 2.3 shows that between

40 and 50% of the whole textile exports is made to EU. Fig 2.4 shows that the percentage of apparel exports to EU was between 65 and 80%. Although the increase in value of the product is affected from both the expansion of EU and expression of the value in monetary units, EU countries seem to cover most of the apparel exports.

2.4.2 Historical background of Turkey-EU trade relations

2.4.2.1 Customs union

Beside the geographical proximity, the relationship with the European countries should not be ignored. The Customs Union with Europe determined the destiny for textile and apparel industries to some extent. One of the most important events between Turkey and EU was the Customs Union which had both positive and negative impacts leading to controversial situations. Turkey has benefited from the status of being the preferential supplier since 1963 Ankara Pact. The aim of the Ankara Pact was identified in the second article of the pact as being "To encourage the strengthening of commercial and economic relationships continuously and in balance between the sides by making allowance for the accelerated development of Turkish economy and the necessity of raising the life standards of the Turkish people" (Kanat and Atilgan, 2006). Being a preferential supplier, the quota levels were determined based on the voluntary restraint agreements which meant that EU could limit the imports if the exports had been a threat for the domestic industry. As a matter of fact, EU began to limit the import amount from Turkey in 1984 (Taymaz, 2002). In 1996, Customs Union was signed with the EU which removed all of the restrictions and allowed free movement of goods which was beneficial for Turkey. On the other hand, Turkey signed a series of free-trade agreements with the countries in European periphery in order to align itself to EU's preferential trade regime. At the beginning of 1996, the quantitative restrictions on textile products originating in Central and Eastern European and in some Mediterranean countries were abolished (Dunford, 2001) which caused these countries to be close rivals for Turkey in the EU market.

2.4.2.2 Turkey in the EU market until abolishment of quotas

Turkey had to basically compete with the countries in Asia, Europe and Africa. This was because some Asian (India and Bangladesh), East European (Romania, Poland

and Czech Republic), and Mediterranean (Tunisia and Morocco) countries achieved relatively high export growth rate in the EU market. There was significant amount of OPT (outward processing trade) between the EU and the East European and the Mediterranean Basin countries because of the special tax treatment. Even some of EU firms relocated their labor-intensive (assembly) operations in these regions to reduce production costs. Moreover, all quota and tariff for import from East European and Mediterranean Basin were eliminated in 1990 (Taymaz, 2002).

In spite of the competition with these countries, Turkey achieved a great success within that market because of the capabilities it gained in the period of evolution into full package producer. Turkish textile and clothing firms improved their quality standards and provided the conformity to requirements of any type of international standards regarding delivery, labor and environmental ones (Kanat and Atilgan, 2006). Moreover, the competition in the European market caused the Turkish companies to learn about the production technologies in addition to the improvements in marketing and management abilities. In this way, the companies learned how to do things better and how to produce better products. Building commercial ties and trade relationship with the Europe increased the strategic co-operations and investment. In this regard, Turkey benefited from the transactions with the EU in two ways. While Turkey gained economical advantages from the exports, Turkey also benefited from the advancements in the industry which enabled the country to be counted among the important players of global value chain.

2.4.2.3 Turkey in the European market after the abolishment of quotas

The abolition of the quotas became the most challenging situation for Turkey being the most important supplier of EU.

The textile and apparel industry was kept under control during 1974-1994 when the MFA was in force at the instance of the developed countries which tried to protect the domestic industry from the threat coming from the developing countries. The MFA was controlling the textile and clothing trade by allowing putting quantitative restrictions to the trade between developed and developing countries (Taymaz, 2002). But with the foundation of WTO, which was the serial of GATT and had the aim of the liberalization of world trade, the quotas were subjected to be abolished in 10 years of time. From 2005 on, China and the other low cost countries, with a great

capacity in terms of textile and apparel industry, became serious threats and the textile and apparel market began to feel a harsh competition. This profound effect was doubled for Turkey which had previously enjoyed being the preferential supplier of EU.

This effect can easily be seen in Table 2.4. Although Turkey maintained its position as the second largest apparel exporter to EU, the share of the Turkish exports began to decrease while China almost tripled its share in the expanded European market. From the figure, it is seen that the closest rivals of Turkey changed because of the shift of the apparel production to the lower cost companies.

Table 2.4 : The top 5 countries that export apparel to EU (WTO, 2010, 2009, 2006, 2001).

2000			2005			2008		
Supplier	Value	Share	Supplier	Value	Share	Supplier	Value	Share
EU-15	33456	38.9	EU-25	57737	44.9	EU-27	84658	47.6
China	8096	9.4	China	23010	17.9	China	39815	22.4
Turkey	5500	6.4	Turkey	10143	7.9	Turkey	11856	6.7
Hong Kong, China	4745	5.5	Romania	4534	3.5	Bangladesh	6962	3.9
Tunisia	2641	3.1	India	4424	3.4	India	6352	3.6
Above 5	54438	63.4	Above 5	99847	77.6	Above5	149643	84.2

Turkey now seems to maintain its position basically because of its geographical location, its well developed textile industry supporting the apparel, formerly established commercial relations with the European companies and the capabilities like knowhow and qualified work force it has possessed during the evolution phase of being full package supplier. But Turkey has problems with the high production and labor cost and political instability. Moreover, it suffers from the lack of distinguishing products and production processes that cannot easily be substituted with the other countries.

2.5 Strengths and Weaknesses of Turkish Apparel Industry

In the strategy report prepared in 2008, some of the strengths of Turkish textile and apparel industry were accounted to be the geographical position, technical, social and managerial know-how, organized and efficient structure, being full package producer, having standardized and flexible production. In the same report, some of the weaknesses of the Textile and Apparel Industry were stated to be lacking inventory record of the companies and roadmaps, having inefficient coordination and cooperation among the sub sectors and high production costs (energy, premium, financial costs, employment taxes and value added tax), imports, making low investments on technology, R&D and quality, having scale deficiencies, being dependent to EU market, making insufficient promotion, marketing and branding activities. Moreover, the start of the consolidation and clustering activities, the awareness of differentiation requirement and the efforts in the supply chain management activities were accounted in the opportunities whereas the Asian countries and especially China with the imports from the low cost countries took place among the threats (ITKIB, 2008). Although, it was not included directly in the ITKIB's report, organic cotton production takes place among the opportunities for Turkey. According to 2008-2009 data, Turkey became the second largest organic cotton producer (Url-1).

It is the reality that, Turkey gained much from its advantage of geographical proximity to the market. It is possible to ship to Europe within 1 week, overland around 10-11 days whereas this time is 30 days for China (Ongut, 2007). Geographical proximity is important especially when demand increases for fast fashion products and inventory cost exceeds production costs (Abernathy et al, 2003). Therefore, Turkey can still benefit from this situation in terms of fast and flexible production.

But, Turkey suffers much from labor cost which causes the production to shift into lower cost producers. Although Turkey takes the advantage of its own domestic textile industry, the labor cost still covers 29-30% of total production cot whose 41% belongs to taxes paid for employment (State Planning Agency, 2007). With the claim of being high value added producer, it is probable that the percentage cannot decrease.

On the other hand, it is not clear for Turkey if it is ready for differentiating its activities. Having only few numbers of brands that are known world-wide is a clear evident for this. Although Turkey is good at creating designs to some extent, there are not many efforts to improve these efforts in producing and promoting fashionable brands. Besides, Turkey has got behind in terms of integration of technology in textile and apparel businesses. Integration of technology is actually the strategy applied by the leading countries which have had to withdraw from traditional textile and apparel business. Although the data dates back to 1999, Taymaz stated that 27.6% of EU textile production was in technical textiles in 1999, at that point, R&D intensity in Turkish textile and clothing was only 0.05% (Taymaz,2002).

Briefly, Turkey is good at providing flexible and fast production but it is not qualified in terms of technology integration and brand promotion.

2.6 Competitiveness of Turkish Apparel Industry

Based on the quantitative data about export values and the observation of competitors and the threats from them, Turkey is on a challenging business environment in textile and apparel industry. Nonetheless, there are studies and advances that can be taken as evidences for improvement of competitiveness of the industry.

The report established by IFM and partners evaluated the competitiveness of the countries in textile and clothing industries in terms of labor, raw material, efficiency and marketing (State Planning Agency, 2007). According to the results, China was found to be most competitive country in terms of labor; China, South Korea and Turkey were found to be strong in terms of raw material supply and machinery and Turkey, Bulgaria and Romania were stated to be advantageous in marketing.

The report of SME Research Center involved some examples of competitive companies. That report was prepared to make a competitive analysis and assess industry by determining principal advantages and major problems. Some examples were given about the successful companies that managed to be international players by implementing differentiation strategies such as quitting cheap production in favor of the production of fast fashion items; investing abroad (in countries such as Egypt or Uzbekistan) in order to benefit from low cost labor and tax breaks; or buying

foreign sales outlets to strengthen/secure their marketing activities. These strategies were established by some companies and proved to reach success (SME Research Center, 2007).

Kilincel (2001) established a research on the competitive strategies of Turkish textile industry and gave three examples from the large scaled Turkish textile companies in her thesis .The results of the interviews were given with an explanation of the strategies implemented by the select companies from Istanbul Stock Exchange. It showed that, the companies benefited from competing on cost leadership, differentiation and quick response fields by emphasizing the importance of the production of high value added products.

The other significant point is that, the organized projects and efforts were given by either lobbies or governmental or private organizations. ITKIB provided a significant source of information to its members, played a great role in promotion activities of the members that wanted to participate in trade fairs by providing financial support. TGSD, played a key role in international platform. Representing the industry in Euratex and International Apparel Federation, TGSD tried to impact the governmental and EU policies for the benefits of Turkish Manufacturers (Tokatli, 2003). TGSD and ITKIB were only two examples for this type of organizations that hold a leading role.

In conjunction of ITKIB, the Istanbul Association of Textile and Apparel Exporters, apparel industry was selected as the pilot industry for the Turquality project which was promoted by Turkish Ministry of Trade and Industry. Having been introduced in 2003 as an accreditation program, the mission of that project was upgrading the image of Turkish made products by building strong, global brands. The project provided financial support with the strategic, operational, technological and organizational counseling for brand development. With the vision of building 10 brands within 10 years time, 19 Apparel companies have been supported by Turquality (Url-2).

The cases given here state that, there is a continual effort in the sector and among the stakeholders for transformation of the opportunities and strengths into positive attempts and solutions.

2.7 Literature Review about Strategy Development in Turkish Textile and Apparel Industry

In this section, the studies, that aim to develop strategies for Turkish textile and apparel industry will be overviewed, which were established either by the industrial organizations or by the master theses and dissertations

The government prepared for Textile, Leather and Apparel industries, Specialized Commission Reports under the frame of 9th Development Plan for the period covering 2007-2013 (State Planning Agency, 2007). In the preparation of this report, 41 experts took role some of which are Turkish Textile Federation of Employers' Organization, Bank for development of Industry, Denim Manufacturers and Businessman Association, Synthetic and Artificial Yarn Producers Association, The General Secretariat of Istanbul Textile and Apparel Exporters' Associations, The Union of Chambers and Commodity Exchange of Turkey, Turkey Textile Finishing Manufacturers Association, Ankara Ready Wear Association, Association of Knitting Industrialists, Journal of Textile Researchs (TAD), Turkish Clothing Manufacturer's Association, Istanbul Technical, Aegean and Uludag Universities, KOSGEB, Undersecretariat of Customs, Ministry of Industry and Trade, Ministry of Education. In this report, a general overview was made for all subsectors of textile industry including the cost structures, capacities, domestic consumption, share in exports, employment ratio, incentive measures, relations of the industry with the other sectors. The position of the industry on a global platform was given in detail. SWOT analysis was made for the textile and apparel industries followed by domestic and export demand projections, based on the trends and capabilities with considering the competitive environment in the world trade. In the end, the strategies, visions, policies, and measures were established. The main mission was determined to be the production of value added products. The fields of investments were determined as new products, improving quality and efficiency, increasing flexibility, technical textiles, eco-friendly products and renewing and making modernization investments as well. Specifically for the apparel industry, producing of the fashionable products, developing brands and adopting fast fashion production and building co-operative partnership were proposed. The action plans were developed for the industry stake holders, government and education institutions. This report had much valuable information about the resources and capabilities of the industry. Moreover, the action

plans were stated in great detail. But, there were so many items on to do list without any prioritization or initiation point (State Planning Agency, 2007).

In the meeting by Auditing commission for Assessing Economic Problems under the chairmanship of Nazım Ekren, in 2008, it was decided that the Ministry of Industry and Trade would execute and coordinate the establishment of the Urgent Measures and Medium to Long Term Strategy document with the participants both from the private and public sectors. Based on this decree, a strategy report was prepared for the textile, apparel and leather industries. This report had a quite similar template to the Development plan. After an overview of the industry, a SWOT analysis was given. The problem tree and objectives trees were developed. Two priorities were determined as the "the improvement of business atmosphere" and "increasing the competitiveness via supporting the company capacities" considering the mission of public authority in regulation of these activities. Finally, an action plan was employed in order to define the action, time period and the instruments to be used (ITKIB, 2008).

A serial of study was established by the leadership of Turkish Ready Wears' Association called Horizon. The studies began in 2003 and the aim of the first edition of the study was "Developing A Road Map for Turkish Apparel Industry". In 2004, the second study was established for the "Repositioning of Turkish Apparel Industry Globally" and the apparel industry is stated to be in its transformation period. In Horizons studies, quantitative forecasts for the year of 2010, and strategies for industry, organizations and public were established. Turkish Ready Wear Association established the 3rd part of the Horizon studies and developed a road map for the year of 2015 and renewed and improved the transformation strategies. The method used in these studies for scenario building was between intuitive logic and trend analysis. A broad perspective of the system was accomplished and general overview of the industry was made on local and global platforms. The quantitative results were firstly determined using a statistical approach then the estimated effects of the advancements in the system were reflected quantitatively. Five groups of strategies were developed which were Protection and Improvement of the Competitive Power in production, Dominance Strategies in Target Markets, The Relationship Strategies in Value Chain, The strategy for The Education of Human

Resources, The Impacts of the Integration to EU and negotiation with the vision of the EU 2020 (Turkish Clothing Manufacturers' Association, 2007).

Supreme Board of Science and Technology brought up a solution at a meeting held on 13 December 2000 about the preparation of the Strategy Record of Science and Technology in Turkey with participants from the academia, industrialists, R&D Corporations, and Enterprises. Based on this meeting, Vision 2023 project were established covering 4 sub categories which are "Technological Foresight", "National Technology Inventory", "Turkish Researcher Inventory", "National R&D Infrastructure". It was anticipated to make advancements in 13 sectors one of which was textile industry. As a part of this Project, a Textile Panel was established with the 23 experts, (60%) from the industry and (40%) from the academia, TUBITAK and DPT. Groups of 7 to 18 experts established 14 meetings. In the last step, delphi study was established and based on these findings, technological activity fields and technological subjects were re-evaluated and prioritized. The preferential technological activity fields were given as eco-friendly technologies in textile finishing, electronic data transfer, computer aided design and production, techno-tailoring and customized production, developing multi dimensional smart textiles and machinery automation (TUBITAK, 2007).

Ongut (2007) established a thesis for planning expertise in State Planning Agency of Prime Ministry. Being rather a research report, Ongut analyzed the competitiveness of the Turkish textile and apparel industry considering the developments in the global market. The emerging challenges and China was given a special attention while the threats of the country would face were discussed with the specific economical and political problems of the industry. In the end, the author gave the measures and strategies that should be implemented by the private companies and public sectors which focus on the differentiation activities.

Temiroglu (2007) proposed a systematic strategic assessment model and implemented this model on Turkish apparel Industry. The main concern of this thesis was limited with the apparel industry. The model consisted of 7 stages which began with the determination of the assessment factors followed by due diligence under the frame of these factors. The driving factors were determined by a conducted survey and industry analysis was established for these driving forces using SWOT analysis by the experts using nominal group technique. For each driving factor, 5 experts

were employed. The action plans and performance evaluation sheets were formed. In Temiroglu's thesis, the application of SWOT was restricted by only the driving factors which were determined in the previous part. In the end, Temiroglu prepared an action plan for all the shareholders without detailing on the company specific strategies.

Ozgur (2006) established in his thesis the general overview of the textile and apparel industry and developed strategies after a SWOT analysis. He established the strategies in two groups as governmental and private sector strategies with the action plans.

In all the studies, the highlighting issue was that the industry was losing its competitiveness in the low cost arena and some measures should be taken and strategies should be determined in a systematic way in order to maintain its effectiveness both domestically and globally. To this aim, the industry was suggested to implement differentiation strategies like marketing through branding, fast fashion producing. Nevertheless, the detail level in these strategy suggestions changed in different studies. While, some strategies developed strategies on company basis, most of them identified the actors in the industry and expanded the strategy suggestions by including all the stakeholders.

Regarding the method used, in the studies mentioned, the procedure for developing strategies was almost common. First, the overview of the industry was made in global perspective. Second, the industry was positioned usually by the identification of the strengths, weaknesses, threats and opportunities. This was usually done by reviewing only the present situation. Finally, the strategies were developed in the frame of these previous analyses. The other common point was that, the textile and apparel industry were considered together. No market was specified as an environment for which the strategies were established, although the driving forces and life cycle of the industry and market may differ from each other. Besides, the strategies developed were usually not analyzed for their convenience to the aims and objectives. In none of the studies, the strategies were assessed. On the other hand, all the studies pointed out the fact that systematic procedure should be applied during the strategy development phase.

3. STRATEGIC PLANNING

Coming from the Greek word Strategos with the meaning 'the art of the General' (Lorange et al, 1986), strategy is the path to a predetermined objective. Mintzberg identify strategy with 5 P's which are plan, ploy, pattern, position or perspective. Strategy as a plan states for the set of actions; as a ploy, it can be used for competing with or conceiving the competitors; as a pattern, it is a model; as a position; it is the link between firm or business and external environment determining the place of the firm or business in that environment; as a perspective, it involves the actions or approaches shared by the members of the firm or business (Jacobs, 2010).

Strategies are very important for a firm or business as they determine the long term objectives, and they identify the ways to reach these objectives. Their consequences can't be observed or changed in a short period of time. Therefore, long term success relies heavily on making effective strategic analysis, determining and selecting the strategies accurately and implementing those strategies in an orderly manner.

Strategies can have varying levels of detail regarding the level for which they are developed. On the other hand, there are traditional strategy typologies which are cost versus added value (Porter), Innovativeness (Miles and Snow), and development trajectories for large corporations which are market penetration, market development, product development and diversification (Ansoff and others) (Jacobs, 2010).

Strategy is a very important concern for the firms and businesses as it requires a systematic approach from the management. Strategic management involves 3 main parts which are strategic analysis, strategy development and strategy selection and implementation (Thompson, 2001).

Although strategic management process cannot be formulated, it can be identified by nine titles which are (Weihrich, 1990):

1. Recognition of the various organizational inputs, especially the goal inputs of the claimants to the enterprise.

2. Preparation of the enterprise profile

3. Identification of the present external environment

4. Preparation of a forecast with predictions of the future environment

5. Preparation of a resource audit with emphasis on the company's internal weaknesses and strengths

6. Development of alternative strategies, tactics and other actions

7. Evaluation and choice of strategies

8. Consistency testing

9. Preparation of contingency plans.

Strategic analysis mainly involves the external or environmental analysis. The firms and businesses should carefully scan the environment in which they compete, in order to find out the threats of the current competitors, the entry barriers for the market, the substitute products, the suppliers and the buyers as in the case of Porter's five forces model (Thompson, 2001). Moreover, the environment should be analyzed to discover the opportunities so that the firm or business could benefit from competitive advantages.

Beside the scanning of the environment for threats and opportunities, the firm or business is positioned in the market usually by considering the growth rate and market share. Some special techniques are balanced score card, portfolio analysis and life cycle analysis.

Balanced score card can be used to position of the firm or business in financial, customer, internal, learning and growth categories (Tayler, 2010). In portfolio analysis like BCG matrix and GE business screens, the strength and attractiveness of the market can be determined usually for a product for the investment or divestment decision to be made (Hax and Majluf, 1990a). The experience curve can ease to make a decision for increasing the production amount and identifying the competitive cost structure (Hax and Majluf, 1990b).

Although these techniques are quite useful, they are especially advantageous for determination of the situation of the company or a specific product for which statistical data available. It is difficult to reach data for textile as the products are specified by the codes which can vary from countries to countries (Hax and Majluf, 1990a).

After analyzing the environment and positioning the firm or business in the market, the second step is the strategy development which is usually established via open ended manner interviews (Eden, 1990). Although, some special techniques like FCM, influence diagrams can be used, their usages are usually for support in increasing the thinking ability providing the self control (Dyson, 1990).

Having been developed, the strategies are tested for being appropriate with the objectives of the business, and major plans and policies of the companies and for the assumptions on which they are based on (Url-3).

Moreover they should be assessed if they have consistent goals and policies; if they can respond to market and have advantage in the market condition and finally if they are feasible to be implemented concerning the resources and capabilities (Url-3). Nonetheless, the availability of the resources or capabilities may have been identified to a certain level before the development of strategy as in case of SWOT.

Beside the structural assessment, some evaluations can be made among the strategies, in order to select the most suitable options. So, the other point in strategic management is the evaluation of the options and selection among the alternatives in other words, decision making.

Usually applied procedure for this step is the evaluation of the strategies in the regard of the predetermined and weighted criteria or comparing with each other. To this aim, the Multi Criteria Decision Making Tools like AHP, ANP or comparison techniques like Electre, DEA and Topsis can be employed. Simulation or cognitive mapping can be used. These techniques can depict the significance of the strategies by allowing to make prioritization. For instance, AHP uses a systematic procedure in order to determine the hierarchy of the criteria and sub criteria when there is independence among alternatives whereas ANP is applied, when there is dependence (Valmohammadi, 2010). Cognitive mapping on the other hand, can be used in both strategy development and determination of priorities. In cognitive mapping, the ideas of the experts in the open ended manner interview are used to develop goals and strategies by establishing cause and effect relations between them using head and tail analysis (Eden, 1990). It is possible to obtain quantitative results by simulating the implementation of these strategic alternatives in a predetermined environment as well.

This fact underlies the importance of the predetermined environment. So far, it is discussed that many approaches and procedures can be applied during the strategic planning but most important and, in other words strategic step is the prediction of the future. This step is the key point of the strategic planning as the strategies are developed for the future actually and the determination of the future is important for both developing strategies and making selection among them. However, the point is that, future involves uncertainties and unknowns in it.

The range of possibility of the change in the environment depends on 6 factors whose changeability range is an uncertainty and the strength they will get in the future is an unknown (Thompson, 2001):

-Changeability of the market environment

-Speed of change

-Intensity of the competition

-Fertility of technology

-Discrimination by customer

-Pressures from governments and influence groups.

As pointed out by Dyson (1990), the uncontrollable variables, the consumer response, competitive reaction, exchange rates, cultural changes, economic trends have major contributions on the firm or business' future leading to uncertainty which forms the key point of the strategic management.

The uncertainties and unknowns are the key factors that can cause risks and crises. And forecasting the risk and crises seems to get more importance nowadays. As a matter of fact, Thomson (2001) expressed the emerging views of the strategic management in a pyramid and showed that the risk and crisis management was added lately at the top of the pyramid.

Although the techniques given so far regarding the strategic analysis like the environmental scanning and positioning involves the prediction or considering the future, they can't solely be used for prediction of the future.

In this regard, forecasting and scenario development are employed to better determine the future image. Forecasting tells exactly how some variables can change

in future usually by extrapolation the future from the past events (Bateman and Snell, 2002). It is based on the single point forecasting of single or determined variables for which data are available. According to Mietzner and Reger (2005), forecasting is a prediction or statement of what is expected to happen in future. But, Jouvenel (2000) believes that, future does not occur in accordance with the rules, it is open and indeterminate but there are factors of inertia which prevent some events to occur by acting as a brake. Risk management and crisis management can better be prevented by scenarios (Thompson, 2001). It was stated by Dyson (1990) that the risk analysis can be used to determine uncontrollable and uncertain variables through probability density function and by cross impact analysis but scenarios are more effective, as scenario planning aims to depict a total image of the factors that are thought to be influential.

Different from forecasting methods, scenario planning is a special technique for projecting potential futures in order to improve present decisions. It is based on the foresight instead of forecast, where foresight is related with the ability to see the future (Mietzner and Reger, 2005), and has a larger view of different aspects of events (Jouvenel, 2000) while forecast sees only one aspect of an event. Schoemaker (1991) states that, scenarios can be used as a beginning point for strategy formulation giving the managers ideas about the critical issues and uncertainties. Or they can be used to evaluate the already done or planned to be implemented strategies.

4. SCENARIOS AND SCENARIO PLANNING METHODS

In Chapter.3, it was stated that scenario planning was one of the most effective techniques for future projection instead of forecasting in terms of determination of uncertainties and unknowns. For this reason, this chapter was dedicated to scenario planning methods.

4.1 Definition of Scenario

Scenario can simply be defined as the postulated sequence of possible events in dictionary. Some of the popular descriptions of the scenario are written as below:

"A scenario can be defined as a description of a possible set of events that might reasonably take place." (Jarke et al, 1998).

"A description of future situation and the course of events, which allow one to move forward from the original situation to the future situation." (Godet and Roubelat, 1996).

"A scenario – as a central concept for the prospective analysis – can be considered as a rich and detailed portrait of a plausible future world." (Moniz, 2005).

"It is a useful tool for policy-makers to grasp problems clearly and comprehensively and to better pin-point challenges as well as opportunities in an overall framework." (Moniz, 2005).

"A scenario is not the prediction of a specific future. Rather it can better be considered as a plausible description of what might occur. In this sense, scenarios describe events and trends as they could evolve. They are not simulations." (Moniz, 2005).

"Scenario planning can be a catalyst for extracting values from capabilities by channeling them towards new opportunities." (Bergman et al, 2006).

"In a narrow sense, a scenario is a description of future situations of an organization [1]. In broad sense, it consists of (1) assumptions and hypotheses about the processes

and actions (2) models and procedures used to determine the elements of the scenario (3) quantitative and qualitative factors and (4) decisions, situations and interpretations." (Jarke et al, 1998).

Scenario is a script like characterization of a possible future presented in considerable detail, with special emphasis on causal connections, internal consistency and concreteness (Schoemaker, 1991).

Relying on the principles of systems thinking and future open thinking, Fink and Schlake (2000) define scenario as a generally intelligible description of possible situation in the future, based on complex network of influence factors.

4.2 Main Features of Scenarios

Schoemaker (1995) explains the situations in which it may be useful for a company to use scenarios:

-Uncertainty is high relative to managers' ability to predict or adjust

-Too many costly surprises have occurred in the past

-The company does not perceive or generate new opportunities

-The quality of strategic thinking is low

-The industry has experienced significant change or is about to

-The company wants a common language and framework without stifling diversity

-There are strong differences of opinion, with multiple opinions having merit

-Your competitors are using scenario planning

Fink and Schlake (2000) state that scenarios can be used for decision support, creation of orientation knowledge, communication of future developments and stimulation of strategic thinking in a three phase model which are strategic early warning, integrated scenario creation and scenario aided strategy process.

Godet (1994) draws attention to the discrepancy between strategies and scenarios. According to Godet, being exploratory, normative, retrospective or on probability reflecting the vision adopted, scenarios are the future images whereas strategies are the outcomes of the attitudes adopted in the possible futures.

The major aim of the scenario is facilitating to think about possible future events, the base for these events and possible threats and opportunities and the convenient set of these events (Jarke et al, 1998).

Aligica (2005) claimed that, the purpose of the scenario planning is not making single line forecasting or fully estimating the probability distribution. Instead, scenario planning tries to bound and understand the future.

The main characteristics of scenarios were explained to be (Mietzner and Reger, 2005):

-Present alternative images instead of extrapolating trends from the present

-Embrace qualitative perspectives as well as quantitative data

-Allow for sharp discontinuities to be evaluated

-Require decision makers to question their basic assumptions

-Create a learning organization possessing a common vocabulary and an effective basis for communicating complex, sometimes paradoxical-conditions/options.

Jarke et al (1998) states that scenarios can be used in different fields for different usages as the economists uses scenarios for long range planning, policy maker uses them to weigh the consequences of actions and management scientists use them for strategic decision making and goal discovery.

4.3 Types of Scenarios

There are different kinds of classifications for scenarios based on the point of view, the characteristics or what they were build for.

Ratcliffe (2000) divided the scenarios into two categories which are future forward and future backward. In future forward approach, the present situation is somewhat evolved into the future state considering the present forces. In future backward approach, future images are selected and then the path to reach that images are tried to be found out.

Wollenberg et al (2000) suggests that the scenarios can be nested for addressing different scales like user group scenarios, larger forest level scenarios, regional economy scenarios and finally country level and international scenarios. According

to Wollenberg et al, the selection of the scenario topics and detail level is specific to what it is used for. The scenarios can be categorized as global, industrial, competitor and technology scenarios (Ratcliffe, 2000). Fink and Schlake (2000) classify the scenario field which defines the subject of scenario creation into 4 which are corporate scenarios, industry scenarios, market and global scenarios. The scenarios usually have 4 dimensions which are status quo, collapse, steady state and transformation (Ratcliffe, 2000).

Fink and Schlake (2000) also categorize the scenarios in three ways which are external scenarios, describing the possible external conditions; internal scenarios, like the product specification scenarios and system scenarios including both the internal and external scenarios.

Moniz (2005) also classify the scenarios being normative and exploratory by purpose. The authors add that normative future methods give answers to the questions about desirable future whereas the exploratory methods answer about the possible futures. Godet and Roubelat (1996) identify two types scenarios which are exploratory and anticipatory on the other hand.

4.4 Advantages of Using Scenarios

Scenario planning creates different plausible futures in which the predetermined variables take different values (Morgan and Hunt, 2002).

Mietzner and Reger (2005) claimed that the strengths of the scenarios have:

-They have ability to build more than one future instead of forecasting methods

-They can cause to think radically based on the power of imagination and so cause the culture of the organization to change

-They are able to recognize the unknown events, discontinuities

-They can cause the company to develop a common language and thought

-They provide coordination among the people and organization

-They are flexible to be used for a specific situation.

Bergman et al (2006) states that, the scenario process creates an interactive communication among the members of the organization and helps to identify and discuss the future.

The benefits and characteristics of scenario planning are as follows (Godet and Roubelat, 1996):

-Based on the belief in an uncertain and unpredictable future;

-Recognizes interactivity among multiple variables

-Forces managers to confront uncertainty by providing several future outlooks

-Finds that extrapolation from historical developments does not "inform" the future; future is made of not only facts from environmental trends, but also draws heavily on the perceptions of managers

-Emphasized causal processes and incorporates dynamism into analysis

-There are no "guaranteed solutions" only hypothesized futures

-Primarily qualitative in orientation but occasionally supported by quantitative elements

-Extrapolation centered with the aim of developing descriptions of the future (Morgan and Hunt, 2002).

4.5 Scenario Planning Methods

4.5.1 Historical background

Scenario planning was firstly used in military as a strategic planning tool after World War II. First scenarios were developed by the Rand Corporation which was a research group that was founded on the prompting of a joint project of US Air force and the Douglas Aircraft (Bradfield et al, 2005). In 1960, Herman Kahn, who previously took place in the Project of US Air force became the first person that modified the scenario planning work for the use by the industrial organizations (Mietzner and Reger, 2005). After then, many scenario building techniques were developed by different corporations and companies primarily by Rand Corporation, Stanford Research Institute, Shell, SEMA Metra Consulting Group.

4.5.2 Types of scenario planning methods

4.5.2.1 The characteristics of different scenario planning methods

Nonetheless, Bradfield et al (2005) stated that USA and France were two regions where the scenario techniques were developed.

The scenario techniques are usually examined in three schools which are the intuitive-logics, trend impact analysis and cross impact analysis. Bradfield et al (2005) on the other hand combines the trend impact and cross impact under the title of the probabilistic modified trend school and adds the La Prospective school as a scenario technique developed in France. Although these schools can be undertaken as the generations in scenario planning, they differ in terms of usage and the methodology they are using.

The intuitive logic which was primarily implemented by the SRI International assumes that the decisions in business field are given considering the economical, political, technological, social, resource based and environmental factors and the relations between them. According to Intuitive logics school, these factors should be well understood to make a business decision like capacity expansion, new technology implementation and so on. The factors and the variables used are both qualitative and quantitative. There is no specific tool for the intuitive logics school. The number of steps of the intuitive logics is from 8 to 15 based on the requirements according to the fields it is used. Nonetheless the Huss and Honton (1987) gave the eight steps of the SRI international method as:

1-Analyzing the decisions and strategic concern

2-Identifying the key decision factors

3-Identifying the key environmental forces

4-Analyzing the environmental forces

5-Defining scenario logics

6-Elaborating the scenarios

7-Analyzing implications for key decision factors

8-Analyzing the implications for decisions and strategies

Trend impact analysis has been used by the futurist since early 1970s. It is based on the forecast of the key variables. But, the key variables are assessed according to the occurrence of impacting events. In this context, it is the closest method to the traditional forecasting. But the unprecedented events are also included to the analysis forming its difference from the other forecasting methods. The approach used by The Futures Group in Glastonbury was given by Huss and Honton (1987) as below:

1-Select topic and identify key scenario drivers

2-Create a scenario space

3-Identify important trends and collect time series data

4-Prepare a naive extrapolation

5-Establish a list of impacting events

6-Establish probabilities of events occurring over time including years to first impact, years to maximum impact, level of maximum impact, years to steady state impact and level of steady state impact

7-Modify extrapolation

8-Write narratives

Cross impact model was developed by Gordon and Heimer in 1966 in RAND Corporation. But a range of cross impact method was developed and used by the other researchers and corporations. The cross impact model is based on the belief that the interdependencies of events should be included for better determining the probabilities of events. Cross impact models can involve simulation or can be based simply matrix operations. One of the popular cross impact models was INTERAX (Interactive Cross Impact Simulation) methodology developed by the Center for Futures Research. The steps of the INTERAX were given by Huss and Honton (1987) as:

1-Define the issue and time period of analysis

2-Identify the key indicators

3-Project the key indicators

4-Identify impacting events

5-Develop event probability distributions

6-Estimate impacts of events on trends

7-Complete cross impact analysis

8-Run the model

As stated previously, Bradfield et al. (2005) included another school called The La Prospective. La Prospective school was founded by Goston Berger in 1950s, French Philosopher. La Prospective was an acceptable scenario based methodology for developing positive images or normative scenarios of the future. According to this methodology, future was not a continuation of present; instead it was something that had to be created for the human benefits. At the earliest stages, that method was used in the establishment of the National Plan in France. In mid-1970, Godet, the head of the Department of Future studies at SEMA, began to use this methodology in the other sectors other than politics. Godet used several mathematical and computer based probabilities approach to scenario development. With the improvements made by the Godet, La Prospective approach became closer to Intuitive Logics schools with its roots on one hand and to the combination of trend and cross impact models with the techniques it uses on the other (Bradfield et al, 2005).

4.5.2.2 The comparison of different scenario planning methods

Huss and Honton (1987) in their study of "Scenario Planning-What Style Should You Use" explained the advantages and disadvantages of different scenario methods. They stated that with the Intuitive logics methodology, it was possible to develop flexible scenarios but it was strongly on reputation and communication skills of the experts. The authors found the trend and cross impact techniques more useful as they were using more mathematical operations which increased the objectivity. But the disadvantage of these methods was said to be the weakness of the techniques to convert the obtained numerical results into creative scenarios.

The major difference between the scenario development models generated in USA and France was stated to be that, the scenarios developed in USA had the global nature while the scenario development in France was focused on narrow subjects such as the future of France itself. Bradfield et al (2005) summarized the comparison of the salient features of the three Schools of scenario techniques. The authors stated that La Prospective school takes place between Intuitive Logics and Probabilistic Modified Trend schools in terms of scope, perspective, nature of scenario team of

being internal or external, but differs much from both of two on the usage of the mathematical models whereas Intuitive logic was not based on mathematical model, trend impact used statistical data and simulation in the end. La Prospective, on the other hand, modified already known influence matrix and cross impact method for its uses.

4.6 The Critics and Defenses of Scenario Planning Method

The scenario planning method is usually criticized to be rather qualitative and vulnerable to biases.

For instance, Mietzner and Reger (2005) claim that the scenarios could be risky, because the scenario planning required a deep understanding and knowledge. Although the scenarios are the processes instead of outcomes, Jarke et al (1998) state that they were very open to biases because of unreliable data about the unknown future. They add that, scenarios did not have a well defined objectives being a non-routine case. Accepting the fact that the robustness of the scenarios are provided by the coherence of the model structure, the authors criticize the scenarios for being lack of the structure despite their richness in the content and the flexibility. Finally, it is stated that it was difficult for managers to draw very different future prospective with clear separation from the past experiences and events (Jarke et al, 1998).

Moniz (2005) state that forecasts usually fail because of limited expertise, ignored assumptions, lack of imaginative power and the availability of mechanical extrapolation of trends.

Regarding the selection of scenario, it is stated by Mietzner and Reger (2005) that it was possible to focus on the best or worst scenario or most likely scenario. Especially the decision makers have a tendency of ignorance of less possible scenarios and they usually make emphasis already on occurred trends which enable the reflection of present to future. Finally, the authors criticize the scenarios for having low level of detail and so having a danger of missing the practical matters.

Schoemaker (1993) defenses the scenario planning against critics about the biases and he firstly draws attention to the fact that scenarios developed by other people may be less believable that’s why the scenarios are subject to criticisms. The

scenarios are less likely to bias because in scenario discussions, challenging ideas are put against the initial beliefs of the experts (Schoemaker, 1991).

Godet (2000) makes an emphasis on that there were not any data or statistical information about future and the only data was the personal judgment about the future. It is suggested that it was reasonable to construct a scenario from an imagined future rather than from extrapolation of trends and to include undesirable scenarios in order to stimulate creativity and overcome bias (Wollenberg et al, 2000). Moniz (2005) claim that, the scenarios should include both the quantitative and qualitative techniques as the quantitative part explains the evolution of the variables and conditions and the story part of the scenarios explains the significant events and improvements shaping the variables. Postma and Liebl (2005) propose to include the trends instead of drivers and counter trends in the same scenario adding that wild cards should also be included in order to prevent future disruptive events. Finally, Schnaars (1987) states that scenario writing was not simply the mathematical manipulation of the past events and it was reasonable to have multi plausible scenarios instead of one which could go wrong. The author adds that narrowing the focus of the scenario could be dangerous as unconsidered event could cause the scenario to collapse but on the other hand, the author propose to limit the number of factors considered (Schnaars, 1987).

4.7 Critical Points about the Scenario Construction

In previous section, the ideas or claims of the proponents and opponents of the researchers were given. Based on these, the problematic points in scenario planning can be identified as the selection of experts, number of experts and finally reliability of the experts and group decision.

4.7.1 The selection and reliability of individual experts

Forecasting about uncertainty and decision making about an unknown issue mostly rely on expert based techniques. Even in some techniques, the results are solely the combination of experts' opinions. The experts make a great contribution on the validity and reliability of such studies. For these reasons, the definition of experts including the identification of characteristics that the experts should have and the selection of experts among qualified people have always maintained its significance

and drawn attention from the researchers. Although, no specific rules have been identified about the selection of experts, many studies have been made in order to better determine the attributes of experts and prove the reliability of the results obtained from expert based studies.

Expert can simply be identified as a person with a high degree of skill in or knowledge of a certain subject. Day (2002) gave the main characteristics of experts as experience, knowledge, accuracy, responsiveness and flexibility. Shanteau (1987) dealt with the psychological characteristics of expert decision makers and established a list of 13 attributes of experts. In another study of Shanteau with Abdolmohammadi, 7 characteristics were added to the previous study and then those 20 characteristics in total were made rated in a survey as seen in the first table in APPENDIX A. In the same study, an open survey with a purpose of defining attributes was also conducted and the first two attribute of the experts were found to be knowledge and experience (Abdolmohammadi and Shanteau, 1992).

Table 4.1 : The selection methods of experts summarized by Shanteau.

Selection Methods	Explanation
Experience	Number of years of job relevant experience
Certification	Individuals receive some form of accreditation or title as a reflection of their skill.
Social acclamation	Relying on identification of experts by people working in the field.
Consistency within reliability	Intra person reliability is a necessary condition for expertise
Consensus between reliability	Agreement between individuals is a necessary condition for expertise
Discrimination ability	The ability to make fine discrimination between similar but not equivalent cases is a defining skill of expertise
Behavioral characteristics	Experts share many common behavioral characteristics some of which are self confidence, creativity, perceptiveness, communication skills and stress tolerance
Knowledge tests	In studies of problem solving or game playing experts are often identified based on the tests of factual knowledge.
Creation of experts	In certain contexts, it is possible for experts to be created through extensive training by researchers.

Nevertheless, the selection method of experts has always been a question mark. Shanteau et al (2002) summarized the approaches that have been used by previous investigators as in Table 4.1.

From Table 4.1, it can be seen that experts were simply selected based on their experience and certification or they were recommended based on their behavioral characteristics or social acclamation. In the same study, Shanteau et al (2002) also introduced CWS ratio of discrimination over inconsistency as an objective

assessment value in order to select experts among group of people. This ratio was based on the belief that, the expert had the ability to discriminate what was relevant or not. Besides, the ratio asserted that experts were certain about their evaluations. The quantitative evaluation of this ratio was being made with the application of a test which had the repeated questions. The consistency was measured from the ratio of some answers given to the repeated questions where the discrimination was evolved from the variance of the answers.

In expert-based scenario planning methods, expert panels and groups are benefited. According to Godet (2000), expert is a person that represents the opinions of group of people. Varho and Tapio (2005) add that the respondents are required to give their own opinions avoiding taking role as a representative of the companies or organizations.

In scenario planning, the experts are chosen from the people having different points of view and common expertise area (Navarro et al, 2008). For instance, in Futur group, the focus groups were composed of persons from different circles and communities like scientific, economic and social experts, innovative thinkers, researchers, established scientists and young scientists (Moniz, 2005). Specifically, experts can be chosen among different groups like consultants, academicians and decision makers as in case of (Shiftan et al, 2003) or two groups of experts such as the internal or external experts, can be combined as in the case of developing an organizational based scenario (Ratcliffe, 2000). Besides, experts on particular topics can be involved at specific stages of the scenario building process (Ratcliffe, 2000). In any case, in building scenarios, it is common belief that the contribution of the experts increases when they are from different area of expertise as they enrich the solutions and creativity. According to Sapio (1995), the multidisciplinary experts who are outside of the segment are preferred because of their objectiveness which often makes it possible to envisage potential discontinuities, which may be hidden to actors belonging to the segment. Moreover, Hardt et al (2002) stated that prior studies had shown that groups whose members held different preferences, judgments, or decisions before entering the group discussion showed less overconfidence, were less prone to underestimating risks, reached more accurate judgments, generated more emergent hypotheses during collective hypothesis testing, exchanged information more extensively, and produced better solutions in problem solving than

groups with shared initial viewpoints. The selection of experts is not specified in scenario development methods. Tapio and Varho (2005) claimed that the experts are selected based on the actual education, knowledge and experience of a person, but in part it is defined in the social context. According to Shiftan et al (2003), as experts possessed the best knowledge of scientific progress, political economic and social changes in their fields of interest, the selection was mostly based on personal knowledge and discussion with a few of the experts.

4.7.2 The number of experts

The consideration was to determine how many experts should be included in the analysis. Citing other researchers, Budescu and Rantilla (2000) stated that Hogarth's normative model suggested maximal accuracy could be obtained when 6 to 10 experts were included whereas Clemen showed that between 3 and 6 experts led to high accuracy levels (Budescu and Rantilla, 2000). The authors also claimed that the accuracy gains from additional experts are highly dependent upon the inter-correlations of the experts and highly redundant experts yielded little additional accuracy gain. But it is contradictory that the authors also stated that it was best to combine accurate and uncorrelated experts (Budescu and Rantilla, 2000). Nevertheless, it can be said that the uncorrelated experts should be included in the study and the number of experts should be at a level where inter-correlations among experts were high.

The other point is that there is no specific number for the experts. It depended on the extent of the topic. For instance 14 experts were interviewed to describe probable and preferable futures about wind power in Finland (Varho and Tapio, 2005). 25 experts examined the impact of information and communications technologies (ICT) on government departments/agencies and the contribution of external agents to change and development programs in exploring e-government future (Cairns et al, 2004). So it can be said that the number of the experts can differ according to the extent of the topic.

Regarding the participants in the scenario planning exercise, Schoemaker (1995) stated that the scenario team could be composed of 6 to 20 people, whereas Millet (2003) stated that a scenario team should consist of 5 to 10 participants.

Specifically, Godet (1994) proposed to begin scenario planning with prospective workshops ranging in size from ten to 100 who had common life experiences and who wished to think together about possible and/or desirable change. The author also stated that the ideal number of participants is somewhere between 25 and 35 for the workshops. On the other hand, a limited number of subgroups of 5 to 6 people would be enough for next steps of scenario planning as sharing the work assignment in a specific topic would be better handled by a small number of participants.

4.7.3 The reliability of group decisions

Although the selection methods explained so far was about the choice of individual experts, the other point of concern was the validity and reliability of the group decision process in expert's judgment.

Another aspect about the reliability of the group decision is the aggregation of the experts' opinions because the experts' assessments should be combined. As stated by Hanea et al (2010), in group decision process, generally there are two ways to combine experts' opinion which are behavioral and mathematical ways respectively. The behavioral way is specific to some methods like Delphi and nominal group. In these methods, the experts are expected to reach a consensus by reviewing the same questions and answers from the other respondents. Regarding the mathematical way, the most common method of combining experts' is averaging of the quantitative responses of experts. Goodwin and Wright (2010) stated that, when individuals disagree about their subjective probabilities for a critical event, then decision analysis practice is often to take an average, or weighted average, rather than to explore, in detail, the reasoning processes underlying individuals' assessments. Budescu and Rantilla (2000) claimed averaging to be almost always nearly optimal. On the other hand, only averaging the results can cause some problems about the reliability. According to Yun-bing et al (2009), both the overall similarity and local difference of expert decisions should be taken into consideration when investigating the expert decision reliability. The agreement among the individuals is considered as a necessary condition for the measure of reliability. Although, in the measurement of reliability, mainly statistical analyses were used, different techniques were also established for the studies with a low number of experts. For instance, Grant and Davis (1997) benefited from a ratio of agreement to disagreement for determination of inter-rater agreement. Weekley and Gier (1989) used the standard deviation and

correlation coefficient to determine the reliability of the results. Steenbergen and Marks (2007) established variance analysis in his study about European policy based on the expert interviews. Dorussen et al, (2005) defined the inter-rater agreement measures as the percent agreement, Cohen's Kappa, Fleiss Siegel constant, Krippendorff's alpha.

Therefore, it can be summarized that, there is no specific rule for the selection and identification of experts except the attributes that experts should have. Nevertheless, the discrimination ability and intra-rater agreement which can be explained as consistency are found to be important characteristics of experts and they are helpful for individual rating of experts. Merely, in a group decision making type of studies, the inter-rater agreement is also found to be highly important.

4.7.4 The number of scenarios

The number of scenarios is another open question. Citing Wilson, Mietzner and Reger (2005) stated that the number of scenarios should be between two and four and five criteria for selecting scenarios are plausibility, differentiation, consistency, decision making utility and challenge. The need for the lowering the number of the scenarios was explained by the experts such that the scenarios could lose their illustrative ability if there were more than seven scenarios. The Varho and Tapio (2005) state that, one scenario could be perceived as the only future, two could give right and wrong alternatives, three could lead to understanding of the worst, medium and best alternatives.

Wollenberg et al (2000) recommend that number of scenarios varied in the literature from 3 to 9 giving evidences from the literature. They state that the number of the scenario could be determined based on the purpose of the analysis and even one scenario could be sufficient for a group learning exercise. It was found to be very probable that one scenario would be pessimistic and the other one would be more optimistic if only two scenarios were established. The people could compare a maximum five to nine scenarios and the ideal number of the scenarios would be three, one of which showed the stable future and two of them comprised critical uncertainties.

Schoemaker (1991) makes an emphasis on the focus of scenario to be covering all the possibilities instead of making future forecast or describing the uncertainty

therefore two scenarios are enough to cover the range of possibilities but three or four scenarios will be helpful depending on the number of issues. Moreover, Schnaars (1987) claims that three scenarios are usually the best.

Godet's method allows developing multiple scenarios whose number equals to the combination of hypotheses. But, but is proposed by Godet (1994) to work with maximum six hypotheses because of the many quantitative evaluation that should be made by the experts.

4.8 Literature Review about Scenario Planning

In this part, the studies, which make the comparison of the scenario planning method with the other methods, are referenced. Different application stages for the scenario planning methods are explained. Moreover, some examples in which scenarios applied are given.

In the article "Scenario Planning: A Tool for Strategic Thinking", Schoemaker (1995) explains scenario planning and states that its excellence is, its ability to show whole range of possibilities in various details. He claims that, scenarios are one step ahead of the forecasting tools because scenarios can give a story of how many elements might interact with each other under certain conditions. The differences between the scenario planning and planning methods which are contingency planning, sensitivity analysis and computer simulations are carried out. Contingency planning concentrates on only one uncertainty, scenarios considers more than one uncertainty and inspects the joint impact of different uncertainties. In the sensitivity analysis, the only impact of a variable can be considered while the other variables are kept constant. Scenarios, on the other hand, can inspect the change of all variables concurrently. Finally, the scenarios are better than an outcome of a complex simulation model because of having the ability to interpret that output.

Schoemaker (1995) in his study gives the main steps of the scenario planning and the results of two cases about the scenario planning exercises in an advertising agency and Anglo American Corporation of South Africa. The main steps of scenario building are explained to be 10, beginning with the definition of the scope and ending with the evolution toward decision scenarios. The stakeholders, basic trends, key uncertainties are defined respectively before the construction of the initial

scenario themes. No specific method is applied in definitions of the key variables other than interviewing with the experts. It is proposed to develop a correlation matrix between the uncertainty variables which are usually considered to be the first elements decided to be put in the scenarios during the construction of the Initial Scenario Themes. Schoemaker does not propose a certain technique for the scenario generation other than simply clustering the uncertainties and trends but he gives great emphasis on the control and evolution of the initial scenarios and he proposes to check for the consistency and plausibility than he identifies the research needs if necessary for fleshing out understandings of uncertainties and trends. In this study, no details were given about the application of the scenario like the number of the participants and methods used exactly but he gives the trends and the uncertainties whose number lies between five and fifteen.

Wollenberg et al (2000) review the methods used in scenario planning and discuss how the scenarios could be implemented to community forest management. It is recorded that one advantage of the scenarios is to help to prioritize the information requirements. The authors add that, scenario method is related with the techniques about creative visioning. Creative visioning comprises the techniques like imaging, scenarios and future history writing that use creative intuition and developed plans for desirable future eliminating the barriers established. In this way, the authors discriminate the scenarios method from the projecting and forecasting methods like delphi techniques, trend extrapolation, computer modeling and cross impact analysis which make future assumptions for short time periods requiring rather precise quantitative predictions using the data of past events, previous examples, cause and effect relationships. Moreover scenarios are found to be different from the environmental and social impact assessment technique used for assessing the potential hazards; they are different from the exchange and dialogue methods like discussion of literature, self assessment, games and simulations. Wollenberg et al follow a similar scenario construction way as Schoemaker's and develop future scenarios for the community forests in order to explore futures of the village and community forests in terms of size, location and shape. But no specific detail is given about the construction phase of scenarios.

In the article of "When and how to Use Scenario Planning: A Heuristic Approach with Illustration", Schoemaker (1991) compare the scenario planning with the other

methods but this time with the statistical techniques, decision analysis and standard forecasting. The statistical analysis tries to find out the probability of one certain event; scenario planning instead is related with the determination of the clusters formed by the events given a probability. Scenarios can be useful for decision tree analysis in order to determine the probabilities of uncertainties but they don't look for supreme rationality as in the case of the decision trees and instead they show medium level rationality as they allow the intuition and analysis for determining the complex tasks as in the case of soccer ball where it is possible to evaluate the every move but it is not feasible for players to spend time for the evaluation of every decision. Finally, Schoemaker compares scenarios with the other forecasting tools and he states that a single outcome of the probability is obtained at the end of the forecasting procedure while scenarios try to explain the reasons, deeper forces affecting the system.

Schoemaker (1991) explains the steps of scenario making on an actual example which was a medium sized company located in the west coast having the third highest market share in its industry. After determination of the time period as five to ten years, eleven general trends are determined for five key issues like expansion into service and sales, choice of selection of manufacturing, choice of product line, the amount of R&D to be implemented and dealings with the union. Schomaker states that, it is better to define pros and cons of each trend individually. Moreover, if a variable is argued to be favorable for one trend while it is against another than this variable has to be taken as uncertainty. After determination of the uncertainties, the interdependencies of these uncertainties are ascertained quantitatively in a correlation matrix giving the detail about the test for correlation consistency. The correlation matrix instead is used to measure the internal consistencies. Then, he develops the scenarios in the same way as discussed in his previous paper.

According to Fink and Schlake (2000), scenario management is based on three main principles which are systems thinking as they don't inspect the individual fields and factors; future open thinking as they allow more than one future and strategic thinking as they focus on being successful.

Fink and Schlake (2000) give a case study established in which market scenarios are established for German Pump industry. In the case of pump industry example, by the influence analysis, 20 key factors are determined by the group of experts consisting

of the executives of leading German pump manufacturers. Then, the future horizon is defined by the experts followed by the future projections for most of the key factors by making 4 projections per each described previously. These projections with the plausible images of the future form the window of opportunities. The scenarios, on the other hand, are constructed based on the consistency matrix in which the plausibility of the projection towards each other is depicted. The number of the initial scenarios is then decreased via cluster analysis. In the final step, the scenario descriptions are formed and then are analyzed to define the opportunities and threats which are used for strategy development.

Moniz (2005) gave 3 cases in Japan, Germany and USA. In two of which scenarios were established after determination of key future variables using Delphi study. After determination of the key variables, trend impact analysis was established on the variables which were then returned into scenarios through mind maps.

Bergman et al (2006) believe that the tools and the systems for making decision have an effect on the perceptual ability of organization. The authors suggest using scenario planning process for determination of the needs of the business environment which has been a dynamic entity. Moreover the authors combined the scenarios with capability view which has been description of the capabilities enabling the company to differ from the rivals. Because according to the authors, the companies should increase their sensitivity towards the discontinuities in the evolution paths.

Bergman et al (2006) use scenarios in order to anticipate the possible developments and future opportunities in the electrical distribution industry in 10 years which has been a monopoly market and in its mature phase. It is stated that, there were representatives from 12 companies with the academicians from Tampere University and Lappeenranta University of Technology having different backgrounds like electrical engineering, product economics, information technology and business administration. The scenario process begins with the background analysis and delimitation of the focus. In the knowledge base construction phase, the working group has 2 days scenario session by exploring the competitive landscape of the industry and defining 4 main development areas in the industry. Then, the group studied those development areas and carried out 136 key driving factors and their effects on the industry. Within that frame, four alternative scenarios are developed which are the intersection of two main dimensions determined as regulation versus

open market and; multiple service providers versus monopoly organizations. Finally, the capabilities are defined and assessed in each scenario. No specific numerical method is given in detail except the assessment of capabilities for each scenario.

Goodwin and Wright (2001) state that, scenario planning is a useful tool that can be used in strategic management as it address the uncertainty without usage of subjective probabilities. The authors focus basically on the integration of scenario planning with strategy development process and they demonstrate the evaluation of the strategies across the possible scenarios. It is also pointed that scenarios serve for two main purposes in strategic management which are strategy design and strategy evaluation that can take part simultaneously. In the first case, scenarios identify the feature that strategy should be built in to confront whereas in the second case, the proposed strategies are evaluated.

The authors introduced a multi attribute value model for strategy evaluation in scenarios with an application on the company for which two alternative scenarios and three strategic options were proposed. A value tree for the hierarchy of judgmentally independent objectives was developed avoiding the inclusion of objectives whose significance varied between different scenarios. The next step became the evaluation of the performance of the strategies against these objectives. Any strategy which showed unacceptable performance was removed from the analysis while weights for the objectives were inserted (Goodwin and Wright, 2001).

Varho and Tapio (2005) establish scenarios for the wind power industry in the frame of the plan of Ministry for Trade and Industry. The expert group is selected from the members of the different ministries, non-governmental organizations and other lobbying groups based on the co-nomination method in which further experts are determined based on the initial meetings of the first experts. Among the 22 experts to whom the questionnaire was sent, 18 of them responded. But as there are some missing parts in the answers of 4 experts, it is continued with the responses of the 14 experts. Each expert is asked to identify the values of parameters for the probable and preferable futures reaching to 28 scenarios in the end. Among the 28 future images, 3 key issues are selected as the cores of the scenarios having the ability to better describe outcome of the strategy and the evolution of the wind power industry. The experts are required to express their forecasts for these three variables in the years 2010 and 2025 which are selected as they are used in Action Plan for

Renewable Energy Resources. The scenarios are then grouped in clusters using qualitative analysis of the interviews in the SPSS 10.1 software using the neighbor clustering algorithm. Using the dendrogram, quantitative clusters, 5 scenarios are established with the qualitative material from the interviews. . After giving the scenarios, the authors discuss some points for which the experts have some arguments giving different responses.

Morgan and Hunt (2002) state that scenario planning has similar practices like cognitive mapping, perceptual mapping and strategic mapping with the contingency planning, sensitivity analysis and cognitive modeling. But they state that, it is not different from the contingency planning as only one uncertainty is assessed in contingency planning. It is not like sensitivity analysis as it takes into account more than one variable changing. Finally, it is said that, it differs from the cognitive modeling because of not using development in operations research and information technology. The authors report a think tank exercise to develop scenarios and marketing strategies for a hypothetical firm X using two different type of scenarios building approaches which are prescribed scenarios and self designed scenarios. The authors do not give any information about the scenario planning exercise actually they focus on the usage of scenarios at the preplanning phase. The authors state that for an effective planning it is very important to deal with the three problems and their distinctions from each other which are the know –what to planning and the know why of planning and know-how to planning. They claim that the answers of all of these questions lie beyond the knowledge development and future insight.

In his thesis, Dolek (2002) applied Godet's scenario planning method on the Turkish B2C ecommerce in order to determine the strategies acting in this business field in medium term. Dolek studied with nine experts. In the end, he established 128 scenarios which were combinations of seven hypotheses. As the probabilities of the scenarios were scattered, the author combined the scenarios being related with the consumer or competing. After the establishment of the scenarios, generic strategies were developed within the frame of these scenarios.

Asan and Polat (2005), on the other hand, used Scenarios for identification of critical skills in future. The authors combined Godet's scenario methodology with the method of defining competencies. This new approach was applied in security equipment sector with a specific product, closed circuit television system. Data was

gathered from eleven participants, industry experts, product experts. Eight variables were selected to be the key variables by analyzing the influence and dependency values. After the analysis of the actors' strategies, four scenarios were determined with the highest value of probability and skills were determined based on the necessities of the scenarios obtained.

The literature focused usually on the capabilities of the scenarios method and comparison of that method with the other techniques for future forecasting. The excellence of the scenarios planning was stated to be lying in the ability to show a complete picture with different aspects, determining the priorities of the required information and having a systematic nature. The examples regarding the application of scenario planning method, on the other hand was a bit limited with few studies within some industries without much detail. The reason for that was probably because the applications were company specific and the companies were conservative about declaring their decision mechanisms. Besides the examples were usually applied using intuitive logics which lacks a determined systematic. Nonetheless, the applications established using Godet's scenario method were comprehensive including the clearly specified parts.

5. METHOD

The objective of the study was to develop strategies for Turkish apparel industry using an approach including the strategy assessment.

Having still the highest share in total Turkish apparel exports, European market was chosen as the external environment of the study for which the strategies were developed in order to gain success in that region. The time period was selected as 10 to 15 years because the apparel industry was labor intensive instead of technology intensive but it was vulnerable to changes because of textile industry. Besides, it had dynamism in itself because of fashion. Moreover, affecting the industry, the dynamics such as global and regional economical and political environment were somewhere between macro and micro environment.

For this study, the approach was used on the claim that scenarios built a frame for strategy development and assessment as well. Besides, the strategies have influences on each other causing the dynamics to change during the implementation phase. Therefore, it is important to know which strategies will be influential and dynamic in the environment they are established. To this aim, Godet's scenario method was selected for building scenarios because of its distinguishing characteristics of being open to intuition, mathematically organized and modular in structure providing well defined application steps. Moreover, with its modular structure and ability to create multiple scenarios with different combinations of hypotheses, it was considered to be suitable for building frame for both strategy development and assessment. Within this frame, the study was established in two parts which are mainly scenario building and strategy development and assessment. In the first part, the procedures of Godet's scenario method were strictly followed for building scenarios. In the second part, the strategies were developed for each hypothesis established in the previous part. Then they were reviewed for their dynamic nature and their influence on or dependency for other strategies. To this aim, a structural analysis was established with an application of Micmac method for determination of dynamic and influential strategies.

As the study was about the future which was full of unknowns and uncertainties, the data was compiled from the experts in both part of the study. A special attention was made for the selection of experts and the results were checked to see if the experts maintained their objectivity during the study.

In next titles, the procedure applied in the study is explained in detail including the selection and assessment of experts, the working principles, Godet's scenarios method and the assessment frame for strategies.

5.1 Selection and Assessment of Experts

The experts for both parts were required to have experience and foresight in the related areas and have the ability to combine their knowledge, creativity and common sense for developing fair suggestions on an objective manner.

Experience, certification and social acclamation were used as selection methods of experts for both parts of the study. All the experts had minimum ten years of experience in their fields. Some of them had their own companies working in different fields of textile and apparel industry. Although knowledge was not the main point of the concern in the study, all the experts for both parts were selected from the people that believed in the significance of the education and self-improvement for their life. Except two experts who were included because of having their own companies, all the experts had graduate degrees. Beside these, the experts were selected because they were known with their contribution on the improvement of the industry. Some of the experts were the members of the important associations and organizations and they were known with their dedicated efforts in these societies.

The other point of the concern in terms of selection was the area of interest of the experts. Especially in scenario development, the ability to evaluate different aspects had great significance. The experts from different fields of industry and academia caused to think broadly about the future prospective. In scenario planning part, different experts from different sections related with the industry were selected with an overlooking ability towards the European market. To this aim, the experts who were active in the European market with their companies were selected deliberately. In strategy formulation process on the other hand, the experts were particularly determined based on their backgrounds, as the hypothesis for which the strategies

would be developed were already determined. Because of this, the experts whose backgrounds were found satisfactorily related with the hypothesis were selected. Based on all these, Table 5.1 and Table 5.2 were prepared to present the characteristics of the experts at each part of the study.

Table 5.1 : The characteristics of the experts for the scenario planning part.

Expert	Experience (more than)	Education and Profession	Brief Information	Coincidence with the study
1	10 years	Industrial Engineer Customs broker	Owns his own company Work experience in textile business	Weaving Logistic
2	30 years	PhD, Academician	A specialist in spinning technologies	Spinning
3	10 years	Still having PhD on Politics Retail manager	The retail manager in a Turkish Retail Company Previous experience as merchandized	Retailing
4	20 years	Undergraduate BA Company owner	Owner of a small sized apparel company Producing and selling Knitted apparel Vice Chairman of Turkish Ready Wear Manufacturers association	Knitting and Apparel
5	20 years	PhD General Manager	Research on Foreign trade and Customs Union Membership in an Executive Board of a Logistic company	Logistic and foreign trade
6	20 years	Textile Engineer Foreign trade specialist	Textile engineer and Member of the board on a large scaled textile and apparel manufacturer Work experience in managing Foreign Trade Dept. Member of the board in Turkish Clothing Manufacturers Association (TGSD)	Foreign trade and knitted apparel
7	30 years	PhD, Academician	Marketing, branding Executed thesis and in competitiveness and of Ready Wear Industry Memberships in Scientific Association on marketing	Marketing
8	30 years	PhD, Company owner	Owner of a small scaled dyeing company	Dyeing
9	30 years	Under graduate Company owner	Board member on a medium to large scaled company on woven apparel The company has a brand for 20-25 women	Apparel Branding

Table 5.2 : The experts for the strategy development part.

Expert	Experience	Education and Profession	Area of Interest	Coincidence with the study
Expert 1	30 years	PhD, Senior Vice President	Production management, innovation Consultancy for a firm in China	Trade Partnership
Expert 2	20 years	MSc, Lecturer	Market segment analysis, Product development Merchandising of Fashion products Buyer and fashion coordinator for a privately owned department store and owned her specialty store	Product design
Expert 3	30 years	PhD Corporate Vice President	Works for a company specialized in technology development and supply chain improvement with streamlining operation in order to decrease non value added processes	Low cost manufacturing
Expert 4	30 years	PhD, Chemical Engineer	Work experience in dyeing and textile chemistry Regional Director of a well known Association on textile research and test	Environmentally friendly apparel
Expert 5	10 years	PhD, academician	Marketing and brand management Market research	Brand Management
Expert 6	20 years	MFA Lecturer, academician	Technical product design Knitted and woven fabric design Part in senior management team of aviation fabrics producer company	Technically improved products

The kind of expertise needed for the study was difficult to evaluate as it required more than the knowledge. Because of that, it was not possible to evaluate the experts objectively if they were sufficient for the study or not.

On the other hand, as stated in the literature part, the experts were supposed to have discriminative ability among different questions. This meant that the answers to different questions should differ from each other.

Moreover, the consensus among the experts' opinions was claimed to be important as a measure of reliability. The inter-agreement among experts was proposed for making decision about number of the experts suggesting that if the inter agreement was high among the experts than the number of the experts could be kept smaller.

Nonetheless, no specific values were determined as measures of discriminative power and inter agreement in experts in literature. On the other hand, the discriminative power of the experts could be evaluated from the variance and standard deviation given by the expert to the different questions. Moreover, the inter agreement among the experts could be evaluated from the answers given by experts to the same questions. Therefore the coefficient of variation could be taken as measures of discrimination and consensus and could be compared with each other.

Table 5.3 and 5.4 were given as an example for showing the evaluation approach for discriminative power and consensus. The other examples for MICMAC, MACTOR and SMIC parts were given in APPENDIX B

Table 5.3 was taken as a sample for the first of the study, scenario planning. It showed the values given by the experts for expressing the relation between actors and objectives in the Mactor step of the Godet's scenario planning. Here, the experts evaluated the approaches of the actors towards predetermined objectives. The scale used contained the crisp values from -3 to 3. The mean, variance, standard deviations were evaluated for each expert and each question individually. Having taken the average of these values, the coefficient of variation was determined for both inter and intra agreement among experts. It was observed that the coefficient of variation for inter agreement was smaller than the one obtained for intra agreement.

Table 5.4 below was taken from the strategy formulation part. In that part, it was studied with 6 experts on 37 strategies using 5 point scale. The data showed the effects on first strategy on the other strategies with the strategy in concern being put in the first column and the strategies influenced being written on the second column. The same evaluation was made as in Table 4.4 and it was observed that the coefficient of variation for inter rater agreement taking values of 0.49 and 1.33 respectively.

Table 5.3 : The investigation of the experts' discriminative power and inter-consistency for scenario planning part.

	Expert1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Average	Variance	Std Dev.	
A1-O1	2	3	3	3	3	3	3	3	2	2.78	0.19	0.44	
A1-O2	2	2	1	3	1	2	2	1	1	1.67	0.50	0.71	
A1-O3	3	2	2	3	3	3	2	3	2	2.56	0.28	0.53	
A1-O4	2	3	2	1	3	3	2	1	2	2.11	0.61	0.78	
A1-O5	2	2	1	1	2	1	2	3	1	1.67	0.50	0.71	
A1-O6	1	0	0	1	0	1	0	1	0	0.44	0.28	0.53	
A1-O7	2	2	2	0	1	2	1	2	2	1.56	0.53	0.73	
A1-O8	-2	0	1	0	-1	-1	-2	-1	-2	-0.89	1.11	1.05	
A1-09	1	0	1	0	0	2	0	0	0	0.44	0.53	0.73	
A1-O10	1	0	0	1	0	0	0	0	0	0.22	0.19	0.44	
A1-O11	0	1	1	0	1	0	0	0	1	0.44	0.28	0.53	
A1-O12	0	1	0	1	0	-1	0	2	0	0.33	0.75	0.87	
A1-O13	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	Average
Average	1.08	1.23	1.08	1.08	1.00	1.15	0.77	1.15	0.69	1.03	0.44	0.62	1.03
Variance	1.74	1.36	0.91	1.41	1.83	2.14	1.86	1.81	1.40	Std Drv/Avr(column)		0.60	1.61
Std Dev.	1.32	1.17	0.95	1.19	1.35	1.46	1.36	1.34	1.18	Std Dev/ Avr(row)		1.23	1.26

Table 5.4 : The investigation of the experts' discriminative power and inter consistency for strategy formulation part.

		Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Mean	Variance	Std Dev	
1	2	1	0	0	0	0	1	0.33	0.27	0.52	
1	3	0	0	1	0	0	0	0.17	0.17	0.41	
1	4	3	1	3	5	3	1	2.67	2.27	1.51	
1	5	1	3	1	1	1	1	1.33	0.67	0.82	
1	6	1	3	1	1	1	3	1.67	1.07	1.03	
1	7	0	0	0	0	1	0	0.17	0.17	0.41	
1	8	0	0	0	1	0	0	0.17	0.17	0.41	
1	9	0	1	0	0	0	0	0.17	0.17	0.41	
1	10	1	0	0	0	0	0	0.17	0.17	0.41	
1	11	0	0	1	0	0	0	0.17	0.17	0.41	
1	12	0	0	0	0	0	1	0.17	0.17	0.41	
1	13	0	1	1	0	0	0	0.33	0.27	0.52	
1	14	0	0	0	0	1	1	0.33	0.27	0.52	
1	15	3	3	5	3	3	3	3.33	0.67	0.82	
1	16	1	0	0	1	0	0	0.33	0.27	0.52	
1	17	0	0	0	0	0	1	0.17	0.17	0.41	
1	18	0	0	1	0	0	0	0.17	0.17	0.41	
1	19	5	1	3	3	3	3	3.00	1.60	1.26	
1	20	3	3	3	5	1	3	3.00	1.60	1.26	
1	21	0	1	0	0	1	0	0.33	0.27	0.52	
1	22	3	3	3	3	3	5	3.33	0.67	0.82	
1	23	0	0	0	0	0	1	0.17	0.17	0.41	
1	24	1	3	3	3	5	3	3.00	1.60	1.26	
1	25	0	0	1	0	0	0	0.17	0.17	0.41	
1	26	0	1	0	0	1	0	0.33	0.27	0.52	
1	27	-1	-1	-1	-3	-1	0	-1.17	0.97	0.98	
1	28	3	1	3	1	1	1	1.67	1.07	1.03	
1	29	1	5	5	1	3	3	3.00	3.20	1.79	
1	30	5	5	5	7	5	5	5.33	0.67	0.82	
1	31	5	7	7	7	7	5	6.33	1.07	1.03	
1	32	7	5	3	5	5	5	5.00	1.60	1.26	
1	33	0	0	0	1	0	1	0.33	0.27	0.52	
1	34	0	0	1	0	1	0	0.33	0.27	0.52	
1	35	1	1	0	0	0	0	0.33	0.27	0.52	
1	36	3	5	5	5	3	7	4.67	2.27	1.51	
1	37	3	3	3	3	3	3	3.00	0.00	0.00	mean
mean		1.39	1.53	1.61	1.47	1.42	1.58	1.50	0.70	0.73	1.50
variance		3.62	3.91	3.90	5.17	3.56	3.74	Std Dev /Mean (column)		0.49	3.98
Std Dev		1.90	1.98	1.98	2.27	1.89	1.93	Std Dev/Mean (row)		1.33	1.99

Moreover, the SMIC part of scenario planning was checked with an arranged survey in which the individual and conditional probabilities were assessed by large population composed of 29 people. Table 5.5.a and Table 5.5.b showed the comparison of the mean probability values obtained with the expert group and large population. (The data was given in APPENDIX B)

Table 5.5 : Comparison of results from survey and experts.

	H1	H2	H3	H4	H5	H6
H1	0.6	0.7	0.7	0.7	0.8	0.7
H2	0.8	0.7	0.6	0.7	0.7	0.6
H3	0.6	0.7	0.7	0.6	0.6	0.8
H4	0.5	0.7	0.6	0.7	0.6	0.7
H5	0.7	0.6	0.5	0.6	0.6	0.6
H6	0.6	0.6	0.8	0.7	0.7	0.7

(a) Results from Survey

	H1	H2	H3	H4	H5	H6
H1	0.6	0.8	0.9	0.9	0.9	0.7
H2	0.8	0.7	0.7	0.7	0.7	0.7
H3	0.6	0.8	0.7	0.7	0.7	0.9
H4	0.4	0.6	0.7	0.7	0.7	0.8
H5	0.8	0.6	0.6	0.7	0.6	0.7
H6	0.8	0.6	0.8	0.8	0.8	0.8

(b) Results from Experts

In Table 5.5, the cells in the diagonal showed the independent probabilities whereas the other cells showed the conditional probabilities. It was seen that independent probabilities were almost the same with an exception the 6^{th} hypothesis. On the other hand, there were small numerical differences in conditional probabilities. But, the comparative weight given did not change. The statistical t-test was applied to the results shown in Table 5.5 and it was found out that in only 3 of 36 results, the answers were found to be statistically significant to be coming from different populations. Those minor differences were probably because of the time passed between two evaluations.

5.2 The Working Principles with Experts

Godet's scenario method has quite systematic and modular structure facilitating the accomplishment of the subsequent steps. There are actually four basic steps in which the expert responses were gathered under the titles; identification of the system, determination of the key variables, determination of actors strategies and development and the assessments of the hypothesis.

For this study, in the first part, it was studied with the nine experts. The experts were conducted for giving information in three parts of the method. The meetings were established face to face, online or on the phone for the identification of the variable list, assessment of key variables, determination of retrospective strategies, the selection and assessment of hypothesis. The experts were required to express their opinions twice in the selection of the hypothesis.

Following the meetings, the experts were conducted after the establishment of the results of the ongoing module of the scenario building and required to express their opinions if they agreed or not with the findings. The accomplishment of the first part took around 12 months beginning with the first meeting held.

In the second part, the strategies were developed for each hypothesis. To this aim, an expert group of six people were chosen whose backgrounds were matched with the hypothesis.

Four meetings were held with the experts. In the first meeting, the experts were required to develop strategies in their field of studies. In the second meeting, all the strategies developed by different experts were reviewed by the other experts and they were asked if they wanted to add, change or delete any strategies. On the other two meetings, the experts were required to assess the value of impact of strategies on each other.

5.3 Godet's Scenario Method

The objectives of Godet's scenario method are to detect the priority issues, to determine the main actors and the main strategies they are using and to describe the development of system considering the futures of key variables and assumptions about the possible future attitudes of main actors. The scenario method has actually a modular structure and is basically comprised of two steps which are the construction of the database and the setting out of scenarios as seen in Figure 5.1 .

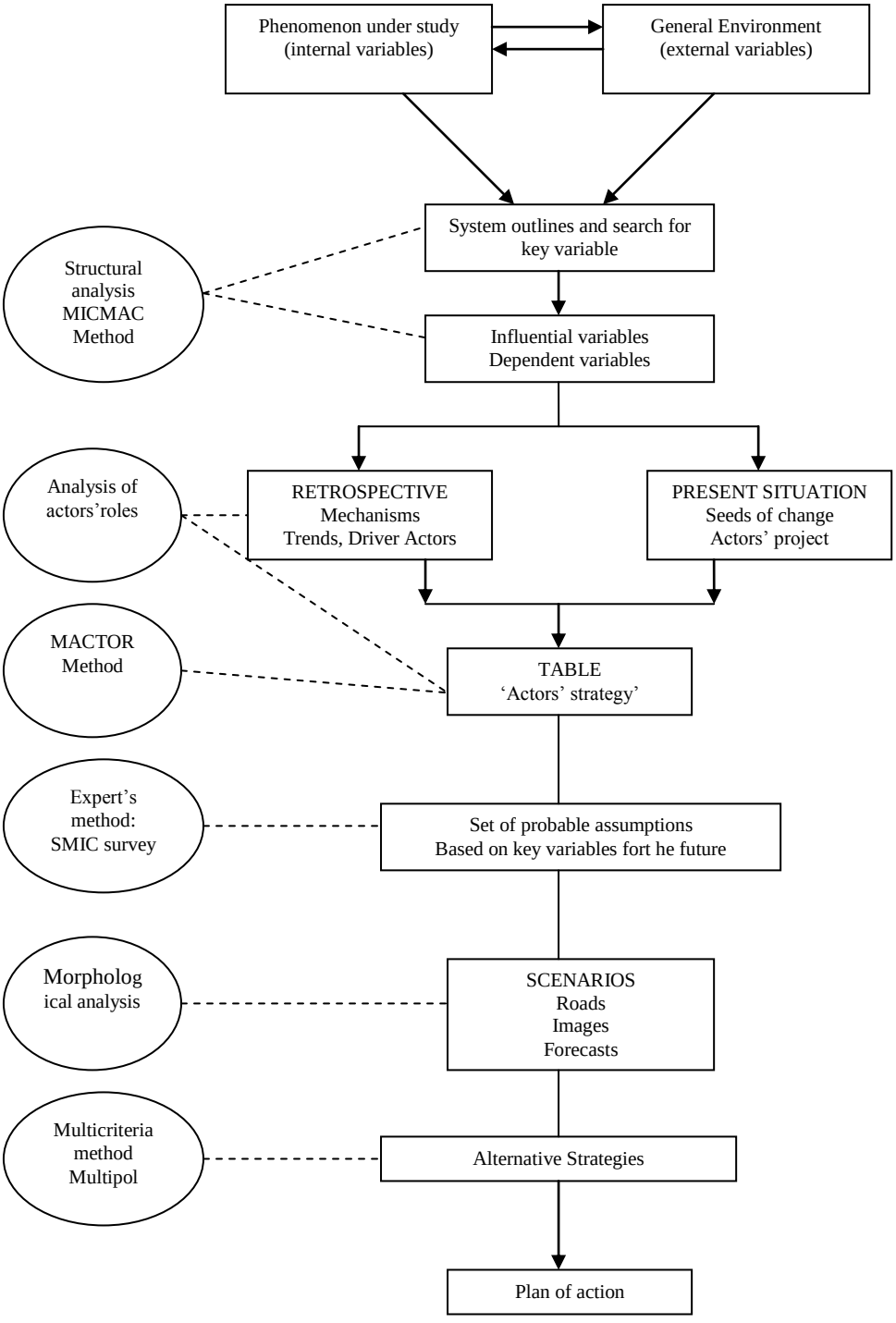


Figure 5.1 : Godet's scenario methodology (Godet, 1994).

5.3.1 Construction of the base

The first step is developing a detailed image for the present system with the economical, technological, political and sociological aspects. This image should have the ability to explain the change and mechanism of the actors and identify past trends and initial indicators of the future.

5.3.1.1 Delimitation of the system studied

The main purpose of delimiting the system is listing of the variables and discovering the relationship structure characterizing the system. In this way, the data required to make the structural analysis is obtained. Structural analysis is helpful for making a hierarchy of variables and for determining principal advantage by the identification of the direct and indirect effects of internal and external variables.

a. Listing of all variables

All the variables are listed using all research methods and brainstorming techniques. A complete list of all possible variables enables to get an overall vision of the system. Then these variables are classified into two groups which are internal and external variables.

b. Location of relationships within the structural analysis matrix

The interrelation between various variables are shown in the structural analysis matrix in which only causal influences or direct impacts are noted but the direction of influences are not stated. The indirect influences are not taken into consideration as they are already established by the fulfillment of the whole matrix.

5.3.1.2 Identification of the key variables– MICMAC

The key variables are identified by proposed method MICMAC. MICMAC is a system of multiplication of matrices applied on the structural matrix to study the diffusion of impact through reaction paths and loops; thus a hierarchy can be developed for the variables in the end.

The micmac principle is based on the boolean matrices. As stated previously, the structural matrix doesn’t have the indirect relations and has only the direct relations. In order to find the indirect relations within a matrix, the square of the matrix is evaluated. The theorem says that if A is a matrix and aij is the value of one cell. The

a^2ij is the cell of Aij^2 matrix and if $a^2ij=N$, then there are N paths of second order length that goes from i to j via N intermediate variables. Similarly 3rd, 4th and nth order of relationship is calculated by taking the 3rd, 4th and nth power of a matrix which can be expressed as A^3, A^4, ... A^n. Each time this process is repeated, new hierarchy of variables are obtained until reaching the stable state where the sequence of the sum of the rows and columns does not change anymore. After matrix multiplications, the influence dependency chart is drawn. The sum of total influences and dependencies of variables are shown on the influential and dependent scales. Godet states that the location of the influential and dependent variables on the chart could also give idea about the stability and instability of the system. Moreover, Godet proposes to divide the chart into 5 segment where the variables in these segments could be characterized being different in manner from each other.

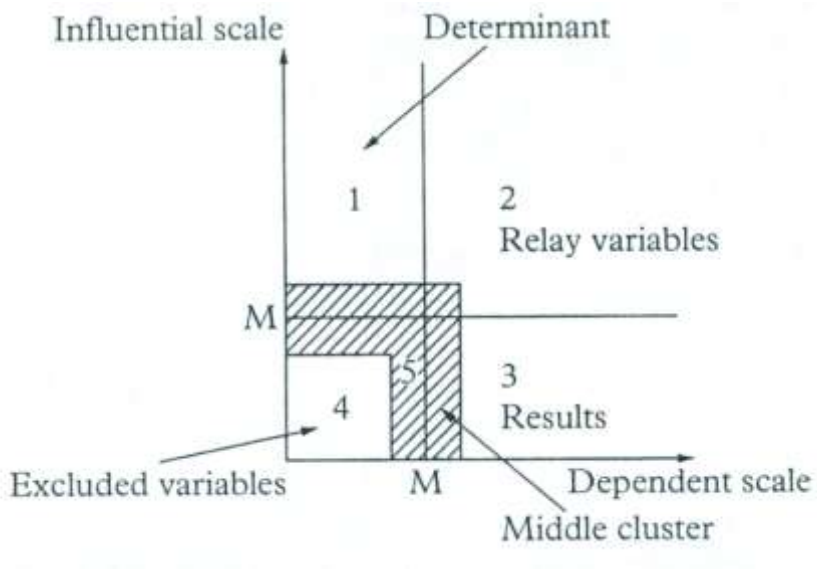


Figure 5.2 : The segments in influence dependency chart (Godet, 1994).

In Figure 5.2:

1st segment (determinant) includes the influential variables that condition rest of the system

2nd segment (relay variables) includes the relay variables, that are highly influential and dependent and they are unstable in nature.

3rd segment includes the dependent variables which are influenced and relayed by the variables at the upper segments.

4th segment includes the excluded variables that are less influential and less dependent

5th segment is the middle cluster and nothing is priori for the variables in this segment

Godet proposes the variables in the second segment to be taken as key variables because of being dynamic in nature. In this study, the variables in the second segment were taken as the 1st group of key variables. The variables that are not in the 2nd segment but closely located to that segment were taken as the second group of variables with an assumption that they show similar behavior with the key variables. Finally, in the analysis, the variables in the first segment were taken as the 3rd group of variables because of their highly influential nature.

5.3.1.3 Retrospective and actors' strategies

The final step in the construction of the base is the identification of retrospective and actors strategies. Three important things are identifying the main events which can be important in shaping the future, better overview of the interplay of events, and better understanding the relationships of the actors. The analyses are done by explanatory analysis.

The proposed method of the explanatory analysis is MACTOR (Matrix of Alliances and Conflicts: Tactics, Objectives and Recommendations), developed by Godet and his colleagues in 1985. According to MACTOR, the actors' moves are analyzed in the 6 stages which are constructing the actors' strategy table, identifying the strategic issues and associated objectives, positioning each actor in relation to the strategic objectives (signed position matrix), ranking the objectives for each actor (valued position matrix) and assessing the range of possible convergences and divergences, evaluating the balance of power and formulating strategic recommendations (valued matrix of position with power coefficients).

5.3.2 Building scenarios

The second basic step in Godet's scenario method is the building of scenarios in which the hypothesis are developed considering the key variables and the balance of power between actors by establishing morphological analysis to scan the possible future.

This step requires establishing hypothesis which should be pertinent, coherent, important and transparent (Godet, 2000). In morphological analysis, the system is split into subsystems and components which are independent as much as possible but representative for the system. Each configuration of components can be viewed together for reaching a combinatory possibilities creating the morphological space whose elements in it are reduced in number considering the constraints. The reduction of the hypothesis is found to be quite important since the scenarios are determined by evaluating all the combinations of the hypothesis. For that reason, it is proposed by Godet to work with the six hypotheses.

For ranking the hypothesis combination, the proposed method for Godet's scenario method is SMIC which is based on experts' opinion. SMIC is comprised of stages below:

-The experts are asked about the probability of the hypothesis to occur or not both in isolated environment and together with the other hypothesis which corresponds to the individual and conditional probabilities

-The probabilities of all scenarios are evaluated and ranked considering the individual and conditional probabilities assigned by the experts

The SMIC method which is a kind of cross impact method is applied in order to determine the probabilities of the scenarios. Obtained final images, the scripts for the scenarios are written considering the present and final images and evolutionary mechanism keeping in mind the behaviors of actors.

5.4 Strategy Development and Assessment Frame for the Second Part

In the second part, no special method but brainstorming technique was applied in strategy development within the frame of hypothesis obtained as an outcome of scenarios method. The experts were first required to develop strategies related with their background then they were required to review the strategies for the other hypotheses.

The strategies were assessed in order to find out the key strategies in each scenario. To this aim, the value of the influences of the strategies on the others were expressed by using the five point scale and then Micmac method was applied on the structural matrix established from the strategies in each scenario.

6. RESULTS

The results were given in 2 parts which were entitled with the results for scenario planning and the results for strategy development.

6.1 The Results for Scenario Planning

6.1.1 Construction of the base

Construction of the base is composed of 3 steps as stated in the method section.

6.1.1.1 Delimitation of the system

Listing all variables:

In order to develop an image of the present system, brainstorming technique was applied in the interviews with the experts. The experts were required to answer basically the questions regarding the factors that could be influential at present and/or future such as:

-What are the driving forces of the apparel industry?

-What will the future be like?

-What are uncertain?

- What are the factors which will condition the future of evolution of such phenomenon?

The variables were brought together by adding all the variables given by the experts on a list. The variables were then reviewed to check if they were repeated or if there were any variables with the same meaning. Moreover, coincidences and overlaps were eliminated by changing the expressions of some variables. In the end, 40 initial variables with clearer meanings were obtained. Below, the list of 40 variables was given with short explanations.

1. Demographic characteristics of the target consumer: The age, gender and physical characteristics of the target consumer. This point was regarded to be important

because of the thought of the possible impact of the ageing population in the European countries.

2. The economic and social characteristics of the target consumer: This variable was found to be important as it might affect the demand amount for the high value added products

3. High quality and technically improved raw material: The experts reached a consensus that one of the most important driving factor in the apparel industry would be the technological advancements and different raw material with the exceptional properties like the nano-fibers

4. Design and style changes: The experts thought that the people were more fashion conscious than before although the amount of design capabilities might change from garment to garment depending on the field of usage

5. Fashion cycle and climatic changes: The experts stated that the climatic changes and the desire for fashion were two characteristics that determined the time for the production, delivery and launching

6. Market size: That variable seemed important as the number of the European countries increased in the recent years and this changed the dynamics and general characteristic of the market

7. The number of the rival companies and the countries in total: China and the other closest partners were claimed to be active in the European market which made the competition more severe.

8. The entry time to market: The experts stated that the time to entrance to the market affected the adoption period and Turkey had a great advantage in terms of entry time into the European market.

9. Cost of raw material: This variable was stated to have greater influence in near future due to scarcity in the available natural resources. Besides, the technological input favored recently was stated to increase the cost of the production.

10. Added value during production: Being already important, this variable was stated to have its influence on being chosen by consumers.

11. Product price: This variable was regarded as the major factor in terms of competitive power.

12. Geopolitical location and the choice of the production center: The production place was stated to be chosen considering basically the availability of the raw materials, labor and the logistic cost recently.

13. Cooperation: Building trust and cooperation with the customers and the suppliers were stated to be effectual for penetration into the market.

14. Forward and backward integration: It was stated that, although it was not preferred these days much, some companies could benefit making backward integration

15. Alliances with the foreign companies and the brand acquisitions: That variable was stated to be quite beneficial in order to enter new markets.

16. Cooperation with the logistic companies and supply chain activities: Supply chain activities were claimed to decrease the cost enabling the companions to build mutual trust.

17. Flexibility and production in smaller lots: These variables were found to be sine qua non activities for fast fashion production

18. Providing services to consumer other than products: It was stated that the consumers' expectation would increase in terms of services about the guarantee and sales. Besides, there would be incredible demands in terms of social responsibility and pollution free production and marketing

19. Quality and efficiency: Quality and efficiency were found to be extremely important in order to increase the profit margin

20. Education: Professional education and experience of the workers were stated to be important in order to gain differentiation on the one hand and efficiency in the operations on the other.

21. Speed, shorter lead time: Due the sales seasons to get shorter and demand for fast fashion to increase, lead time was an important variable for launching the products to the market. Nevertheless, the geographical location was related with this variable.

22. Technological infrastructure, specialization and automation: This variable was found to be important for the companies which made their production themselves.

23. Network externalities: This variable indicated an increase in demand for a specific product because of an increase in the number of the customers using this product

24. Branding: Branding was found to be most important differentiation method and it was stated to be gainful for both the consumers and producers if the brand loyalty was provided.

25. Know-how, R&D and innovation, differentiation in products: The experts reached a consensus that company specific R&D activities could provide both an increase in profit and a decrease in the cost.

26. Cooperation in design activities: This variable stated the cooperation of the consumer particularly with textile companies by providing the input for the apparel producers

27. The availability of the raw materials: It was stated that, being close to the raw material could decrease the material cost as the raw material cost might be as high as 50% of the total production cost.

28. Logistic cost: This variable covered handling, storing, insurance, load balance of goods

29. Information technologies: Information technologies were important as they could be employed for improving the communication both within the production and marketing level

30. Company infrastructure: It was claimed that the better the infrastructure of the company the more synergy was provided.

31. Characteristics of manager: The managers were stated to be the key actors which determined the vision for the company adding that the managers with the foresight and common sense could move the company and industry ahead.

32. Management models used: Employing management models and practicing the strategic management tools were claimed to increase the abilities of the company to adapt changes.

33. Financial properties: The capability of reaching the financial resources was found to be very critical as it was very important for making new investments.

34. Working system and the code of conduct: This variable was regarded to be important for building business relationships. It was stated that, Turkish companies didn't have much trouble in developing communication with the European countries thanks to the past experiences and working culture but new ways of communication like the e-commerce could evolve into a threat on this basis

35. World economy: This variable was given the top importance by the experts but, as the world economy had more or less the same effects on all the countries and so the rivals, it could become useless

36. International relations within the countries: The political events and governmental relations were found to be important for the companies

37. Free trade agreements: The experts reached a consensus that the free trade agreement led to regionalization of the world forming the trade blocs like NAFTA, DR-CAFTA

38. Governmental support and bureaucracy: This variable covered the rules regarding the trade and export activities. It was stated that, some of the countries were not preferred by the other countries because of the slowly acting legal arrangements in business trade which might take even more time in the case of having problems

39. Black economy and unfair competition: This variable was included as the Turkish companies suffered from the black economy and many small sizes of businesses

40. Turkey's economy: The experts indicated that Turkey's economy was quite unstable in nature which prevented to make challenging investments.

After the complete list of variables was established, the variables were checked for their consistency to the system specified. Some of the variables were eliminated as they could not be taken into consideration regarding their influences on the future image of European market. For instance, Turkey's economy variable was omitted because it did not have a direct influence on the future state of the European market. On the other hand, world economy was included as it had impact on the European economy. Moreover, some variables were expanded to include more than two variables, as the influences of these two variables were established in the same manner and direction on the future state. Considering these two points, the following changes were established on the variable list.

-The variables “Design and Style changes” and “Fashion cycle and climatic changes” were combined into the variable of “Consumption preferences”

-The variables “Market size” and “The entry time to market” were combined into the variable “The amount of potential consumers”

-The variable “The cost of raw material” was expanded with the variable “The availability of the raw material”

-The variables “Cooperation”, “Forward and backward integration” and “The cooperation with the logistic companies and supply chain activities” were transformed into the variable “Firm collaborations and SCM”

-The variables “Flexibility and production in smaller lots” and “Speed, shorter lead time” were combined into the variable “Production speed and flexibility”

-The variables “Design and style changes” and “Cooperation of Design activities” were combined into the variable “Design activities”

-The variables “Logistic cost” was transformed into the variable “Logistic activities” as the cost part was already examined in “The cost of raw material and input” variable

-The variables “Characteristics of manager” and “Management models used” were combined into the variable “Management models and manager characteristics”

-The variables “Governmental support and bureaucracy” and “Working system and the code of conduct” were combined into the variable “Administration support and bureaucracy”

-The variable “Know-how, R&D and innovation and differentiation in products” was eliminated because it was already covered by three variables which were “Company infrastructure”, “High quality and technically improved raw material” and “Technological infrastructure, specialization and automation”

-The variables “Turkey’s economy” and “Black economy and unfair competition” were omitted as they were variables specific to Turkey.

Having made these changes, the variable list was sent to the experts for their approval. The new list was obtained as given in Table 6.1 which only the titles of the variables took place instead of their explanation. Here, the internal variables could be

identified as the variables characterizing the system whereas the external variables were the general exploratory environment of the phenomenon on its political, economical, industrial, technological and social context.

Table 6.1 : Classification of the variables.

No	Variable	External Variable	Internal Variable
1	Demographic characteristics	X	
2	The economic and social characteristics	X	
3	High quality and technically improved raw material		X
4	Consumption preferences	X	
5	The amount of potential customers	X	
6	The number of the rival companies	X	
7	Cost of raw material and input	X	
8	Added value during production		X
9	Product price	X	
10	Geopolitical location and place of production		X
11	Firm collaborations and SCM		X
12	Alliances with the foreign companies and the brand acquisitions		X
13	Production speed and flexibility		X
14	Providing services to consumer other than products		X
15	Quality and efficiency		X
16	Education	X	
17	Technological infrastructure. specialization and automation		X
18	Network externalities	X	
19	Branding		X
20	Design activities		X
21	Logistic activities	X	
22	Information technologies	X	
23	Company infrastructure		X
24	Management characteristics and manager characteristics		X
25	Financial properties	X	
26	World economy	X	
27	International relations	X	
28	Free trade agreements	X	
29	Administration support and bureaucracy	X	

Location of relationships in the structural matrix

The experts were required to fill in a structural matrix in which all the variables took place in the rows and columns. The experts were required to give “1” for indicating the direct or casual impact of one variable on the other; and 0 for indicating that there was no direct influence. Some examples were given in APPENDIX C. In this matrix, no direction for the influences was stated as it was only important to carry out

absolute value of impact of variables on each other. The final variable matrix was obtained taking averages of experts' inputs as seen in Figure 6.1.

The matrix was checked if it was consistent with the Godet's suggestions of filling ratio and the contribution of the relation of the external and internal variables.

Practically, it was proposed by Godet that, a correctly filled matrix should be between 15 to 25% full depending on the size of the matrix and the higher levels of filling (30-35%) were examples of excessive filling and they required to be reviewed. It was found that the filling ratio was 27% and therefore it was acceptable and not required to be reviewed. Moreover, it was found that whereas the influences of internal variables on external variables were the lowest in the number; the number of influences of external variables on the external variables was the highest as suggested by Godet.

No	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	Demographic characteristics		0	1	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	The economic and social characteristics	0		1	1	1	1	0	1	1	0	0	0	0	1	1	0	0	1	1	1	0	1	0	0	0	0	0	0	0
3	High quality and technically improved raw material	0	0		1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
4	Consumption preferences	0	0	1		1	1	0	1	1	0	0	0	1	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0
5	The amount of potential customers	0	0	1	0		1	0	0	1	0	0	0	1	1	1	0	1	1	1	1	1	0	1	0	0	0	0	0	1
6	The number of the rival companies	0	0	1	0	0		1	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	0
7	Cost of raw material and input	0	0	1	1	0	1		1	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8	Added value during production	0	0	0	1	0	0	0		1	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0
9	Product price	0	0	1	1	1	1	0	0		0	0	1	0	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0
10	Geopolitical location and place of production	0	0	0	0	0	0	1	0	1		1	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0
11	Firm collaborations and SCm	0	0	1	0	0	0	1	1	0	1		0	1	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0
12	Alliances with the foreign companies and the brand acquisitions	0	0	1	1	1	1	0	1	0	1	1		0	0	0	1	0	1	1	0	1	1	1	1	1	0	0	0	0
13	Production speed and flexibility	0	0	0	1	0	0	1	1	0	0	0	0		1	1	0	1	0	0	1	1	1	1	0	0	0	0	0	0
14	Providing services to consumer other than products	0	0	0	1	0	0	0	0	1	0	0	0	0		1	0	0	1	1	0	0	0	0	1	0	0	0	0	0
15	Quality and efficiency	0	0	1	1	0	0	0	1	0	0	0	0	1	1		0	1	0	0	0	0	0	0	1	0	0	0	0	0
16	Education	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		1	0	0	0	0	0	0	1	0	0	0	0	0
17	Technological infrastructure, specialization and automation	0	0	1	0	0	0	0	1	1	0	0	0	1	0	1	1		0	0	0	0	1	0	0	0	0	0	0	0
18	Network externalities	0	0	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0		1	0	0	0	0	0	0	0	0	0	0
19	Branding	0	0	1	1	1	0	0	1	1	0	0	1	0	1	0	0	0	1		1	0	0	1	1	1	0	0	0	1
20	Design activities	0	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	1	1		0	0	0	0	0	0	0	0	0
21	Logistic activities	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0		1	0	0	0	0	0	0	0
22	Information technologies	0	0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0		0	0	0	0	0	0	0
23	Company infrastructure	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		1	1	0	0	0	0
24	Management characteristics and manager characteristics	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1		1	0	0	0	0
25	Financial properties	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0		0	0	0	0
26	World economy	0	1	1	0	0	1	1	0	1	0	0	1	0	0	0	0	1	0	1	0	1	1	0	1	1		1	1	1
27	International relations	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0		1	1
28	Free trade agreements	0	0	0	0	1	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1		1
29	Administration support and bureaucracy	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	

Figure 6.1 : The final variable matrix.

6.1.1.2 Identification of key variables MICMAC

Structural analysis was established on the obtained matrix with the proposed Micmac Method. A program was written in Matlab for the application of Micmac method and illustration of influence dependency chart.

After 4 iteration steps of matrix multiplication, the final state was obtained. The columns and rows were summed together to obtain total influence and dependencies for each variable. And they were illustrated on Figure 6.2 as seen below.

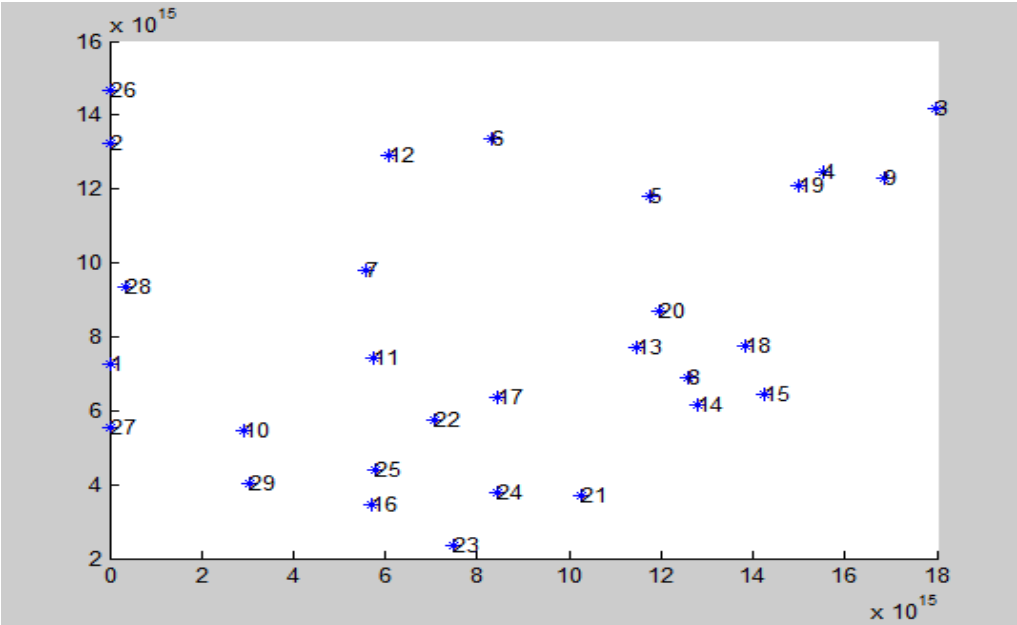


Figure 6.2 : The region in influence dependency chart.

The whole chart was not filled homogenously, some parts of the figure were concentrated with variables instead. This meant that the system showed neither stable nor unstable character, it had mixed behavior instead. For further interpretations. the chart was divided into segments and three groups of variables were determined as seen in Figure 6.3.

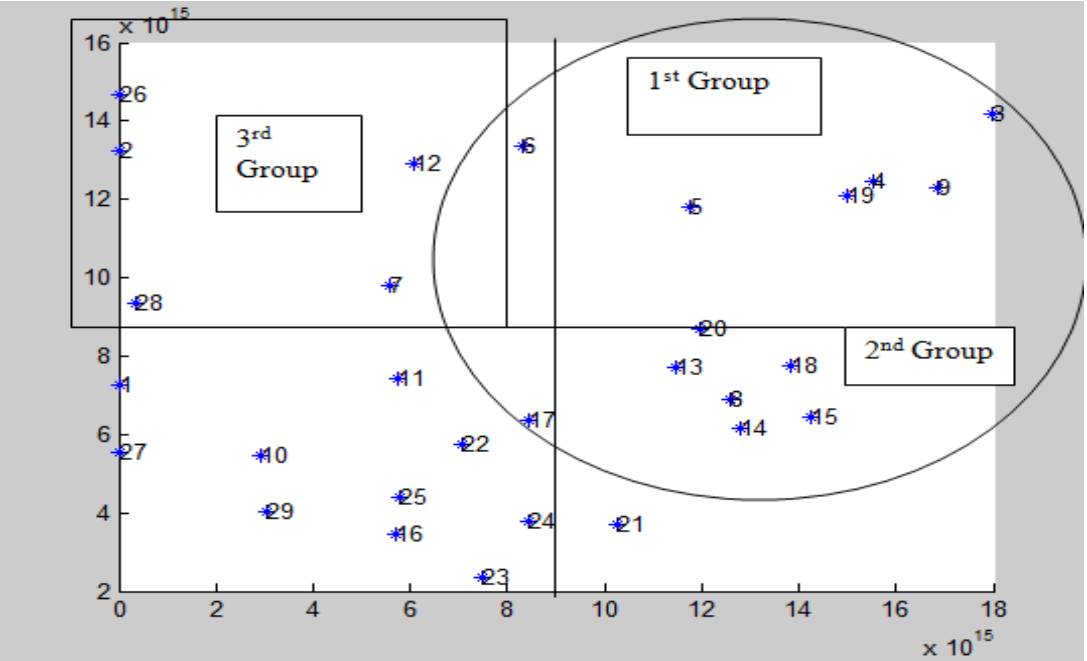


Figure 6.3 : The position of the different variables in influence dependency chart.

1st segment included the influential variable that conditioned rest of the system and they were the ones 2,6,7,12,26,28.

2nd segment included the relay variables which were unstable in nature. They could increase or decrease the strength of initial inputs. These variables would probably be the ones on which actors would fight with each other that's why, be selected as key variables which were 3,4,5,9,19,20.

3rd segment were the resultant variables that were influenced and relayed by influential variables which were 8,13,14,15,18,21.

4th segment was composed of excluded variables which were low influential or dependent variables. In the analysis, it was found that excluded variables were 1,10, 11,16,17,22,23,24,25,27,29

5th segment belonged to the averagely influential and/ or dependent variables which were 1,7,17,21,24,28.

Based on this segmentation, 1st group of variables were carried out as the relay variables in second segment as proposed by Godet:

3- High quality and technically improved raw material

4- Consumption preferences

5- The amount of potential customers

9- Product price

19- Branding

20- Design activities

The key variables were seen to be basically related with the consumer preferences. 2nd group of variables were considered to be the variables that were closely positioned to the 2nd segment that belonged to relay variables. These variables were:

6- The number of the rival companies

8- Added value in production

13- Production speed and flexibility

14-Providing services to consumer other than products

15-Quality and efficiency

17- Technological infrastructure, specialization and automation

18- Network externalities

The variables in the 2nd group were found to be related with the requirements from the company in order to meet consumer expectations.

Finally, the variables in the upper left segment were selected as the 3rd group of key variables which were 2, 7, 12, 26 and 28.

2-The economic and social characteristics

7-Cost of raw material and input

12-Alliances with the foreign companies and the brand acquisitions

26-World economy

28-Free trade agreements

This group mainly covered the external variables related with the economy, international relations and consumer demographics that cannot be changed by the company itself. Nonetheless, the primary key variables were taken as the most dynamic group for which special care was put whereas the 2nd and the 3rd group of

variables were benefited for enlarging the scope in following the steps of scenario planning

6.1.1.3 Retrospective and actors' strategies

Actors are the people, the institutes, the countries or etc that have significant role via variables that they make their plans on and have control at some degree. Actors' approaches can be similar to or different from the other actors. A conflict can occur because of confrontation between the actors' strategies that can result in tension between trends. The conflicts can affect the power relationships between the actors and they may highlight one or the other trend. Therefore, it is very important to determine the major revolutionary trends, past discontinuities and the causes of them and the role played by the main actors on these changes. Retrospective analysis prevents to be focused mostly in current situation. Contemporary analysis, on the other hand, defines the seeds of change within the key variables and strategies of these actors beyond these movements with the aim of throwing light to the future.

After determination of the key variables, the leading actors which had influenced the development of the system in the past and which might have affected the development of future of the system were identified. Based on the key variables determined, the following actors were chosen.

Actor1.Consumers

Actor2.Technology developers

Actor3.Design creators

Actor4.Brand owners

Actor5.Raw material and input suppliers

Actor6.Logistic firms

Actor7.Firms managers

Actor8.The countries that have FTA

Actor1 was selected to be the consumers or the end user of the products. The requirements or the needs of the consumer determined the trends either gradually or abruptly. They were influential on both B2B and B2C businesses.

Actor2 was selected to be technology developers. It was found that, one of the key variables was the high quality and technically improved raw materials where the raw materials were the textile products for the apparel producers. Nonetheless, technology developers also included the founders of the technology which were used in the production steps.

Actor 3 was selected to be design creators. This actor reflected the fashion aspect of the apparel industry. It included both the individual fashion designers and the companies that only held their designers and brand names as an intellectual property. The companies mentioned were highly influential on the shifts on the globe and they determined the road map for mass production.

Actor 4 was selected to be the brand owners. Although this actor was similar to the one above, the companies in that group were not among the ones that differentiated themselves by their design. Their distinguishing properties were the loyalty of their consumers, clearly separated consumer segments and price levels.

Actor 5 was chosen as the raw material and input suppliers. This actor was included as the product price took place in the key variables and the cost of raw material and input was declared to be highly influential variable. The cost of raw material and input was a significant point as the raw material cost took the highest share among other production costs. Moreover, the countries with a well developed textile industry could affect the countries in apparel business.

Actor6 was chosen as logistics companies. Logistic companies worked closely with the producer companies and they took a significant role on serving market. Although they were not in the production side, they had the power and abilities to be used for the benefits of the textile companies such as well planned working route selection.

Actor 7 was chosen to be firm managers despite the fact that they can affect the firm strategies, collaborations and firm structure. That actor included the average companies and their heads as most of the companies were medium to small companies competing in the apparel market.

Actor 8 was chosen to be the countries or governments which were influential in the textile business. This included the countries that followed a strict policy in this business and tried to expand the growth of the country in that field. That actor was expressed as the countries with FTA.

After determination of the actors, Actor*Strategy table was established in which the actors took place in rows and columns whereas the cells were filled according to their plans, motivations, means of action in order to find out the conflict areas as seen in APPENDIX D.

From the Actors*Strategy table, the objectives for which the actors were stated to reach either consensus or conflict were determined and approved as below.

O1: Selling products at lower prices

O2: Giving less harm to the environment

O3: Increasing number of seasons and variety

O4: Giving services other than products

O5: Expansion of the e-commerce applications

O6: Employing high qualified labor

O7: Using technological raw materials

O8: Expanding the consumer base and market

O9: Using IT technologies

O10: Sharing know how with the companions

O11: Building supply chain

O12: Decreasing the labor cost

O13: Doing design activities together with the partners

After the strategic issues and objectives were identified within the conflict areas, an explanatory analysis was applied in order to better clarify the points of divergences and convergences. To this aim, Mactor method developed by Godet and his colleagues in 1985 was employed in order to simplify the comparison of actors.

In MACTOR, first of all, each actor is positioned in relation to strategic objectives. Then the objectives for each actor are ranked and the range of possible convergences and divergences are assessed. Finally, the balance of power is evaluated and strategic recommendations are formulated. In this way, coherence between objectives can be provided assuring that all the strategic choices are supported by all the actors. Figure

6.4 shows the road map followed in the mactor method, where the titles of the boxes represent the name of the matrix benefited.

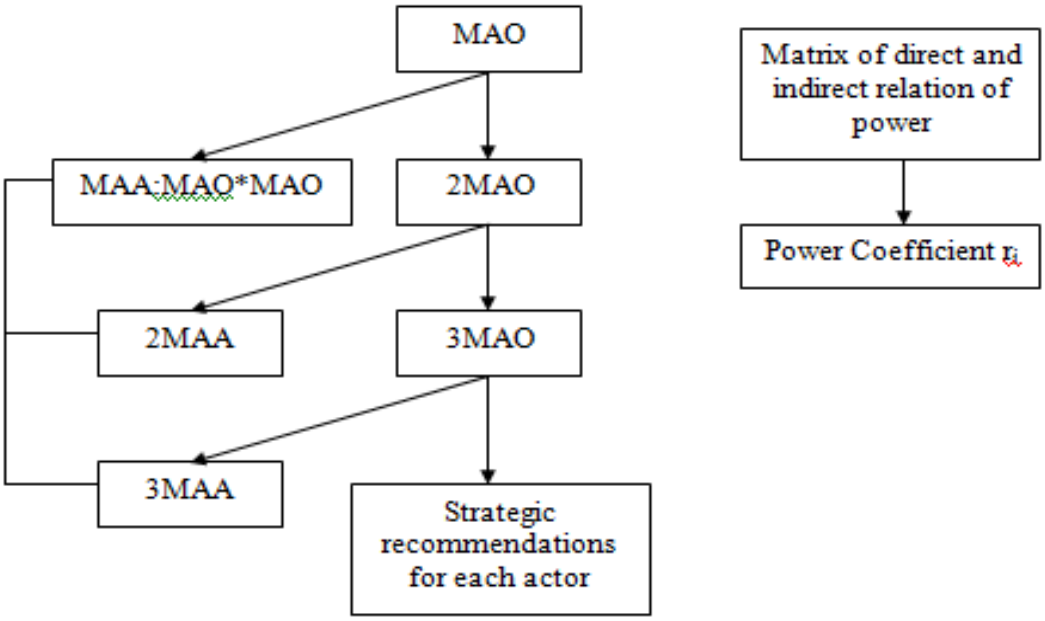


Figure 6.4 : The scheme for matrix multiplications in MACTOR.

The actors can show different approaches toward the same issues or objectives. Mactor was established based on two tables filled by the experts: Actor*Objectives and Actor*Actor. Actor*Objectives matrix has actors in rows and objectives in columns. The experts were required to assess the attitudes of the actors toward objectives by making a simple comparison using the scale of -1, 0, 1 expressing negative, neutral and positive attitudes. The experts also filled in the matrix of 2MAO with a scale of 3, 2, 1, 0, -1, -2, -3 for making hierarchy among objectives and better interpreting the results. The second matrix in Mactor is Actor*Actor. Actor*Actor implies the convergences and divergences among actors that depend on the ability of actors to impose priority on others. Priorities are grown out of relationships and strengths. To this aim, the experts filled in Actor*Actor tables, MDA matrix. Some examples for data from expert were given in APPENDIX D. The final matrices were obtained evaluating the averages. The power coefficient was evaluated and added into the system for further matrices to be developed.

1st matrix MAO: The data for the first matrix MAO is obtained from the experts as Actor * Objective table.

Table 6.2 : MAO.

MAO	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	Positive	Negative
Actor 1	1	1	1	1	1	0	1	-1	0	0	0	0	0	6	-1
Actor 2	-1	1	0	0	1	1	1	-1	1	-1	1	-1	1	7	-4
Actor 3	-1	0	1	0	1	0	1	-1	1	0	0	0	-1	4	-3
Actor 4	-1	1	1	1	1	1	1	0	1	-1	1	1	-1	9	-3
Actor 5	-1	1	1	0	0	0	-1	1	1	1	1	1	1	8	-2
Actor 6	0	0	1	1	1	0	0	1	1	0	1	0	0	6	0
Actor 7	-1	0	-1	0	1	1	1	1	1	-1	1	1	1	8	-3
Actor 8	-1	1	0	0	-1	1	-1	1	0	1	1	1	1	7	-3
Positive	1	5	5	3	6	4	5	4	6	2	6	4	4		
Negative	-6	0	-1	0	-1	0	-2	-3	0	-3	0	-2	-2		

The first matrix in Table 6.2 showed that logistics companies were the actors that showed lowest reaction to the objectives probably because they were not directly art and part of that business. The brand owners showed positive reaction to most of the objectives while raw material suppliers and company managers followed the brand owners with a positive reaction in 8 of 13 objectives.

The most favorable objectives became the expansion of IT technologies and improving supply chain activities. Besides, environment friendly application and employing qualified personnel did not get any negative reaction by the actors, although they were not supported with desire. The selling of product at reasonable prices was on the other hand supported only by customers. Moreover, expansion of customer base and sharing of know how between manufacturers and suppliers didn't get so much credit from the actors.

2nd matrix MAA: MAA was obtained from the multiplication of MAO by itself. It showed the attitudes of actors against each other as in Table 6.3.

Using the MAO table, MAA was formed which indicated the attitudes of actors against each other. Technology producers, brand owners and the company managers strongly agreed with each other in 8 of the objectives. However, the company managers were not of the opinion of brand managers about the expansion of season number and variability. Brand owners didn't support the cooperation in design activities while company managers did. The company managers ran counter to technology developers about decreasing the labor costs. Besides, the reactions shown by the raw material suppliers and the governments that had FTA, coincided with each other.

Table 6.3 : MAA.

MAA	Actor 1		Actor 2		Actor 3		Actor 4		Actor 5		Actor 6		Actor 7		Actor 8	
Actor 1	x	x	4	-1	4	-1	5	-1	2	-3	3	-1	2	-3	1	-4
Actor 2	4	-1	x	x	5	-1	8	-2	5	-4	3	-1	8	-2	5	-5
Actor 3	4	-1	5	-1	x	x	6	0	3	-3	3	-1	4	-3	1	-4
Actor 4	5	-1	8	-2	6	0	x	x	6	-3	5	0	8	-2	5	-4
Actor 5	2	-3	5	-4	3	-3	6	-3	x	x	4	0	6	-3	8	0
Actor 6	3	-1	3	-1	3	-1	5	0	4	0	x	x	4	-1	2	-1
Actor 7	2	-3	8	-2	4	-3	8	-2	6	-3	4	-1	x	x	6	-3
Actor 8	1	-4	5	-5	1	-4	5	-4	8	0	2	-1	6	-3	x	x
Total	21	-14	38	-16	26	-13	43	-12	34	-16	24	-5	38	-17	28	-21

There is a conflict between technology producers and the governments with FTA. The other groups that had different point of views with the governments were the customer, brand owners and design creators. The expansion of e-commerce applications and usage of technological materials in manufacturing were the top two issues they conflicted. The governments that had free trade agreements favored the expansion of customer base in order to gain more advantages from economies of scales and increase the amount of production and, they believed in sharing of know-how and cooperation in design which were not agreed upon by technology developers, design developers and brand owners having the power of differentiation.

3rd matrix 2MAO: The data was obtained from the experts using the discrete evaluation scale of 7 points from -3 to 3. While -3 indicated that the actor was strongly against that objective, 0 indicated the detachment and 3 meant strongly agreement.

The most favorable objectives became the expansion of season number and variability whose keen supporters became the consumers and raw material suppliers. The usage of technological materials was favored by receiving positive reactions from all the actors. Different from the MAO, the cooperation in design activities was not found credible especially by the actors, technology developers, brand owners and design creators.

Table 6.4 : 2MAO.

2MAO	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	Positive	Negative
Actor 1	3	2	3	2	2	0	2	-1	0	0	0	0	0	14	-1
Actor 2	-2	2	0	0	1	2	3	0	2	0	0	0	-2	10	-4
Actor 3	-2	0	2	0	1	0	2	0	2	0	0	0	-2	7	-4
Actor 4	-2	2	2	2	2	1	2	0	2	3	2	1	-2	19	-3
Actor 5	-1	1	3	0	0	0	-1	3	1	3	2	1	3	17	-2
Actor 6	0	0	2	1	1	0	0	2	2	0	3	1	0	11	0
Actor 7	-2	1	-1	0	1	1	1	2	1	-1	1	2	2	12	-4
Actor 8	-1	1	0	0	-1	1	-1	2	1	2	1	1	2	11	-3
Positive	3	9	12	5	8	5	10	9	11	8	9	6	7		
Negative	-10	0	-1	0	-1	0	-2	-1	0	-1	0	0	-6		

4th matrix 2MAA : 2MAA matrix was obtained from the multiplication of 2MAO by itself and that matrix showed the degree of attitudes of actors against each other.

From Table 6.5, it was seen that, the brand owners were observed to have close sight with the technology developers, raw material suppliers and company managers respectively. Although raw material suppliers were not found out to have similar decision making with brand owners in MAA, they had strong agreement in increasing number of season, sharing of know-how and improvement of supply chain applications.

Table 6.5 : 2MAA.

2MAA	Actor 1		Actor 2		Actor 3		Actor 4		Actor 5		Actor 6		Actor 7		Actor 8	
Actor 1	x	x	6	-2.5	6	-2.5	10.5	-2.5	4.5	-5.5	5.5	-1.5	4.5	-6	1.5	-6.5
Actor 2	6	-2.5	x	x	9.5	0	13.5	0	4.5	-4.5	3	0	9.5	-2	6	-5
Actor 3	6	-2.5	9.5	0	x	x	11.5	0	5.5	-4	5	0	6	-3.5	3	-4.5
Actor 4	10.5	-2.5	13.5	0	11.5	0	x	x	13	-4	10.5	0	12	-5.5	10.5	-5
Actor 5	4.5	-5.5	4.5	-4.5	5.5	-4	13	-4	x	x	10	0	11.5	-5	14	0
Actor 6	5.5	-1.5	3	0	5	0	10.5	0	10	0	x	x	8	-1.5	6.5	-1
Actor 7	4.5	-6	9.5	-2	6	-3.5	12	-5.5	11.5	-5	8	-1.5	x	x	11	-3.5
Actor 8	1.5	-6.5	6	-5	3	-4.5	10.5	-5	14	0	6.5	-1	11	-3.5	x	x
Total	38.5	-27	46	-11.5	40.5	-12	71	-14.5	58.5	-17.5	43	-2.5	58	-21	51	-19

The raw material suppliers and the government that had free trade agreements were seen to be sharing on most of the objectives like the company managers although their degree of ratification acquired a different character. The only objective that they showed different reaction was the sharing of know how between the manufacturers and raw material suppliers.

The consumers' point of view seemed to be very different from the governments that had free trade agreement, the company managers and the raw material suppliers. While the consumers preferred to buy technological products, and refused an expansion in customer base, the raw material suppliers opposed these objectives. The consumers and company managers had different attitudes from company managers toward the expansion of season number.

5th matrix MDA: MDA matrix was actually the Actor*Actor table filled by the experts based on the assessment of the influence and sanction power of actors on each other.

The government with free trade agreement was found to be most influential actor. The other two effective actors were defined as consumers and technology developers.

Technology developers, designers and brand owners were determined to be the actors with high degree of dependence. But, these three actors were found to receive direct impact from each other and consumers as seen in Table 6.6.

Table 6.6 : MDA.

MDA	Actor 1	Actor 2	Actor 3	Actor 4	Actor 5	Actor 6	Actor 7	Actor 8	Influence
Actor 1	3	3	3	2	0	1	0	0	12
Actor 2	2	3	2	2	2	0	1	0	12
Actor 3	2	1	3	2	1	1	1	0	11
Actor 4	3	1	2	3	1	1	0	0	11
Actor 5	0	2	0	0	0	1	0	2	5
Actor 6	0	0	1	1	0	3	1	0	6
Actor 7	0	1	1	1	1	1	3	0	8
Actor 8	0	2	2	2	3	2	2	3	16
Dependency	10	13	14	13	8	10	8	5	

6th matrix MIA: MIA was obtained from the multiplication of MDA by itself. While MDA showed the direct affect of actors on each other, MIA showed indirect impact among actors as seen in Table 6.7.

Table 6.7 : MIA.

MIA	Actor 1	Actor 2	Actor 3	Actor 4	Actor 5	Actor 6	Actor 7	Actor 8	Influence
Actor 1	253.5	253.4	289.6	262.2	175.4	160.9	106.2	48.5	1296.2
Actor 2	242.5	242.7	279.6	253.5	169.4	153.8	103.4	45.8	1248.0
Actor 3	208.5	207.6	239.8	217.8	145.8	131.7	89.2	39.0	1039.7
Actor 4	222.6	220.3	256.1	232.9	156.4	140.0	95.9	41.0	1132.3
Actor 5	156.9	154.6	178.7	162.8	109.6	98.6	66.9	29.2	847.7
Actor 6	74.7	74.8	85.6	77.4	51.7	47.5	31.3	14.3	409.8
Actor 7	121.9	122.4	140.1	126.7	84.7	77.6	51.4	23.3	696.8
Actor 8	297.7	298.3	342.3	310.0	207.3	189.2	126.1	56.7	1770.8
Dependency	1324.8	1331.5	1571.9	1410.4	990.8	951.7	619.0	241.2	

Different from the MDA matrix, the effect of brand owners and design creators were more obvious in that matrix. On the other hand, customers were seen among the actors that gave their decision regarding the other actors. It was found that, there was a mutual interaction between the actors which were consumers, design creators and technology developers and brand owners. Interpreting the influence and dependency values, technology developers and customers were found to be the two actors that had impact on brand owners and design creators.

7th matrix 3MAO: The power relations evaluated by considering the actors hierarchy of objectives were included in 3MAO. 3MAO was obtained by multiplying each element of 2MAO with power coefficient as seen in Table 6.8.

The coefficient of relationship of power for each actor was evaluated using the Equation 6.1:

$$Ri=Mi/\sum Mi * Mi/(Mi+Di) \quad (6.1)$$

The first expression $Mi/\sum Mi$ indicated the power of one actor on the others and Mi was actually the indirect influences in matrix of real relationship of power

The second expression Mi/(Mi+Di) indicated the inverse function of dependence and was added to balance the preceding coefficient. This Formula lowered the strength of the simple relationship Mi/∑Mi when dependence was strong.

Table 6.8 : 3MAO.

3MAO	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	Positive	Negative
Actor 1	3.18	2.12	3.17	2.12	2.12	0.00	2.12	-1.06	0.00	0.00	0.00	0.00	0.00	14.82	-1.06
Actor 2	-2.15	2.15	0.00	0.00	1.08	2.15	3.23	0.00	2.15	0.00	0.00	0.00	-2.15	10.77	-4.31
Actor 3	-2.52	0.00	2.52	0.00	1.26	0.00	2.52	0.00	2.52	0.00	0.00	0.00	-2.52	8.82	-5.04
Actor 4	-2.31	2.31	2.31	2.31	2.31	1.15	2.31	0.00	2.31	3.46	2.31	1.15	-2.31	21.91	-4.61
Actor 5	-1.05	1.05	3.15	0.00	0.00	0.00	-1.05	3.15	1.05	3.15	2.10	1.05	3.15	17.83	-2.10
Actor 6	0.00	0.00	2.59	1.30	1.30	0.00	0.00	2.59	2.59	0.00	3.89	1.30	0.00	15.57	0
Actor 7	-1.74	0.87	-0.87	0.00	0.87	0.87	0.87	1.74	0.87	-0.87	0.87	1.74	1.74	10.42	-3.48
Actor 8	-0.24	0.24	0.00	0.00	-0.24	0.24	-0.24	0.47	0.24	0.47	0.24	0.24	0.47	2.61	-0.71
Positive	3.18	8.73	10.57	5.72	8.93	4.41	11.04	7.95	11.73	7.08	9.40	5.47	5.36		
Negative	-10.00	0.00	-0.87	0.00	-0.24	0.00	-1.29	-1.06	0.00	-0.87	0.00	0.00	-6.98		

It was seen that 2MAO preserved its profile in 3MAO.

8th matrix 3MAA: That matrix was obtained by multiplying 3MAO with itself. The matrix 3MAA shows similar appearance with 2MAA. So in this section, only small differences in terms of degree of agreement and disagreement from 2MAA will be explained.

The strong relations between raw material and input supplier and the governments having FTA were not observed in this matrix seen in Table 6.9. The raw material suppliers were found to be affected positively from the decisions of logistic firms and company managers. It was also seen that, the technology producers and design creators had similar decision making mechanism.

Table 6.9 : 3MAA.

3MAA	Actor 1		Actor 2		Actor 3		Actor 4		Actor 5		Actor 6		Actor 7		Actor 8	
Actor 1	x	x	6.41	-2.66	6.85	-2.85	11.59	-2.74	4.74	-5.80	6.30	-1.83	4.48	-5.88	1.18	-4.83
Actor 2	6.41	-2.66	x	x	11.05	0.00	15.03	0.00	4.80	-4.79	3.56	0.00	9.50	-1.95	4.78	-3.71
Actor 3	6.85	-2.85	11.05	0.00	x	x	13.85	0.00	6.40	-4.62	6.39	0.00	6.58	-3.82	2.76	-3.62
Actor 4	11.59	-2.74	15.03	0.00	13.85	0.00	x	x	14.37	-4.40	12.83	0.00	12.42	-5.77	8.45	-3.93
Actor 5	4.74	-5.80	4.80	-4.79	6.40	-4.62	14.37	-4.40	x	x	11.73	0.00	11.07	-4.97	9.81	0.00
Actor 6	6.30	-1.83	3.56	0.00	6.39	0.00	12.83	0.00	11.73	0.00	x	x	8.88	-1.73	5.78	-0.77
Actor 7	4.48	-5.88	9.50	-1.95	6.58	-3.82	12.42	-5.77	11.07	-4.97	8.88	-1.73	x	x	6.40	-1.78
Actor 8	1.18	-4.83	4.78	-3.71	2.76	-3.62	8.45	-3.93	9.81	0.00	5.78	-0.77	6.40	-1.78	x	x
Total	41.55	-26.58	55.14	-13.11	53.88	-14.91	88.53	-16.85	62.93	-24.58	55.47	-4.33	59.33	-25.90	39.15	-18.63

At the end of Mactor analysis, the most favorable objectives were found to be. “usage of IT technologies”, “building supply chain activities”, “increasing number of season and variability”, “employing qualified labor”, “giving less harm to the environment”, “usage of technological raw materials”. The results revealed that the integration of technology was highlighted whereas supply chain activities were emphasized for providing a smooth and seamless production improving variability.

The most influential actor was found to be the governments that have FTA. The consumers were observed to be the other important actor which had a direct relation with the three actors; technology developers, design creators and brand owners. The conflict was observed between the governments having FTA and the other actors. Two actors that had close attitudes with the governments were the raw material and input suppliers and company managers. The brand owner, technology developers and design creators being dependent on the consumers opposed the rest of actors. Therefore, it can be concluded that there are dipole environment consisting of the actors that are sensitive to consumer preferences and the actors that benefit from volume expansion.

6.1.2 Building Scenarios

In this part, the future image was started to be developed by forming the hypotheses based on the fact that the past could be identified by a list of important events, the

possible future could be described by a set of hypothesis (Abdolmohammadi and Shanteau, 1992).

Hypothesis were developed under 8 group of titles considering the outcomes of structural and explanatory analysis; micmac and mactor parts. Printed papers, statistics and future forecasts related with hypothesis group were utilized in order to anticipate alternative ways of change in these main titles creating the morphological space.

6.1.2.1 Establishment of hypothesis of groups under main titles

Types of suppliers

In Micmac, added value in production, branding and design activities were selected as key variables. At the end of Mactor analysis, the customer preferences were claimed to cause the design creators and brand owners to change their activities. Raw material suppliers and brand owners were found to have the same objective of building supply chain. Based on these, the suppliers' side was found to be worth analyzing.

According to Gereffi (1990), the apparel industry is characterized as buyer driven value chain in which the retailers, branded manufacturers and marketers play key roles about the establishment of production networks in the exporting countries. The supply patterns of these actors vary from each other. Retailers like Wal-Mart, C&A and Marks&Spencer have suppliers especially in low cost countries. Marketers like Liz Claiborne, Nike, Reebok, always make their production overseas, they even assign some support activities like marker making and sample making to a fewer but capable contractors (Gereffi and Memedovic, 2003). Branded manufacturers, on the other hand, follow a different path in order to compete with the high cost marketers and low cost retailers. They supply intermediate inputs from the offshore suppliers particularly from the ones located in the neighborhood and especially in the countries where the trade is supported through reciprocal trade agreements. For instance, the brand manufacturers in US benefit from 807/9802 program by building networks in Mexico, Central America and Caribbean whereas the brand manufacturers in Europe enjoy the outward processing trade with the suppliers in North Africa and Eastern Europe (Gereffi and Memedovic, 2003).

In order to meet these supply requirements, there should be 3 types of suppliers which are respectively the low cost producers everywhere in the world, the low cost producers in the neighborhood of developed countries and full package producers.

Nonetheless, some changes may be expected in the supplying pattern of these actors. For instance, retailers may develop their own private labels making them closer to branded manufacturers and marketers (Gereffi and Memedovic, 2003). This means that the full package producers that act as strategic partners may be more demanded.

Gereffi and Memedovic (2003) points out the fact that there is an industrial upgrading that causes the shifts from assembly to full package networks and from full package networks to branded manufacturers as in the case of Asian Big Three which are Hong Kong, South Korea, and Taiwan. Based on all these, the following hypotheses were established:

The countries which are close to the developed markets continue to produce export based production

The number of full package suppliers will increase

Full package suppliers will be new branded manufacturers

Trading partnership

The second title for hypothesis was selected to be trading partnership. This group was included, because the variable of "alliances with the foreign companies and brand acquisitions" was highly influential with international relations and free trade agreements. The actor specified with the "governments that have FTA" was found to have the greatest power. So in this section, the hypothesis which might be outcome of this situation was investigated.

Enterprises develop consolidations and collaborations through acquisition, mergers and joint ventures in order to increase capital, resources and capabilities in case that they can better serve the market needs and pursue mutual benefits. These partnership activities may be established in both horizontal and vertical way. The vertical consolidations comprise the collaboration of the partners in value chain in order to minimize cost while horizontal consolidations include the firms acting similar to each other and are established to expand market or build new markets as in the case of brand acquisitions and licensing agreements.

According to Textile Intelligence report of Prospects to 2015 joint ventures will play a significant role and two types of strategic partner will be the companies based in high cost location with access to high value added markets and the companies having manufacturing facilities in low cost countries (Technopak, 2007). Regarding the partnership activities in vertical direction, the full package providing seems to be an important factor for being selected as a partner. But, it is not the only criteria. Abernathy et al (2004) state that, the economic principles of international trade are factor prices, exchange rates, shipping cost and tariff rates adding that tariffs would be used as a control mechanism after the quotas. The authors explain this situation by saying that duty rates on US branded apparel could reach as high as 30% and they claim that regional trade agreement may reduce this expense. Therefore, the trade blocs and regional trade agreements need special concern.

On the other hand, the consolidations on horizontal way seem to gain an increasing trend. For instance, European market improved into small number of bigger corporations from large number of different and independent stores through mergers, acquisitions and joint ventures (Hilger, 2008). Partnerships in horizontal way between Turkey and Europe might be quite possible. Although Europe is not a new market for Turkey, Turkey has not been able to show its presence in this market as a marketer. Moreover, Turkey is not active in all parts of European market. For instance, Germany and Italy have become the largest markets in 2010 with the shares of 10.1% and 5.7% whereas Spain has had 3.1% and the rest 24 countries have not even taken place in top 10 markets for Turkey (ITKIBa). For Turkey to be effective in European market it might be proposed to build branding and licensing agreements which may lead Turkey to expand its activities and penetrate the market.

Based on these, the countries should assess alternative partners regarding the trade agreements as the partnership activities might occur within the members of trade bloc and regional trade agreements. Alternatively, the companies might expand their business relations by being close to the countries enjoying being in trade bloc or preferential partner. Therefore, some companies might select their partners which are in the trading blocs. In fact, Turkish companies making investments in Egypt in order to benefit QIZ with US is a clear evidence for them (Url-4). Based on all these, the following hypotheses were established:

The brand acquisitions and licensing agreement will increase in amount in order to enter new markets.

The trade partnership activities within the trade blocs will increase

The trade partnership activities with the companies in the trade blocs will increase

The consumer market

In micmac, the consumption preferences, the amount of potential customers were selected to be the key variable, whereas the economic and social characteristics of consumers was found to be among the most influential variable.

Consumer preferences and shopping behaviors change according to the demographic characteristics, cultural differences and economical properties. There are different consumers all around the world with different social, economical and personal characteristics. The actual purchasing is highly related with the purchasing power and purchasing tendencies of the consumers. According to OECD 2008 data, US have the highest PPP with 34.7% followed by Japan, Germany, UK, Italy and France with 10.5, 7.4, 5.5, 5.3 and 4.8 (OECD, 2011). The personal and family income and budget priorities are the key factors influencing clothing consumption. Although. it is stated in IWTO's report that expenditure on clothing was losing its significance in advanced economies, Canada and UK had the highest clothing expenditure per capita while Spain and Australia had the lowest among developed countries. China, on the other hand, came far behind these two countries with hardly reaching 1/10 of their clothing expenditure (IWTO, 2004).

The emerging markets are highlighted in terms of textile and apparel trade. According to Sakarya et al (2007), EM's are the ones that have the potential of long term growth. In this regard, Argantina, Brazil, China, Indonesia and Turkey were stated to be the emerging markets with their increasing disposable incomes, large population of young consumers and economic liberalization. But actually, the emerging markets may substitute today's market or not is not known.

While, the situation of emerging market is disputable, there is a trend identified in advanced markets. The niche markets that can be characterized by distinct set of needs and full of growth opportunities would be favorable in future (Plunkett, 2007).

The companies that developed niche markets like Lands' End, Burlington Industries and Tommy Bahama gained success in US which is another advanced market (Parrish et al, 2004) and EU companies built solid and reliable customer via niches (Hilger, 2008).

Therefore, two possible options in consumer market were identified:

Today's high consumption market will move to new emerging markets.

Niche markets will increase in number

Textile and apparel production patterns

At the end of the MICMAC analysis, the product price, production speed and flexibility were key variables and the cost of raw material and input was the most influential variable. Moreover, at the end of mactor analysis, supply chain activities were selected among most important objectives.

The apparel industry is one of the labor intensive industries which generally take place in the earlier times of the developing countries (Abernathy et al, 2004). In time, the production type changes and the low value added production shifts to the other developing and least developed countries having the advantage of lower/lowest wages (Elsayed et al, 2006).

As the industry improves and the economic conditions get better in a country, the labor wage increases in a parallel way. China will not be able to maintain its competitive advantage because of increasing costs and the labor cost advantage will face with problems that rise costs because of weak financial systems, embryonic capital markets, high levels of crime and so on (Lindbaek, 1997). The growth in exports from China and India will slow and eventually stabilize as these two countries will move into higher value industries which may lead to shift of production to less developed countries. Mexico and Turkey should relocate the production facilities to remain competitive with Vietnam, Cambodia, China and India (Technopak, 2007). On the other hand, it is not certain to which geographical location the shift will occur. It may be toward Turkmenistan and Uzbekistan (Technopak, 2007) or to other newly developing countries.

The region of the shift is actually related with three main concepts which are cost, lead time and quality. For instance, US companies work with the Mexico, Dr-

CAFTA and CBI countries when the lead time is the most important contribution; and with the Asian countries when lead time is not so important or the cost can compensate the delay in lead time. In EU countries, where some countries like Italy and Spain continue to do apparel garments, most of the production which is sensitive to lead times has shifted to the East European countries, primarily Turkey, and the North African countries. The rest of the production is made in Asian countries like China, India, Bangladesh, Indonesia, and Vietnam (Taplin, 2004).

Low wage is not the only factor comprising the cost of apparel production as low cost apparel production is highly related with material and shipping costs. Although many African nations such as Madagascar and Kenya are among the cheapest labor providers, they cannot compete in US market with Mexico that has raw material advantage (Abernathy et al, 2004). Beside the raw material, the other important point is the shipping cost. The apparel industry is usually located in places with strong input conditions in order to form transportation clusters such as Guangdong in China, Chinese cluster. The activities in these regions are even supported by the government like establishment of special economic zones, execution of the favorable economic regulations and low taxes as in the case of Guangdong (Elsayed et al, 2006). This means that the clusters formed as collaborations of manufacturers which are geographically close to each other will serve as exporting hubs (Technopak, 2007).

For this reason, the low cost countries may try to improve their distribution channels and seek new distribution solutions. The countries close to the markets may invest on improving their logistic activities so that they do not pass up a chance of short lead time.

Based on these, the following hypotheses were established.

The low cost countries will lose their advantages as the wages will increase

The production of the basic product will shift new production zones like newly developing or least developed countries.

The cluster of apparel producers will emerge with strong transportation channels.

Labor

This group was included as high quality and technically improved raw materials, added value in production, quality and efficiency were the key variables and the

employment of qualified labor was favored by most of the actors. Moreover, one of the actors was the technology developers which required qualified labor.

Being highly labor intensive, labor is a critical parameter for the apparel industry. The industry may enjoy producing at lower cost if the wages are low or it may have the advantage of qualified labor if the major aim is producing value added products. But, the productive contributions vary for different types of labor and capital. The synergy created between skilled labor and capital increases the productivity creating the technology-skill complementary (Yasar and Paul, 2008). Skilled and qualified workforce might be much more in demand if the company chooses to develop and maintain core competencies by differentiating themselves from the competitors. The demand for specific valued, technically improved, design intensive and differentiated products might cause this situation. Based on these, the following hypothesis was established:

The need for skilled labor will increase in order to make a differentiation

E-commerce and IT applications

This group was included as technological infrastructure, specialization and automation was among the key variables. Besides, e-commerce was favored by almost all actors whereas, IT applications were in concern of all actors other than the consumers and the governments having FTA.

E commerce is increasing in a global world providing opportunities for products and markets in both B2B and B2C level.

B2B e-commerce involves procurement, logistic and administrative processes between firms (Moodley, 2003). The profitability of ecommerce business is increasing and the increase in number of retailers from 43% in 2000 to 56% in 2001 is a clear evidence for this (Yoh et al, 2003). The reason actually lies on the strengthening of the buyer through a bigger selection, better control and increased competitiveness. The companies can realize collaborative event management and the synchronization of master data via B2B commerce (ITKIBa). Large companies will probably go on investing on information technology to reach real time access for inventory levels, manufacturing progress, expected delivery times and quality (Technopak, 2007).

B2B ecommerce forces the companies to fulfill some requirements like improving the infrastructure in order to provide quick response ability and lean communication with the back and front office systems in the internet platform (Moodley, 2003). Therefore the companies may invest on improving their infrastructure that easies B2B.

On the B2C level, there is a direct interaction with the end user and company. B2C commerce is increasing worldwide in recent years, 9.6 billion dollar purchase was reported to be made in US in 2006 (Plunkett, 2007). The share of regular internet users covered 60% of population in 2009 in Europe. The clothes and sport goods category come as the second in online shopping with 46% after travel and accommodation services 51% in 2009 (Eurostat, 2010).

Nonetheless, the B2C commerce is not taken for granted by many internet users because of confidentiality and reliability issue. 84% of online shoppers stated that certainty about legal rights is crucial for ecommerce safety (Eurostat, 2010). The other concerns were specified to be credit card security, privacy invasion and inefficiencies of websites (Yoh et al, 2003). The governments, the producer and logistic companies and the banks may develop a more reliable e-commerce transaction in the frame of rules and laws.

Beside these technical and ethical problems, some consumer stated they are not comfortable with online shopping because of lacking of hands on interaction with products, dissatisfaction with the products shipped (Yoh et al, 2003). Moreover, almost 30% of the apparel sales are returned because of fit (Plunkett, 2007). This means that either a technology should be developed to enable the sites make customer specific production or better standardize the measurements in case that the measurement system is made specific to the market. Based on these, the following hypotheses were established:

The companies will cooperate with their suppliers in order to improve their infrastructure to ease B2B level e-commerce

The governments will reach a negotiation on e-trade laws and general rules will be developed for the reliability of the activities.

The size and fit characteristics will be standardized according to the countries where the products are sold

Health and comfort

The consumer preferences, high quality and technically improved material were selected as the key variables. Nonetheless, giving less harm to the environment was determined to be one of the key objectives and didn't get any negative reaction from the actors whereas technologically improved material got only negative approach from the raw material suppliers. .

Health and comfort is getting credit from the consumers. It has two aspects commonly as direct and indirect effect to the health of the people. The direct affect covers the impact of the apparel on human body enabling the people feel better and comfortable in their clothes. The indirect effect, on the other hand, is related with the impact of clothing and apparel production and on the environment so human nation

The comfort characteristics are usually provided with high technology. Today, fabrics are engineered for durability, stain proofing, wrinkle resistance or weather protection, comfort, breathability. High tech materials used for keeping the athletics dry and comfortable were used in the production of high performance outdoor apparel and have marketed 9 billion dollar in US (Plunkett, 2007). The medical and industrial textiles are technology intensive products in protective clothing or sportswear are shown in favorable niche markets by Parish et al (2004). Although, these products targeted specific consumer groups like the professional sportsmen, it may be favored by the people for whom health and sports is a special concern for their lives. There is a tendency in the textile industry located in the developed countries to produce high tech products. This tendency may lead to closely working partners in the field of producing high tech clothing. Germany for instance focused on the production of high quality fibers and innovative textiles (Taplin, 2004). Therefore there are two dimensions of this issue, demand from customers and demand from end users.

The people believe in the fact that organic apparel is healthier for especially the ones that suffer from allergies and have sensitive skin (Cervellon et al, 2010). There is a potential demand for organic apparel especially about for the young children apparel (Nimon and Beghin, 1998).

The companies like Patagonia care about this demand with a commitment of using 100% organic cotton in their products (Hustvedt, 2006). The organic apparel is also

taken for granted by the environmentally conscious consumer because, the first three reason for buying organic cotton were identified as environmentally friendliness, ethical and health concerns (Cervellon et al, 2010).

Hustwedt (2006) states that, there are about 63 billion US consumers that can be specified with LOHAS, "Life styles of health and sustainability" whose vision is wearing clothes that match their personal image of health and sustainability. US consumers are aware of environmentally issues and prefer environmentally friendliness in the product they buy (Cotton Incorporated, 2009). In a study established by Cervollen et al (2010), it was claimed that the green consumer is more educated and wealthier than the average consumer which makes these kind of consumption more favorable by the advanced nations. In the same study, attention is drawn towards the difference of consumers in different geographies adding that green apparel is not preferred by European consumers because of lacking glamour. This means that the demand increase for this kind of apparel is a bit complicated issue and is vulnerable to change being influenced by other things. Based on these, the following hypotheses were established:

New requirements from suppliers like high tech and performance properties for garments will emerge

The demand for technologically improved garments will increase

The garments made up of healthy fibers will be preferred

The environment friendly product will gain popularity

The brand preferences

Branding was selected as the key variable in Micmac analysis with a power of creating dynamism in the system. Moreover, brand owners were selected as one of the key actors showing a mutual interaction with design creators and consumers.

Marriot explains brands as an identification of product value providing an image in the consumers' mind of reliability about the product. It is one of the primary differentiation marketing strategies in apparel industry as they are intangible assets that are difficult to be understood and imitated by the competitors. The companies might prefer to develop new brands in order to differentiate themselves from the competition

One the other hand, brands are stated to be under threat in IWTO report as the people are more price sensitive instead of brand sensitive recently. Brands are losing its impact as an indicator of quality but, they have still significant importance in Mediterranean countries and especially among teens and 50% of Europeans. In fact, Europeans would buy certain apparel brands as brands reflect their personality and life style (IWTO, 2004). As the competition gets fierce, the companies add line to already existing brands (Bruer et al, 2005). The companies having large number of brands have the benefits of reaching more consumers (Morgan and Rego, 2009). The other aspect of branding is related with the extent of the brand market or segment for whom the brand is. The companies would develop their own dichotomies and there would be mega brands, niche brands, owned brands, retailer owned brands, national brands and tailored exclusives but in order to be successful, brands should narrow their target consumer segment and apply specific retailer's strategies (IWTO, 2004). It can be concluded that although number of brands should increase their consumer base should be narrowed at the same time.

The other point that has a high influence on brand preferences was found to be fast fashion. There are 2 different strategic groups for which the key factors of success change, the first group includes the ability to influence fashion trends with strong brand image and the second group devises effective quick fashion formulas (Guercini, 2001).

Fast fashion is very favorable among EU companies such as H&M in Sweden, Zara and Mango in Spain and New Look in UK. These brands are selling trendy, inexpensive clothes. The lead time from design table to store rack is 3 weeks for H&M which operates more than 1200 stores in US and EU and records sales of 9.4 billion dollar in 2005 (Plunkett, 2007) and this put pressure on the suppliers. The companies which cannot guarantee quick and reliable delivery will find it difficult to remain competitive.

Considering that, most fast fashion providers first initiated in Europe and identification of 40-50% of adults in European countries as the fashion follower (IWTO, 2004), the variability and season number might be supposed to be increased. Based on these, the following hypotheses were established:

The amount of investment made on brands will increase

The number of brands will increase; the customer base will decrease in extent

The product portfolio will enlarge; the variability and number of season will increase

6.1.2.2 Selection of the hypothesis

Given above the hypothesis, they were ranked by the experts. The experts determined the top 10 hypothesis by giving '10' to the hypothesis that is thought to occur with the highest probability. The results were summarized in Table 6.10. The most favored 6 hypothesis were determined by calculation and ranking in descending order.

Among these top 10 hypotheses, the first 6 hypothesis were carried out as the most important hypotheses:

1. The low cost countries will lose their advantages as the wages will increase

2. The demand for technologically improved garments will increase

3. The number of brands will increase; the customer base will decrease in extent

4. The environment friendly product will gain popularity

5. The trade partnership activities within the trading blocs will increase

6. The product portfolio will enlarge; the variability and number of season will increase

Actually, the hypotheses selected could be grouped in 3 categories according to the situation they could cause Porter's generic strategies to be developed. The hypothesis, "The low cost countries will lose their advantages as the wages will increase" and "The trade partnership activities within the trading blocs will increase" were found to be related with the low cost strategies; "The demand for technologically improved garments will increase" and "The environmentally friendly product will gain popularity" were regarded as being in relation with focus strategies; "The number of brands will increase, the customer base will decrease in extent" and "The product portfolio will enlarge, the variability and number of season will increase" were carried out to cause differentiation strategies.

Table 6.10 : Ranking of the hypothesis by the expert.

	Types of suppliers	Experts									Average
		1	2	3	4	5	6	7	8	9	
1	The countries which are close to the developed markets continue to produce export based production				6		1	1			0.89
2	The number of full package suppliers will increase	5				2		2		1	1.11
3	Full package suppliers will be new branded manufacturers					1	2				0.33
Trading partnership											
4	The brand acquisitions and licensing agreement will increase in amount in order to enter new markets.		1		2			7			1.11
5	The trade partnership activities within the trading blocs will increase	6	2	5		9	3	9	10	2	5.11
6	The trade partnership activities with the companies in the trade blocs will increase										0
The consumer market											
7	Today's high consumption market will move to new emerging markets.			3		3	4		3		1.44
8	Niche markets will increase in number	2	7		3			3		10	2.77
Textile and apparel production											
11	The low cost countries will lose their advantages as the wages will increase	10	3	4		10		10	9	3	5.44
9	The production of the basic product will shift new production zones like sub Saharan countries.	8								9	1.89
10	The cluster of apparel producers will emerge with strong transportation channels.		8		1						1
Labor											
12	The need for skilled labor will increase in order to make a differentiation				4		5				1
E-commerce and IT applications											
13	The companies will cooperate with their suppliers in order to improve their infrastructure to ease B2B level e commerce	7			1	5	4	6		4	8	3.89
14	The governments will reach a negotiation on e-trade laws and general rules will be developed for the reliability of the activities.								2		0.22
15	The size and fit characteristics will be standardized according to the countries where the products are sold								1		0.11
Health and comfort											
16	New requirements like high tech and performance properties for garments will emerge.		10	6							1.78
17	The demand for technologically improved garments will increase	4	9	9	7	8	10	5	8	4	7.11
18	The garments made up of healthy fibers will be preferred			2							0.22
19	The environment friendly product will gain popularity	9	6	8	8	6	7	6	5	5	6.67
The brand preferences will change											
20	The amount of investment made on brands will increase	3									0.33
21	The number of brands will increase, the customer base will decrease in extent		4	7	9	7	9	8	6	6	6.22
22	The product portfolio will enlarge, the variability and number of season will increase	1	5	10	10	5	8	4	7	7	6.33

6.1.2.3 Developing scenarios

After the hypothesis had been selected, the scenarios representing the possible combination of the hypothesis were determined. This was done by the application of the cross impact analysis in which the possibility of the hypothesis to come together was analyzed using the independent and conditional probabilities. To this aim, the specialists were required to determine independent and conditional probabilities of

these hypotheses using a discontinuous scale of 1:0.1, 2:0.3, 3:0.5, 4:0.7 and 5:0.9. The conditional probabilities were estimated in two cases. In the first case, the considered hypothesis was taken as having been realized whereas in the second case the considered hypothesis was accepted not to have occurred. Some examples for data obtained from expert were given in APPENDIX E. The results were analyzed in SMIC-PROB-EXPERT program with an algorithm solving a quadratic minimization problem using rules of probability as the constraints as seen in Table 6.11.

In table 6.11:

1st digit: The low cost countries will lose their advantages as the wages will increase

2nd digit: The demand for technologically improved garments will increase

3rd digit: The number of brands will increase; the customer base will decrease in extent

4th digit: The environment friendly product will gain popularity

5th digit: The trade partnership activities within the trading blocs will increase

6th digit: The product portfolio will enlarge; the variability and number of season will increase

In Table 6.11, each digit represented one hypothesis and the value 1 meant that hypothesis represented by that digit occurred whereas 0 meant it didn't occur. It was seen that, the probabilities scattered into 43 scenarios with the maximum value of 0.116 in which all hypothesis were stated to occur. Although Godet stated that developing multiple scenarios was one of the aim of that method, the scenarios were decided to be reduced in number by clustering process in case that strategies could be developed specifically for the scenario groups.

For this reason, the scenarios were grouped considering the classification by hypothesis in section 6.1.2.2 and the repeated patterns in scenarios. To this aim, the total probability values were evaluated in focus, differentiation and low cost categories in Tables 6.12, 6.13 and 6.14.

Table 6.11 : Evaluation of SMIC by SMIC-PROB-EXPERT program.

No	SCENARIOS	PROBABILITIES	No	SCENARIOS	PROBABILITIES
1	01 – 111111	0.116	33	43 - 010101	0.001
2	05 – 111011	0.08	34	08 - 111000	0
3	03 – 111101	0.075	35	12 - 110100	0
4	09 – 110111	0.071	36	14 - 110010	0
5	17 – 101111	0.054	37	15 - 110001	0
6	07 – 111001	0.05	38	16 - 110000	0
7	49 – 001111	0.044	39	18 - 101110	0
8	02 – 111110	0.044	40	20 - 101100	0
9	51 – 001101	0.04	41	22 - 101010	0
10	33 – 011111	0.033	42	23 - 101001	0
11	59 – 000101	0.033	43	24 - 101000	0
12	57 – 000111	0.032	44	26 - 100110	0
13	35 – 011101	0.029	45	27 - 100101	0
14	25 – 100111	0.029	46	28 - 100100	0
15	11 – 110101	0.028	47	29 - 100011	0
16	36 – 011100	0.023	48	30 - 100010	0
17	44 – 010100	0.022	49	31 - 100001	0
18	55 – 001001	0.018	50	32 - 100000	0
19	56 – 001000	0.018	51	38 - 011010	0
20	10 – 110110	0.018	52	41 - 010111	0
21	40 – 011000	0.017	53	45 - 010011	0
22	21 – 101011	0.016	54	46 - 010010	0
23	34 – 011110	0.016	55	47 - 010001	0
24	04 – 111100	0.014	56	48 - 010000	0
25	19 – 101101	0.014	57	50 - 001110	0
26	63 – 000001	0.013	58	52 - 001100	0
27	13 – 110011	0.013	59	54 - 001010	0
28	39 – 011001	0.011	60	58 - 000110	0
29	06 – 111010	0.011	61	60 - 000100	0
30	37 – 011011	0.009	62	61 - 000011	0
31	53 – 001011	0.005	63	62 - 000010	0
32	42 – 010110	0.005	64	64 - 000000	0

In each category, the probabilities were added together in 3 cases; both the hypotheses related with this category occurred (the digit representing this hypothesis took the value of 1), only one of the hypothesis occurred (one of two digits representing these hypothesis took value 1 and the other 0) and none of the hypothesis occurred (the digit representing this hypothesis took the value of 0).

Table 6.12 : Evaluation of total probabilities regarding the 'Product Focus' category.

Hypothesis Regarding Product Focus							
Hypothesis 2=1; Hypothesis 4=1		Hypothesis 2=1; Hypothesis 4=0		Hypothesis 2=0; Hypothesis 4=1		Hypothesis 2=0; Hypothesis 4=0	
Scenarios	Probability	Scenarios	Probability	Scenarios	Probability	Scenarios	Probability
1	0.116	7	0.05	49	0.044	63	0.013
35	0.029	39	0.011	17	0.054	53	0.005
33	0.033	5	0.08	25	0.029	55	0.018
3	0.075	37	0.009	51	0.04	56	0.018
2	0.044	6	0.011	59	0.033	21	0.016
4	0.014	40	0.017	19	0.014		
9	0.071	13	0.013	57	0.032		
11	0.028						
36	0.023						
44	0.022						
10	0.018						
34	0.016						
42	0.005						
43	0.001						
Total	0.495	Total	0.191	Total	0.246	Total	0.07

Table 6.13 : Evaluation of total probabilities regarding the 'Product Differentiation' category.

Hypothesis Regarding Product Differentiation							
Hypothesis 3=1; Hypothesis 6=1		Hypothesis 3=1; Hypothesis 6=0		Hypothesis 3=0; Hypothesis 6=1		Hypothesis 3=0; Hypothesis 6=0	
Scenarios	Probability	Scenarios	Probability	Scenarios	Probability	Scenarios	Probability
1	0.116	56	0.018	63	0.013	44	0.022
7	0.05	2	0.044	9	0.071	10	0.018
35	0.029	4	0.014	25	0.029	42	0.005
39	0.011	6	0.011	11	0.028		
5	0.08	40	0.017	59	0.033		
49	0.044	36	0.023	57	0.032		
33	0.033	34	0.016	13	0.013		
37	0.009			43	0.001		
53	0.005						
55	0.018						
3	0.075						
17	0.054						
51	0.04						
19	0.014						
21	0.016						
Total	0.594	Total	0.143	Total	0.22	Total	0.045

Table 6.14 : Evaluation of total probabilities regarding the 'Low Cost' category.

Hypothesis Regarding Low Cost							
Hypothesis 1=1; Hypothesis 5=1		Hypothesis 1=1; Hypothesis 5=0		Hypothesis 1=0; Hypothesis 5=1		Hypothesis 1=0; Hypothesis 5=0	
Scenarios	Probability	Scenarios	Probability	Scenarios	Probability	Scenarios	Probability
1	0.116	7	0.05	49	0.044	35	0.029
5	0.08	3	0.075	33	0.033	39	0.011
2	0.044	4	0.014	37	0.009	63	0.013
6	0.011	11	0.028	53	0.005	55	0.018
9	0.071	19	0.014	57	0.032	56	0.018
17	0.054			34	0.016	40	0.017
25	0.029			42	0.005	51	0.04
10	0.018					59	0.033
21	0.016					36	0.023
13	0.013					44	0.022
						43	0.001
Total	0.452	Total	0.181	Total	0.144	Total	0.225

The data was summarized in Table 6.15.

Table 6.15 : Selection criteria for grouping the scenarios.

Selection Criteria For Grouping the Scenarios								
Hypothesis related with product focus	Hypothesis 2=1; Hypothesis 4=1		Hypothesis 2=1; Hypothesis 4=0		Hypothesis 2=0; Hypothesis 4=1		Hypothesis 2=0; Hypothesis 4=0	
	Total	0.495	Total	0.191 [3]	Total	0.246 [1]	Total	0.07
Hypothesis related with differentiation	Hypothesis 3=1; Hypothesis 6=1		Hypothesis 3=1; Hypothesis 6=0		Hypothesis 3=0; Hypothesis 6=1		Hypothesis 3=0; Hypothesis 6=0	
	Total	0.594 [2]	Total	0.143	Total	0.22 [1]	Total	0.045
Hypothesis related with low cost	Hypothesis 1=1; Hypothesis 5=1		Hypothesis 1=1; Hypothesis 5=0		Hypothesis 1=0; Hypothesis 5=1		Hypothesis 1=0; Hypothesis 5=0	
	Total	0.452	Total	0.181 [1]	Total	0.144	Total	0.225

In table 6.15, the maximum values in two cases one of which was "both hypothesis occurred" and the other "only one of them occurred" were selected for grouping the variables. Due to the signed numbers:

1st implication: Shown with the superscript '1', it meant that if only one hypothesis in each criteria has to be selected then it would probably be "The environmentally friendly product will gain popularity" in focus category; "The product portfolio will enlarge, the variability and number of season will increase" in differentiation

category and “The low cost countries will lose their advantages as the wages will increase” in low cost category.

2nd implication: Shown with the superscript ‘2’, the hypothesis in differentiation category which were “The number of brands will increase, the customer base will decrease in extent” and “The product portfolio will enlarge, the variability and number of season will increase” were found to most likely to occur at the same time.

3rd implication: The hypothesis “The demand for technologically improved garments will increase” was stated likely to occur with the hypothesis in other categories as the 4th largest probability belonged to the group represented with the superscript ‘3’in which that hypothesis occurred while “The environmentally friendly product will gain popularity” did not occur.

Considering these outcomes, the scenarios involving similar patterns by having the value 1 in the same digits were grouped together as seen in Table 6.16.

Table 6.16 : Patterns for established scenarios.

SCENARIOS	PROBABILITIES	PATTERN MATCHING						PATTERN PROBABILITIES	
								PATTERN	PROBABILITY
01 - 111111	0.116	**1**	**1**	**1**	**1**	**1**	**1**	**111111**	0.116
03 - 111101	0.075	**1**	1	1	**1**	0	**1**		
09 - 110111	0.071	**1**	1	0	**1**	1	**1**		
17 - 101111	0.054	**1**	0	1	**1**	1	**1**		
25 - 100111	0.029	**1**	0	0	**1**	1	**1**		
11 - 110101	0.028	**1**	1	0	**1**	0	**1**		
19 - 101101	0.014	**1**	0	1	**1**	0	**1**		
59 – 000101	0.033	**0**	0	0	**1**	0	**1**	1XX1X1	0.304
05 – 111011	0.08	1	1	**1**	0	**1**	**1**		
49 – 001111	0.044	0	0	**1**	1	**1**	**1**		
33 - 011111	0.033	0	1	**1**	1	**1**	**1**		
37 - 011011	0.009	0	1	**1**	0	**1**	**1**		
53 - 001011	0.005	0	0	**1**	0	**1**	**1**		
17 - 101111	0.054	1	0	**1**	1	**1**	**1**		
21 - 101011	0.016	1	0	**1**	0	**1**	**1**		
55 - 001001	0.018	0	0	**1**	0	**0**	**1**	XX1X11	0.259
07 - 111001	0.05	**1**	**1**	**1**	0	0	1		
03 - 111101	0.075	**1**	**1**	**1**	1	0	1		
02 - 111110	0.044	**1**	**1**	**1**	1	1	0		
04-111100	0.014	**1**	**1**	**1**	1	0	0		
06-111010	0.011	**1**	**1**	**1**	0	1	0		
05-111011	0.08	**1**	**1**	**1**	0	1	1		
40-011000	0.017	**0**	**1**	**1**	0	0	0	111XXX	0.291
TOTAL PROBABILITY									0.761

In this way, 4 scenario groups were obtained as in Table 6.16 with the total probabilities of 0.116, 0.304, 0.259, 0.291 . In this way, 20 scenarios were selected from 43 scenarios forming 4 groups of total probability 0.761.

The scenarios were given the names with their correspondence to the patterns as in Table 6.17:

111111: All in One

1XX11:Fashionable Green Products

XX1X11:Regional Fast Fashion Brands

111XXX:Technological brands with shift on Production Patterns

Table 6.17 : Scenario matching with the hypothesis.

		Senario-1	Scenario- 2	Scenario-3	Scenario-4
No	Hypothesis	All in one	Fashionable green products	Regional fast fashion brands	Technological brands with a shift on production patterns
1	The low cost countries will lose their advantages as the wages will increase	1	1	X	1
2	The demand for technologically improved garments will increase	1	X	X	1
3	The number of brands will increase, the customer base will decrease in extent	1	X	1	1
4	The environment friendly product will gain popularity	1	1	X	X
5	The trade partnership activities within the trading blocks will increase	1	X	1	X
6	The product portfolio will enlarge, the variability and number of season will increase	1	1	1	X
	Probability	0.116	0.304	0.259	0.291

Fashionable green products

The environment friendly products were stated to gain popularity. This would indirectly increase the production costs as the customer would prefer to buy more environment friendly products. The apparel sellers, the wholesalers and retailers would prefer to work with the producers that could impose hard and fast rules in

terms of environment protection. This type of protection would require a notable investment on the facilities and machinery. All the producers in the value chain would pay the same attention to the rules. On the other hand, in this scenario, it was implied that the product portfolio would enlarge and the variability and number of seasons would increase. This meant that the environment friendly products would have a great effect on the extension of the product portfolio satisfying the European consumers demanding more fashionable and yet environmentally friendly apparel.

Regional fast fashion brands

This scenario implied that the number of product types would increase and the products would change in design with some fashionable and stylistic modifications on them. The brand producers would develop different collections with new images and identities for their customer base. The low cost countries would continue to produce at competitive prices and, the trading activities within the blocs would increase. For both of the hypothesis to occur at the same time, the number of full package suppliers should increase and seamless supply chain should develop.

Technological brands with a shift on production patterns

The scenario which can also be called with "technology intensive brands" reveals that, the demand for technologically improved products would be accompanied with the increase in the number of brands and decrease in consumer base. Most of the people would engage the quality with the brand name when technologically improved products were in particular concern. On the other hand, the low cost producing countries would lose their advantage as the labor wage would increase since the technologically intensive products would require more skilled and qualified labor.

All in One

That scenario involved all hypotheses at the same time. The people would prefer environmentally friendly but technologically intensive products at the same time. New brands with smaller consumer base would present highly variable, large portfolios. More regionalization in the supply patterns would be observed with an emphasis on geographical closeness would be possible because of the required fast delivery and shipment.

When the hypotheses and the scenarios were reviewed, it was seen that all hypotheses took place in at least two scenarios. But the hypotheses, "The low cost countries will lose their advantages as the wages will increase", "The number of brands will increase; the consumer base will decrease in extent" and "The product portfolio will enlarge; the variability and number of season will increase" took place in three of four scenarios. Moreover, at least two of these hypotheses mentioned took place in all scenarios which could lead to the thought that these hypotheses could actually be regarded as basic requirements. The rest three hypotheses only took in two scenarios which meant that they were the actual factors causing differences between scenarios. Among these hypotheses, the scenario which got the lowest probability value became "Regional Fast Fashion Brands" that involved the hypothesis "The trade partnership activities within the trading blocs will increase".

6.2 Results for Strategy Development

6.2.1 Development of strategies

The first step of the strategy development and appraisal part was the development of the strategies by the experts. Each expert developed strategies for the hypothesis with which their field of study coincided. In the second round of the interviews, all the strategies developed for these 6 hypotheses were brought together and they were reviewed and checked to see if anything was missing.

Strategies developed for the first hypothesis: The demand for technologically improved garments will increase

In this hypothesis, the strategies that should be applied to produce technology intensive products were discussed.

The experts stated that the first step should be making the definition of the technological product that would be produced. Therefore, a decision should be made if the products would be revolutionary or evolutionary products because the strategies that should be applied together with that strategy might differ. For instance, if producing revolutionary products was preferred than the strategies like making investment on R&D should be given highest priority.

Secondly, it was proposed that technological products might be produced using different materials or using new production technologies. Making investment on

R&D was indispensable for producing technologically improved products. Based on the type of products preferred to be produced, it was suggested that either the R&D laboratory can be built within the company or it could be established as a joint investment. Some projects might be established with the university or with the companies that had the R&D or P&D facilities. The cooperative studies could be handled with the technology producers especially the technological materials and production technologies producers. Finally, the people working in the company were stated to be quite important to increase the creativeness and capabilities.

Strategies developed for this hypothesis is seen in Table 6.18.

Table 6.18 : The strategies developed for 1st hypothesis.

	THE OBJECTIVE IS: PRODUCING TECHNOLOGY INTENSIVE PRODUCTS
1	Employing qualified labor
2	Cooperation with the technology producers
3	Renewal of production technologies
4	The usage of technological material on the products
5	Determination of type of product
6	Making investments on R&D

Strategies developed for the second hypothesis: The number of brands will increase, the customer base will decrease in extent

The objective was building brands.

The experts stated that the most important thing for building brand was determination of the brand identity and equity and development of a value proposition. The extent of the brand market should be determined before the brand building.

Market research activities were found critical for making correct segmentation and building niche markets. The ways for branding method, determination of the distribution channels and advertising activities were proposed as branding strategies. Building collaborative relationships for vertical supply chain was found to be quite important for a sustainable brand image. There were also some methods other than producing the own brand like the co branding activities and acquisition of the other brands. Notwithstanding, especially the co branding activities could not be regarded

as brand development but they could lead to the development of new brands using the same consumer base. Finally, logistic activities were stated to be given a high care as distribution activities would easily influence brand image.

Strategies developed for this hypothesis is seen in Table 6.19.

Table 6.19 : The strategies developed for 2nd hypothesis.

	THE OBJECTIVE IS: BUILDING BRANDS
1	Determination of the extent of brand market
2	The choice of branding method-brand partnership
3	Conducting market research in order to determine the target market and their needs via segmentation
4	Determination of the brand identity and equity-Value proposition
5	Determination of the distribution channels
6	Advertising activities
7	Collaborative relationships for vertical supply chain
8	Improvement in logistic activities

Strategies developed for the third hypothesis: The product portfolio will enlarge, the variability and number of season will increase

The objective for that hypothesis was determined to be producing garment for a specific market and its needs which can differentiate with changes in style, type of fabrication and color pallet. The style change could be considered in short periods of time. Therefore, the objective was stated to be designing for quick and large portfolio.

According to the experts, product portfolio changed according to the size of the company, but the customer mindset and economy were also important. For this reason, it was added that the mid size companies should concentrate on core brands and adding value to products. Moreover, the portfolio should be enlarged with the technical products, be launched fast to the market and customized.

The consumer preferences were stated to have a large range depending on the characteristics, personal activities, interest and opinions. For instance, age was claimed to be also very important factor for making design as both the requirement and shopping habits of the customers depended on age in such a way that customers got older they were tougher to spend more money in housing activities. Older people

were claimed to buy less because of the fit, quality and style problems. Keeping all these in mind, it was proposed to conduct market research in order to find out the desires of the consumers in especially European market where the population got older.

Conducting market research had great significance to identify the product groups in product portfolio. Product portfolio could cover only the period of life like maternal clothing or the whole period of life focusing on the life styles.

The experts believed in the advantages of making proactive design activities even all these work could not be reflected in the portfolio. The design activities should be established by innovative and creative people. Working with the same designers could increase the ability whereas working with the contract designer and free lancers could bring a fresh sight to the companies.

Beside these firm specific and localized efforts, it was also added that the company itself should have a dynamic nature in order to launch new products as soon as possible after they were created. For this reason, they drew attention to the tools that increased the speed and flexibility like technology usage for fast fashion, implementation of quick response strategies and improvement in logistic activities. Finally, it was added that if the company itself made only the design instead of producing the garments itself then it should develop a mutually trusted collaborative relationships in the vertical supply chain. Strategies developed for this hypothesis is seen in Table 6.20.

Table 6.20 : The strategies developed for 3rd hypothesis.

	THE OBJECTIVE IS: DESIGN FOR QUICK AND LARGE PORTFOLIO
1	Doing proactive design activities
2	Employing designers
3	Conducting market research in order to determine the target market and their needs via segmentation
4	To determine the product type in product portfolio
5	Using technology usage for fast fashion
6	Collaborative relationships for vertical supply chain
7	Improvement in logistic activities
8	Implementation of quick response strategies

Strategies developed for the fourth hypothesis: The environmental friendly production will gain much more popularity

The objective of this hypothesis was stated to be producing environmentally friendly products. Strategies developed for this hypothesis is seen in Table 6.21.

The most important problem in environmental issues was about the development of the standard because there were different organizations and associations writing the standards. Some of them could conflict with each other. But, there was a hierarchy of standards which were international standards, governmental regulations and marketing regulations that company should comply with.

The experts drew attention to the environmentally friendliness of the natural and synthetic materials and claimed that it was not correct to say that all natural fibers were environmentally friendly instead the life cycle assessment should be made. On the other hand, the usage of environmentally friendly materials could improve the environmentally friendliness of the apparel.

In order to make environmentally friendly production, integrated environmental protection activities were proposed to be made like the usage of proper technology and best available techniques. Furthermore, post production stages like the packaging and transport activities should be paid attention. And all these activities could be improved by using recognized quality assurance certifications.

Table 6.21 : The strategies developed for 4th hypothesis.

	THE OBJECTIVE IS: PRODUCING ENVIRONMENTALLY FRIENDLY PRODUCTS
1	Getting recognized quality assurance certificate
2	Usage of environmentally friendly raw materials
3	Making improvements in the company to comply with regulations and update the standards
4	Achieving environmentally friendliness in the supply chain
5	Integrated environmental protection activities in production
6	Usage of ecolabels
7	Providing eco-efficiency in post production stages

Environmentally friendliness should be achieved in the supply chain because; all the production stages should be environmentally friendly for the product to be environmentally friendly.

Finally, eco labeling was claimed to be showing the degree of environmentally friendliness making emphasis for getting ecolabels, as all the production stage should be qualified to get ecolabels.

Strategies developed for the fifth hypothesis: The low cost countries will lose their advantages because of increase in wages

The objective of this hypothesis was low cost production. Strategies developed for this hypothesis is seen in Table 6.22.

The experts stated that low cost competition would always exist on the globe without extinction instead low cost production would shift from place to place. Nonetheless, the experts reached a consensus that, producing the same quality at lower cost was clearly an advantage. At this point, it was suggested to decrease the amount of investments on expansion. Nonetheless, it wasn't suggested to quit making on investments for improving core competencies. Moreover, some ways should be found out to produce quality products at higher speed.

The workers should gain specific job skills. The investment should be made to modernize the facility in order to shorten the production cycle. Modular production and lean production were proposed to be implemented to increase the quality and shorten the period by decreasing the work in process. As the raw material comprised highest share in production cost, it was found important to decrease the raw material and production cost and increase the usability of the raw material.

Table 6.22 : The strategies developed for 5^{th} hypothesis.

	THE OBJECTIVE IS: LOW COST PRODUCTION
1	Cutoffs on investments
2	Decreasing the raw material costs
3	Increasing the efficiency of usage of material
4	Renewal of production technologies
5	Decreasing the production cost
6	Implementation of quick response strategies
7	Collaborative relationships for vertical supply chain
8	Increasing the labor efficiency

Different from all these, the experts stated that collaborative actions could simplify the production and a trustful and seamless organization could ease the operation and

decrease the period needed for deliveries and high quality standards could easily be caught.

Strategies developed for the sixth hypothesis: The trade partnership activities within the trading blocs will increase

The objective of this hypothesis was building trade partnership.

The first point for building partnership was increasing infrastructure to be chosen as an eligible partner as some partnerships would require investing on machinery or other processes.

The second point for establishing partnership was stated to be the decision about the type of partnership based on monetary and legal issues, building partnership in supply or market side and determination of the extent of the region for partnership activities. Moreover, it was added that a special attention should be made for building brand partnership as the brand image was very vulnerable to that kind of experiences. These decisions were stated to be significant as they could lead also to collaborative relationships for vertical supply chain.

Finally, the experts stated that the benefits of the partnership should be increased either for short term by building mutual trust and effort or in long term which included the share of know how between the companions. Strategies developed for this hypothesis is seen in Table 6.23

Table 6.23 : The strategies developed for 6th hypothesis.

	THE OBJECTIVE IS: TRADE PARTNERSHIP
1	Increasing infrastructure to be chosen as an eligible partner
2	Type of partnerships based on monetary and legal issues
3	Supply and market focus on partnership
4	Collaborative relationships for vertical supply chain
5	The choice of branding method-brand partnership
6	Determination of the extent of region for partnership activities
7	Increasing the benefits of partnership
8	Capturing the long term benefits from the partners as a manufacturing company

In the end, 37 strategies were developed for 6 hypotheses that comprised 4 scenarios.

It was seen that, some strategies took place in more than one scenario like “Renewal of production technologies” and “Increasing the efficiency of usage of material”

since six hypothesis were used either twice or three times in different scenarios. Even, four strategies took place in all the scenarios as these strategies were established to be common in more than one hypothesis which were “Conducting market research”, “Collaborative relationships in vertical supply chain”, “Improvement in logistic activities” and “Implementation of quick response strategies”. That loomed large the importance of market research and development of seamless supply chain at all extents.

6.2.2 Assessment of strategies

Composed of 3 hypotheses, at least 19 strategies were developed for each scenario. Based on the scope and resources, the company might select some or all of these strategies. While the strategies established for the first hypothesis comprised the alternative ways of producing technically improved products, the strategies established for producing branded products seemed to be complementary for themselves instead of being alternatives.

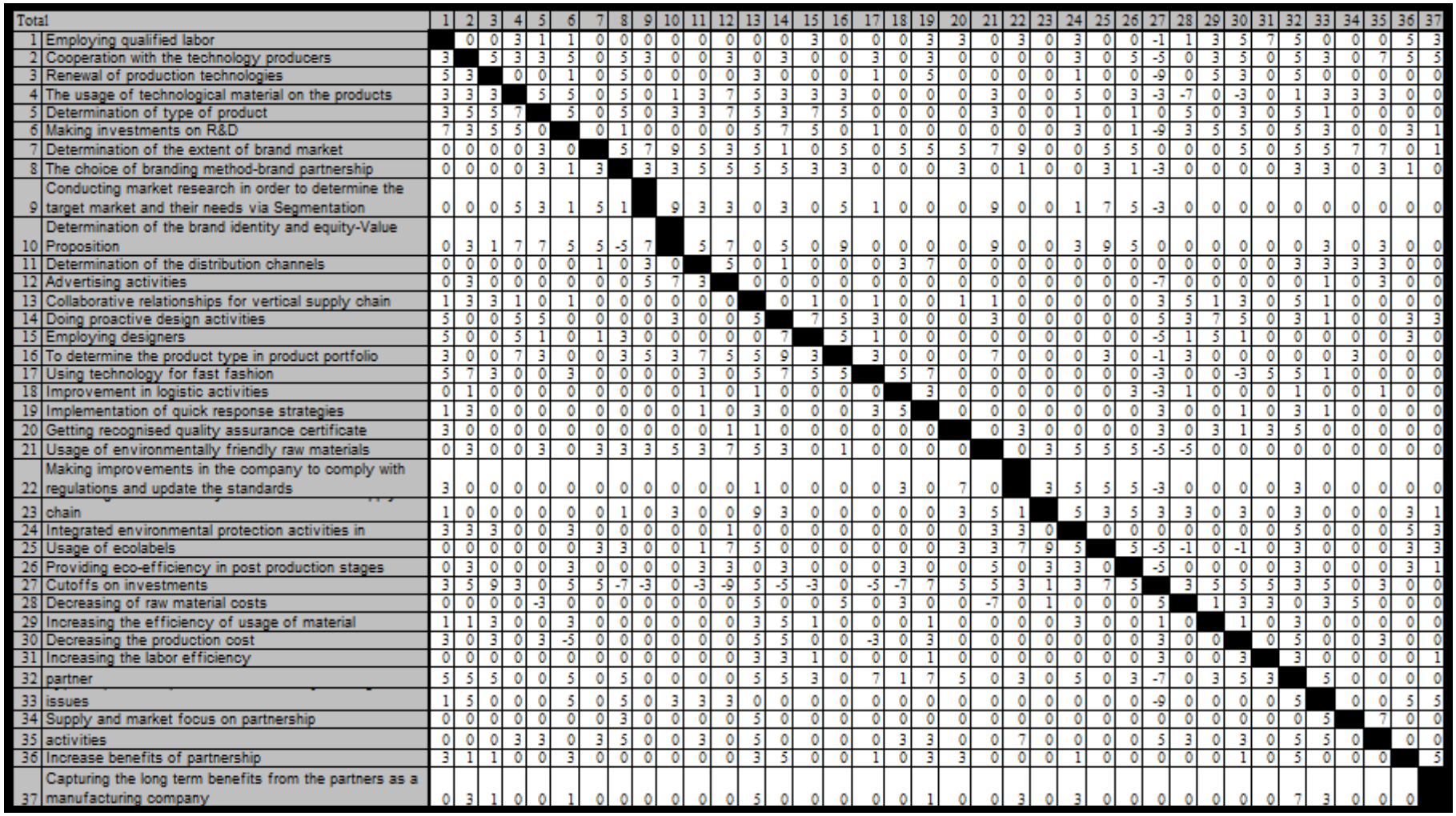
On the other hand, some strategies might have impact on the other strategies causing the priority of the strategies in the scenarios to change and dynamism to be created. If the key strategies for each scenario were determined, then much care could be given to the application of these strategies and in this way the priorities could be more easily determined and the dominant strategies could be identified.

To this aim, the application of Micmac was proposed in order to determine the most influential and key strategies creating dynamism in each scenario.

6.2.2.1 Application of micmac

The strategies were assessed by the experts if there were any influence on the other strategies. Each expert determined the value of the impact of strategies on the others considering only the direct relations. Then, the data from the experts were brought together for establishing structural matrix. During data gathering, a scale of 5 points was used which included 0.1,0.3,0.5,0.7,0.9 represented with 0,1,3,5,7,9 respectively in Figure 6.5. In this step, five point scale was used instead of two as it could allow better perceiving the degree of influences. Moreover, the direction was stated by the experts but the values were taken as positive in Micmac application.

The influence dependency chart was divided into segments and the variables were



Total		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
1	Employing qualified labor		0	0	3	1	1	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	3	0	3	0	0	-1	1	3	5	7	5	0	0	0	5	3
2	Cooperation with the technology producers	3		5	3	3	5	0	5	3	0	0	3	0	3	0	0	3	0	3	0	0	0	0	3	0	5	-5	0	3	5	0	5	3	0	7	5	5
3	Renewal of production technologies	5	3		0	0	1	0	5	0	0	0	0	3	0	0	0	1	0	5	0	0	0	0	1	0	0	-9	0	5	3	0	5	0	0	0	0	0
4	The usage of technological material on the products	3	3	3		5	5	0	5	0	1	3	7	5	3	3	3	0	0	0	0	3	0	0	5	0	3	-3	-7	0	-3	0	1	3	3	3	0	0
5	Determination of type of product	3	5	5	7		5	0	5	0	3	3	7	5	3	7	5	0	0	0	0	3	0	0	1	0	1	0	5	0	3	0	5	1	0	0	0	0
6	Making investments on R&D	7	3	5	5	0		0	1	0	0	0	0	5	7	5	0	1	0	0	0	0	0	0	3	0	1	-9	3	5	5	0	5	3	0	0	3	1
7	Determination of the extent of brand market	0	0	0	0	3	0		5	7	9	5	3	5	1	0	5	0	5	5	5	7	9	0	0	5	5	0	0	0	5	0	5	5	7	7	0	1
8	The choice of branding method-brand partnership	0	0	0	0	3	1	3		3	3	5	5	5	5	3	3	0	0	0	3	0	1	0	0	3	1	-3	0	0	0	0	3	3	0	3	1	0
9	Conducting market research in order to determine the target market and their needs via Segmentation	0	0	0	5	3	1	5	1		9	3	3	0	3	0	5	1	0	0	0	9	0	0	1	7	5	-3	0	0	0	0	0	0	0	0	0	0
10	Determination of the brand identity and equity-Value Proposition	0	3	1	7	7	5	5	-5	7		5	7	0	5	0	9	0	0	0	0	9	0	0	3	9	5	0	0	0	0	0	0	3	0	3	0	0
11	Determination of the distribution channels	0	0	0	0	0	0	1	0	3	0		5	0	1	0	0	0	3	7	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	0	0
12	Advertising activities	0	3	0	0	0	0	0	0	5	7	3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7	0	0	0	0	0	1	0	3	0	0
13	Collaborative relationships for vertical supply chain	1	3	3	1	0	1	0	0	0	0	0	0		0	1	0	1	0	0	1	1	0	0	0	0	0	3	5	1	3	0	5	1	0	0	0	0
14	Doing proactive design activities	5	0	0	5	5	0	0	0	0	3	0	0	5		7	5	3	0	0	0	3	0	0	0	0	0	5	3	7	5	0	3	1	0	0	3	3
15	Employing designers	5	0	0	5	1	0	1	3	0	0	0	0	0	7		5	1	0	0	0	0	0	0	0	0	0	-5	1	5	1	0	0	0	0	0	3	0
16	To determine the product type in product portfolio	3	0	0	7	3	0	0	3	5	3	7	5	5	9	3		3	0	0	0	7	0	0	0	3	0	-1	3	0	0	0	0	0	3	0	0	0
17	Using technology for fast fashion	5	7	3	0	0	3	0	0	0	0	3	0	5	7	5	5		5	7	0	0	0	0	0	0	0	-3	0	0	-3	5	5	1	0	0	0	0
18	Improvement in logistic activities	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0		3	0	0	0	0	0	0	0	-3	1	0	0	0	1	0	0	1	0	0
19	Implementation of quick response strategies	1	3	0	0	0	0	0	0	0	0	1	0	3	0	0	0	3	5		0	0	0	0	0	0	0	3	0	0	1	0	3	1	0	0	0	0
20	Getting recognised quality assurance certificate	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0		0	3	0	0	0	0	3	0	3	1	3	5	0	0	0	0	0
21	Usage of environmentally friendly raw materials	0	3	0	0	3	0	3	3	3	5	3	7	5	3	0	1	0	0	0	0		0	3	5	5	5	-5	-5	0	0	0	0	0	0	0	0	0
22	Making improvements in the company to comply with regulations and update the standards	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	7	0		3	5	5	5	-3	0	0	0	0	3	0	0	0	0	0
23	chain	1	0	0	0	0	0	0	1	0	3	0	0	9	3	0	0	0	0	0	3	5	1		5	3	5	3	3	0	3	0	3	0	0	0	3	1
24	Integrated environmental protection activities in	3	3	3	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	3	0		0	0	0	0	0	0	0	5	0	0	0	5	3
25	Usage of ecolabels	0	0	0	0	0	0	3	3	0	0	1	7	5	0	0	0	0	0	0	3	3	7	9	5		5	-5	-1	0	-1	0	3	0	0	0	3	3
26	Providing eco-efficiency in post production stages	0	3	0	0	0	3	0	0	0	0	3	3	0	3	0	0	0	3	0	0	5	0	3	3	0		-5	0	0	0	0	3	0	0	0	3	1
27	Cutoffs on investments	3	5	9	3	0	5	5	-7	-3	0	-3	-9	5	-5	-3	0	-5	-7	7	5	5	3	1	3	7	5		3	5	5	5	3	5	0	3	0	0
28	Decreasing of raw material costs	0	0	0	0	-3	0	0	0	0	0	0	0	5	0	0	5	0	3	0	0	-7	0	1	0	0	0	5		1	3	3	0	3	5	0	0	0
29	Increasing the efficiency of usage of material	1	1	3	0	0	3	0	0	0	0	0	0	3	5	1	0	0	0	1	0	0	0	0	3	0	0	1	0		1	0	3	0	0	0	0	0
30	Decreasing the production cost	3	0	3	0	3	-5	0	0	0	0	0	0	5	5	0	0	-3	0	3	0	0	0	0	0	0	0	3	0	0		0	5	0	0	3	0	0
31	Increasing the labor efficiency	0	0	0	0	0	0	0	0	0	0	0	0	3	3	1	0	0	0	1	0	0	0	0	0	0	0	3	0	0	3		3	0	0	0	0	1
32	partner	5	5	5	0	0	5	0	5	0	0	0	0	5	5	3	0	7	1	7	5	0	3	0	5	0	3	-7	0	3	5	3		5	0	0	0	0
33	issues	1	5	0	0	0	5	0	5	0	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-9	0	0	0	0	5		0	0	5	5
34	Supply and market focus on partnership	0	0	0	0	0	0	0	3	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5		7	0	0
35	activities	0	0	0	3	3	0	3	5	0	0	3	0	5	0	0	0	0	3	3	0	0	7	0	0	0	0	5	3	0	3	0	5	5	0		0	0
36	Increase benefits of partnership	3	1	1	0	0	3	0	0	0	0	0	0	3	5	0	0	1	0	3	3	0	0	0	1	0	0	0	0	0	1	0	5	0	0	0		5
37	Capturing the long term benefits from the partners as a manufacturing company	0	3	1	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	3	0	3	0	0	0	0	0	0	0	7	3	0	0	0	

Figure 6.5 : The final strategy matrix.

grouped being selected as explained in the Micmac application under the section 6.1.1.2 and the influence and dependency charts for each scenario were shown in Appendix F. The first column in Table 6.24, 6.25, 6.26 and 6.27 shows the number of the strategy which was used to represent that strategy in Figure F.1, F.2, F.3 and F.4 respectively.

Evaluation of the strategies within the scenario: Fashionable green products

The influential and key strategies for fashionable green products was summarized in Table 6.24

Table 6.24 : Influential and key strategies for Fashionable Green Products.

FASHIONABLE GREEN PRODUCTS		
Number in influence-dependency chart	**Group of Key Strategies**	**Strategy explanation**
1	3rd group	Renewal of production technologies
3	3rd group	Collaborative relationships for vertical supply chain
4	1st group	Doing proactive design activities
11	1st group	Usage of environmentally friendly raw materials
15	2nd group	Usage of ecolabels
17	1st group	Cutoffs on investments
18	2nd group	Decreasing of raw material costs
20	3rd group	Decreasing the production cost

Among 21 strategies “Doing proactive design activities”, “Usage of environmentally friendly raw material” and “cutoffs in investment” were found to locate in the relay quadrant which meant that they were destabilized and being influenced from the other strategies. Beside “Usage of ecolabels” and “Decreasing the raw material costs” were selected as the secondary strategies because of being closely located to the relay quadrant. “Renewal of production technologies”, “Collaborative relationships for vertical supply chain” and “Decreasing the production cost” were stated to have the highest influence on the other strategies. Therefore, in this scenario, the strategies related with environmentally friendly production were highly dynamic whereas the strategies related with the low cost production were highly influential among the others.

Evaluation of the strategies within the scenario: Regional fast fashion brands

This scenario was comprised of 19 strategies whose locations were given in Table 6.25.

Table 6.25 : Influential and key strategies for Regional Fashion Brands.

REGIONAL FAST FASHION BRANDS		
Number in influence-dependency chart	**Group of Key Strategies**	**Strategy explanation**
2	1st group	The choice of branding method-brand partnership
3	1st group	Conducting market research in order to determine the target market and their needs via Segmentation
4	1st group	Determination of the brand identity and equity-Value Proposition
5	3rd group	Determination of the distribution channels
6	3rd group	Advertising activities
7	3rd group	Collaborative relationships for vertical supply chain
8	3rd group	Doing proactive design activities
9	3rd group	Employing designers
10	1st group	To determine the product type in product portfolio
11	3rd group	Using technology for fast fashion
13	3rd group	Implementation of quick response strategies
14	3rd group	Increasing infrastructure to be chosen as an eligible partner
15	3rd group	Type of partnerships based on monetary and legal issues

In that scenario, only 1st and 3rd group of variables were identified. Among the first group of strategies, there were "The choice of branding method-brand partnership", "Conducting market research in order to determine the target market and their needs via Segmentation", "Determination of the brand identity and equity-Value Proposition" and "To determine the product type in product portfolio". 9 strategies were included in the 3rd group of strategies such as "Employing designers", and "Advertising activities". Nonetheless, it was observed that most of the first group of strategies belonged to the hypothesis related with brand building; 3rd group of strategies were found to be related with "design for quick and large portfolio". Therefore, the branding and designing issues should be in more concern for the success in that scenario.

Evaluation of the strategies within the scenario: Technological brands with shifts in production patterns

According to Table 6.26, "Cooperation with technology producers", "Cutoff on investments" and "Making investments on R&D" was found to be the key variables for that scenario. Nevertheless, "The usage of technologically improved material", "Conducting market research in order to determine the target market and their needs via Segmentation" and "Advertising activities" were found to be secondary key variables whereas the strategies like "Decreasing the production cost" and "Renewal of production technologies" were found to take place in the highly influential strategies.

Table 6.26 : Influential and key strategies for Technological Brands with Shift in Production.

TECHNOLOGICAL BRANDS WITH SHIFT IN PRODUCTION		
Number in influence-dependency chart	**Group of Key Strategies**	**Strategy explanation**
2	1st group	Cooperation with the technology producers
3	3rd group	Renewal of production technologies
4	2nd group	The usage of technological material on the products
6	1st group	Making investments on R&D
9	2nd group	Conducting market research in order to determine the target market and their needs via Segmentation
12	2nd group	Advertising activities
13	3rd group	Collaborative relationships for vertical supply chain
15	3rd group	Implementation of quick response strategies
16	1st group	Cutoffs on investments
19	3rd group	Decreasing the production cost

Considering the key variables, the strategies that were developed for producing the technological products were observed to give higher dynamism than the other strategies different from the scenarios. Nonetheless, the most influential strategies were selected among the ones basically related with low cost production.

Evaluation of the strategies within the scenario: All in one

As seen from Table 6.27, for this scenario, the first group of strategies were almost found to be including at least one strategy of each hypothesis except the one related with branding such as "Making investments on R&D" from the hypothesis related

with producing technologically intensive products and "Doing proactive design activities" from the hypothesis regarding designing for quick and large portfolio.

Table 6.27 : Influential and key strategies for All in One.

ALL IN ONE		
Number in influence-dependency chart	**Group of Key Strategies**	**Strategy explanation**
2	1st group	Cooperation with the technology producers
3	3rd group	Renewal of production technologies
4	2nd group	The usage of technological material on the products
6	1st group	Making investments on R&D
8	1st group	The choice of branding method-brand partnership
12	3rd group	Advertising activities
14	1st group	Doing proactive design activities
21	2nd group	Usage of environmentally friendly raw materials
27	1st group	Cutoffs on investments
30	3rd group	Decreasing the production cost
32	1st group	Increasing infrastructure to be chosen as an eligible partner
33	2nd group	Type of partnerships based on monetary and legal issues

Nonetheless, most of the strategies that created dynamism in the system were found to be from the two hypotheses regarding the technology intensive production and trading partnership activities. Therefore, the strategies for developing partnerships and producing technology based garments were emphasized for this scenario. Beside these, it was observed that, the strategies "Decreasing the production cost", "Renewal of production technology" and "Advertising activities" were found to be highly influential.

The results were summarized in Table 6.28 and Table 6.29 in which the 1st, 2nd and 3rd group of variables for each scenario were shown together. It was seen that although there were some strategies that showed the same behavior in all scenarios, most of strategies showed a mixed behavior based on the future conditions. Nonetheless, when the strategies that were grouped in 1st, 2nd or 3rd categories of key strategies were reconsidered, the following outcomes were obtained.

Table 6.28 : Influential and key strategies in all scenarios.

No	Strategy explanation	Fashionable green products		Regional Fast Fashion Brands		Technological Brands with shifts in production patterns		All in One	
1	Employing qualified labor					X		X	
2	Cooperation with the technology producers					X	1st group	X	1st group
3	Renewal of production technologies	X	3rd group			X	3rd group	X	3rd group
4	The usage of technological material on the products					X	2nd group	X	2nd group
5	Determination of type of product					X		X	
6	Making investments on R&D					X	1st group	X	1st group
7	Determination of the extent of brand market			X		X		X	
8	The choice of branding method-brand partnership			X	1st group	X		X	1st group
9	Conducting market research in order to determine the target market and their needs via Segmentation	X		X	1st group	X	2nd group	X	
10	Determination of the brand identity and equity-Value Proposition			X	1st group	X		X	
11	Determination of the distribution channels			X	3rd group	X		X	
12	Advertising activities			X	3rd group	X	2nd group	X	3rd group
13	Collaborative relationships for vertical supply chain	X	3rd group	X	3rd group	X	3rd group	X	
14	Doing proactive design activities	X	1st group	X	3rd group			X	1st group
15	Employing designers	X		X	3rd group			X	
16	To determine the product type in product portfolio	X		X	1st group			X	
17	Using technology for fast fashion	X		X	3rd group			X	
18	Improvement in logistic activities	X		X		X		X	
19	Implementation of quick response strategies	X		X	3rd group	X	3rd group	X	
20	Getting recognised quality assurance certificate	X						X	
21	Usage of environmentally friendly raw materials	X	1st group					X	2nd group
22	Making improvements in the company to comply with regulations and update the standards	X						X	
23	Achieving environmentally friendliness in the supply chain	X						X	
24	Integrated environmental protection activities in production	X						X	
25	Usage of ecolabels	X	1st group					X	

Table 6.29 : Influential and key strategies in all scenarios.

No	Strategy explanation	Fashionable green products		Regional Fast Fashion Brands		Technological Brands with shifts in production patterns		All in One	
26	Providing eco-efficiency in post production stages	X						X	
27	Cutoffs on investments	X	1st group			X	1st group	X	1st group
28	Decreasing of raw material costs	X	2nd group			X		X	
29	Increasing the efficiency of usage of material	X				X		X	
30	Decreasing the production cost	X	3rd group			X	3rd group	X	3rd group
31	Increasing the labor efficiency	X				X		X	
32	Increasing infrastructure to be chosen as an eligible partner			X	3rd group			X	1st group
33	Type of partnerships based on monetory and legal issues			X	3rd group			X	2nd group
34	Supply and market focus on partnership			X				X	
35	Determination of the extent of region for partnership activities			X				X	
36	Increase benefits of partnership			X				X	
37	Capturing the long term benefits from the partners as a manufacturing company			X				X	

"Cutoffs on investments" was found to be taking place in 3 scenarios being the first group of strategy in all scenarios as in the case of "Making investments on R&D" and "Cooperation with technology producers" which were selected to be the first group of strategies in two scenarios. This meant that these strategies were highly dynamic in nature.

The other strategies that showed mostly dynamic behavior by being either 1^{st} or 2^{nd} group of strategies were:

1-Usage of environmentally friendly raw material: That strategy became 1^{st} and 2^{nd} group of strategy in two scenarios it was included in.

2-Usage of technologically improved material on product was selected as 2^{nd} group of strategy in two scenarios.

On the other hand, the most influential strategies became “Renewal of production technologies” and “Decreasing the production cost” since they were determined to be 3rd group of strategy in 3 scenarios they took place.

Beside these strategies showing highly influential or highly dynamic behavior, some strategies showed a complex behavior either being 1st and 2nd or 3rd group of strategies such as “Advertising activities”, “Increasing infrastructure to be chosen as an eligible partner”, “Doing proactive design activities” and “Type of partnerships based on monetary and legal issues”.

Analyzing the strategies in the future environment enabled to determine for which of them a special care should be given during implementation. This revealed that the strategies that were developed within the hypotheses “The low cost countries will lose their advantages as the wages will increase”, “The trade partnership activities within the trading blocs will increase”, and “The demand for technologically improved garments will increase” needed special care. The ones for former two hypotheses mentioned were found to be showing more influential behavior whereas the strategies for the latter hypothesis were carried out to be more dynamic.

7. DISCUSSION

In this study, the future perspective of European market for Turkish apparel industry was created with the scenarios established and the strategies developed for success within these scenarios were given with an assessment procedure. The outcomes provide alternative ways of thinking about the future with the opportunities that can be benefited by the industry. Besides, the industry can evaluate itself with these possible alternatives and better foresee the precautions that should be taken in order to prevent the threats that can be raised because of the weaknesses of the industry. In this section, firstly the outcomes of the study from sectors point of view are summarized; secondly the outcomes are evaluated within the current situation and finally, general suggestions are made for the industry.

7.1 The Outcomes of the Study from Sector Point of View

The study determined the major factors on which the future perspective will occur and give the alternative ways of success by describing the future images in the European market. The major points are given below.

The main factors that were found to be influential for preparing future conditions were stated to be the consumers and the producers. The consumers and their preferences were pointed out to be the major factor in shaping the future highlighting the effectiveness of consumer focus in manufacturing. The demands of consumers can be limitless therefore creates the variability. The producers' role is satisfying these needs as much as possible on one hand; setting boundaries for capabilities on the other hand.

From the analysis, it was carried out that there will be two types of producers in European market in specified period of time that will constitute a dipole structure. One of the poles involves the producers which are strictly dependent on the consumer preferences and differentiation whereas the other pole is consisted of the producers that benefit from scale economies and are protected by international rules

and laws. These two poles correspond with the competitors of Turkey. For current situation while, US, EU countries, South Korea and Hong Kong take place at one pole, East Mediterranean countries, new members of EU and low cost countries such as China and far eastern countries can take place at the other pole. The actors in both poles try to maintain their status quo which may mean that although the producers taking place in these poles change within time, the situation will continue to exist. Turkey seems to take place in between and it is apparent that its place will be determined according to the path it follows. Within this dipole structure, technology is proposed to be a barrier. And this barrier can only be eliminated by developing collaborative effort for sharing knowledge and improving infrastructure. The other factor that supports that dipole structure was found to be political relations that cover the agreements and associations among the countries such as free trade agreements and preferential trade agreements. Based on these findings, it can be said that Turkish apparel industry should take place at one of these poles by either continuing producing at high volumes as a political and regional partner or by differentiating itself as a technology provider via collaborative relations.

The final point that comes forwards with the effectual factors in shaping the future is environmentally friendly production which is favored by both consumers and producers. This makes environmentally friendly production a must for manufacturers.

Beside these major points shaping the future, significant parameters that will be required by the alternative futures are found to be related with brand, design, technology, partnership, environmentally friendliness and low cost production. Throughout the analysis, possible alternatives for the future were established which carries out the options that can be selected by the industry and presents a special recipe for success.

According to outcomes, it is seen that brand, design and producing at lower costs would continue to be considerable. But the study revealed the fact that these issues will most likely be the primary requirements from the industry meaning that they will be needed but not sufficient alone. Therefore, marketing through branding or producing designs are essential for Turkish apparel industry but the brand image should not be associated with the price or consumer segment. Instead, the brands or designs should be associated with a focus on product types such as ‘technologically

improved products' and 'environmentally friendly products'. If the way is headed for the production of technologically improved products then the other aims should be producing these products under unique brand images and at lower cost which might lead to satisfy the demands of consumer segments with lower purchasing ability. In case that, the select type of product is environmentally friendly products, then it should be produced with high sense of design and fashion. An alternative way for success via branding within the future environment is presented as being effectual in a specific trade bloc. Businesses in trade blocs benefit from lower tariffs and trade barriers. The blocs are developed among the countries which are close to each other such as NAFTA, ASEAN and EU. Mostly the countries have trade agreements with the countries in their neighborhood. This lowers transportation cost to decrease on one hand, easies the penetration into the market on the other hand because of cultural similarities and interactions. When this alternative is suggested as an alternative future environment of the European market, it may be interpreted as regionalization of the European market in the future. The number of member countries of EU increased in recent years and the control of such a large region caused problems. In fact, EU countries has to fight with the corruption in economy, this can be taken as an evidence for poor management of larger regions. Therefore, it is probable that the formal or informal regionalization can quite occur in Europe and new trade blocs can be shaped.

In this study, strategy suggestions are made for the specific issues and alternatives and it was found that, two strategies stand as a must for success in all extents. The first strategy is conducting market research in order to better identify the consumers and their needs. The market researches should include both the B2B and B2C consumers. The second strategy is building and improving supply chain activities as better established supply chains serve to decrease cost, to increase collaborative relationships and customer satisfaction by reducing the time to market.

The major outcome of strategy evaluation revealed the fact that, the significance and the characteristics of the strategies may change with how they are implemented or with which strategies they are applied. Nonetheless, the strategies developed for integration of technology into the system were carried out to be requiring care at most as the time and money required to implement these strategies are higher than the rest.

7.2 Evaluations of the Outcomes within the Current Situation

The study loomed large the requirements for branding, increasing design activities and producing at low costs. But it was pointed out that more important than these, the specific products should be focused and partnerships should be benefited by building trade agreements in specified regions.

In section 2.5 and 2.6, the strength and weaknesses were reviewed and the competitiveness of the industry was given. When the findings from the study are assessed comparatively with the current situation, it can be concluded that Turkey will face a more challenging situation than expected.

The three prerequisites were carried out to be design, brand and low cost production. Turkey seems to have higher capabilities in terms of producing fashionable garments based on experience. Low cost production is possible to some extent because geographical location and the engineered quality in the manufacturing processes. Therefore, it cannot compete within the field of basic products, but it still has low cost advantage in complex products. Turkey shows the worst performance in terms of branding activities. Although the industrial awareness is high about branding, the efforts do not seem to turn out satisfactory yet.

The other critical point is the issues related with integration of technology into production, marketing and especially the products. That point is more critical than branding because it was suggested among major trends for future alternatives.

Nonetheless, Turkey seems to have more advantages in the production of green apparel. As stated previously, Turkey improved itself in terms of establishing production activities in accord with the environmental standards. Besides, Turkey is the second organic cotton producer in the world as stated previously.

Finally, regarding partnership issues, Turkey seems to be advantageous at a company level but disadvantageous at a country level. Because, the companies themselves built strategic relationships on mutual trust with the companies in the European market, but the European market is not eager to develop a trade partnership in governmental level that provides advantages in both parties. As stated previously, the Customs Union did not achieve the expected success from Turkish supplier point of view. It allowed Turkish companies to better serve the market but prohibited and

deferred the awareness of the companies about the need for transformation into marketer.

7.3 The Suggestions for the Industry based on the Outcomes

Based on the outcomes and evaluation of the industry within these outcomes, it can be said that Turkey can find a way for itself in order to overcome its current situation. But the way ahead of Turkey is harsh. It requires Turkey to focus on problematic points.

According to the results and final evaluation within the industry, the primary issue for Turkey is the integration of technology, as repeated many times during the analysis, and it corresponds to almost weakest point of the industry. Turkey can improve itself within this field by making more investment on R&D. That effort can be awarded much if the apparel and textile industries act together. The universities or other research institutes can also be included to these activities. Technology integration will surely cause both the production of evolutionary and revolutionary products. Although the investments on technology involves risk of failure, it will at least cause an increase in the experience of the usage of technological materials in the products which can further be benefited for building a new brand image.

The second suggestion for the industry is developing brands and in especially the regions where it can benefit trade advantages. Turkey should insist on the integration into EU, or increase acquisitions from its partnership with EU. Besides, it can concentrate on specific regions of European market. For instance, Turkey can penetrate into Balkans region where it can use the advantages of being closely located geographically and having similarities culturally. But to this aim, the political relations with the countries in the close neighborhood should be improved. These suggestions cover merely the European market as the scope of the study is limited with the European market. But, that suggestion can be used for the other markets, if it is found out that there is an opportunity like this in those markets.

The final suggestion for Turkish apparel industry is producing fashionable green products. Because, the consumers in European market are fashion conscious and their willingness to pay more for a green apparel is only provided if the look of a product match well with consumer’s tastes for fashion. That suggestion can be more

easily achieved by Turkey considering the capabilities and experience level in terms of fashionable product. Besides, it can quite work well in a crisis environment therefore it can be more profitable that the other two suggestions that requires much investments. It is also better from the suggestion about the technological products, as the technological products are regarded to be luxurious items by the end consumers especially in shortage of purchasing power.

It is also advised to take care of different strategies for each suggestion. For the first suggestion, much care should be provided with the strategies of making investments on R&D. For second suggestion of brand building, the market research, the determination of brand identity and brand partnerships; for the third suggestion, the usage of environmentally friendly raw materials were found to be showing a dynamic character. Besides, in all these suggestions, the manufacturing process should be tried to get leaner and defect-free in order to decrease cost.

8. CONCLUSION AND RECOMMENDATIONS

The aim of the study is to develop strategies for Turkish apparel industry. A framework was applied in two steps in order to establish the future prospective and to develop strategies for the major partner of Turkey which is European market. The strategies were analyzed and assessed within the environment they were proposed to be applied.

In the first step of the study, the future environment was created using scenarios with a claim of benefiting their ability to draw the whole picture of different parameters together. In the second step, the modular structure of Godet's scenario methodology was considered as a base for analyzing the dynamic behavior of strategies due to their influential and dependency characteristics.

This study is unique in the sense that it uses scenarios for both strategy development and assessment. The study gives the most probable combinations of future hypotheses and allows making a comparison about their severity of special issues. Moreover, the results classify the strategies based on their characteristics enabling the priorities easily to be determined.

The outcomes highlighted the significance of the issues related with design, Technology, brand, partnership, environmentally friendliness and low cost production. Each issue was associated with the others in different combinations in scenarios, providing a path for alternative futures. It was suggested focusing on producing technology intensive product brands, design intensive environmentally friendly products, developing brands in specific regions. The strategies conducting market research and improving supply chain were stated to be preliminary requirements. The strategies developed for integration of technology were strongly advised to be taken care of because of their dynamic structure, whereas the low cost strategies were pointed out to be the most influential ones.

The study points out the similar problems and solutions with the previous studies. But the highlighting issues were different from those. While, brand and marketing

activities were put forward in previous studies, technologically improved and environmentally friendly products were found more critical in this study. Beside study develops strategies and assess them in the environment they are suggested o be implemented allowing to carry out priorities and critical concerns.

Nonetheless, further additions into the study enrich the solutions and can better determine the action plans for Turkey. The scope of the study is limited with the European market but it is possible to apply the same procedure in the other markets including the emerging ones. The competitiveness of the industry was only assessed considering the strengths and weaknesses of Turkey which were depended upon the findings of previous studies. It can be reevaluated for each suggestion in order to establish quantitative results and to reveal the missing points. Besides, further analysis can be established for the assessment of strategies with additional criteria such as time and cost requirements.

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APPENDICES

APPENDIX A : The Characteristics of Experts

APPENDIX B : Some Examples for Assessment of Experts' Reliability

APPENDIX C : Some Examples for Scenario Development Part - MICMAC

APPENDIX D : The Data For MACTOR

APPENDIX E : Some Examples For Scenario Development Part- SMIC

APPENDIX F : The Influence-Dependency Charts for Scenarios

APPENDIX A : The Characteristics of Experts

Table A.1 : The Attributes of Experts developed by Shanteau and Abdoulmuhammedi in the order of significance (Abdolmohammadi and Shanteau. 1992).

Attribute	Description
Know What's Relevant	Experts. based on experience. can readily distinguish relevant from irrelevant information in a problem. They use only what is relevant; they ignore what is not.
Assumes Responsibility	Experts accept responsibility for the outcomes of decisions. successful or unsuccessful. They are willing to stand behind their decisions.
Current Knowledge	Experts have an extensive knowledge base. They make a special effort to keep up with the current facts. trends. and developments.
Adaptability	Experts adjust their decision-making strategies to fit the current situation. They are responsive to changes in conditions of the on-going problem situation.
Perceptive	Experts are able to extract information from a problem that others cannot see. Their decision-making ability is enhanced by insightful recognition and evaluation of confusing situations.
Experience	Experts use past experience to make decisions more-or-less automatically. Their background and experience produces decisions without obvious effort.
Decisiveness*	Experts make decisions quickly. clearly. and emphatically. They do not bother with a detailed analysis of the problem situation.
Self Confident	Experts have a strong belief in their ability to make good decisions. They are calm and self-assured while making decisions.
Stress Tolerance	Experts are able to make decisions under high stress situations. They continue stress situations. They continue to be effective problem solvers even as conditions progressively get worse because of high levels of pressure.
Communicate Expertise	Experts can find novel or unique solutions to difficult problems. They are capable of generating new approaches to established problems as necessary. Effectively communicate their ability to make decisions to others.
Creativity	Experts can find novel or unique solutions to difficult problems. They are capable of generating new approaches to established problems as necessary.
Inquisitive*	Experts exhibit a high degree of inquisitiveness in problem solving situations. They have a tendency to work on problems just out of curiosity.
Problem Simplification	Experts know how to use a divide-and-conquer approach with complex problems. They work on parts to get a better understanding of a complex problem.
Makes Exceptions	Experts know when to follow established decision strategies and when not to.
Energetic*	Experts are capable of investing large amounts of energy into problem solving. They give the appearance of going the extra mile when make decisions.
Problem Selection	Experts use foresight and planning in selecting which problems to work on and which problems to work on and which not. They tackle those problems that they can effectively handle or resolve.
Methodical*	Experts approach each new problem situation very systematically with one thought-out plan of attack. They use a set way to examine problems and carefully proceed step-by-step to make a decision.
Warm and Friendly*	They get along well with people. even in difficult decision-making tasks. They use personality to smooth things over and appear more convincing when making decisions.
Perfectionist*	Experts attempt to achieve high levels of decision making by seeking the best of all possible strategies. They keep working to find the absolute best solution for the problem.
Physical Appearance*	Experts present the outward image of someone who is good at solving problems. They have the style and physical appearance of someone who makes good decisions.

APPENDIX B : Some Examples for Assessment of Experts' Reliability

Table B.1 : Assessment of expert's reliability for MICMAC.

Variable 1	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Mean	Std Dev	Variance	
1 to 2	0	0	1	0	0	0	0	0	1	0.22	0.44	0.19	
1 to 3	0	1	1	1	1	1	1	0	1	0.78	0.44	0.19	
1 to 4	1	1	1	1	0	1	0	1	0	0.67	0.50	0.25	
1 to 5	1	0	1	0	1	1	1	1	1	0.78	0.44	0.19	
1 to 6	1	1	1	1	1	0	1	1	0	0.78	0.44	0.19	
1 to 7	0	0	0	0	0	1	0	0	0	0.11	0.33	0.11	
1 to 8	0	1	1	1	0	1	1	1	1	0.78	0.44	0.19	
1 to 9	1	1	0	0	0	0	0	0	1	0.33	0.50	0.25	
1 to 10	0	0	0	0	1	0	0	0	1	0.22	0.44	0.19	
1 to 11	0	0	0	1	0	0	1	0	0	0.22	0.44	0.19	
1 to 12	1	0	1	0	0	0	0	1	0	0.33	0.50	0.25	
1 to 13	0	1	0	0	0	1	0	0	0	0.22	0.44	0.19	
1 to 14	1	1	1	0	1	1	1	1	1	0.89	0.33	0.11	
1 to 15	0	0	0	0	0	0	0	1	0	0.11	0.33	0.11	
1 to 16	0	0	0	1	1	0	1	0	0	0.33	0.50	0.25	
1 to 17	0	1	0	0	0	1	0	1	1	0.44	0.53	0.28	
1 to 18	0	0	1	0	0	0	0	0	0	0.11	0.33	0.11	
1 to 19	0	1	0	0	0	0	1	0	0	0.22	0.44	0.19	
1 to 20	1	0	0	0	1	0	0	0	0	0.22	0.44	0.19	
1 to 21	0	0	0	1	0	1	0	0	0	0.22	0.44	0.19	
1 to 22	0	1	1	0	0	0	1	0	0	0.33	0.50	0.25	
1 to 23	0	0	0	0	1	1	0	0	0	0.22	0.44	0.19	
1 to 24	0	0	0	0	0	0	0	1	0	0.11	0.33	0.11	
1 to 25	0	0	0	0	0	0	0	0	1	0.11	0.33	0.11	
1 to 26	0	0	0	0	0	0	0	0	1	0.11	0.33	0.11	
1 to 27	0	1	0	1	0	0	0	0	0	0.22	0.44	0.19	
1 to 28	0	0	1	0	1	0	0	1	0	0.33	0.50	0.25	
1 to 29	0	0	0	0	0	0	0	0	1	0.11	0.33	0.11	Mean
Mean	0.25	0.39	0.39	0.29	0.32	0.36	0.32	0.36	0.39	0.34	0.43	0.19	0.34
Std Dev	0.44	0.50	0.50	0.46	0.48	0.49	0.48	0.49	0.50	Std Dev/Mean(column)		1.25	0.48
Variance	0.19	0.25	0.25	0.21	0.23	0.24	0.23	0.24	0.25	Std Dev/ Mean(row)		1.41	0.23

Table B.2 : Assessment of expert's reliability for MACTOR.

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Mean	Variance	Std. Dev	
A1-A1	3	2	2	1	3	3	3	3	3	2.57	0.62	0.79	
A1-A2	3	2	3	2	3	3	3	2	3	2.71	0.24	0.49	
A1-A3	2	3	3	3	2	3	2	3	2	2.57	0.29	0.53	
A1-A4	1	2	2	2	2	2	1	2	2	1.86	0.14	0.38	
A1-A5	0	-1	0	-1	0	0	0	1	1	0.14	0.48	0.69	
A1-A6	1	1	1	1	1	1	1	1	0	0.86	0.14	0.38	
A1-A7	0	0	1	1	0	1	0	0	0	0.43	0.29	0.53	
A1-A8	0	1	-1	1	1	0	0	1	1	0.43	0.62	0.79	
Mean	1.25	1.25	1.38	1.25	1.50	1.63	1.25	1.63	1.50	1.45	0.35	0.57	1.40
Variance	1.64	1.64	1.98	1.36	1.43	1.70	1.64	1.13	1.43	Std Drv/Mean(column)		0.40	1.55
Std. Dev	1.28	1.28	1.41	1.16	1.20	1.30	1.28	1.06	1.20	Std Dev/ Mean(row)		0.88	1.24

Table B.3 : Assessment of expert's reliability for SMIC.

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Mean	Variance	Std. Dev.	
H1-H1	0.7	0.7	0.5	0.5	0.7	0.3	0.7	0.7	0.7	0.61	0.02	0.15	
H1-H2	0.7	0.7	0.7	0.9	0.7	0.7	0.9	0.9	0.7	0.77	0.01	0.10	
H1-H3	0.9	0.9	0.9	0.9	0.7	0.9	0.9	0.9	0.9	0.88	0.00	0.07	
H1-H4	0.9	0.9	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.86	0.01	0.09	
H1-H5	0.9	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.86	0.01	0.09	
H1-H6	0.7	0.7	0.7	0.7	0.5	0.5	0.7	0.7	0.7	0.66	0.01	0.09	
Mean	0.80	0.77	0.73	0.77	0.73	0.70	0.83	0.83	0.77	0.77	0.01	0.10	0.77
Variance	0.01	0.01	0.02	0.03	0.02	0.06	0.01	0.01	0.01	Std Drv/Mean(column)		0.12	0.02
Std Dev	0.11	0.10	0.15	0.16	0.15	0.25	0.10	0.10	0.10	Std Dev/ Mean(row)		0.18	0.14

Table B.4 : Assessment of expert's reliability for SMIC.

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Mean	Variance	Std. Dev.	
H1'-H1	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	
H1'-H2	0.5	0.3	0.3	0.5	0.5	0.5	0.5	0.3	0.5	0.43	0.01	0.10	
H1'-H3	0.5	0.7	0.7	0.5	0.7	0.7	0.7	0.5	0.5	0.61	0.01	0.11	
H1'-H4	0.1	0.1	0	0.1	0.1	0	0	0.1	0.1	0.07	0.00	0.05	
H1'-H5	0.9	0.9	0.9	0.9	0	0.7	0.9	0.7	0.7	0.73	0.09	0.29	
H1'-H6	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.3	0.3	0.34	0.01	0.09	
Mean	0.38	0.38	0.37	0.42	0.30	0.37	0.40	0.32	0.35	0.36	0.02	0.11	0.36
Variance	0.11	0.12	0.13	0.11	0.09	0.10	0.14	0.07	0.07	Std Drv/Mean(column)		0.29	0.10
Std Dev	0.33	0.35	0.37	0.33	0.30	0.32	0.37	0.26	0.27	Std Dev/ Mean(row)		0.88	0.32

Table B.5 : The responses for conducted survey (Independent and conditional probabilities).

Hypothesis		Responses																													Mean	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Survey	Experts
1	1	0.9	0.5	0.7	0.9	0.5	0.7	0.5	0.9	0.3	0.7	0.5	0.3	0.9	0.1	0.7	0.7	0.5	0.5	0.3	0.5	0.9	0.9	0.7	0.1	0.3	0.7	0.9	0.7	0.5	0.6	0.6
1	2	0.9	0.7	0.9	0.9	0.5	0.3	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.1	0.7	0.9	0.9	0.5	0.7	0.9	0.5	0.5	0.9	X	0.3	0.7	0.7	0.9	0.7	0.8
1	3	0.7	0.7	0.7	0.7	0.9	0.7	0.9	0.9	0.9	0.9	0.7	0.5	0.9	0.5	0.3	0.5	0.5	0.7	0.5	0.5	0.7	0.5	0.5	0.9	0.9	0.5	0.9	0.7	0.5	0.7	0.9
1	4	0.9	0.9	0.9	0.7	0.7	0.5	0.7	0.9	0.7	0.9	0.7	0.5	0.7	0.9	0.3	0.7	0.7	0.9	0.9	0.7	0.9	0.7	0.9	0.7	0.9	0.3	0	0.7	0.7	0.7	0.9
1	5	0.7	0.9	0.5	0.7	0.5	0.7	0.9	0.9	0.9	0.9	0.7	0.7	0.9	0.9	0.7	0.9	0.9	0.7	0.7	0.9	0.7	0.7	0.5	0.9	0.9	0.7	0.7	0.7	0.5	0.8	0.9
1	6	0.3	0.9	0.7	0.7	0.3	0.7	0.7	0.7	0.7	0.9	0.7	0.5	0.5	0.5	0.5	X	0.9	0.7	0.7	0.5	0.7	0.9	0.7	0.7	0.3	0.7	0.9	0.5	0.7	0.7	0.7
2	1	0.9	0.7	0.7	0.9	0.7	0.7	0.5	0.9	0.9	0.9	0.7	0.3	0.9	0.5	0.9	0.7	0.9	0.7	0.9	0.9	0.9	0.9	0.3	0.9	0.7	0.7	X	0.7	0.7	0.8	0.8
2	2	0.5	0.7	0.9	0.9	0.5	0.3	0.7	0.7	0.7	0.5	0.9	0.7	0.7	0.7	0.9	0.9	0.9	0.9	0.5	0.9	0.7	0.5	0.7	0.5	0.2	0.7	0.7	0.7	0.9	0.7	0.7
2	3	0.5	0.3	0.7	0.5	0.5	0.7	0.3	0.5	0.7	X	0.7	0.5	0.7	0.5	0.7	0.5	0.9	0.5	0.7	0.5	0.7	0.5	0.7	0.5	X	0.5	X	0.7	0.5	0.6	0.7
2	4	0.5	0.7	0.7	0.5	0.7	0.7	0.7	0.7	0.7	0.9	0.7	0.5	0.7	0.9	0.5	0.3	X	0.7	0.5	0.9	0.7	0.9	0.9	0.7	X	0.5	0.9	0.7	0.9	0.7	0.7
2	5	X	0.5	0.5	0.7	0.7	0.7	0.3	0.7	0.7	X	0.7	0.7	0.7	0.9	0.5	0.7	0.7	0.7	0.9	0.7	X	0.9	0.7	0.5	0.7	0.5	X	0.7	0.3	0.7	0.7
2	6	0.1	0.5	0.7	0.7	0.5	0.5	0.7	0.7	0.7	X	0.7	0.5	0.5	0.5	0.7	0.5	0.5	0.3	0.5	X	0.7	0.9	0.5	0.3	X	0.7	0.9	0.5	0.3	0.6	0.7
3	1	X	X	X	0.9	0.7	0.7	0.5	0.7	0.3	0.9	0.7	0.3	X	0.1	X	0.5	X	0.5	0.3	X	0.9	X	0.7	0.7	0.3	0.3	0.9	0.7	0.1	0.6	0.6
3	2	X	X	0.7	0.9	0.5	0.5	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.5	C	X	0.3	0.7	0.5	0.7	0.5	0.5	0.9	0.7	0.3	0.9	0.7	0.9	0.7	0.8
3	3	0.7	0.7	0.9	0.7	0.7	0.9	0.7	0.5	0.7	0.9	0.7	0.5	0.9	0.5	0.5	0.7	0.7	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.8	0.7	0.9	0.7	0.3	0.7	0.7
3	4	0.5	0.7	0.9	0.5	0.3	0.5	0.7	0.7	0.3	0.5	0.7	0.5	0.7	0.9	X	0.7	0.9	0.3	0.5	0.7	0.5	0.5	0.5	0.7	0.1	0.3	0.9	0.7	0.9	0.6	0.7
3	5	X	0.9	0.5	0.7	0.7	0.5	0.1	0.9	0.3	0.7	0.3	0.7	0.7	0.9	0.5	0.1	0.7	0.7	0.3	X	0.5	0.5	0.5	0.7	0.3	0.3	0.3	0.7	0.9	0.6	0.7
3	6	X	0.9	0.9	0.7	0.9	0.9	0.9	0.9	0.7	0.9	0.9	0.5	0.9	0.5	0.7	X	0.7	0.7	0.9	0.7	0.9	0.5	0.7	0.9	0.9	0.5	0.9	0.5	0.9	0.8	0.9
4	1	X	0.9	X	0.9	0.9	0.1	0.5	0.1	0.7	X	X	0.3	0.1	0.1	X	0.9	X	0.7	0.7	0.7	0.5	0.9	0.1	0.7	0.1	0.3	X	0.9	0.9	0.5	0.4
4	2	0.7	0.7	0.7	0.9	0.7	0.7	0.3	0.7	0.7	0.5	0.7	0.7	X	0.9	0.5	0.3	0.3	0.7	0.7	0.9	0.7	0.5	0.7	0.7	X	0.3	0.9	0.7	0.9	0.7	0.6
4	3	0.3	0.7	0.9	0.9	0.7	0.5	0.3	0.5	0.5	X	0.7	0.5	0.7	0.9	X	0.5	X	0.5	X	0.5	0.7	0.5	0.3	0.7	X	0.3	X	0.7	0.7	0.6	0.7
4	4	0.7	0.9	0.9	0.5	0.7	0.5	0.7	0.7	0.5	0.5	0.5	0.5	0.7	0.9	0.7	0.9	0.9	0.9	0.7	0.9	0.5	0.5	0.9	0.7	0.3	0.5	0.5	0.5	0.7	0.7	0.7
4	5	X	0.7	0.5	0.7	0.3	0.7	0.3	0.5	0.5	X	0.7	0.7	0.5	0.9	X	0.7	X	0.7	0.5	X	0.7	0.5	0.5	0.7	X	0.5	X	0.7	0.5	0.6	0.7
4	6	X	0.7	0.5	0.7	0.5	0.5	0.7	0.7	X	X	0.5	0.5	0.7	0.7	X	X	X	0.9	X	X	0.7	0.7	0.7	0.5	0.9	0.5	0.9	0.5	0.7	0.7	0.8
5	1	0.9	0.5	0.5	0.9	0.7	0.7	0.7	0.7	0.3	0.7	0.7	0.3	0.9	0.5	0.7	0.5	0.7	0.7	0.7	X	0.9	0.1	0.3	0.9	0.9	0.7	X	0.9	X	0.7	0.8
5	2	X	X	0.5	0.9	0.7	0.3	0.3	0.5	0.7	0.3	0.7	0.7	0.7	0.9	0.5	0.3	0.7	0.5	0.5	X	0.7	X	0.7	0.5	0.3	0.7	0.9	0.7	0.5	0.6	0.6
5	3	0.5	X	0.5	0.7	0.5	0.7	0.3	0.3	0.3	0.5	0.3	0.5	0.7	0.9	X	0.1	0.7	0.5	0.3	X	0.9	X	0.3	0.5	X	0.7	X	0.7	0.7	0.5	0.6
5	4	0.5	X	0.5	0.5	0.7	0.5	0.7	0.3	0.5	0.5	0.7	0.5	0.7	0.9	0.5	X	0.7	0.5	X	X	0.7	X	0.9	0.5	X	0.5	0.9	0.7	0.3	0.6	0.7
5	5	0.5	0.7	0.3	0.7	0.7	0.7	0.3	0.3	0.9	0.9	0.5	0.7	0.7	0.7	0.5	0.7	0.7	0.7	0.5	0.7	0.5	0.7	0.5	0.5	0.2	0.3	0.3	0.5	0.5	0.6	0.6
5	6	0.5	0.5		0.7	0.9	0.7	0.9	0.7	0.5	0.5	0.3	0.5	0.7	0.5	0.3	0.1	X	0.7	0.9	0.9	0.9	X	0.5	0.7	0.3	0.7	0.9	0.5	0.9	0.6	0.6
6	1	X	X	X	0.9	0.7	0.9	0.7	0.7	0.3	0.9	0.7	0.3	0.7	0.5	0.3	0.5	0.7	0.5	0.3	0.7	0.9	0.9	0.1	0.7	0.9	0.7	X	0.7	0.1	0.6	0.8
6	2	0.3	0.5	0.7	0.9	0.5	0.3	0.7	0.7	0.3	X	0.7	0.7	0.7	0.9	0.3	0.3	X	0.3	0.5	X	0.7	0.9	0.7	0.7	0.1	0.3	0.9	0.7	0.5	0.6	0.6
6	3	0.1	0.1	0.9	0.7	0.5	0.7	0.1	0.7	0.3	0.9	0.7	0.5	0.9	0.9	0.1	0.5	0.9	0.7	0.5	0.7	0.9	0.9	0.3	0.3	0.9	0.7	X	0.7	0.7	0.6	0.8
6	4	X	0.7	0.5	0.5	0.7	0.5	0.7	0.9	0.7	0.5	0.7	0.5	0.9	0.9	0.5	X	0.7	0.3	0.7	X	0.7	0.5	0.9	0.7	0.9	0.3	0.9	0.7	0.7	0.7	0.8
6	5	0.5	0.7	0.5	0.7	0.9	0.7	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.5	X	X	0.7	X	X	0.9	0.1	0.5	0.7	0.7	0.3	0.9	0.7	0.9	0.7	0.8
6	6	0.9	0.5	0.5	0.7	0.7	0.7	0.7	0.5	0.7	0.9	0.7	0.5	0.7	0.5	0.5	0.5	0.9	0.7	0.9	0.9	0.7	0.9	0.7	0.7	0.9	0.7	0.9	0.5	0.9	0.7	0.8

APPENDIX C : Some Examples for Scenario Development Part - MICMAC

Table C.1 : Structural matrix for expert 4.

	Expert 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	Demographic characteristics		0	1	1	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0
2	The economic and social characteristics	0		1	1	1	1	0	1	1	1	0	0	0	1	1	0	0	1	1	1	1	0	1	1	0	0	0	1	0
3	High quality and technically improved raw material	1	0		1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1
4	Consumption preferences	1	0	1		1	1	1	1	1	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	0
5	The amount of potential	0	0	1	0		1	0	0	1	0	0	0	1	1	1	0	1	1	0	1	1	1	0	0	0	1	0	0	1
6	companies	0	0	1	0	1		1	0	0	1	1	0	1	0	1	1	0	1	0	0	1	0	1	1	1	0	0	0	0
7	Cost of raw material and input	0	0	1	0	0	1		1	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
8	Added value during production	0	0	0	0	0	0	1		1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
9	Product price	0	0	1	1	1	1	1	0		0	0	1	1	0	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0
10	Geopolitical location and place of production	0	0	1	0	0	0	1	1	0		0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
11	Firm collaborations and SCm	0	1	1	0	0	0	0	1	0	1		0	1	0	0	0	1	0	1	1	1	1	1	0	1	0	0	0	0
12	Alliances with the foreign companies and the brand acquisitions	0	0	1	1	1	1	0	1	0	1	1		0	0	1	1	0	1	0	0	1	1	0	1	1	0	0	0	1
13	Production speed and flexibility	0	0	0	1	1	0	1	1	0	0	0	0		1	0	1	1	0	0	1	1	1	1	1	0	0	0	0	1
14	Providing services to consumer other than products	0	0	0	0	0	0	0	0	1	0	0	0	0		1	0	1	1	1	0	0	0	0	1	0	1	0	0	0
15	Quality and efficiency	0	0	1	1	0	0	0	1	0	0	0	0	1	0		0	0	1	0	0	0	1	0	1	0	0	0	1	1
16	Education	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1		1	1	0	0	0	0	0	1	1	0	0	0	1
17	Technological infrastructure, specialization and automation	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0	1		0	0	0	0	1	0	0	0	0	1	0	0
18	Network externalities	0	0	1	1	1	0	0	0	1	0	1	0	0	1	1	0	0		1	0	0	0	0	0	0	0	0	0	1
19	Branding	0	0	1	0	1	0	1	1	1	1	0	1	0	1	1	0	0	0		1	0	0	1	0	0	0	0	0	1
20	Design activities	0	0	1	1	1	0	0	1	1	0	1	0	0	0	0	0	0	0	1		0	0	1	0	1	0	0	0	0
21	Logistic activities	0	1	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0		1	0	1	0	0	0	0	1
22	Information technologies	0	1	1	0	1	0	0	0	1	1	0	0	1	1	0	0	0	1	0	0	0		0	0	0	0	0	1	1
23	Company infrastructure	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	1	0	0	1	0	0	0		0	1	0	1	0	0
24	Management characteristics and manager characteristics	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	0	0	0	1	1		1	0	0	1	0
25	Financial properties	0	1	1	0	1	0	0	0	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	1		0	0	0	0
26	World economy	1	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	1	0	1	0	1	1	0	1	1		0	1	1
27	International relations	0	0	0	0	1	0	0	1	0	0	1	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1		1	0
28	Free trade agreements	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	1	0	1		0
29	Administration support and bureaucracy	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	

Table C.2 : Structural matrix for expert 6.

	Expert 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	Demographic characteristics		0	1	1	1	0	1	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0
2	The economic and social characteristics	0		1	1	1	1	1	1	1	0	1	0	0	1	1	1	0	1	1	0	0	1	0	0	0	1	0	0	0
3	High quality and technically improved raw material	1	1		1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
4	Consumption preferences	1	0	1		1	0	1	1	0	0	0	0	1	1	1	0	0	1	0	1	1	0	1	0	0	0	0	0	0
5	The amount of potential customers	0	0	1	0		1	0	0	1	1	1	0	1	1	1	0	1	1	1	1	1	0	0	0	0	1	0	0	1
6	The number of the rival companies	1	0	1	0	1		1	0	0	1	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	0	0	0
7	Cost of raw material and input	0	0	1	1	0	1		0	1	1	1	0	0	0	1	1	0	1	0	1	0	0	0	1	1	0	1	0	0
8	Added value during production	0	0	0	1	0	0	0		1	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	1	0	0	0
9	Product price	0	0	0	0	1	1	1	0		0	1	1	0	1	1	0	0	1	1	0	1	0	0	1	0	0	0	0	0
10	Geopolitical location and place of production	0	0	0	0	1	0	1	0	1		0	0	1	1	0	1	0	0	0	0	1	0	0	0	1	1	0	0	0
11	Firm collaborations and SCm	0	0	1	0	0	0	0	1	1	1		1	1	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0
12	Alliances with the foreign companies and the brand acquisitions	1	0	1	1	0	1	0	1	0	1	1		0	0	0	1	0	1	0	1	1	1	1	1	1	0	1	0	0
13	Production speed and flexibility	0	0	0	0	0	0	1	1	0	0	1	0		1	1	0	1	0	0	1	1	1	1	0	0	0	0	0	0
14	Providing services to consumer other than products	0	0	1	1	0	0	0	0	0	1	0	0	1		1	0	0	1	1	0	0	0	0	1	1	1	0	0	0
15	Quality and efficiency	0	0	1	1	0	1	1	1	0	0	1	1	1	0		0	0	0	0	0	0	0	0	1	0	0	0	0	0
16	Education	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1		1	1	0	0	0	0	0	1	0	0	0	0	0
17	Technological infrastructure, specialization and automation	0	1	0	0	0	0	0	1	1	0	0	0	1	1	0	0		0	0	1	0	1	0	1	0	0	1	0	0
18	Network externalities	0	0	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0		1	0	0	0	1	0	0	0	0	0	0
19	Branding	0	0	0	1	1	1	0	1	1	1	1	0	1	1	0	0	0	1		1	0	0	1	1	0	1	0	0	0
20	Design activities	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0	1	1		0	0	1	0	0	1	0	0	0
21	Logistic activities	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0		1	0	0	1	0	0	0	1
22	Information technologies	0	0	1	0	1	0	0	0	1	0	0	1	1	0	0	1	0	1	0	0	0		0	0	0	0	1	0	1
23	Company infrastructure	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0		1	1	0	0	1	0
24	Management characteristics and manager characteristics	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	1		1	0	0	0	1
25	Financial properties	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1		0	0	0	0
26	World economy	0	1	0	0	0	1	1	0	1	0	0	1	0	1	0	0	1	0	1	0	1	1	0	1	0		1	1	1
27	International relations	0	1	0	0	1	0	1	0	0	0	1	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1		1	0
28	Free trade agreements	1	0	0	0	1	1	1	0	1	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1		1
29	Administration support and bureaucracy	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	1	

Table C.3 : Structural matrix for expert 8.

	Expert 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	Demographic characteristics		0	0	1	1	1	0	1	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0
2	The economic and social characteristics	0		1	1	1	1	0	1	1	1	0	0	0	0	1	1	0	1	0	1	0	1	1	0	0	0	1	1	0
3	High quality and technically improved raw material	1	0		0	1	1	1	0	1	0	1	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0
4	Consumption preferences	0	0	1		1	1	1	1	1	0	0	0	1	1	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0
5	The amount of potential	0	0	1	0		1	0	0	1	0	0	1	1	0	0	0	1	1	1	1	1	0	1	0	0	0	1	0	1
6	The number of the rival	0	0	1	0	0		1	0	1	0	1	0	1	0	1	1	1	1	1	0	1	1	0	1	1	0	0	0	0
7	Cost of raw material and input	0	0	1	1	0	1		1	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0
8	Added value during production	0	0	0	1	0	0	0		0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0
9	Product price	0	0	1	1	1	1	0	0		0	0	1	0	1	1	0	0	0	1	1	1	0	1	0	0	0	0	0	0
10	Geopolitical location and place of production	0	0	0	0	0	0	1	1	1		1	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0
11	Firm collaborations and SCm	0	0	0	0	0	0	1	1	0	1		1	1	0	0	0	1	0	1	1	1	1	0	1	0	0	0	0	0
12	Alliances with the foreign companies and the brand acquisitions	0	0	0	1	1	1	0	1	0	1	1		1	0	1	1	0	1	1	0	1	1	1	1	1	0	0	0	0
13	Production speed and flexibility	0	0	1	1	0	0	1	1	0	0	0	0		0	1	0	1	0	0	1	1	1	1	0	0	0	0	0	0
14	Providing services to consumer other than products	0	0	0	1	0	0	0	0	1	0	0	0	0		1	0	0	1	0	0	0	0	0	0	0	0	1	0	0
15	Quality and efficiency	0	0	1	0	0	0	0	0	0	0	0	0	1	1		0	1	0	0	0	0	0	0	1	0	0	0	0	0
16	Education	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		1	0	0	0	0	0	0	0	0	0	0	0	1
17	Technological infrastructure, specialization and automation	0	1	1	0	0	0	0	1	1	0	0	0	0	0	1	1		0	0	0	0	1	0	0	0	0	1	0	0
18	Network externalities	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	1	0		1	0	0	0	1	0	0	0	0	0	0
19	Branding	0	1	1	1	1	0	0	0	1	0	0	1	0	0	0	0	1	1		1	0	0	1	1	1	0	0	1	1
20	Design activities	0	0	1	1	1	0	0	1	0	0	0	1	0	0	0	0	0	1	1		0	0	0	0	1	0	0	0	0
21	Logistic activities	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	1	0	0		1	0	0	0	1	0	1	0
22	Information technologies	0	1	1	0	1	0	1	0	0	0	0	1	1	1	0	1	0	0	0	0	1		0	1	0	0	0	0	0
23	Company infrastructure	0	0	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0		1	1	1	0	0	0
24	Management characteristics and manager characteristics	0	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	1	0	1		1	0	0	0	1
25	Financial properties	0	1	1	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0		0	0	0	0
26	World economy	0	0	1	0	0	1	1	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	1	1		1	1	1
27	International relations	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	0		0	1
28	Free trade agreements	0	1	0	0	1	1	1	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	1		1
29	Administration support and bureaucracy	0	1	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	

APPENDIX D : The Data For MACTOR and Some Examples.

Actor Strategy Table	Consumers	Technology developers	Design Creators	Brand owners
Consumers	Main objective: Buying high variety and qualified products at a low price	To produce antistatic, antibacterial, flame retardant products. Not to cause environmental problems during production	The products must have properties that are appropriated with the consumers pleasure and social expectations. To increase the season number and collections	The products must have the certain standarts and quality characteristicss. To increase the customer satisfactions with the services other than products
Technology developers	To accept to pay more considering the added value of the products.	Main objectives:To have a fixed position in the market producing technological products through the R&D activities To buy at higher price than the other competitors	To design for highlighting the technologic properties and expand the product functionality and usage area	To highlight technologic properties with the product promotions.
Design creators	To purchase more and make shopping as much as posible	To develop and produce product that realize the designs.	Main objective:To increase the product variety with different designs. To became ungivible especially for the young consumers and in this way to increase the profit margins	To produce forr an expanded consumer base that require different designs.
Brand owners	To have faitfullness and connectivity to their brands	To produce garments in appropriate with the brand quality description.	To make design that shows brand identity and description and to design according to the consumers demographic,social and economic properties.	Main objective: To position the brand identity correctly. To supply the brand to gain fame and preferability and to gain profit. To add the complementary products and to expand the consumer base and create the network externalities.
Raw material and input suppliers		To share the know how and experimentsTeknoloji geliştiricilerin kendi know how ve birikimlerini paylaşmaları. To support in obtaining the required technological substructure. To feel confidence that the cooperation will continue in case that the supplier make special investments for technology developers	The make thir designs with the well known materials.	
Logistic firms	The final consumers to profer e-trade, to trust the logistic firms which are the middlefirms and so have the most important missions.			To construct the long life colloborations, and have the required technology. To accept to make associated studies, work together during the choice of facility place.
Firm managers		To produce innovative products, to make feasibility activities and benefit- cost analysis in sourcing of raw materials and inputs for those products mentioned.	To make realizable designs.	
The countries that have FTA, governments		To share the R&D activities and know how with the other countries.		

Figure D.1 : Actor *Strategy table

Actor Strategy Table	Raw material and input suppliers	Logistic firms	Firm managers	The countries that have FTA, governments
Consumers		The products to take their place in the stores. Not to have problems in product delivery in shopping with the firms that uses e-trade activities.		
Technology developers	To supply the raw materials with different properties. To have the potantial and strong desire in order to sustain associated R&D activities.	Not to damage the products during transportion and keeping in warehouses.	To obtain the capital needed for technological substructure. To initiate to employqualified personnel in production	
Design creators		The products to take their place in the stores. To chose the most suitable transport method for product properties	To employ creative designers. To improve the cooperations in design activities. To follow the international exhibition and fashion activities. To become consious that good designs have higher costs.	To have FTA with the countries that is qualified as the markets that high design properties.
Brand owners	To produce products with a constant standarts.	To have the enough delivery channels that supply the products to arrive at destinations in a quick and correct way. To have the conscious of team work and benefit from IT.	To be effective and creative in terms of marketing and to be problem solver in order to response quickly against changes and expectations.	To have agreements with the countries where the Turkeys image is positive
Raw material and input suppliers	Main objective:To supply yarn, fabric and accessorize for the knitted garment producers, to make up finishing activities.	Not to have problems in transportation of the products to the consumers as fast as possible.	To imporve the cooperations and collaborations with the garment producers	To have aggrements with the countries that are suppliers of primary raw materials) cotton, synthetic thread). To have cooperation with the countries that the suppliers will have a chance of market their products.
Logistic firms		Main objective: To increase the pofit share in apparel industry. To gain experience about the changing consumer and seller demands and to improve their systems.	To be open for the supply chain applicatiions To work with the logistic firms continously. To outsource the packaging, quality control activitities from themselves.	To abolish the quotas of transit documents.
Firm managers	To supply the required raw materials at a constant quality, price and speed.	To have a high number of distribution channels and models. To have the enough equipment, filo and technology.	Main objective: To help the firms for sustaining their life, by keeping the profit margin at at high level.	To have long term aggrements with the countries that can provide raw material at low cost. To have agreements with the countries where the labor costs are low.
The countries that have FTA, governments				Main objective:The countries have the advantage of expanding the economical, political and social relationships with the other countries.

Figure D.1 (continued) : Actor *Strategy table.

Table D.1 : MAO Table developed by expert 4.

EXPERT 4	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13
Actor 1	1	1	1	1	1	1	0	0	0	1	0	1	0
Actor 2	-1	1	0	1	1	1	1	-1	1	1	0	1	-1
Actor 3	-1	0	1	0	1	0	1	0	1	0	0	0	-1
Actor 4	-1	1	1	1	1	1	1	0	1	1	1	1	-1
Actor 5	-1	1	1	1	1	0	-1	1	1	1	1	1	1
Actor 6	1	0	1	1	1	0	0	1	1	1	1	1	0
Actor 7	-1	1	-1	0	1	1	1	1	1	0	1	1	1
Actor 8	-1	1	1	0	-1	1	0	1	1	0	1	1	1

Table D.2 : 2MAO Table developed by expert 4.

EXPERT 4	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13
Actor1	3	3	3	1	1	1	0	0	0	1	0	1	0
Actor2	-2	1	0	1	1	2	3	-1	2	1	0	1	-1
Actor3	-2	0	3	0	2	0	1	0	1	0	0	0	-3
Actor4	-2	2	3	3	3	1	3	0	2	3	3	2	-3
Actor5	-3	2	3	1	2	0	-1	3	3	3	3	1	2
Actor6	1	0	3	2	1	0	0	2	1	1	3	1	0
Actor7	-2	2	-2	0	2	2	3	3	1	0	2	3	2
Actor8	-1	2	2	0	-1	1	0	3	2	0	2	1	2

Table D.3 : MAA Table developed by expert 4.

EXPERT 4	A1	A2	A3	A4	A5	A6	A7	A8
Actor 1	1	2	3	2	-1	1	1	1
Actor 2	2	3	3	2	2	0	1	0
Actor 3	1	2	2	2	1	1	0	0
Actor 4	2	0	2	3	1	1	0	0
Actor 5	-1	2	1	1	0	1	0	3
Actor 6	0	0	1	1	0	3	1	0
Actor 7	-1	2	1	1	1	2	3	0
Actor 8	0	2	2	3	3	2	2	3

Table D.4 : MAO Table developed by expert 6.

EXPERT 6	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13
Actor 1	1	1	1	1	1	1	1	-1	1	0	0	-1	0
Actor 2	-1	1	1	0	1	1	1	0	1	0	1	1	-1
Actor 3	-1	1	1	1	1	0	1	0	1	0	0	1	-1
Actor 4	-1	1	1	1	1	1	1	0	1	1	1	0	-1
Actor 5	-1	1	1	0	0	1	-1	1	0	1	1	1	1
Actor 6	-1	0	1	1	1	1	1	1	1	0	1	0	0
Actor 7	-1	1	-1	-1	1	1	1	1	1	-1	1	1	1
Actor 8	-1	1	0	0	-1	1	-1	1	1	1	1	1	1

Table D.5 : 2MAO Table developed by expert 6.

EXPERT 6	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13
Actor1	3	2	3	3	1	1	2	-1	2	0	0	-1	0
Actor2	-2	1	1	0	1	3	3	0	2	0	1	1	-3
Actor3	-2	1	3	2	2	0	1	0	3	0	0	2	-3
Actor4	-2	2	2	1	3	1	1	0	2	3	3	0	-3
Actor5	-2	2	3	0	0	1	-2	3	0	2	3	1	2
Actor6	-1	0	3	2	1	1	1	3	2	0	3	0	0
Actor7	-2	1	-2	-2	2	1	1	3	1	-2	1	2	3
Actor8	-1	1	0	0	-2	1	-1	3	2	2	1	1	2

Table D.6 : MAA Table developed by expert 6.

EXPERT 6	A1	A2	A3	A4	A5	A6	A7	A8
Actor 1	3	3	3	2	0	1	1	0
Actor 2	2	2	2	2	1	0	0	1
Actor 3	1	2	2	3	1	0	1	1
Actor 4	3	1	2	3	1	2	0	0
Actor 5	0	3	1	0	0	1	0	2
Actor 6	0	-1	1	1	0	2	1	0
Actor 7	0	1	2	1	1	0	3	1
Actor 8	1	3	2	2	3	2	1	3

Table D.7 : MAO Table developed by expert 8.

EXPERT 8	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13
Actor 1	1	1	1	1	1	1	1	-1	0	0	0	1	0
Actor 2	-1	1	1	0	1	1	1	1	1	0	1	0	-1
Actor 3	1	1	1	1	1	0	1	1	1	1	1	0	-1
Actor 4	-1	1	1	1	1	1	1	1	1	1	1	0	-1
Actor 5	-1	1	1	0	0	1	0	1	0	1	1	1	1
Actor 6	0	0	1	1	1	1	0	1	0	0	1	1	0
Actor 7	-1	1	-1	-1	1	1	1	1	0	-1	1	1	1
Actor 8	-1	0	1	0	-1	1	-1	1	0	1	1	1	1

Table D.8 : 2MAO Table developed by expert 8.

EXPERT 8	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13
Actor1	3	1	3	1	3	1	2	-1	0	0	0	2	0
Actor2	-1	2	1	0	2	2	3	1	2	0	1	0	-2
Actor3	1	1	2	2	1	0	3	1	2	2	2	0	-3
Actor4	-2	2	2	3	1	2	1	1	2	2	2	0	-2
Actor5	-1	2	2	0	0	1	0	2	0	3	3	2	3
Actor6	0	0	3	2	2	1	0	2	0	0	3	2	0
Actor7	-3	2	-1	-1	3	2	3	3	0	-1	1	3	3
Actor8	-1	0	2	0	-2	2	-2	2	0	2	1	2	2

Table D.9 : MAA Table developed by expert 8.

EXPERT 8	A1	A2	A3	A4	A5	A6	A7	A8
Actor 1	3	2	3	2	1	1	0	1
Actor 2	2	2	3	3	2	0	0	1
Actor 3	2	1	3	2	1	1	1	0
Actor 4	2	1	2	2	1	1	0	0
Actor 5	0	3	1	0	1	1	0	3
Actor 6	0	0	1	2	-1	2	1	0
Actor 7	0	2	2	1	1	0	3	1
Actor 8	0	3	2	3	3	3	1	2

APPENDIX. E : Some Examples For Scenario Development Part- SMIC

Table E.1 : Independent and conditional probability values from the expert 4.

Expert 4	1	2	3	4	5	6
1	0.5	0.9	0.9	0.7	0.9	0.7
2	0.9	0.7	0.7	0.7	0.7	0.7
3	0.5	0.7	0.5	0.7	0.9	0.7
4	0.5	0.5	0.7	0.9	0.5	0.7
5	0.9	0.7	0.5	0.7	0.7	0.5
6	0.7	0.5	0.9	0.7	0.9	0.7

(a) Independent Probabilities

Expert 4	1'	2'	3'	4'	5'	6'
1'	0	0.5	0.5	0.1	0.9	0.5
2'	0.3	0	0.5	0.7	0.7	0.9
3'	0.5	0.7	0	0.7	0.7	0.9
4'	0.9	0.7	0.7	0	0.7	0.5
5'	0.3	0.5	0.7	0.3	0	0.5
6'	0.5	0.7	0.9	0.9	0.7	0

(b) Conditional Probabilities

Table E.2 : Independent and conditional probability values from the expert 6.

Expert 6	1	2	3	4	5	6
1	0.3	0.7	0.9	0.9	0.9	0.5
2	0.9	0.7	0.7	0.7	0.7	0.7
3	0.7	0.7	0.9	0.7	0.9	0.9
4	0.5	0.7	0.7	0.7	0.9	0.9
5	0.7	0.7	0.7	0.7	0.5	0.5
6	0.9	0.7	0.9	0.7	0.9	0.9

(a) Independent Probabilities

Expert 6	1'	2'	3'	4'	5'	6'
1'	0	0.5	0.7	0	0.7	0.3
2'	0.3	0	0.5	0.7	0.7	0.9
3'	0.5	0.7	0	0.7	0.9	0.9
4'	0.9	0.5	0.9	0	0.5	0.5
5'	0.3	0.5	0.5	0.5	0	0.5
6'	0.7	0.9	0.9	0.9	0.7	0

(b) Conditional Probabilities

Table E.3 : Independent and conditional probability values from the expert 8.

Expert 8	1	2	3	4	5	6
1	0.7	0.9	0.9	0.9	0.9	0.7
2	0.7	0.7	0.7	0.7	0.5	0.9
3	0.5	0.9	0.7	0.7	0.5	0.9
4	0.3	0.5	0.7	0.7	0.5	0.9
5	0.9	0.5	0.5	0.7	0.7	0.7
6	0.7	0.5	0.9	0.7	0.9	0.9

(a) Independent Probabilities

Expert 8	1'	2'	3'	4'	5'	6'
1'	0	0.3	0.5	0.1	0.7	0.3
2'	0.3	0	0.5	0.5	0.7	0.7
3'	0.5	0.7	0	0.5	0.7	0.9
4'	0.9	0.5	0.7	0	0.7	0.7
5'	0.3	0.7	0.7	0.3	0	0.5
6'	0.7	0.7	0.9	0.7	0.7	0

(b) Conditional Probabilities

APPENDIX F : Influence Dependency Chart for Four Scenarios

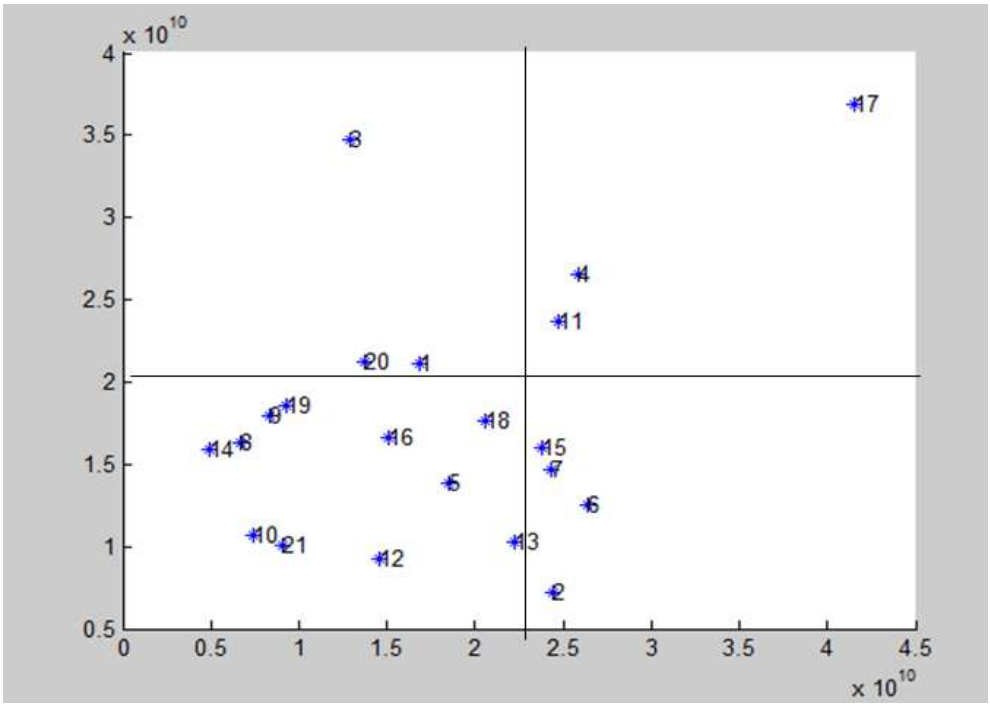

Figure F.1 : Influence dependency chart for the 1st scenario.

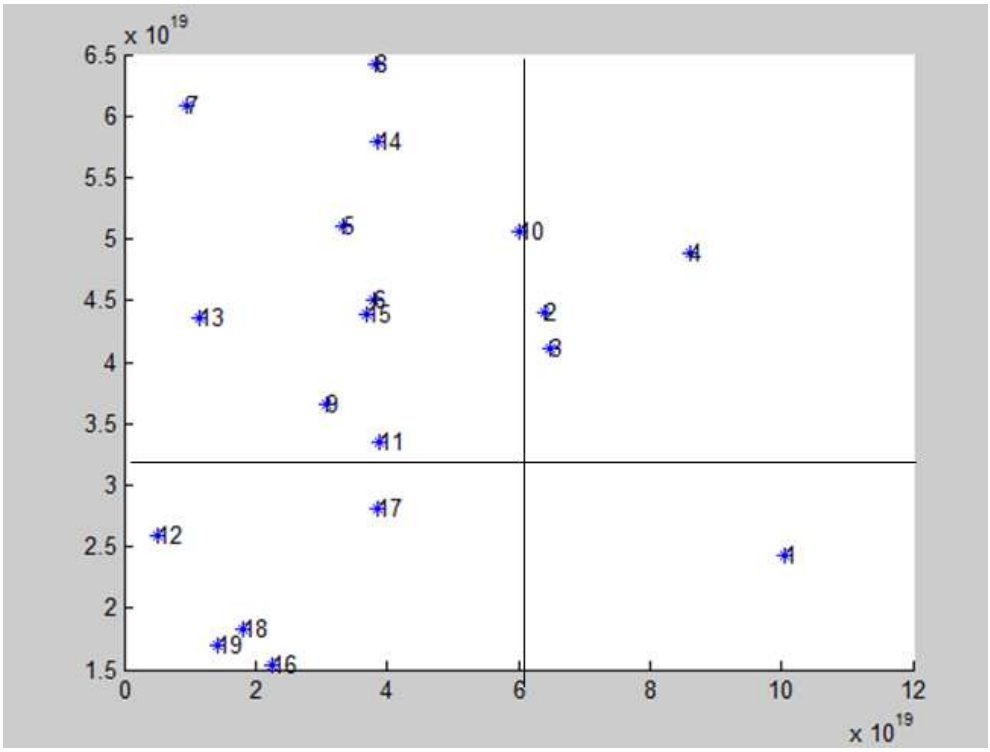

Figure F.2 : Influence dependency chart for the 2nd scenario.

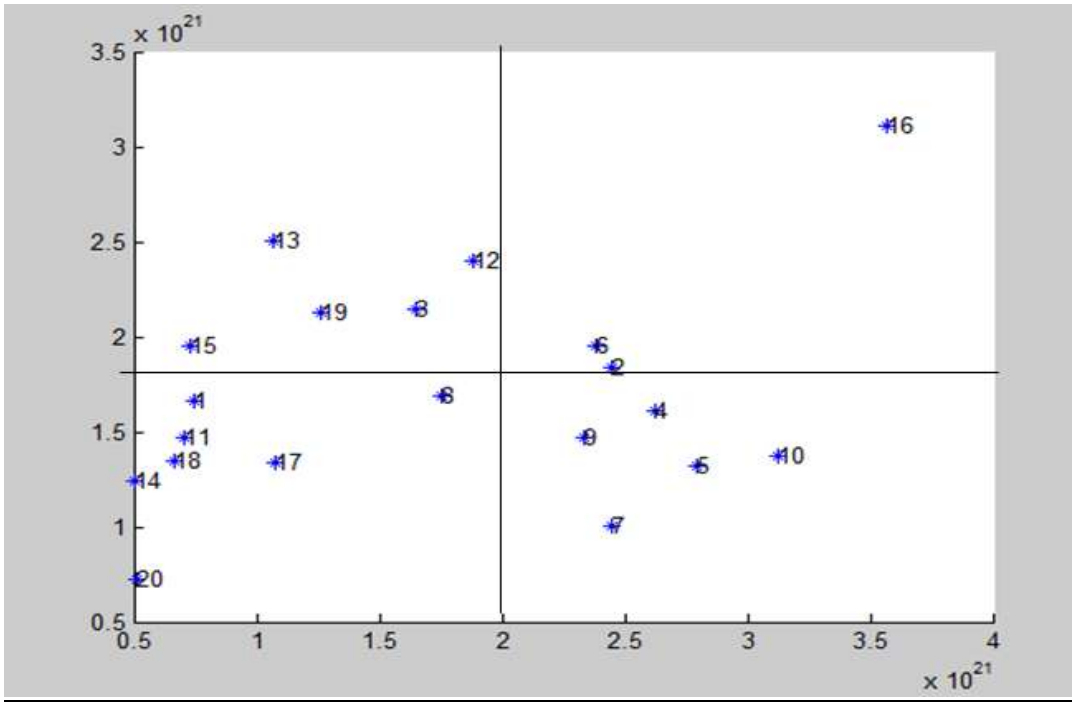

Figure F.3 : Influence dependency chart for the 3rd scenario.

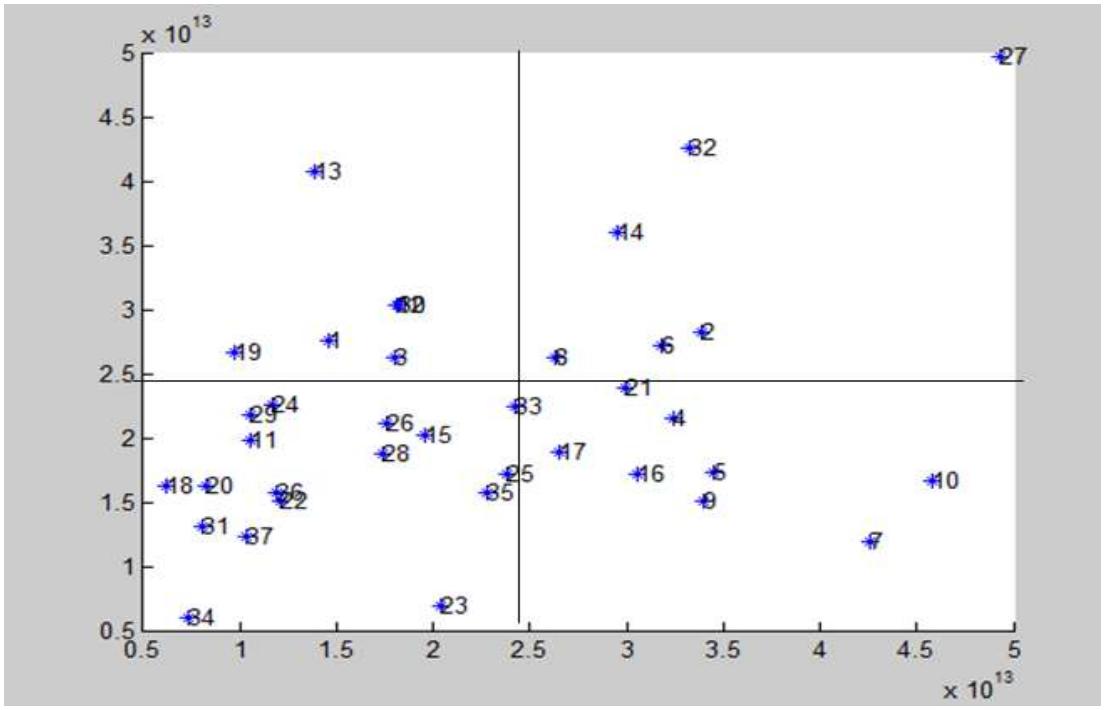

Figure F.4 : Influence dependency chart for the 4th scenario.

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