

T.C.
MARMARA UNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İNGİLİZCE İŞLETME ANABİLİM DALI
YÖNETİM VE ORGANİZASYON BİLİM DALI

**INFORMATION AND COMMUNICATION TECHNOLOGIES AS A COMPETITIVE
ADVANTAGE TOOL AFTER TERMINATION OF AGREEMENT ON TEXTILES AND
CLOTHING : A STUDY OF TURKISH TEXTILES AND CLOTHING INDUSTRY**

Yüksek Lisans Tezi

SADİ ORKUN GÖZE

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İstanbul, 2006

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Istanbul, 2006

Orkun GÖZE

ÖZET

Dünya tekstil ve konfeksiyon sektörü 2005 yılında çok ciddi bir dönemece geldi. Dünya Ticaret Örgütü üyesi ülkelerin arasındaki kotalarla düzenlenen ticaret, Tekstil ve Konfeksiyon Anlaşmasının (Agreement on Textiles and Clothing – ATC), başka bir deyişle kotaların 2004 sonu itibari ile yürürlükten kalkması ile yeni bir döneme girdi. Bu yeni dönemde özellikle Çin başta olmak üzere Asya ülkeleri diğer tekstil ve konfeksiyon ihracatçıları için ciddi bir tehdit haline geldi. O kadar ki Türkiye dahil bazı ülkelerde Asya'dan gelen çok düşük maliyetli ürünler yüzünden ülkedeki tüm tekstil ve konfeksiyon sektörünün ortadan kalkacağına dair felaket senaryoları konuşulur oldu. Bu arada da ülkeler bu durumdan en az kayıpla kurtulmak için stratejilerini gözden geçirmeye ve rekabet avantajı sağlayacak yeni alanlara yatırım yapmaya başladılar.

Bu tez çalışması kotasız dönemde Türk tekstil ve konfeksiyon sektörü hakkında bir durum tespiti yapacak ve rekabet avantajı sağlayacak faktörlere ait bilgilere ulaşmak için yapılmıştır. Bu amaçla firmaların iş hacimlerindeki gerçek değişimler ve değişim beklentileri sorgulanmış ve rekabet avantajı kazanmak için gerekli faktörler tartışılmıştır. Ek olarak bu faktörler arasında sayılan yeni ekonominin bilişim teknolojisi araçlarının hangi seviyede kullanıldığını ve bu kullanımın sağlayacağı avantaj beklentisi araştırılmıştır. Tez sektöre ait bir genelleme yapmaktan çok bir eğilim belirlemek amacını taşımaktadır.

Çalışmanın sonuçları kotaların kalkmasından sonra uzun vadede olumsuz bir beklentinin olduğunu göstermektedir. Firmaların koleksiyon yaratmak başta olmak üzere rekabet avantajı sağlayacak konularda hem fikirdirler. Bilişim teknolojileri de bu konular arasında önemli bir paya sahiptir. Bununla beraber bilişim teknolojilerinin rekabet avantajı sağlama beklentisi ile teknolojilerin kullanımı arasında ciddi farklar olduğu görülmektedir. Avantajına inanmalarına rağmen firmalar bu teknolojileri yeterli seviyede kullanmamaktadırlar. Bunun sebeplerine bakıldığında ise teknolojileri kullanacak eğitime

sahip elemanların yetersiz olması öncelikli olarak göze çarpmaktadır. Tezin sonunda bu çalışmanın sonuçlarına dayanılarak sonraki çalışmalar için bir model önerilmiştir.

ABSTRACT

World textiles and clothing (T&C) industry has come a serious turning point by the end of the 2004. The trade which was restricted by a number of quotas has reached a new era when the Agreement on Textiles and Clothing (ATC) was terminated which means the quotas were fully eliminated between the members of World Trade Organization (WTO). The threat that was expected and feared from the Far Asian countries, especially from China, became a harsh reality for the rest of the textile exporting countries. Insomuch that in some countries like Turkey, disaster scenarios like, all industry will to disappear in time and hundred thousands of people will become unemployed, have been started to discuss. Meanwhile of course these countries have started to revise their strategies and invest in new areas that will help them to stay competitive.

This thesis was conducted to reach the information to determine the status of Turkish T&C industry and factors of gaining competitive advantage – especially information and communication technology factor – in the non-quota era. For this purpose the expectations and actual changes in the business volumes of the companies were questioned, and the factors of gaining competitive advantage were discussed. In addition the information and communication technologies (ICT) tools of new economy, which are expected to be one of the competitive advantage factors, are investigated in both utilization level and competitive advantage expectation. The thesis is aimed to describe a situation and determine the tendency of the industry instead of making a generalization about it.

The results of the study state that there is a long term negative expectation after the quota elimination. The companies agree on all competitive advantage factors asked, especially making authentic design studies. The ICT tools are also considered as a significant factor to gain competitive advantage. However it is observed that there is a

significant difference between the ICT utilization and the competitive advantage expectation. Since they believe the utilization of these tools will provide them serious competitive advantages, the companies' utilization level is low. When the reasons for this difference are examined, the lack of trained staff seems to be major reason. It is followed by the costs of ICT investments.

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ABBREVIATIONS

<i>ATC</i>	Agreement On Textiles And Clothing
<i>B2B</i>	Business-To-Business
<i>B2C</i>	Business-To-Consumer
<i>CAD</i>	Computer Aided Design
<i>CAM</i>	Computer Aided Manufacturing
<i>CEPS</i>	Center For European Policy Studies
<i>CRM</i>	Customer Relationship Management
<i>DPT</i>	State Planning Organization
<i>DTM</i>	Undersecretariat Of Primeministry For Foreign Trade
<i>EDI</i>	Electronic Data Interchange
<i>EDIFACT</i>	Electronic Data Interchange For Administration, Commerce And Transport
<i>EDITEX</i>	EDI Group for the Textile and Clothing Industry (Europe)
<i>ERP</i>	Enterprise Resource Planning
<i>EU</i>	European Union
<i>FASLINC</i>	Fabric And Suppliers Linkage Council
<i>GDP</i>	Gross Domestic Product
<i>ICT</i>	Information And Communication Technologies
<i>IP</i>	Internet Protocol
<i>ITGLWF</i>	International Textile, Garment And Leather Workers Federation
<i>ITKIB</i>	Istanbul Textile & Apparel Exporters' Associations
<i>LTA</i>	Term Agreement Regarding International Trade In Cotton Textiles
<i>MFA</i>	Multi Fiber Agreement
<i>OECD</i>	Organization For Economic Cooperation And Development
<i>SCM</i>	Supply Chain Management

<i>T&C</i>	Textile And Clothing
<i>TAIK</i>	Turkish-U.S. Business Council
<i>TCMA</i>	Turkey Clothing Manufacturers Association
<i>TIM</i>	Turkey Exporters' Association
<i>USA</i>	United States Of America
<i>WTO</i>	World Trade Organization

1. INTRODUCTION

Textiles and clothing (T&C) industry has been one of the most important manufacturing industries for the countries since earliest ages. Especially for the developing countries, it has become a strategic industry with its export facing characteristic and labor intense structure which creates a high level of employment.

T&C industry is composed of a long supply chain from design to distribution. Therefore in time when the economic levels of countries increase, economically developed countries focus on design and marketing activities, instead of production; and the production facilities shift towards developing countries. This was also the case for Turkey's T&C industry. By the beginning of 1980s Turkey made big investments on T&C machinery to become a production center for textiles and clothing. With the help of government support on investments, proximity to the western market, large amount of unskilled work force and low value of Turkish lira against foreign currencies, Turkey enjoyed high profits, big amount of export volumes and high industrial employment rates for two decades (Ercan 2002). Hence the T&C industry became a locomotive for Turkish industrial development.

By the end of year 2004 a new age began to change the rules in the global textiles and clothing trade. The Agreement on Textiles and Clothing (ATC) expired at the end of 2004 and the quotas that limit and regulate the trade relations between the World Trade Organization (WTO) countries for decades are removed. Asian countries (especially China, India and Pakistan), which were the most restricted by quotas, are then expected to dominate the global T&C trade (Nordas 2004). With the huge amount of low waged work force and high level government subventions on the main production inputs, these countries, especially China, dragged the T&C exporting countries like Turkey into a struggle of existence.

Turkey as well as the other endangered countries started a number of studies to stay competitive in this new era. Today under the leadership of the industry associations, Turkish T&C industry is trying to change itself from being a sub-contractor, a low value added products producer that competes mainly with price; into a high priced, high value added products producer that has great brand value at both company level and country level. Italy is said to be a role model (TCMA 2005).

To achieve the goal of staying competitive there are a number of steps to be taken. One of them is to gain a competitive edge by the utilization of new economy and its information and communication technology (ICT) tools. The new economy strategies based on ICT tools promise the companies efficiency, speed and competitive advantage in various business functions, from design to customer service (Stiroh 2002). After the booming stage which was started in the last days of the 20th century and left behind great success stories as well as greater disappointments, the new economy proved to be useful tool for companies to determine management and competition strategies.

Providing a wide range of applications to design, produce, market, sell and service a product, ICT tools have a slow but continuous penetration in the T&C industry. By shortening the design process and the time to market, by fastening the information flow through the long supply chain, by facilitating the tracking of the fashion trends and customer needs; the companies that invest in technologies are expected to have a competitive edge against Asian production giants.

This study starts with a literature study about textiles and clothing industry. After the structure of industry is explained briefly, the quota system and non-quota age is discussed generally at global level and particularly at Turkey level. The literature study is then carried on defining new economy tools and their use for T&C industry. Finally the findings of the survey are disclosed and interpreted. The survey is conducted to figure out the threat perception of Turkish T&C companies in the non-quota era and the utilization of ICT tools to gain competitive advantage.

2. AFTER THE AGREEMENT OF TEXTILES AND CLOTHING: THE NEW ERA IN TEXTILES AND CLOTHING INDUSTRY

The textiles and clothing (T&C) industry is one of the oldest and biggest manufacturing industries that shapes the world of international commerce. Nowadays the industry is facing a serious change which has started to rewrite the rules of international trade and competition.

This section first describes the T&C industry -the figures, motives and structure- in brief; then the agreements and regulations that shaped the T&C trade are summarized; the effects of latest regulations to world T&C industry are examined; and lastly Turkish T&C industry's situation in this new era is explained.

2.1 World Textiles and Clothing Industry

The T&C industry, which has an extremely long and rich history, has affected and changed the world both economically and socially since the Stone Age. Weaving is considered as one of the oldest surviving crafts in the world today, the actual origins of which are thought to date back to Neolithic times, 12,000 years ago. Textile archeologists have identified very early sewing needles of bone and ivory from about 30,000 BC, found near Kostenki, Russia (thetextileguide.com 2005, wikipedia.org 2005). But the T&C industry made its leap in Industrial Revolution when powered looms are invented. Since then the industry has shown a continuous and rapid growth despite periodic recessions due to the global economic crises.

In the last two decades, world T&C trade increased from \$95 billion United States Dollars (USD) in 1980 to 450 billion USD in 2004 as it can be seen in Table 1. Trade figures of T&C trade increased almost 50 billion USD in each 5 years and World Trade Organization (WTO) anticipates the trade will reach an amount of 600 billion USD in 2010.

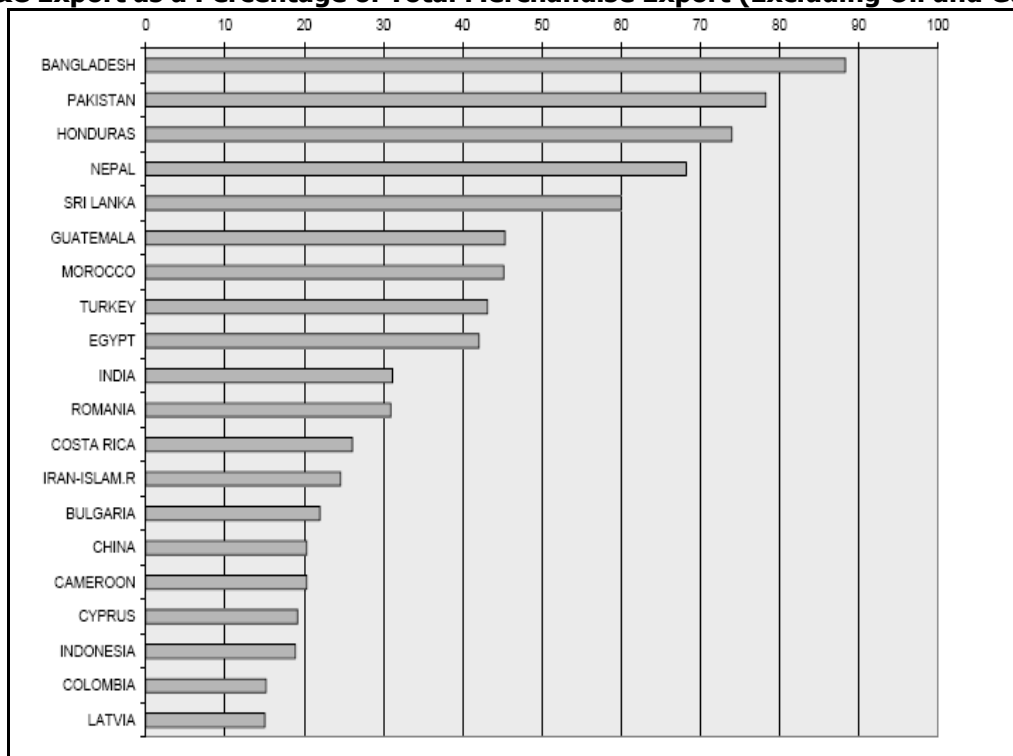
Table 1
World Textiles and Clothing Trade (million USD)

T&C	1980	1990	1995	2000	2001	2002	2003	2004
Textiles	54.990	104.354	152.319	154.571	147.025	154.304	172.470	194.732
Clothing	40.590	108.129	158.353	197.413	193.278	203.038	232.488	258.097

Source: WTO statistics website. (http://www.wto.org/english/res_e/statistics_e/statistics_e.htm)

Since the industrial revolution, many developing countries generate a high amount of their national income and create jobs by T&C trade. The T&C industry also creates the biggest share of export figures of these kinds of developing countries. As Minor (2002) implied, T&C accounts for more than 25% of manufacturing for at least a dozen developing countries. This figure is more than 70% for countries like Bangladesh, Pakistan and Honduras.

Figure 1
T&C Export as a Percentage of Total Merchandise Export (Excluding Oil and Gas)



Source: World Bank Trade and Production Database.2002.

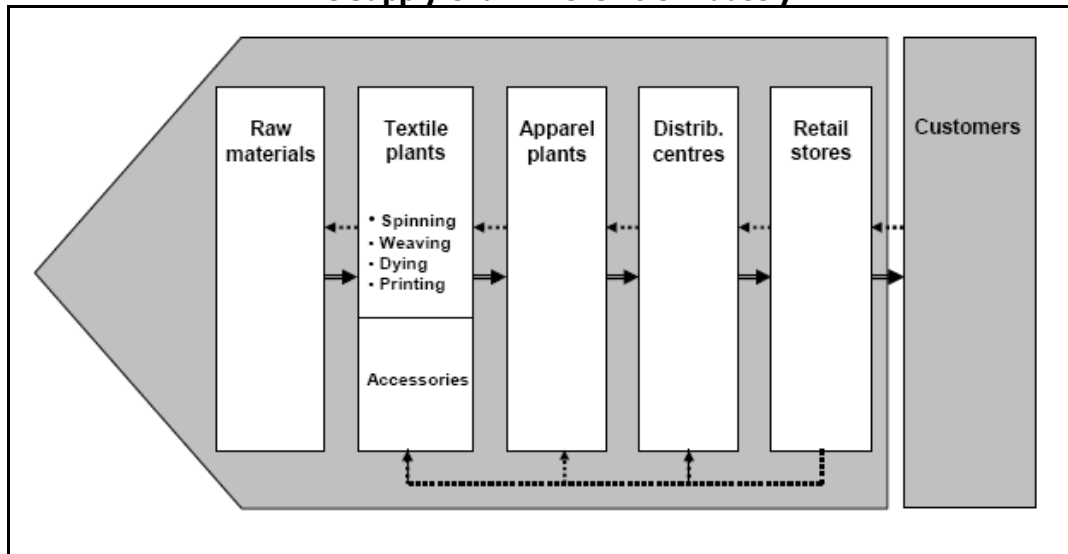
In the next section, the structure of T&C industry and the important components, which are the supply chain, the retail, the textile and the clothing sectors, are explained briefly to provide a complete picture of the industry.

2.1.1 Structure of T&C Industry

Textiles and clothing sub-sectors are closely related to each other. Textiles provide the major input to the clothing industry, creating vertical linkages between the two (Nordas 2004). At the micro level, the textiles and clothing are increasingly integrated through vertical supply chains that also involve the distribution and sales activities. The textiles and clothing chain includes several different sets of activities, occupations and roles whose characteristics shape the profile of the sector (Dunford 2002).

The industry can be seen as a long supply chain consisting of a number of discrete activities. The supply chain from sourcing of raw materials via design and production to distribution and marketing is being organized as an integrated production network where the production is sliced into specialized activities and each activity is located where it can contribute the most to the value of the end product. When the location decision of each activity is being made, costs, quality, reliability of delivery, access to quality inputs and transport and transaction costs are important variables.

Figure 2
The Supply Chain in the T&C Industry



Source: Nordas 2004

The transaction flow in the T&C industry is illustrated by Figure 2. The dotted lines represent the flow of information, while the solid lines represent the flow of goods. The direction of the arrows indicates a demand-pull-driven system.

The information flow starts with the customer and forms the basis of what is being produced and when. It is also worth noticing that information flows directly from the retailers to the textile plants in many cases. The textile sector produces for the clothing sector and for household use. In the former case there is direct communication between retailers and textile mills when decisions are made on patterns, colors and material. In the second case textile mills often deliver home textile products directly to the retailers. In order to make goods, information and payments flow smoothly, a number of logistics and business services are needed. Depending on the size and development of the host economy, such services are provided by the lead firm in the supply chain or independent service providers in the more advanced countries (Nordas 2004). In order to reduce production costs, most clothing firms have already outsourced production of their goods to low-cost countries, and subcontractor companies have taken on some production steps.

Thus the structure of supply chains has become even more complex. Not only foreign manufacturing companies, but also a number of different service companies (logistics service providers, textile finishing companies, etc.) are today involved in the industry supply chains. (Bruckner et al, 2006)

The T&C retail industry have been changed significantly during the past few decades this new retailing is called lean retailing by Abernathy et al (1999). The technological items of lean retailing are bar codes and uniform product codes, electronic data interchange and data processing, distribution centers and common standards across firms. The change most visible to consumers is the expansion of large shopping malls at the outskirts of the cities at the expense of city centre department stores and boutiques. The retail sector has become more concentrated, first in the United States and then Europe and Far East (Abernathy et al 1999).

The retail industry is becoming a technology incentive industry by investing serious amount of money on it, but its basic supplier the clothing industry mostly can still be defined as a labor intensive one. The clothing industry is a traditional industry which lies upstream of clothing distribution and downstream from the textile sector (Dunford 2002). Basic production technology of the clothing industry has not changed much over the past century, and is characterized by the progressive bundle system. Work is organized such that each worker is specialized in one or a few operations. The fabric is first cut and then grouped by parts of the garment, tied into bundles (pre-assembly) and then sewed together. The individual sewing tasks are organized in a systematic fashion and specialized sewing machines have been developed for the individual tasks. A worker receives a bundle of unfinished garments, performs her single task and places the bundle in a buffer (Abernathy et al 1999). Because of this highly human dependent nature, the clothing industry is one of the key manufacturing sectors especially in developing and high populated countries.

The textiles industry is usually more capital intensive than the clothing industry and it is highly automated, particularly in developed countries. It consists of spinning, weaving and finishing, and the three functions are often undertaken in integrated plants (Nordas 2004). Traditionally it is the case that lead time in the textiles industry is quite long and the capital intensity of the industry results in relatively large minimum orders. The textile industry is therefore less flexible in terms of adjusting to consumer tastes during a season than the clothing and retail sectors. The textile sector is thus in many ways the bottleneck in the supply chain. The textile industry is less unskilled labor-intensive than the clothing sector (Minor 2002).

2.2 T&C Industry After The Agreement On Textiles And Clothing

The world nations have been signed numerous international and bilateral agreements for T&C trade to protect their industries since 1950s. These agreements have had little or big, positive or negative effects on international trade as well as the countries' wealth for decades (Spinanger 1998). But after ATC, after all T&C trade quotas have been removed between World Trade Organization countries, it is expected that a new era is about to begin in the global T&C trade and the effects will be huge, even lethal for some T&C exporting countries.

In order understand this new age and its impacts, first the quota system, the evaluation of regulative agreements and impacts of ATC phase-out must be understood. The next section will examine these subjects in the details.

2.2.1 The Quota System

The existence of quotas in the international T&C trading system protected textiles and clothing exporting countries from competition and awarded them with relatively predictable export earnings by guaranteeing market shares for the past five decades. As a result, developing country governments have used quotas to further particular development objectives such employment and small business development (Weerakoon and Wijayasiri 2000). Quotas have also permitted many smaller, less competitive countries to participate in international trade, providing them with economic and social benefits such as foreign direct investment, construction, transportation, communication infrastructure, employment, and foreign exchange earnings. It is estimated that one direct job created in the T&C industry can lead to two supporting jobs in service and supplier industries (U.S. International Trade Commission 2001).

The quota system has rarely supported higher productivity and lower costs. The revenue flow guaranteed by quotas has allowed companies to keep ineffective or unproductive workers on their payrolls (James et al 2002). In some developing countries, this has led to inefficient enterprises that operate far below best international standards for productivity and costs, for example, by employing thousands more workers than are needed.

Whatever the rights or wrongs of the quota system from the perspective of developing countries were, as Kathuria et al state (2001), the rules are changing and the productivity distortions that have built up over the years in many countries need to be addressed urgently despite the difficulty of doing so. After quotas were eliminated in 2005, even the lowest wage, international producers feel the need to rationalize production methods and wages to conform to the best world standards. Producers that cannot meet these standards will suffer reduced sales and market shares (Minor 2002).

2.2.2 The Agreement on Textiles and Clothing (ATC)

The Textiles and Clothing trade has been governed by a number of different agreements and restrictions in the past decades starting from exporting restraints between Japan and USA in the late 1950s (Spinanger 1998). Table 2 shows the milestones of the age of limitations.

Table 2
The Evolution of Quotas

Year	Event (agreement or stage)
1955-57	U.S. and Japan dispute leads to a 5 year agreement limiting textile exports
1958	United Kingdom imposes voluntary limitation on cotton T&C products with Hong Kong, by threatening to otherwise impose quotas at levels lower than prevailing volumes.
1959	United Kingdom signs restraint agreements with India and Pakistan.
1960	GATT Contracting Parties recognize the problem of market disruption
1961	STA: The Short Term Arrangement (STA) is agreed.
1962	LTA1: The Long Term Arrangement (LTA) is agreed, to start October 1, 1962, and last for five years.
1963-65	U.S. tries and fails to establish agreement on trade in wool products.
1966	The United Kingdom implements a global quota scheme in violation of the LTA. The LTA provides only for product specific restraints.
1967	LTA2: Agreement is reached to extend the LTA for three years.
1969-71	United States negotiates with Asian suppliers on wool and man made fibers.
1970	LTA3: Agreement is reached to extend the LTA for three years. It was later extended three months more, to fill the gap until the MFA came into effect.
1973	MFA I: The MFA is agreed, to commence January 1, 1974, and to last for four years.
1977	The European Economic Community and the United States negotiate bilateral agreements with developing countries prior to agreeing to extension of the MFA.
1977	MFA II: The MFA is extended for four years.
1981	MFA III: The MFA is renewed for five years. The USA, under pressure from increased imports resulting from dollar appreciation, negotiates tough quotas.
1986	MFA IV: The MFA is extended for 5 years, to conclude with the expected end of the Uruguay Round.
1991	MFA IV+: The MFA, otherwise due to expire, is extended pending the outcome of the Uruguay Round negotiations.
1993	The Uruguay Round draft final act provides for a 10 year phase out of all MFA and other quotas on textiles in ATC. MFA extends until Uruguay Round comes into force. ATC allows credit for liberalization in products that are not actually restricted.
1995	ATC1: 1 st ATC stage liberalizes 16% of 1990 import volume of importing countries
1998	ATC2: 2 nd ATC stage liberalized by importing countries 17% of 1990 import volume.
2001	ATC3: 3 rd ATC stage liberalized by importing countries 18% of 1990 import volume.
2005	ATC4: 4 th ATC stage liberalized by importing countries 49% of 1990 import volume.

Source: Francois and Woerz 2005

In 1962 a Long Term Agreement Regarding International Trade in Cotton Textiles (LTA) was signed, replacing a 1-year short-term agreement. The LTA was renegotiated several times until it was replaced by the Multi Fiber Agreement (MFA), which came into force in 1974. The MFA, as the name suggests, extended restrictions on trade to wool and man-made fibers in addition to cotton (Nordas 2004). The MFA started with cotton and

selected exporters, then eventually covered textiles of all fibers and regulated exports from virtually all developing countries. Quantitative restrictions on developing country exports to developed countries were imposed through bilateral arrangements approved under the MFA, while developed countries permitted unrestricted trade among themselves (Trela and Whalley 1990).

The MFA aimed at an orderly opening of restricted markets in order to avoid market disruptions. Like the LTA, it was supposed to be a temporary measure. The science of quantitative trade policy analysis was not very well developed in the 1970s. By the end of the second MFA (1981), 80 per cent of imports of textiles and apparel into United States were covered by bilateral quota agreements with 20 countries and territories and by consultative mechanisms with another 11 countries (Krishna and Tan 1997).

The MFA was renegotiated four times, the last time in 1991, and it finally expired in 1994. Six developed countries applied quotas under the MFA during the final years of the agreement (the European Union (EU), Austria, Canada, Finland, Norway and the United States), and the quotas were applied almost exclusively to imports from developing countries.

The expiration of the MFA did not mean the end of quotas on textiles and clothing exports from developing countries. Instead the MFA was followed by the Agreement on Textiles and Clothing (ATC), which came into force with the establishment of the WTO in 1995. ATC was not an extension of the MFA. Rather, it was a transitory regime between the MFA and the full integration of textiles and clothing into the multilateral trading system. Four countries carried the MFA restrictions into the ATC (Canada, the EU, Norway and the United States).

The ATC stated a 10 year of time period and 4 stages for eliminating quotas:
Stage 1 – On January 1, 1995, members shall integrate products that account for at least 16 percent of their total 1990 import volume;

Stage 2 – On January 1, 1998, they shall integrate products that account for at least an additional 17 percent of the total 1990 import volume;

Stage 3 – On January 1, 2002, they shall integrate products that account for at least an additional 18 percent of the total 1990 import volume;

Stage 4 – On January 1, 2005, all remaining ATC restrictions are eliminated and the textiles and clothing sector is integrated into the GATT (Diao and Somwaru 2002).

The first two stages of quota elimination had no sizeable effects on producers or importing markets because quota removal applied principally to products that had not been constrained by quotas so imports were generally below quota levels. Changes between 2002 and 2005 had greater impact. The tariff lines accounting for 49 percent of trade, including the most restrictive quota categories (based on 1990 import volume), liberalized in the tenth year -January 1, 2005- (Minor 2002).

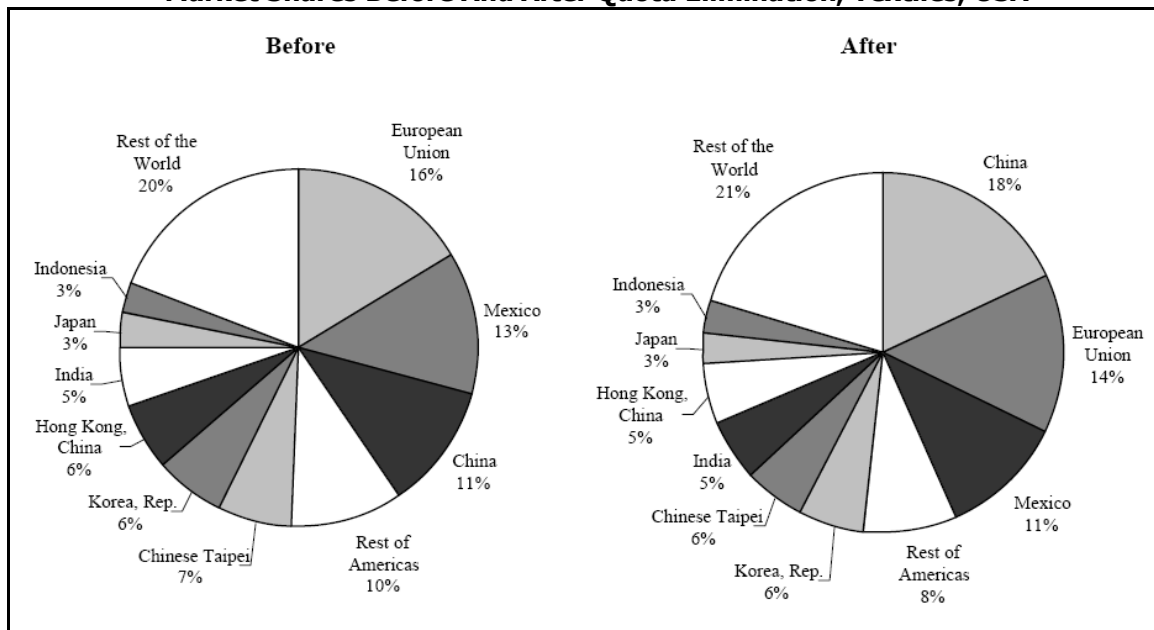
2.2.3. The Impact of Quota Elimination

The Agreement on Textiles and Clothing (ATC) expired at the end of 2004, marking the end of quotas limiting textiles and clothing trade between World Trade Organization (WTO) members. Large developing countries — especially China, India and Pakistan — were the most restricted by quotas. By implication, these are the likely winners from the quota phase-out, especially China and India. The main losers are likely to be high wage firms in the quota-restricted countries who have enjoyed protection for over 40 years. However, losers will also include small developing countries located far from the major Western markets which benefited from quota-free access to those markets. Future competitiveness in textiles and clothing will depend on marketing capabilities, technology, design and quality (Textiles Intelligence 2005).

Following the elimination of quotas, China, the giant of low cost production, is expected to increase its market share in T&C market by about 50%. The list of the 10

largest exporters remains the same, but the ranking has changed. The combined market share of smaller exporters has increased. Bangladesh and Sri Lanka both increase their market shares by almost 50%, but from a low base. Nevertheless, this gain in market share represents a substantial increase in these countries' exports of textiles. Figure 3 shows the other countries losing market shares are African countries that have had preferential access to the market before the phasing out of quotas and Latin American countries.

Figure 3
Market Shares Before And After Quota Elimination, Textiles, USA

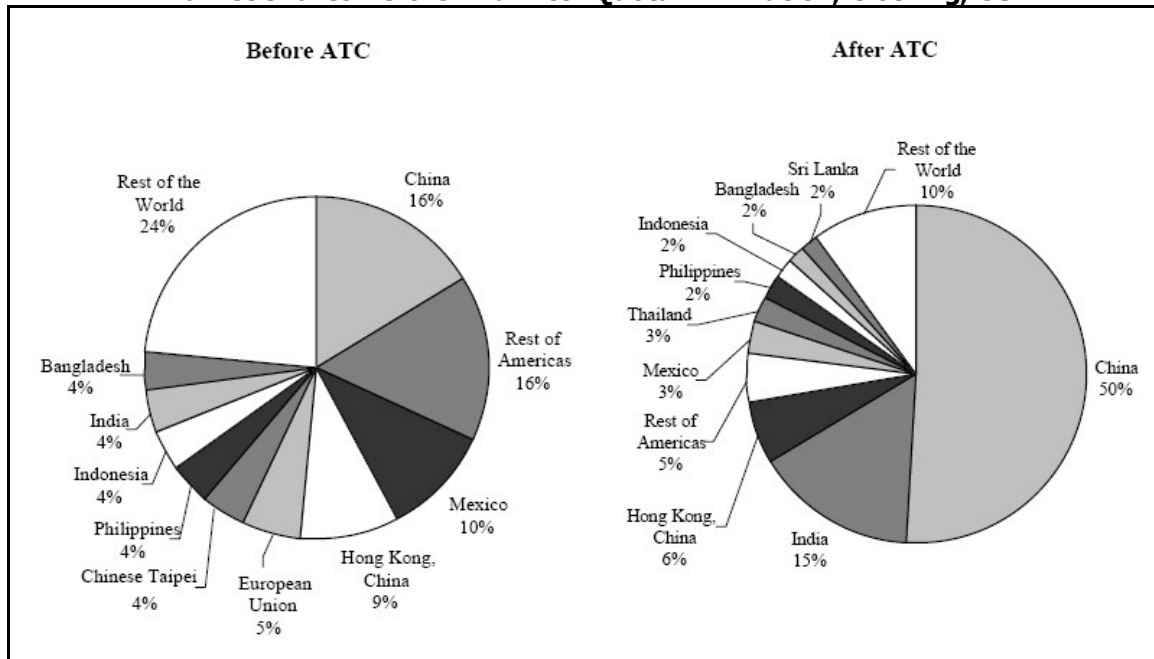


Source: Comtrade Database. <http://unstats.un.org/unsd/comtrade>

For the clothing exports to USA market the impact is much more dramatic, see Figure 4. China and India combined take 65% of the export market – China triples its market share while India's market share is quadrupled. All others lose market share and the largest losses are incurred by African countries and Mexico, whose market shares decline by close to 70%. Comparing the predicted market shares with those recorded in 2002, it is also notable that some of the countries that have benefited from preferential

access to the EU and US markets will lose market shares as these preferences are worn away. Mexico and the Dominican Republic are in a position to lose market shares in clothing in the United States compared to 2002.

Figure 4
Market Shares Before And After Quota Elimination, Clothing, USA

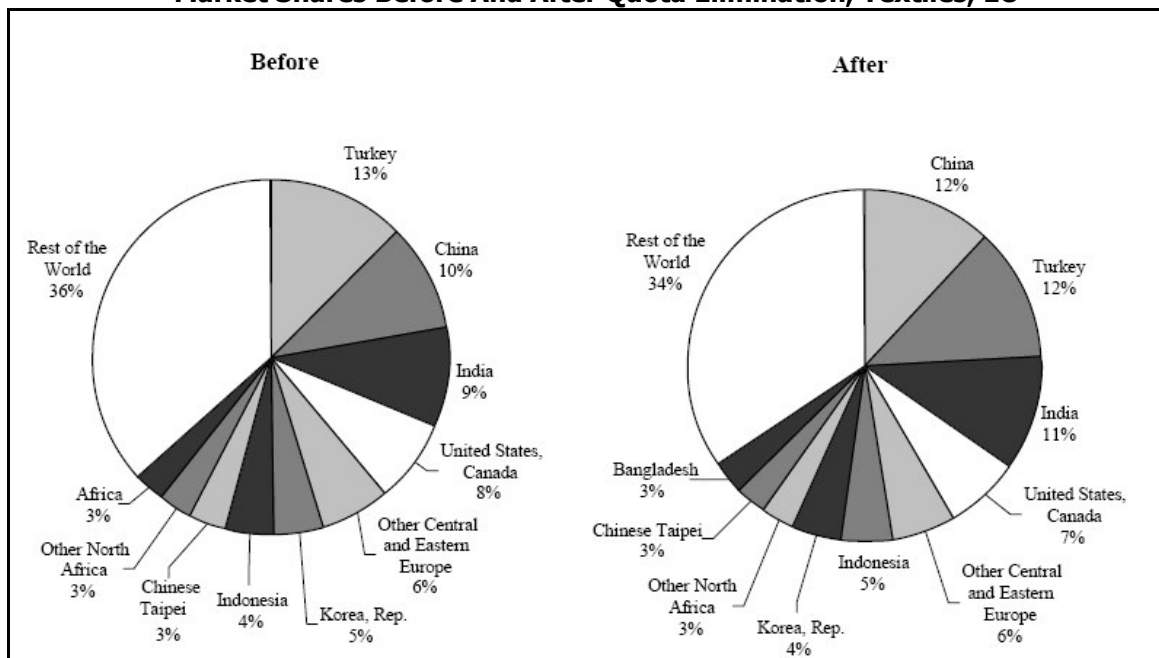


Source: Comtrade Database. <http://unstats.un.org/unsd/comtrade>

The European Union (EU) has less restrictive quotas than the United States/Canada on both textiles and clothing. It also has provided a number of least developed countries with tariff- and quota-free market access, provided certain criteria such as rules of origin are satisfied. Finally, the EU has entered free trade agreements with a number of Central and Eastern European countries and some of them became members of the EU in May, 2004. China makes the largest gain in market share, followed by India. Also, Bangladesh makes a substantial gain compared to 1997. The countries losing market shares are those enjoying unrestricted or preferential access to the EU market before the phasing out of quotas – most OECD countries, and sub-Saharan Africa. Turning to the clothing industry, Figure 5 and 6 illustrate the impact of quota elimination on market shares in this industry.

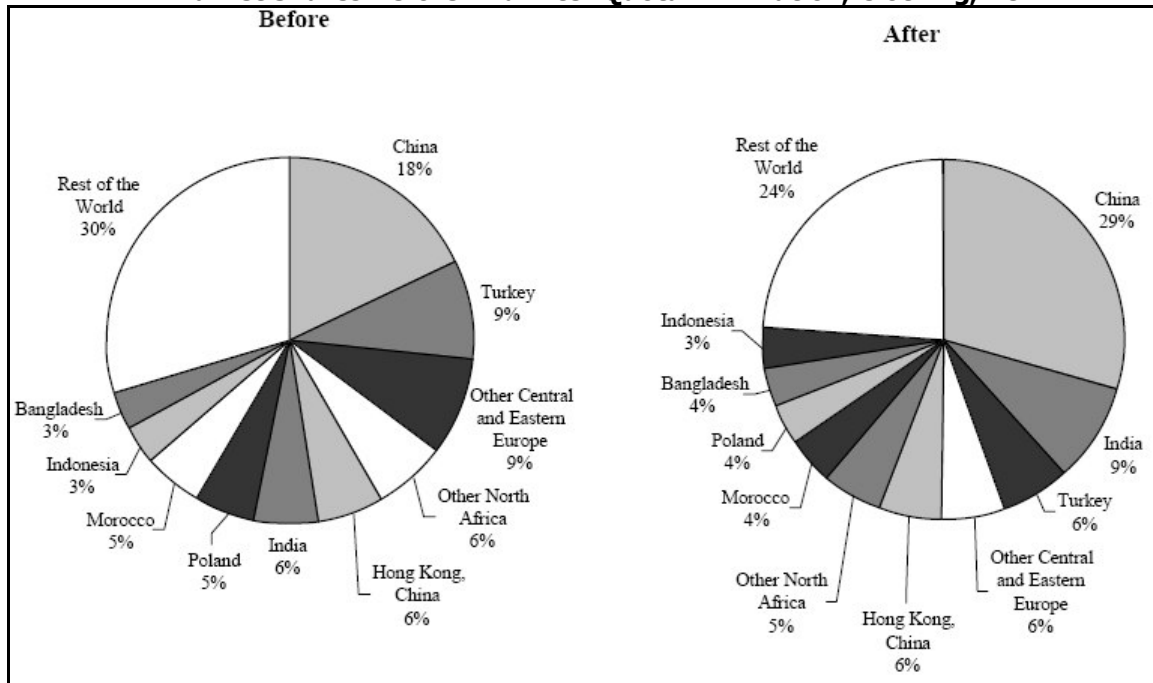
Both India and China will almost double their market share, and China will be the single largest exporter. Africa, the United States/Canada, Turkey, Central and Eastern European countries and richer Asian countries and territories such as Republic of Korea and Chinese Taipei will lose market share (Nordas 2004).

Figure 5
Market Shares Before And After Quota Elimination, Textiles, EU



Source: Comtrade Database. <http://unstats.un.org/unsd/comtrade>

Figure 6
Market Shares Before And After Quota Elimination, Clothing, EU



Source: Comtrade Database. <http://unstats.un.org/unsd/comtrade>

Equally alarming is the deflationary effect of China's dominance. For example, prices of US imports of quota de-controlled garments from China fell by 44% in 2002. Those from the rest of world fell by 2%. Average unit prices of EU imports of quota decontrolled items from China fell by 42% in the same period (Kearney 2005). The International Textile, Garment and Leather Workers Federation (ITGLWF) estimates that millions of jobs will be lost in developing countries. In Doha the ITGLWF suggested that Bangladesh would lose 1 million jobs. This figure has since been confirmed by the United Nations Development Program.

It is obvious that the quota eliminated era causes enormous changes in the economies of T&C exporting countries all over the world. Turkey is not an exception. Turkey is still generating 1/3 of its export revenues from T&C exports so it is important to understand the progresses and perform necessary adaptations to stay competitive in the

international market. The next section will examine the Turkish T&C industry and effects of latest trade regulations.

2.3 Turkish T&C Industry Situation After ATC

Turkey is a major player in the international T&C trade for decades. Since country depends on the industry for its big share in the total exports as well as increasing the rate of employment, the new age after ATC and its effects has become a major issue for industry.

This section will focus on the impacts to and strategies for the Turkish T&C industry in this new era after summarizing the industry's situation, strengths and weaknesses.

2.3.1 T&C Industry of Turkey

Turkish T&C industry is regarded as a key locomotive industry, pulling the country's progress along since the 1980s. In the 1980s a widespread change took place in the T&C industry. Entrepreneurial policies became more efficiently export oriented. The government gave the entrepreneurs a helping hand in this field because the T&C industry was the most important hard currency earning sector of the Turkish economy. The industry has kept this important position for decades (Ercan 2002). Today the T&C industry is still one of the Turkish economies with its share in the economic indicators. It accounts 10% of GDP, 21% of industrial production, 21% of industrial employment and 37% of total manufacturing export earnings (Istanbul Textile & Apparel Exporters' Associations (ITKIB) Website).

Turkish textiles rank tenth in world trade, increasing their share from 0.6% in 1980 to 2.8% in 2002. In the clothing industry, Turkey ranks fourth in the world trade, increasing its 0.3% share in 1980 to 4% in 2002. Turkey's T&C exports reached US\$ 18,8 billion in 2005 whose 29% belongs to textiles and 71% belongs to clothing exports. T&C imports into Turkey are lower (US\$ 6.6 billion in 2005), but have increased by more than %100 from 2001 and are mainly textiles. Textile products account for 90% of T&C imports, see Table 3.

Table 3
Turkish T&C Foreign Trade 2001-2005

	Exports		Imports	
	USD (Million)	Change, %	USD (Million)	Change, %
2001 – Textile	3,060	-	2,745	-
2001 – Clothing	7,335	-	222	-
2002 – Textile	3,204	4,7	3,830	39,5
2002 – Clothing	8,951	22,0	263	18,4
2003 – Textile	3,943	22,5	4,666	21,1
2003 – Clothing	11,178	24,6	406	53,9
2004 – Textile	4,950	25,5	5,657	21,2
2004 – Clothing	12,650	13,1	623	53,4
2005 – Textile	5,460	10,3	5,930	4,8
2005 – Clothing	13,407	5,9	715	20,5

Source: ITKIB website, www.itkib.org.tr

About half of the shipments from Turkey are directed to the EU members. Turkish exporters rank second after China in garments and market share of 11.6 %. They are the fifth leading textile supplier of the EU with market share of 8% as of 2000. The second most active market for Turkish manufacturers is the United States of America for both textiles and garments. Turkey is the 19th apparel supplier of the USA, with a share of 1.8 % and 10th textile supplier of the USA, with a share of 2.87 % (ITKIB Website).

In 1996, Turkey established a customs union with the European Union. The result is that Turkey levies zero duties on imports from the EU. Therefore duties on goods from the so-called "third countries" cannot exceed those imposed by the EU members. Turkish import duties before the accession agreement were much higher than the common EU

taxes. Basic expenditures for raw materials, energy, finance, and work force are still much higher in Turkey than those of its competitors. As a result, costs of man-made fibers, cotton yarns, and cloth making cannot compete against those in such countries as India, Pakistan, Indonesia and China. Furthermore, Turkish entrepreneurs cannot compete with the developed West even in basic costs, especially when productivity is taken into consideration (Ercan 2002). Table 4 presents detailed comparative analysis of Turkey with major competitors (Turkey Clothing Manufacturers Association (TCMA) 2005).

Table 4
Comparative analysis of Turkey T&C Industry with major competitors

	TURKEY	CHINA	INDIA	ITALY	POLAND	MOROCCO
Cooperation between T&C	Very strong	Strong	Strong	Excellent	Improving	Weak
Yarn quality	Good	Fair/good	Good	Excellent	Fair/good	Fair/good
Weave Quality	70-80	70-80	60-70	95	70-80	60-80
Technological Level	80-90	60-70	55-65	100	100	70-80
Computerized production	15	10	3	80	20	2
Quality	80	65-70	60-65	100	75	75
Collection Forming	30	25	20	80-90	30-35	25
Flexible production	Fair/good	Weak	Weak	Very good	Fair	Good
Efficiency %	55-65	40-50	40-50	70-75	50-60	50-60
Marketing	Strong	Strong	Fair/Strong	Very strong	Weak	Weak
Delivery lead time	3-4 weeks	3-5 weeks	3-5 weeks	2-4 weeks	3-4 weeks	4-5 weeks
Delivery Success	90	70	60-70	90	85-90	80
Collection success	Up trend	Up trend	Very Weak	Very strong	Up trend	Weak
Direct sale to retailer	Increasing	Starting	Starting	Present	Infrequent	None

Source: Turkey Clothing Manufacturers Association (TCMA). Turkish Clothing Industry Horizon 2010 Road Map

Since 1998, similar as other industries, textiles and clothing have been negatively influenced by economic crises, both in Turkey and global. The changing trade regulations in world markets have had a further impact on the necessity of restructuring in the industries. On the one hand, Turkish T&C industry has shown a significant effort to catch up with technological and structural changes after year 2000, by investing 50 billion dollars into the industry through state investment incentives. Recently the pace of progress in Turkish textiles and clothing industries has almost stopped, with respect to production and employment (Ercan 2002).

Turkish T&C industry has certainly improved in terms of production and exports, in comparison to textiles in the period 1997-2002. The industry's strengths are highly depend on the geographical location of the country, decades of production experience, and being a natural producer of raw material. But on the other hand the high production costs and lack of government support seems to be the biggest weaknesses of the industry. Table 5 lists the main strengths and weaknesses of Turkish T&C industry (Center for European Policy Studies (CEPS) 2005).

Table 5
Strengths and Weaknesses of Turkish T&C Industry

Strengths	Weaknesses
<ul style="list-style-type: none"> • An integrated textile chain within the country (from raw material to textiles and to clothing) • Ability to produce commodity and specialized products (having well-established know-how) • Flexibility in production modes (the ability to respond quickly to both small and large orders) and timeliness in delivery • Proximity to the EU • Experience in providing high level of customer service (as a result of longstanding tradition in the sector) • Broad domestic raw material basis (self sufficiency due to being one of the leading cotton producers) • Existence of developed finishing industry for textiles industry • Existence of developed sub-sector of clothing industry (for accessories) • Young and motivated workforce (recently increasing number of skilled workforce through vocational programs) • Entrepreneurial spirit 	<ul style="list-style-type: none"> • Lack of highly skilled workers in SMEs • High total costs (labor, utilities, etc.) due to high taxes • Deficiencies in R&D activities (recently started) • Reliance on standardized products (through large proportion of subcontracting links in production) • Concentration on SMEs in clothing • Diversification of its product range (newly developing) • Poor brand and collection forming expertise • Diversification of its export markets to reduce strong reliance on the EU market • Reduce over-capacities • Lack of government support and bureaucratic obstacles • Inability to attract foreign direct investments

Source: CEPS 2005

2.3.2 The Impact of Quota Elimination to Turkish T&C Industry and Strategies for New Era

Today China appears to be the most important competitor of textiles and clothing producer countries in the world. Since 2001, when the third phase-out of the quotas in ATC was realized, China increased its T&C exports by 192% and in a year its market share in the world grew from 14 to 37%. After 2005, the Customs Union with the EU might not be an advantage, as the Chinese products, against which Turkey tries to protect its domestic production through anti-dumping law, enters the EU market with the result that Turkey loses market share in the EU (State Planning Organization (DPT) 2001). There is a strong belief among the experts that the EU has to take the some kind of precaution in a similar way to the US, which prepares to protect its domestic industry against the competition from China.

The questionnaire results, applied by Turkey Clothing Manufacturers Association (TCMA) to 60 clothing firms in a 2001 report by the State Planning Organization, reveal the belief that Turkey cannot continue to be a T&C supplier country and has to upgrade its position in the world markets. They think their productivity level has increased and support from government is necessary for restructuring of the industry. Chinese and East Asian firms are perceived as the main competitors by 30% and 42% of the firms respectively. 23% of the firms perceive Central and East European firms as competitors, 20% perceive Portuguese firms as competitors and 18% perceive Italian firms as competitor. North African firms are perceived as competitors by 12% of the firms. In the next five years, 26% of these firms see China as the main competitor followed by East Asian firms with 16% and East European firms with 10%. These firms believe that their quality (38%), speed of delivery (13%) and brand development and design for collection preparation (8%) will be their main strength in competing with their competitors in the next five years (State Planning Organization (DPT) 2001).

Since Turkish T&C industry is one of the most important ones driving the Turkish economy, which has the biggest share in all exports of the country, and large scale of investments that have been made in the last five years; Turkey cannot simply move out of T&C into other industries. This makes the need for rapid restructuring of the Turkish T&C industry, in line with the new competitive environment within the global T&C industry, almost essential. Turkish T&C industry benefits from product differentiation. The learning process in increasing product varieties by Turkish T&C firms has been in place for more than two decades, especially through their subcontracting relationships with foreign customers. As it is stated in the recent CEPS report (2005), the critical point of product differentiation is in the ability to move to more technologically advanced products as well as to quality-oriented production. This raises the question of where Turkish T&C producers will locate themselves in the global production value chain in the near future. They have to make a choice between price competitiveness in the lower value added segment of the industry and quality competitiveness in the higher value added segment of the industry.

Today Turkey is very aware of quality as a priority for staying competitive in the new global market. To improve this awareness and to market Turkey as a quality brand in the global market, Undersecretariat of Primeministry for Foreign Trade (DTM), ITKIB and Turkey Exporters' Association (TIM) together have launched the concept of "Turquality" in December 2004 and provided incentives for promotion of Turkey's image and high-quality Turkish brand name exports. Turquality is a financial and management support program that helps the firms produce value added products to differentiate themselves in the internal and external competition (ITKIB Website).

Vision of Turquality states that;

- Turkish industry will relocate itself strategically in the global competition,
- The industry must improve the images of their brands to world standards,
- Turquality is a unique project to catalyze the transformation that will make Turkish products and brands successful. (ITKIB website)

The efforts by TCMA show that this transformation will require no more than 5-6 years if the guidelines are followed carefully. Turkish T&C producers are taking Italy as an example, creating a fashion center in Istanbul and giving importance to the establishment of own brand names by developing design abilities within the firm or through cooperation with an external designer. This new target influences the firms' exporting activities, leading them to enter new markets and new product categories with high quality. The Horizon 2010 Road Map (2005) study of the TCMA declares that Turkish T&C industry has the potential to increase its export value to \$34,8 billion in 2010 (from \$10,4 billion in 2001) provided that the industry goes through the recommended restructuring stages and upgrades to a high value added producer country position. The idle capacity in the Turkish T&C industry, which is a result of the investments made with high expectations from the Customs Union that were not realized, has to be successfully converted into production and exportation of high value added products (CEPS 2005).

As a result it is obvious that Turkey T&C industry needs new competition strategies for new era to achieve these goals;

- To create a quality brand as Italy
- To have their own fashion brands in the global market
- To establish new trade segments and produce for value added niches
- To design new products for high quality fashion
- To find new markets (Ercan 2002)

And to achieve these goals following actions need to be taken;

- Reduce the share of subcontract production in total textile production
- Reduce the share of simple/ordinary products and maximize the share of medium-high products in total subcontract production
- Sell medium-high fashion products under global Turkish brand names
- Initially select niche markets for the functional products
- Sell at a price in good match with the product quality

- Shift from “produce first sell later” approach to “market first produce later” approach
- Sell and market with global and regional brand names
- Establish own marketing and distribution networks abroad
- Utilize information technologies from design to market value added products (Turkish-U.S. Business Council (TAIK) 2005, Ercan 2002, TCMA 2005).

Today it is clear that Turkey’s main competitive strength in the market is no longer price. Instead, Turkish T&C producers are aware of the fact that their advantage vs. East Asian competitors will be the quality of their products, marketing abilities and proximity to the markets. For product innovation and efficient marketing activities, the new economy and its information technology tools are relatively new but valuable resource for Turkish T&C industry. After investing huge amounts of capital to machinery in 1980s, today the industry is seeking the ways of producing, marketing and selling more efficiently. As well as creating strong networks between suppliers and customers. The idea of ICT investments to achieve this end is not as far objectives to achieve as it was in 1990s for today’s decision makers.

The thesis will focus the utilization of information technology and its tools to create competitive advantages by designing, creating, marketing and selling value added products to the market. The next section discusses the new economy concept and its tools in detail and utilization of these tools in the T&C industry in particularly.

3. UTILIZATION OF NEW ECONOMY TOOLS IN TEXTILES AND CLOTHING INDUSTRY

Starting in the late 18th century, the industrial revolution changed the way of doing business when first steam powered machinery was introduced in manufacturing. This economic change also triggered serious socioeconomic and cultural changes and shaped the modern world until the late 20th century. In the late 1990s a similar revolution took place, this time not powered by the steam but the Internet. This Internet powered revolution has come with big promises, some of which are today known as hot air balloons while others are accepted as successful business practices.

The concepts, trends and practices evolved around the new economy affected all production and services industries including T&C industry. Its effect in T&C industry can be considered as relatively small but continuous. This chapter will discuss first what the new economy is and then focus its information and communication technology tools and their utilization in T&C industry by giving some real life figures and examples; especially from the EU, which is the biggest T&C exporter and market in the world and also considered as a role model for Turkish T&C industry.

3.1 The New Economy

When the industrial age was over, the world has met the new economy, which is also called the Internet Economy, the Web economy and the digital economy (Turban et al. 2002). The New Economy is a term that was born in late 1990s to describe the evolution of the United States from a manufacturing based economy into a high technology based economy, arising largely from new developments in the Internet, telecommunications and computer sectors. At the time, analysts believed that this change in the economic structure of the United States had created a state of steady growth, low unemployment and wealth. While many of the predictions about the significance of the change proved to be wrong, experts continue to use the term New Economy to describe the contemporary American economy (en.wikipedia.org/wiki/New_Economy).

Kotler (2003) uses the new economy term to describe the set of forces that have appeared in the last decade and created new marketing and business practices. Turban et al. (2002) describes it as a new era of economy that is based on digital information technologies. The rapid entrance of the computing and communication technologies to daily and business life resulted in the flow of information and technology that encouraged new business practices and approaches in the companies and the market.

Shepard (1997) calls it transcendent technology that affects virtually everything, while Stiroh (2002) defines the new economy as the productivity gain, unemployment decline, and inflation moderation in the late 1990s that resulted from technology, globalization, and increased competitive pressures.

Whatever the description is; the new economy is evolved by the effects of 7 significant forces that shaped global economy.

1. Information Technology Revolution, which has changed the economy by the power of networks and communication tools, through which once dispersed and hard to reach knowledge became universally connected. Both the reach and richness of information in the environment increased considerably as a result. (Day and Montgomery 1999, Glazer 1991)
2. Intense Competition is one of the main characteristics of today's industrial world, which is formed by maturation, with slow or no growth, excess capacity, and fierce battles for market share with competitors (Sheth et al. 2001).
3. Fragmentation and Homogenization of markets are two important trends in the new economy. The fragmentation of the mass markets is the combined result of knowledgeable customers, product, media and channel proliferation, mass customization practices of the firms to compete. On the other hand homogenization of the cross-cultural segments is also a result of the new economy, which is independently driven by common consumer trends, such as the increased travel, exchange, education, media exposure (Sheth et al. 2001).
4. Demanding and Empowered Customers, who have more choices than ever in the market, are better informed and have more ways to acquire the goods; are no longer passive players of the marketing process. This makes it very hard to assume that markets are predictable and large segment of the market behave alike (Day and Montgomery 1999).
5. Globalization of Industries, which means broadening the scope of an industry, which had been primarily domestic, fueled by homogenization of customer needs, gradual liberalization of trade, and the recognition of the advantages of a global presence (Sheth et al. 2001).
6. Customization can be defined as having different local attributes in each domestic market by differentiating and personalizing the product, service, delivery or relationship. The key is to gather the necessary customer information and evaluate

it, and then create and present customized offer quickly to the market by the help of information technologies (Kotler 2003).

7. Organizational Change is another major force that has increased the importance of information. Marketing philosophy of the firms has changed from marketing orientation to customer orientation. The importance of the individual customer grows while marketing is seen as the responsibility of every department in the company. Focusing on customer lifetime value, designing marketing offerings to make profits over customer's lifetime, systematically measuring customer satisfaction, and customer retention become key concepts (Kotler 2003).

These forces and their impacts in the economy have ended the industrial age to give birth to a more competitive and information depended one, the digital age. The dynamics of the industrial age (old economy) and the digital age (new economy) are compared in the following section.

3.1.1 From Old to New

The old economy, rooted in the Industrial Revolution, was very good at the mass production and consumption of physical objects. Value was located in the physical attributes of the object. As the old economy evolved, society began developing the skills and perspectives that became the bases for the new economy.

The old economy creates value in a product through a simple formula. The object's value is the sum of its obvious parts. The new economy produces additional value by a complex interaction of the obvious parts with intangibles, like design, engineering and brand. Creating this value is more than the sum of the parts. This distinction between object and knowledge value becomes clearer when intangible emotional experiences are included. Most decisions are driven by data from the old economy. This works best for

organizations whose value is embedded in physical objects. That same data is necessary but not sufficient for new economy decisions. As value becomes more dependent on unique knowledge and experience, objective data sources must be supplemented with more subjective perspectives from communities of interest, organizational cultures and other relationships (Glick and Plisch 2004).

Even if it can be accepted as a difficult distinction, because most new economy explanations are built on old economic bases (Stiroh 2002), the comparison of business value indicators between the old and new economy is listed in the Table 6. In the new economy there is no asymmetry of information. Information can be reached and used by everyone. This dissemination of knowledge led the firms to dig more into the individual needs and wants. Hence there are no longer mass markets but markets of one. Speed of information and communication also made the goods not for only elites but for everyone. Global economy and reaching global markets also became reality. Borders are dissolving among nations (Kotler et al. 2002 & Glick and Plisch 2004).

Table 6
Old Economy vs. New Economy

Old Economy	New Economy
▪ Asymmetry of information	▪ Democratization of information
▪ Goods for elites	▪ Goods for everyone
▪ Make-and-sell	▪ Sense-and-respond
▪ Local economy	▪ Global economy
▪ Corporate governance	▪ Market governance
▪ Mass markets	▪ Markets of one
▪ Just-in-time	▪ Real-time
▪ Requirement of control	▪ Requirement of collaboration
▪ Value is measurable	▪ Value is emergent
▪ Predictive	▪ Experimental
▪ Clear boundaries	▪ Shifting borders

Source: Kotler et al. 2002 & Glick and Plisch 2004

The next section discusses the information and communication technology as the basic enabler of new economy.

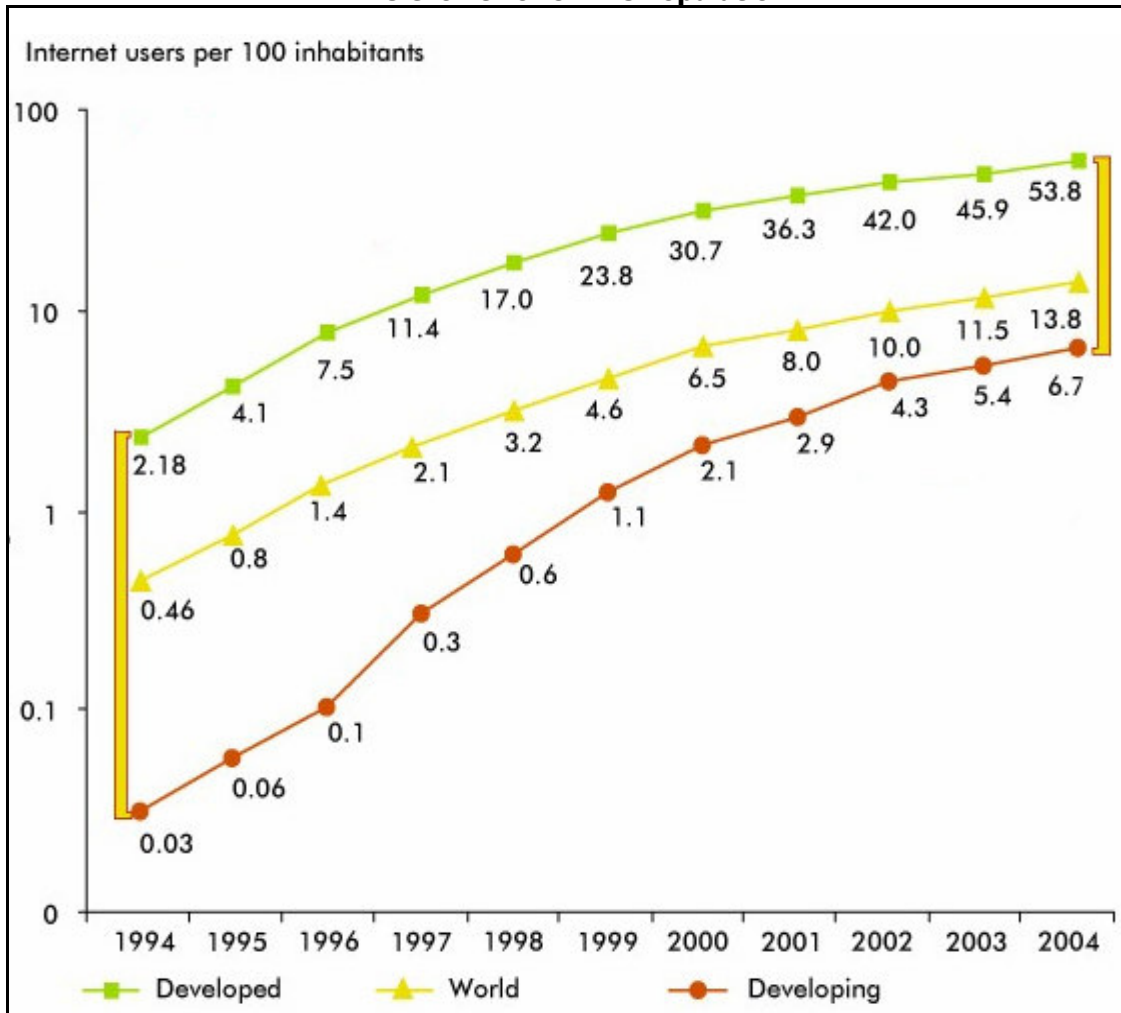
3.1.2 Information and Communication Technology (ICT) as the Enabler of New Economy

Even if there are different points of views that have come up with different definitions for the new economy, all these definitions point information and communication technologies (ICTs) as the basic enabler of the new economy.

The US Department of Commerce (1998) defines the New Economy as an economy in which ICT and related investment drive higher rates of productivity growth. The new technologies have remarkably influenced productivity in the whole economy as ICT are adopted in many sectors. ICT are believed to increase the efficiency of labor and capital and thereby influence productivity directly. ICT innovation is driven by the demand for improved technologies in the using industries.

ICT and particularly Internet become the vital elements of the 21st century business life. The well known new economy concepts like e-business and e-commerce, all built on the Internet and highly depend on Internet population, the number of people that are online. The growth of this online population can also show how e-business will grow. Figure 7 represents the growth of online population from 1994 to 2004. Within in ten years the Internet users per 100 inhabitants of the world grew up more than 27 times (from 0,46 to 13,8) and this growth rate is similar in both developed and developing countries.

Figure 7
The Growth of Online Population



Source: International Telecommunication Union (ITU) Webpage. <http://www.itu.int>

1990's have witnessed to an unprecedented increase in the share of ICT in the total investment and consumptions, and in return with the help of ICT, productivity gains and economic growth in many countries. Although, ICT industry in Turkey had been negatively affected by the 2001 financial crisis, there are signs that the sector is recovering very rapidly and targeting even higher growth rates than expected. The government is also aware of opportunities that ICT industry offers and launched e-

Transformation Turkey project in order to realize the transformation to an Information Society (Inan 2005).

Data on Turkish ICT market is represented in the Table 7 and shows the development of the industry. This data also illustrates the steady increase in both domestic consumption and foreign trade. Besides telecommunications services represent a big portion (%76.7) of the total ICT market, compared to relatively small (%14.3) ICT market.

Table 7
Turkish ICT Trade (million USD)

	1990	1995	2000	2002	Annual Increase (%) (1990-2002)
Domestic ICT Consumption	2,975	3,911	11,341	9,515	10.2
ICT Production	2,394	2,859	7,590	7,546	10
ICT Export	33	38.5	147	119	11.3
ICT Import	614	1,090	3,898	1,788	9.9

Source: SPO, Interpro

The ICT industry, especially software, is regarded as a key sector to create national competitive advantage by the government and its growth is promoted. Tax exemptions are provided for the companies operating in technoparks until the end of 2013 and government is encouraging foreign direct investments into the industry. Inan (2005) expresses that With these advantages in terms of proximity to the European market, young and competitive workforce, and government support a rapid growth in Turkish ICT industry is expected in the near future.

Since the new economy consists of a wide range of different definitions, it comes to action by various types of e-business practices in various industries. Next section will discuss what the e-business concept is and how it is used in T&C industry.

3.1.3 New Economy's Business Model: E-business

The new economy requires new business models. Market is changing in a big momentum and traditional business approaches are now inadequate. There is a bunch of new business models emerged and among them electronic business (e-business) is the most discussed one.

E-business may be defined as any business process that relies on automated web-based technologies (<http://en.wikipedia.org/wiki/E-business>). E-business connects critical business systems directly to critical parties, such as customers, employees, stakeholders, suppliers, vendors and business partners utilizing Internet based technologies. These technologies include corporate web sites, intranets and extranets, virtual supply chains, marketplaces, virtual private networks and enterprise data portals (Freeman 2000).

E-business model enable companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers. In practice, e-business usually includes e-commerce. E-commerce seeks to add revenue streams using the Worldwide Web or the Internet to build and enhance relationships with clients and partners and to improve efficiency. But e-business is more than just e-commerce. It involves business processes spanning the entire value chain: electronic purchasing and supply chain management, processing orders electronically, handling customer service, and cooperating with business partners. E-business software solutions allow the integration of business processes. E-business can be conducted using the Web, the Internet, intranets, extranets, or some combination of these.

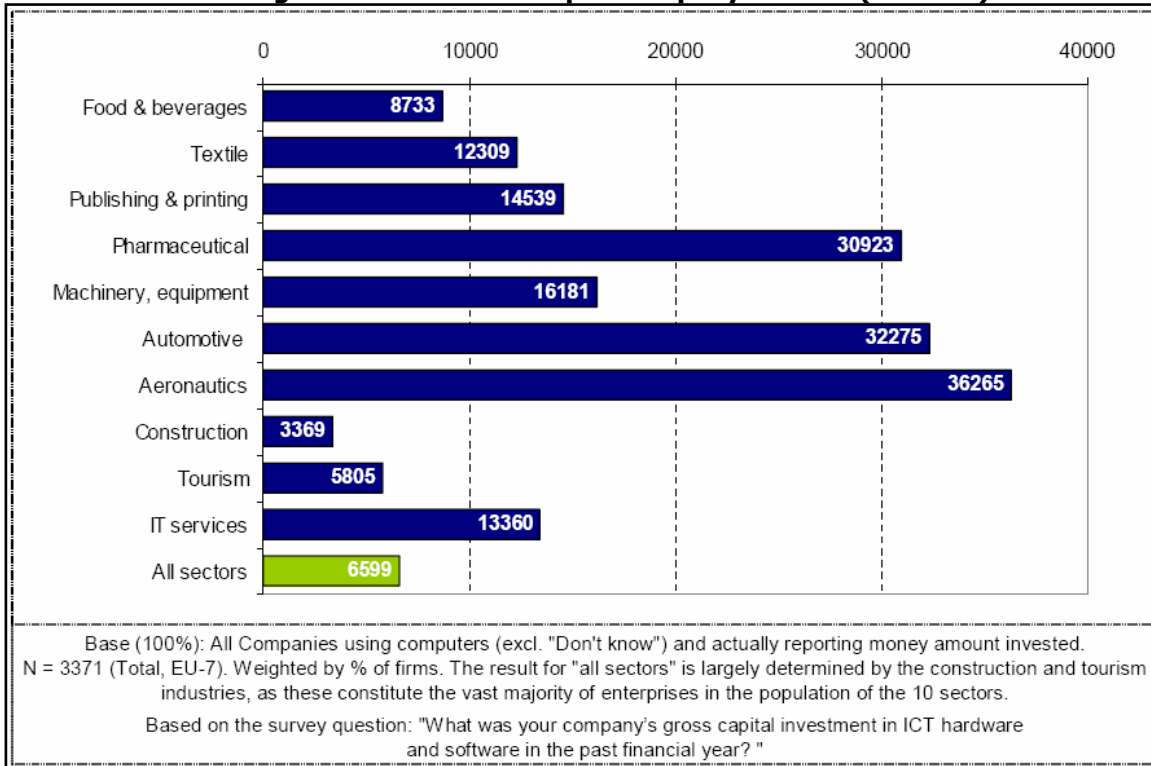
Adapting e-business to ones own business discipline is an ongoing issue of the companies all over the world. The EU has been conducting serious studies to support the e-business adaptation of union companies. Below there are some figures of e-business

adaptations of the EU companies, which can provide valuable information for Turkish companies' e-business studies, because T&C industry of EU which is considered as a role model that most of industry and experts believe Turkey should follow its footsteps to stay competitive (Ercan 2002). The figures below are based on the report which is the Sector Impact Study on electronic business in the Textiles and Clothing Industry, published by the e-Business W@tch (www.ebusiness-watch.org) in the 2005 period. The e-Business W@tch is an initiative launched by the European Commission, DG Enterprise and Industry, in late 2001, which produces and publishes e-business impact studies on 17 sectors of the European economy.

The utilization of basic ICT infrastructure in the T&C industry of EU lies in between the manufacturing sectors, with more advanced ICT use which tends to be equipped with more powerful ICT technologies, and service sectors, with a lower ICT intensity such as tourism and construction. Level of the ICT investment is one of the key indicators for an industry's new economy adaptation.

On average, companies from the textiles and clothing industry reported an annual expenditure of about 12,300 euros for investments in ICT infrastructure and software in 2004 as it can be seen in Figure 8.

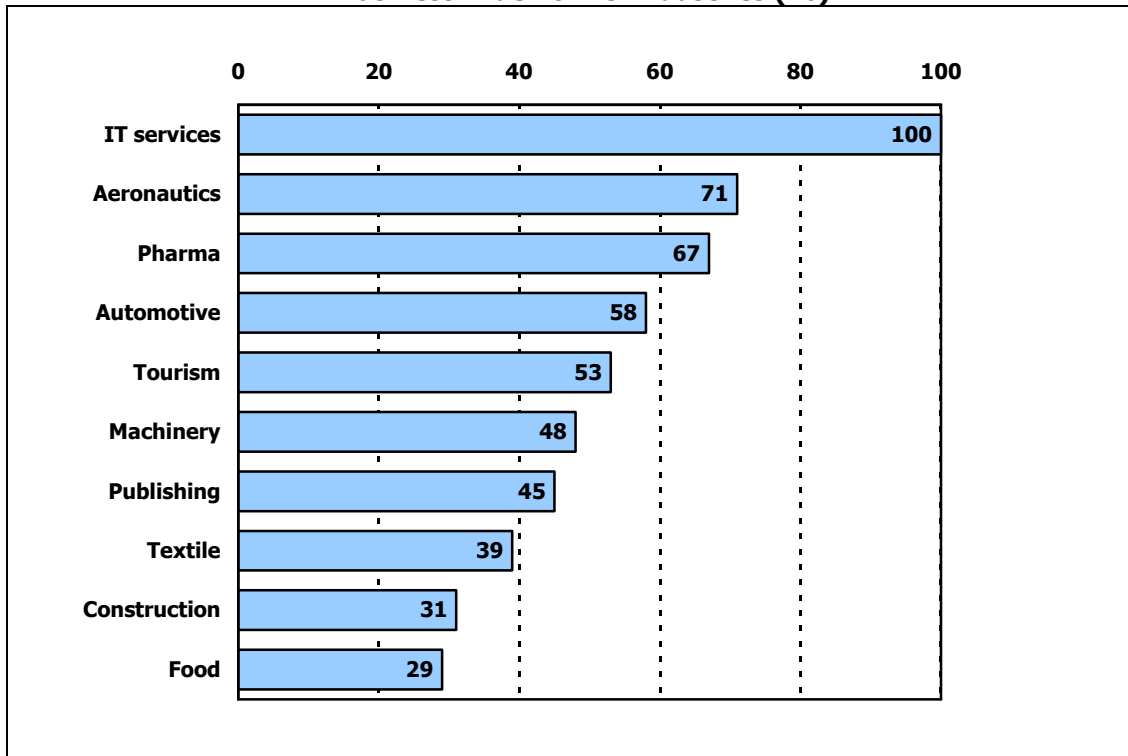
Figure 8
Average Investment in ICT per Company in 2004 (in Euros)



Source: E-business w@tch: e-business survey 2005.
 The word "textile" in the graph refers to the entire industry

E-business W@tch 2005 also states that, the level of e-business in the T&C industry is below average compared to other manufacturing sectors that are examined in the study. As it can be seen in Figure 9 and Figure 10. With the figure of 39% T&C industry's e-business intensity is between publishing (%31) and Construction (%31).

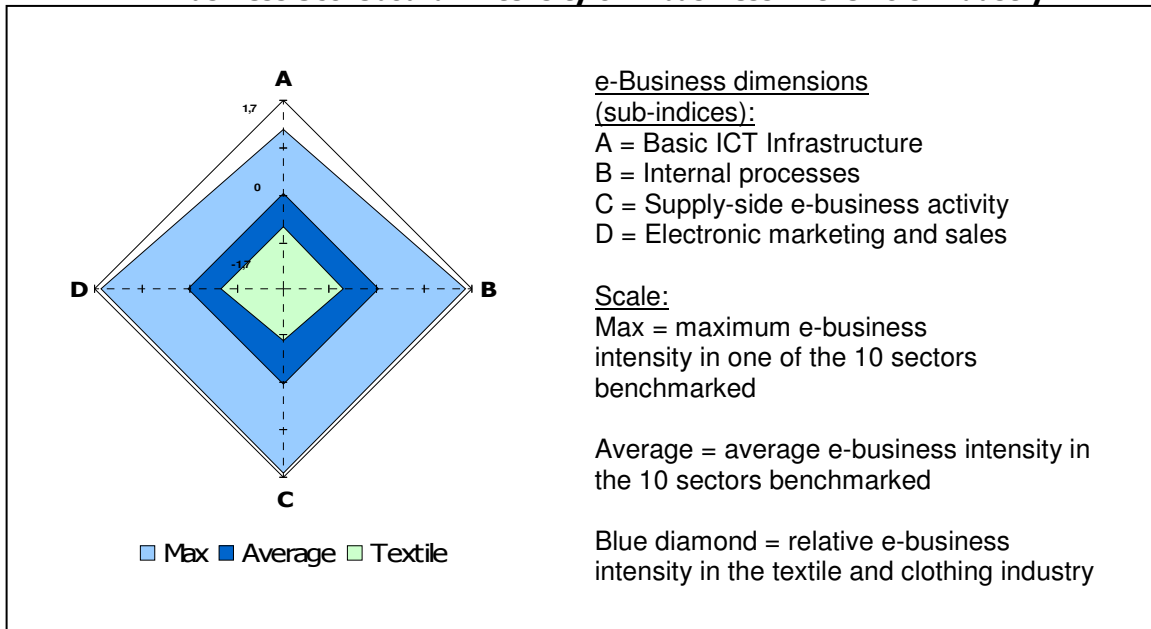
Figure 9
E-Business Index of EU Industries (%)



Source: E-business w@tch: e-business survey 2005

The word "textile" in the graph refers to the entire industry and benchmark based on firm-weighted data (= in % of firms)

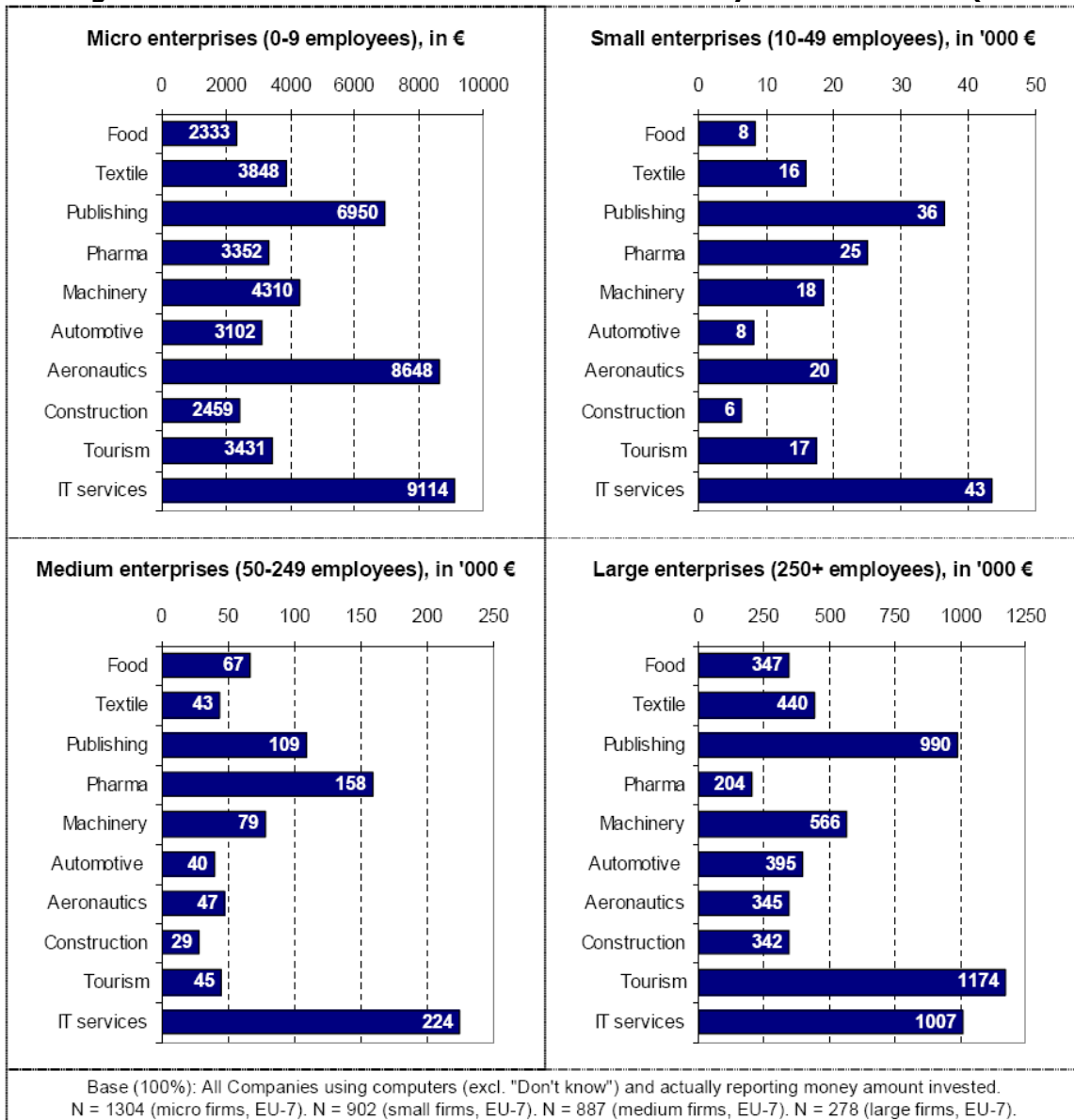
Figure 10
E-Business Scoreboard: Intensity of E-business in the T&C Industry



Source: E-business w@tch: e-business survey 2005
 The word "textile" in the graph refers to the entire industry

The T&C industry is dominated by small and medium enterprises. Small company size is reported as a main reason by many firms which say that e-business does not play a significant role in their operations, see Figure 11. Results of survey also show a clear gap within the industry itself. While medium and large companies appear to be fairly well equipped with ICT infrastructure, small and micro enterprises still show significant lack.

Figure 11
Average investment in ICT infrastructure and software by firm size in 2004 (in euros)



Source: E-business w@tch: e-business survey 2005
 The word "textile" in the graph refers to the entire industry

The adaptation of e-business in the EU T&C industry is mainly demand-driven. Pressure from distribution and business partners along the value chain are the main motivations. Companies are aware of competitive advantages related to e-business, the

most important of which is the possibility to gain efficiency in a very complex and fragmented organization structure. The main barriers to the adoption of e-business in this industry are related to the negative market trends and the increasing competition, which affect overall investment capacity at a general industry level.

Particularly in this sector, small and medium-sized firms are facing difficulties with the introduction of new technologies. Many firms not only lack the financial capacity to make investments, but also the skills of how to introduce and manage organizational change. Moreover, the limited degree of computerization and the diversity of technological equipment in place are constraints for the adoption of e-business. However, the growing international competition and quick changes in market trends will eventually force companies to adopt more effective solutions in response to these new strategic challenges (E-business W@tch 2005).

Based on the findings of recent e-business w@tch study the opportunities and threats of e-business for T&C industry are stated as follows in Table 8. E-business can speed up information flows along the value chain and increases efficiency of internal processes. With e-business it is possible to reach far markets and monitor customer behavior to improve customer service.

Table 8
E-business opportunities and risks in the textiles and clothing industry

Opportunities	Threats
▪ Speed up information flows along the value chain	▪ Lack of technical skills
▪ Increase efficiency of internal processes and adopt standards	▪ Lack of standardization in business exchanges
▪ Extend markets reach and increase visibility	
▪ Monitor demand changes and exploit customer-related information	
▪ Improve Customer Service	

Source: e-Business W@tch 2005

T&C industry has never been a pioneer for the ICT investments or utilization. But however, information technologies have been applied to a wide range of different business

fields in the industry. Some technologies are adopted quickly and become competitive advantage tools for the companies, while some technologies still have important issues waiting to be solved. The next section discusses these leading ICTs of the new economy and their T&C industry utilization.

3.2 ICTs of New Economy in the T&C Industry

From fabric or apparel design to e-shops there are a broad range of applications that are used in the T&C industry. Each set of applications has its own utilization level and return on investment. Although there are numerous types of different applications for numerous different needs, this section will focus on the basic information and communication technology tools of the new economy and their effects on the T&C industry.

3.2.1 E-Commerce Applications

Electronic commerce (e-commerce) is a set of business processes for buying, selling and marketing the products or services over electronic systems such as the Internet and other computer networks. E-commerce applications are mainly e-business applications aimed at commercial transactions (<http://en.wikipedia.org/wiki/E-commerce>).

E-commerce applications are divided into two according to the type of customer that the company deals with. Business-to-Consumer (B2C) applications are mainly retail sales applications that are used products and services to end users. The applications that companies use to market and sell their products and services to one another are Business-to-Business (B2B) applications.

B2C e-commerce applications are established to sell a product or service directly to the consumer. Traditionally, old economy businesses have brick and mortar retail establishments and/or catalog houses to make direct sales to the consumers. As Brooks (2000) states Some retail companies continue to sell only in the traditional way (called bricks), others sell only over the Internet (called clicks), and many are combining their traditional ways with Internet technology (called clicks & bricks). Many experts agree that the most successful future B2C businesses will be those who combine some physical retail presence with the Internet experience. The combination give their buyers a shopping choice, a physical place to visit, to buy and return merchandise, and a place to touch and feel products that are not easily understood on the web alone (Brooks 2000). To participate in the B2C environment the business must have a web site that can be accessed by the consumer using only a browser on their Internet connection. The site must display the products offered for sale, enable shopping cart purchases, provide secure credit card processing, and a method to confirm the purchase to the consumer. In addition, the business must have a very effective order fulfillment capability that promptly ships the product to the consumer.

From the T&C industry point of view, B2C e-commerce is innovative technology and is spreading among the companies, although there are certain industry based problems waiting to be solved.

Product tangibility is the biggest issue that stands on the way of industry that moves towards the e-commerce. Since tangible attributes such as a garment or fabric's texture requires human touch to decide, evaluation can be harder in online environments. And customers still prefer to see and feel these products before they buy (Varadarajan and Yadav 2002, Moodley 2001).

Although some companies like Boo.com (online sportswear retailer) created 3 Dimensional (3D) images to show the drape and look of clothing and tried to solve product tangibility issue, but the technology was extremely slow to download and most home

computers did not have the capacity to view the images. The idea was innovative and theoretically correct but the current technological infrastructure of customers which was not taken into the account sufficiently had it failed (Byrne 2000).

However there are also successful examples like Yoox (www.yoox.com), an Italian virtual store offering a mix of fashion products uniquely via its web-site that made the idea work. The initiative started in July 2000 with the support of investments funds achieved a turnover of 1 million Euros in the same year, in 2004 the turnover reached 36 million Euro, and in the same year gross sales were about 42 million Euros with a growth of 60% versus 2003. The company has been profitable since 2002. Each month the company's website registers two million visitors, 190,000 orders and 400,000 items dispatched through a global logistic platform developed internally. Yoox expansion strategy is based uniquely on the exploitation of the web. The company's website is customized in 28 versions. This differentiation involves different pricing, offer and communication for each single country. In terms of marketing strategy, the innovative idea is that the company's communication aims at promoting items from previous years' collections and from other non-conventional sources, pushing not only on price convenience but even more on the idea that these items are more glamorous and cooler because of their uniqueness. Coherently with this marketing approach, Yoox's website proposes customers different styles and ideas that can be matched in a personalized way (E-business W@tch 2005).

In addition to online sales, B2C companies like garment retailers, also use new economy's promotion tools, such as permission marketing which includes sending periodic e-mails to their segmented lists, to communicate with their customers. While Levis' and Gap are two successful international examples, Beymen and Vakko are the local ones that send periodical and customized promotion emails as well as printed mails to their top tier customers.

Business to Business (B2B) transactions include a much more complex and varied set of applications than B2C. B2B opportunities and transaction monetary values are

much greater than the B2C activity, and that all businesses are in need to learn to use the Internet in new ways when dealing with their trading partners. A simple definition of B2B applications is "any application that uses the Internet to communicate between business partners or associates" (Brooks 2000). This definition points out that B2B applications cover a broader range of transactions than just marketing and selling. The transaction can be between the manufacturer and the retailer or the manufacturer and any of his employees, suppliers, transportation companies or financial institutions. While this section focuses on e-commerce B2B applications, in the following sections a more detailed list of B2B applications is examined.

B2B e-commerce, where buyers and sellers come together online to communicate, advertise, bid in auctions, and conduct transactions can provide improvements, increasing efficiencies and productivity for T&C companies. B2B e-commerce can give buyers access to far more information while increasing efficiency for sellers (Brooks 2000). But on the other hand, B2B e-commerce transactions are limited in the T&C industry because of two important reasons. First one is, as in B2C e-commerce, the product tangibility. Touch and feel is a key point for textile and garment purchase decisions. Therefore no matter how closely a fabric is visualized the buyer still needs to touch and feel the texture. Second one is the commercial trust. Because the monetary value of B2B e-commerce transactions, therefore commercial risk, is high; both of the parties need to build a relationship based on mutual trust which can not be met by the Internet yet.

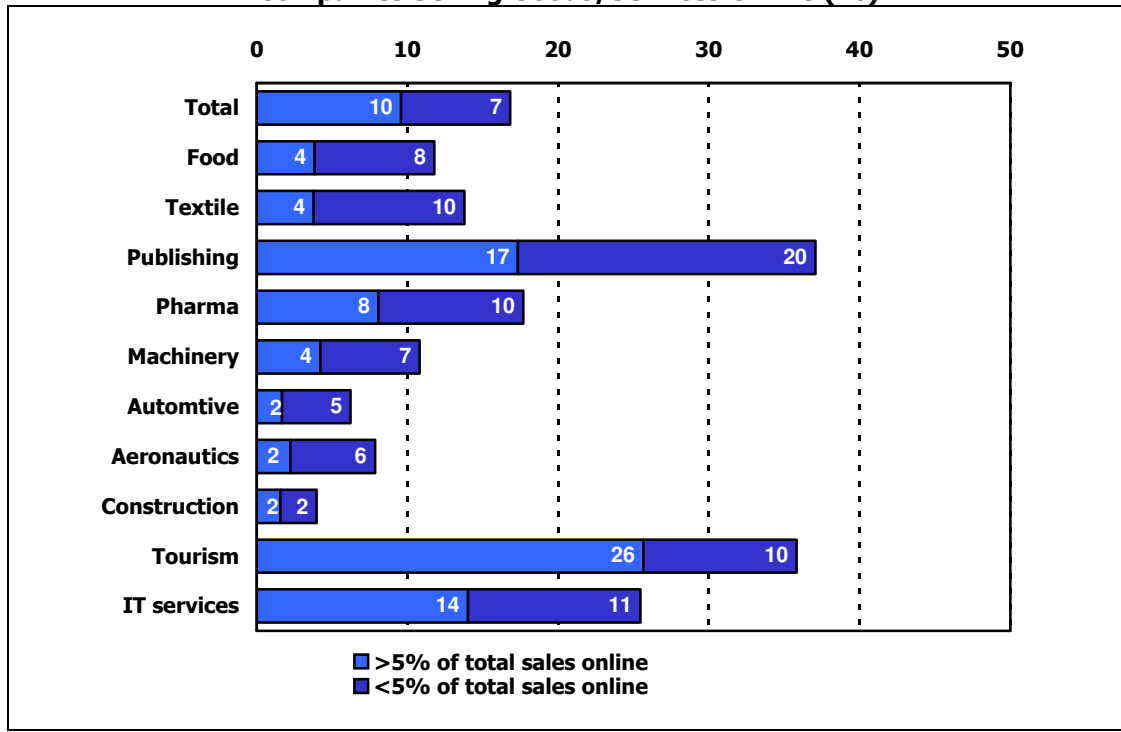
Business-to-Business T&C companies generally utilize Internet not for selling but for marketing. They use banner ads, message boards, forum pages and business directories of commonly visited industrial community web pages or marketplaces like bharattextile.com, textileweb.com, apparelsearch.com, to create a web presence and make first connection to potential buyers. Recently Google's online marketing technology "adwords" has also become a powerful tool that displays ads on the related search result pages and content sites. And with the help of a new Internet protocol (IP) telephony

technology (yet on beta stage), the customer even can call the advertiser company just by clicking the phone icon appearing by the ad (adwords.google.com).

While there are serious attempts on performing B2B e-commerce facilities via marketplaces, online ads, and biddings, the major benefits of B2B e-commerce for the T&C industry are to be found in the supply chain management (SCM) and logistics (Moodley 2001). Therefore SCM will be discussed later in a separate topic.

Today Internet shopping or e-commerce has not progressed much in clothing or textile commerce, except for standard items like socks, underwear, basic T-shirts and jeans, see Figure 12. The relationships and transactions among these players are still mainly carried out in a traditional way. Although companies may recognize the potential of networking, the migration towards web-based sales activities has not really taken place. But as companies and consumers become more familiar with and confident in the medium and new technologies such as Web-cams, 3-D modeling, remote visualization and simulation have been widely used, it may be able to extend the range of textiles and clothing that can be sold online. (E-business W@tch 2005)

Figure 12
Companies Selling Goods/Services Online (%)



Source: E-business w@tch: e-business survey 2005

The word "textile" in the graph refers to the entire industry and benchmark based on weighted by employment (= enterprises comprising ...% of employment in industry).

3.2.2 Computer Aided Design / Computer Aided Manufacturing (CAD/CAM)

Computer Aided Design (CAD) and its direct linkage into the manufacturing process, Computer Aided Manufacturing (CAM), are the most common applications that affected the T&C industry. CAD applications help the designers to draft the design and engineer new products. The configurations, dimensions and component details are drawn on the screen so that many alternatives can be explored flexibly (Daft 2003). The application of CAD to fabric and garment design had far reaching impact upon techniques of creative design and product illustration, sample production and product costing. CAD is

already a standard tool in many buyers' offices and manufacturers must ensure that their existing and new systems are fully compatible (Byrne 2000).

High resolution color systems are already widely used for 2-D graphic design, with the ability to scan in images and manipulate them in many different ways. A key area of development is in 3-D/2-D mapping techniques which will eventually allow CAD technology to be used right from the creative design stage of three dimensional sketching and styling through to preparation of markers and cutting instructions for two dimensional garment panels, trim etc. In certain areas, Byrne (2000) says that CAD systems have started to make an appearance as merchandising tools for illustrating design ideas and products directly to final consumers. The next step is the application of CAD into the retail and online sales environments to design or simulate the desired product on the fly

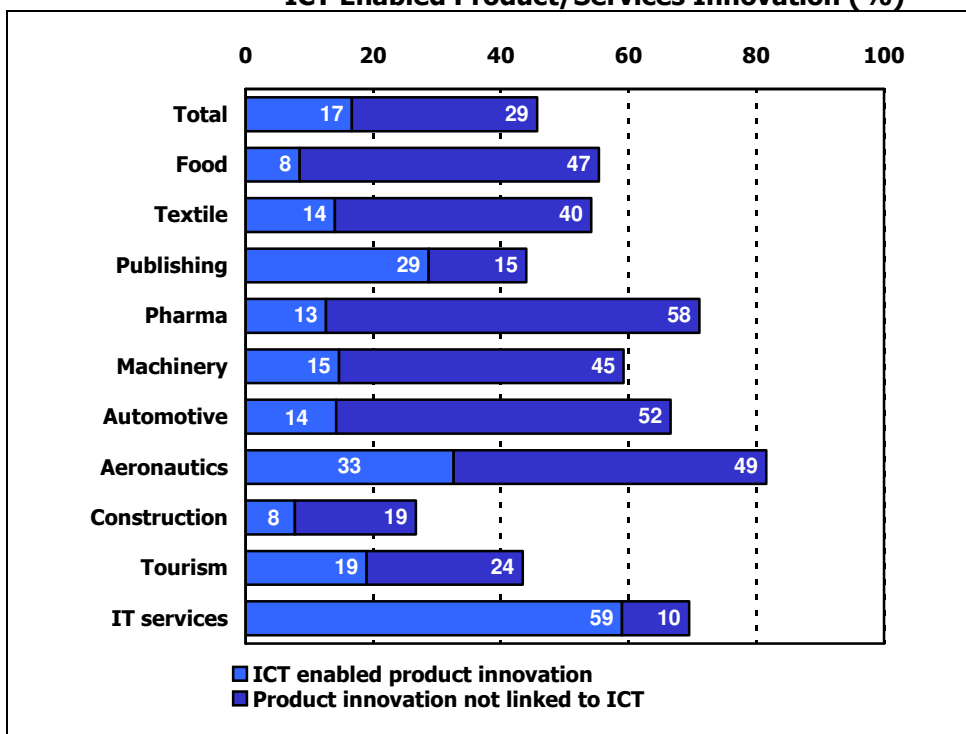
In addition to this, computer controlled machines, production and assembly (CAM systems increase the speed of manufacturing items and also helps the quick shifts of the product lines to switch from production of one product to another. CAM helps companies to adapt themselves to rapid changing needs of customers (Daft 2003).

The penetration of microprocessor and computer measurement, control and information systems into almost every aspect of design, manufacturing and distribution raises an need for their intercommunication and integration. CAM provides a route integrated with CAD applications by ensuring that all existing systems can talk to one another within both local and wider area networks (Byrne 2000). This integration of CAD and CAM systems by an information network is called flexible manufacturing (Daft 2003), in which a new product can be designed and produced without touch of human hands.

Daft (2003) says "Flexible manufacturing reaches its ultimate level when all parts are used interdependently and combined with flexible management processes in a system referred to as lean manufacturing". The lean manufacturing is a combination of machines with highly trained, lean thinking employees who fight for continues improvement.

The CAD/CAM technologies have had great impact on the product innovation processes of T&C companies. The flexibility has increased and time to market is shortened. The ideas could be visualized as finished products on the computer screen far before than the production process has started. But the results in the e-business w@tch study about product innovation and comparisons with other industries confirm that the industry average is still low. On the other hand the industry also has high value added segments (for example, new materials, technical textiles, high-end fashion, and sportswear) where design and research & development are important competitive factors; see Figure 13 (E-business W@tch 2005).

Figure 13
ICT Enabled Product/Services Innovation (%)



Source: E-business w@tch: e-business survey 2005

The word "textile" in the graph refers to the entire industry and benchmark based on weighted by employment (= enterprises comprising ...% of employment in industry).

3.2.3 Customer Relationship Management (CRM)

The new economy also has implications for the sales force of a company. Computers, telecommunications, and software give sales managers and sales people power and distinct capabilities in the market. Sales force automation applications include account analysis, time management, order processing and status, sales presentation, proposal generation, and product training. At best, these systems reduce office costs, and provide flexibility in the location of salespeople and managers. These technologies save a lot of time for sales force since information is at their fingertips wherever they are. However, the investment in applying these technologies is considerable (Cravens 1995).

The new economy provides the companies the opportunity of increasing company profitability through building relationships with the customers. The term customer relationship management (CRM) is born out of the integration of relationship marketing and information technology to bring one-to-one perspective into marketing, treatment of each customer as an individual asset, and gaining profitability through building relationships with them (Bose 2002). ICT assists companies in collecting customer data, managing and analyzing it, and adopting relationship marketing activities and strategies. CRM can be defined as a management approach based on relationship marketing and ICT, that enables organizations to identify, attract, and increase retention of profitable customers by managing relationships with them (Ryals and Payne 2001). In other words, ICT turns customer information and relationship into power or competitive advantage to effectively compete in today's marketplace.

The frequently quoted argument for CRM is that it costs five times more to obtain a new customer than it does to retain an old one (Ryals and Payne 2001, Kandampully and Duddy 1999). CRM is founded on four basic beliefs about customers:

1. Customers as important assets to be managed,
2. Variation of customer profitability,

3. Variation of customer needs, wants, preferences, buying behavior, price sensitivity,

4. Customization of relationship marketing activities (Ryals and Payne 2001).

Companies try to segment customers based on their profitability, and try to maintain good long term relationship with highly profitable customers. In return, they benefit from;

1. Increasing sales per customer, revenue growth,

2. Reducing costs through improvement in business processes,

3. Reducing customer acquisition costs,

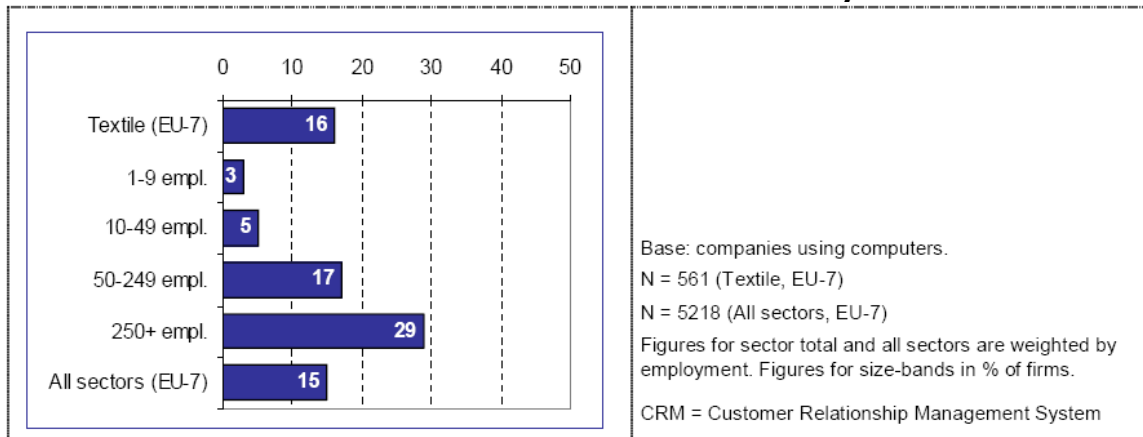
4. Increasing customer loyalty,

5. Free advertisement through word-of-mouth,

6. Price premiums, since loyal customers tend to pay more (Kandampully and Duddy 1999, Moon 2000, Winer 2001).

E-business W@tch study shows that the usage of CRM in the EU T&C industry is limited, being adopted by firms representing 16% of employment. The percentage of use rises according to the size of the companies. The sector's micro and small companies hardly use CRM and even among larger firms, this application is presently used by less than one third of players, see Figure 14 (E-business W@tch 2005)

Figure 14
Utilization of CRM in the EU T&C Industry



Source: E-business w@tch: e-business survey 2005
 The word "textile" in the graph refers to the entire industry

3.2.4 Electronic Data Interchange (EDI)

EDI is defined as "the transfer of structured data by agreed message standards, from one computer to another by electronic means and with a minimum of human intervention" (en.wikipedia.org/wiki/Electronic_Data_Interchange), which helps businesses to achieve rapid supply by transmitting business data from one computer to another without human interference (Daft 2003).

EDI is a proprietary communication network that uses dedicated communication links and requires expensive customized software. EDI requires considerable investment in dedicated software and in establishing proprietary networks (Moodley 2001). This requires costly investment therefore creates the biggest problem for small companies to set up and run EDI system to exchange business information with their partners.

For the T&C industry, the current focus for EDI is to extend its use throughout the entire chain from textile production, making-up/conversion, and distribution to retailing. Full implementation of EDI requires the development of standards and systems for

communication and data transfer between all partners in the chain. For this purpose, the United Nations introduced Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT) as an international data exchange standard in 1987 and under this umbrella, each industry, including T&C started their own studies to develop industry specific message formats. In the USA, the Fabric and Suppliers Linkage Council (FASLINC) has been set up to develop and promote standards for information flow and exchange. Likewise in Europe, EDI Group for the Textile and Clothing Industry (EDITEX) was set up as the equivalent organization for the textiles and clothing industry. EDITEX has so far only developed message guidelines for commercial tasks like orders, order change requests, order responses and invoices, including product specific information such as style, color and size. Future guidelines planned include: delivery schedules, product information, sales status, price lists/conditions of sale, quality data and remittance (Byrne 2000).

3.2.5 Enterprise Resource Planning (ERP)

Today a growing number of companies are setting up wide scale information systems to be able to control their business activities. These are called Enterprise Resource Planning (ERP) systems which collect, process and share information about all activities of the companies'. An ERP system includes modules for managing order, purchasing, human resources, distribution etc. processes and serves as a backbone for entire organization (Daft 2003). The key basis for ERP is the whole being greater than the sum of its parts. It is simply a tool used tactically or strategically that has the potential to help streamline business processes in such a way as to help the company to gain competitive edge (Moriarty 2000). ERP systems support companies to integrate all business activities and allow significant gains in process efficiency. So that they help the management to see the big picture and act quickly against rapid changes in the market so that the companies continue to be competitive (E-business W@tch 2005).

Depending on the findings of E-business W@tch study, it seems like in the EU T&C industry, ERP systems are for large companies. The study shows that 59% of firms with more than 250 employees and 34% of medium-sized companies have adopted an ERP system. Overall, companies representing 34% of employment in the industry can rely on such systems.

Figure 15
Utilization ERP in the EU T&C Industry

	ERP	
Textile (EU-7)	34	Figures for sectors and totals are weighted by employment. Figures for size-bands in % of firms. "All" = companies using computers. N = 561 (Textile, EU-7, all), N = 5218 (Total, EU-7, all) ERP = Enterprise Resource Planning System
1-9 empl.	3	
10-49 empl.	17	
50-249 empl.	34	
250+ empl.	59	
Total (10 sectors, EU-7)	28	
Base (100%)	All	

Source: E-business w@tch: e-business survey 2005
The word "textile" in the graph refers to the entire industry

3.2.6 Supply Chain Management (SCM)

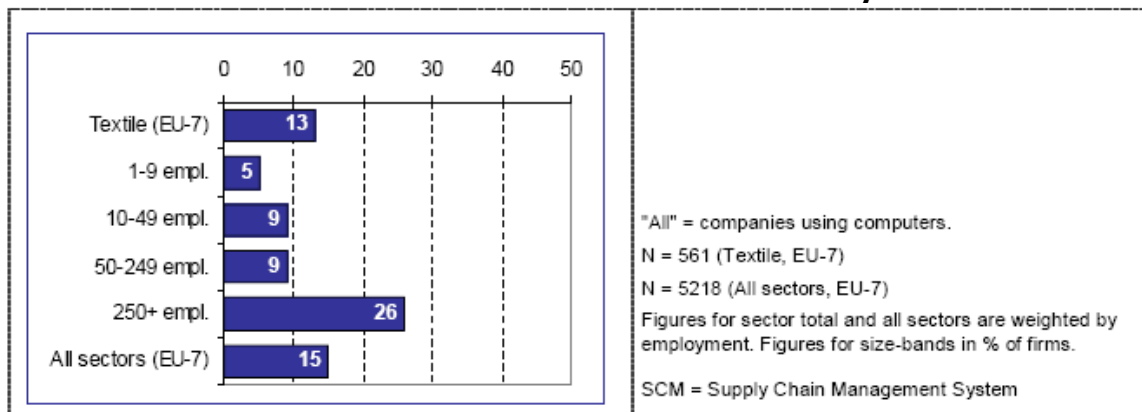
Supply Chain Management (SCM) is the active management of supply chain activities, which are finding the raw components to make a product or service and delivering it to customers, to maximize customer value and achieve a competitive advantage (Bozarth and Handfield 2003, Worthen 2006). The following are five basic components of SCM:

1. Plan: Building a strategy for managing all the resources that go toward meeting customer demand for the product or service.
2. Source: Choosing the suppliers that will deliver the goods and services to create the product. Developing a set of pricing, delivery and payment processes with suppliers and creating metrics for monitoring and improving the relationships.

3. Make: Scheduling the activities necessary for production, testing, packaging and preparation for delivery. As the most metric-intensive portion of the supply chain, measure quality levels, production output and worker productivity.
4. Deliver: Coordinating the receipt of orders from customers, developing a network of warehouses, picking carriers to get products to customers.
5. Return: Creating a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products (Worthen 2006).

SCM appears to be a blind spot for many companies in the industry (Moodley 2001). According to the E-business W@tch 2005 study, supply chain management systems, allowing full integration with business partners, are used in about 26% of large firms while, not surprisingly, being poorly diffused among small firms in European T&C industry. These data confirm, once again, that the information flow is still largely carried out in a traditional way despite the complexity of the operations involved.

Figure 16
Utilization of SCM In The EU T&C Industry



Source: E-business w@tch: e-business survey 2005
The word "textile" in the graph refers to the entire industry

Since investing in special software and EDI technologies are expensive, the Internet provides a new and cost effective channel for industries' small companies to build

their own supply chain network. E-business has fastened the move from traditional SCM models to new ones that built on network based collaboration. This collaboration requires the sharing of critical and timely data on the movement of goods as they flow from raw material all the way to the end user. The net effect is end-to-end supply chain optimization based on open communication between networks of trading partners (Moodley 2001). Especially for the continuously reordered products in the apparel industry the integrated supply chain can be the most beneficial.

A successful example of this kind of electronic supply chain integration is created by Textilebusiness.it (www.textilebusiness.it) which is an initiative supported by the Chamber of Commerce of Como and the Industrial Association of Como, Italy, allowing its participants to take the advantage of an advanced e-business solution at low costs. The solution is based on a peer to peer architectural paradigm which acts as a central directory and directly communicates the participant parties. The aim of Textilebusiness.it is not only to improve the visibility but mainly to digitalize the entire process of relations between parties in the industry in order to create economic savings, increase response speed and reduce frequency of errors (E-business W@tch 2005).

4. RESEARCH METHODOLOGY

This section describes the purpose of the research along with the methods of data collection, measurement and analysis.

4.1 Purpose of the Research

The purpose of the study is exploratory and descriptive. As mentioned in literature study, after Agreements on Textiles and Clothing (ATC) has expired and the quotas are eliminated between the World Trade Organization (WTO) countries, the textiles and clothing industry is expected to be most affected manufacturing industry because of the enormous low cost production capacity of far Asian countries, especially China. Turkey as one of the biggest players in the T&C trade is also expected to be negatively affected from the quota elimination. Today, after 1,5 years from the quota elimination some real life effects started to be realized but still there is an uncertain situation at hand. Therefore one purpose of this research is to explore how Turkish T&C companies see the situation today, what has happened in 1,5 years and what has been expected in the future. Besides this situation determination, the factors that are expected to create competitive advantage in the new era, and the steps to that have to be taken to realize these factors are investigated.

On the other hand another purpose is to describe the certain characteristics of Turkish T&C industry on the basis of information and communication technologies (ICTs). The utilization level of the ICT tools of the new economy as well as the whys and why nots of these utilization levels are investigated. The competitive advantage that depends on ITC utilization is examined to see if the Turkish textiles and clothing companies believe that ICT tools can create a competitive edge for their companies in the new era of global trade after ATC.

When the situation is explored to have a deeper understanding, certain characteristics of variables are described and the tendencies of the companies explained, this study purposes a model in the implications section, to be tested in a further research (Sekaran, 2003).

4.2 Data Collection and Measurement

The data needed was acquired via conducting a survey. The survey questions were prepared on basis of literature study. However, as the study is exploratory and descriptive, face to face interviews were also conducted during the questionnaire filling to have deeper information and expert opinions about questions asked in the survey.

In the most of the questions, check boxes were used to answer the question to make it simple to fill the survey. Again the most of the questions were asked as 5 points scale, ranging from 1="absolutely not" to 5="absolutely" (like "Do you agree that Market Proximity will be a competitive advantage for Turkish T&C industry in the following era" Section3 Question10). Interval scale is used for these types of questions. Some of the questions designed in ordinal scale which are required rank-ordering (like "list your export markets according to their volumes" Section1 Question5) and others were just "yes" or "no" in nominal scale, or "fill in the blanks" questions in ratio scale.

The survey consisted of three sections (please refer to Appendix for the questionnaire form). First section had two sub-sections, prepared to obtain demographic data about the company (sub-section 1) and the person whom the survey was conducted (sub-section 2).

Second section questioned the situation after ATC with 22 questions. The affect of quota elimination was asked both in particular for company and generally for the industry

with different type of questions. Also the items of competitive advantage and the steps to achieve them were investigated with a total of 12 questions.

Third section was allocated for determining ICT utilization and competitive advantage of ICT tools with 36 questions. Basic and high level ICT tools' utilizations were asked in details along with the competitive advantage perception of companies about these tools. 5 questions were asked to figure out the main driver for ICT investments and 6 were asked to see the reason for lack of necessary investments.

4.3 Sample Description

The survey was conducted to the T&C companies in Bursa and Denizli which are two biggest textile producing cities in Turkey. The lists of companies are obtained from the export associations of the cities. From a total number of 1258 companies in both cities, 120 of them were reached and 46 of them were filled the questionnaires. 3 of them were eliminated since they are mostly blank and 43 of them were usable.

4.3.1 Respondent Demographics

All of the company representatives that survey conducted were company owners or marketing and sales executives. As it is shown in Table 9, the majority of them (27 people) was university graduates. The graduate and high school graduates are at the same number. 37 of all were men while 6 are women. The ages of people that survey conducted to are between 20 and 50. The number of people in each age group (10 years intervals) is distributed almost equally.

Table 9
Education, Sex and Age of Respondents

	Frequency	Percent
Education		
High school	8	18,6
University	27	62,8
Graduate	8	18,6
Sex		
Man	37	86,0
Woman	6	14,0
Age		
20-30	13	30,2
31-40	15	34,9
41-50	15	34,9
Total	43	100,0

4.3.2 Company Characteristics

Among the companies that the survey was conducted, the 48,8% percentage (21 companies) was textile companies and 18,6% (21 companies) was clothing companies. The rest 14 companies (32,6%) were operating in textiles and clothing together as it is shown in Table 10.

Table 10
Sub-sector Breakdown

	Frequency	Percent
Textile	21	48,8
Clothing	8	18,6
Both	14	32,6
Total	43	100,0

The majority of companies in the study (29 companies) had less than 250 employees. But the mean of number of employees was 284,23, shown in Table 11. The company with the minimum number of employees was a clothing agent and the company with the maximum number of employees was a home textile producer.

Table 11
Number of Employees

	Number of Employees
Mean	284,23
Std. Deviation	331,278
Minimum	7
Maximum	1250

Table 12 shows that the mean of years of operation of the companies was 19,23 years with a standard deviation of 19,28. The 41 of 43 companies indicated that they were exporting with a mean of 11,83 years and standard deviation was 11,23 years. The years of operation varied from 3 to 61 years and years of exporting varied from 2 to 30 years.

Table 12
Years of Operation and Exporting

	Years of Operation	Years of Exporting
N	43	41
Mean	19,28	11,83
Std. Deviation	14,798	6,557
Minimum	3	2
Maximum	61	30

The companies that the survey conducted were mainly exporting companies. 13 of them only were selling to foreign markets, 30 of them were selling both to domestic and foreign markets. The bigger share of monetary volume belonged to export markets with 71%.

Table 13
Monetary Volumes of Markets

	Domestic market	Export market
N	43	43
Mean	29,00	71,00
Std. Deviation	30,820	30,820

4.4 Statistical Analysis

Since the sample size is not enough for parametric analysis methods, non-parametric methods were applied. All data was filled in SPSS tables and it was used for analysis purposes.

To give descriptive and exploratory information about the companies and executives frequency tables were used. The Friedman Tests, which is the nonparametric equivalent of a one-sample repeated measures design or a two-way analysis of variance (SPSS), were conducted to obtain comparison between each other for the answers of ICT investment, competitor listing and factors of competitive advantage question groups. Kruskal Wallis test is applied to see the perception of ICT complexity differs according to education level. Wilcoxon signed-rank tests were applied to compare the distributions of two related variables for the questions of ICT utilization and competitive advantage perception; and export market competitors before and after quota elimination. Also Spearman's rho was applied to find out correlations between some of the selected question pairs.

5. RESEARCH FINDINGS

The research findings are summarized under five headings; Frequency Distribution Results, Friedman Test Results, Kruskal Wallis Test Results, Wilcoxon Test Results and Spearman Correlation Results.

5.1 Frequency Distribution Results

In this section some important characteristics of the companies are described by frequency and mean tables in addition to the characteristics listed in section 4.3 Sample Description.

The 67,4% of companies (frequency is 29) are making production under a brand name. The share of the brand production in total business volume for these companies has a mean of 63,17 and a standard deviation of 36,898.

Table 14
Brand Production

	Frequency	Percent
Yes	29	67,4
No	14	32,6
Total	43	100,0
N		29
Mean		63,17
Std. Deviation		36,898

The companies were asked to list their export markets according to their importance in a scale from 1 (most important) to 8 (least important). Instead of listing frequencies of each market in a separate table, the mean scores and total frequencies of all markets are given in Table 15 The mean score and the total number of frequency for

each market show that Western Europe, which is the biggest textiles and clothing market of the world, is also the most important market for Turkish T&C companies with a mean of 1,73 and a total frequency of 40. It is followed by Russia (mean:3,21), Eastern Europe (mean:3,30), USA (mean:3,50) and Asia-Middle East (mean:3,88) respectively. Far East, Africa and Latin America have mean values over 5 and total frequencies 16, 13, 12 respectively which states that these markets have no critical importance for surveyed companies.

Table 15
Export Markets of Turkish T&C Companies

	USA	Eastern Europe	Western Europe	Russia	Far East	Asia-Middle East	Latin America	Africa
N Valid	30	27	40	28	16	26	12	13
Missing	13	16	3	15	27	17	31	30
Mean	3,50	3,30	1,73	3,21	5,06	3,88	5,75	5,54
Std. Deviation	1,978	1,564	1,467	1,618	1,982	1,633	1,603	1,713
1= most important, 8=least important								

Almost all of the companies surveyed have internet connection (except one), 38 of them had a web site and 37 of them have data network system, as it is shown in Table 16 Even if 88,4% of companies have web sites, the interview with the executives stated that websites are not that actively used for sales and marketing purposes. They exist just as companies' signboards.

Table 16
Basic ICT Infrastructure

	N	Frequency of "Yes"	Percentage of "Yes"
Internet Connection	43	42	97,7
Web Site	43	38	88,4
Data network	43	37	86,0

For further understanding about ICT investments, the respondents were asked if they believe the ICT investments are adequate or not. Table 17 shows that 27,9%

believes investments are adequate and 7% absolutely believes the adequacy. But it is also striking that, a total 65% believes or absolutely believes that the investments are not complete enough.

Table 17
Do you believe that ICT investments of your company are adequate?

	Frequency	Percent
1= Absolutely not believe	10	23,3
2= Not Believe	10	23,3
3= Neither believe nor not believe	8	18,6
4= Believe	12	27,9
5= Absolutely Believe	3	7,0
Total	43	100,0

To understand the threat perception the affect of quota elimination is asked to the executives. As it is seen in Table 18, the 74,4% of the companies (32 companies) think that the elimination will have a negative effect on the industry. A small 16,3% thinks that the effect will be positive while 9,3% thinks the elimination will have no effect.

Table 18
How will Quota Elimination Affect Turkish T&C Industry?

	Frequency	Percent
Positive	7	16,3
Negative	32	74,4
No Effect	4	9,3
Total	43	100,0

5.2 Friedman Two-Way Analysis of Variance by Ranks Test Results

The first Friedman test was applied to five export markets with highest mean scores and total frequencies that were listed in Table 15. The hypothesis was tested if there was a significant difference between the scores of these markets.

H1: There is a significant difference between the mean scores of export markets.

Table 19
Friedman Test for Export Markets of Turkish T&C Industry

	Mean	Mean Rank	Test Statistics(a)	
USA	3,96	3,48	N	24
Eastern Europe	3,38	3,00	Chi-Square	18,029
Western Europe	2,17	1,96	Df	4
Russia	3,21	2,83	Asymp. Sig.	,001
Asia -Middle East	3,96	3,73	a Friedman Test	
1= most important, 8=least important				

The Friedman test indicates in table 19 that, even though the mean scores looks close, there is a significant difference between the first 5 export markets with a Chi-Square of 18,029 and significant at 0,001. Therefore H1 is proved. Western Europe is significantly the most important market with highest mean score; 2,17.

Second Friedman test was applied to steps to be taken to achieve the competitive advantages to see if there is a significant between these steps.

H2: There is a significant difference between the mean scores of the steps to be taken to achieve the competitive advantages.

Table 20
Friedman Test for Steps to Achieve The Competitive Advantages

	Mean	Mean Rank	Test Statistics(a)	
Government Support	3,91	4,09	N	43
Authentic Design Studies	4,58	5,40	Chi-Square	22,896
Emphasis on Marketing and Sales	3,72	3,62	Df	7
Turkey as an International Brand	4,42	4,92	Asymp. Sig.	,002
Increase the Share of Brand Production	3,98	4,10	a Friedman Test	
New Markets	4,21	4,51	1= absolutely disagree, 5= absolutely agree	
High Value Added Products	4,28	4,69		
Emphasis on ICT investments	4,28	4,67		

H2 is proved at significance level 0,002. There is a significant difference between the steps to be taken to achieve competitive advantages. The respondents think that forming collections by creating authentic designs is the most important factor that will create competitive advantage. It is followed by positioning Turkey as an international brand name like Italy. The ICT investments and producing high value added products have same mean scores and in third position. Focusing on marketing and sales activities instead of production activities has the lowest mean score but also commonly agreed by respondents. Even if there is a significant difference between the steps, all of them are regarded as important in gaining competitive advantage.

Third and Fourth Friedman tests were applied on two question groups to see if there are significant differences between the export market competitors and the change in competitor listing before and after quota elimination. To increase the number of cases tested, first frequency tables were prepared for both question groups and the least important 2 competitors (Latin America and Africa) were eliminated. The Friedman test was applied to answers for 5 competitors (Turkey (domestic competitors), Eastern Europe, Western Europe, China and Asia (excluding China)). 22 of total cases were included these 5 competitors.

H3: There is significant difference between the mean scores of export market competitors before quota elimination.

H4: There is significant difference between the mean scores of export market competitors after quota elimination.

Table 21 and Table 22 show the Friedman test results of competitors before and after quota elimination. Both tables indicate China as most important competitor for the export market. The results of two tests are significant at 0,038 and 0,000 respectively. Therefore both H3 and H4 are proved.

Table 21
Friedman Test for Export Market Competitors Before Quota Elimination

	Mean	Mean Ranks	Test Statistics(a)	
Turkey (domestic competitors)	2,73	2,52	N	22
Eastern Europe	4,05	3,64	Chi-Square	10,178
Western Europe	3,77	3,27	df	4
China	2,50	2,36	Asymp. Sig.	,038
Asia (except China)	3,50	3,20	a Friedman Test	
1= most important, 7=least important				

Table 22
Friedman Test for Export Market Competitors After Quota Elimination

	Mean	Mean Ranks	Test Statistics(a)	
Turkey (domestic competitors)	3,18	2,52	N	22
Eastern Europe	4,45	3,64	Chi-Square	34,800
Western Europe	4,32	3,27	df	4
China	1,68	2,36	Asymp. Sig.	,000
Asia (except China)	2,91	3,20	a Friedman Test	
1= most important, 7=least important				

When the mean scores of the export market competitors are examined before and after quota elimination, it is seen that the importance and ranking of competitors are changed. Table 23 is created with the mean results of competitors before and after quota elimination to show the change in importance ranks of competitors. China which is the most important competitor on both eras, is considered as more important after elimination (mean score changed from 2,50 to 1,68). Asia goes one step up and becomes second important competitor (mean score changed from 3,50 to 2,91), pushing Turkey to third place (mean score changed from 2,73 to 3,18) after quota elimination. The fourth place of Western Europe and fifth place of Eastern Europe don't change but means of importance of both are decreased.

Table 23
Means of Export Market Competitors Before and After Quota Elimination

	Means and Ranks Before Quota Elimination	Mean After Quota Elimination
Turkey (domestic competitors)	2,73 (2)	3,18 (3)
Eastern Europe	4,05 (5)	4,45 (5)
Western Europe	3,77 (4)	4,32 (4)
China	2,50 (1)	1,68 (1)
Asia (except China)	3,50 (3)	2,91 (2)
1= most important, 7=least important		

Fifth Friedman test was applied to the question "why your company makes ICT investments?" to see if there is a significant difference between the reasons for investments.

H5: There is significant difference between the mean scores of the reasons of ICT investments.

The test results in Table 25 prove H5 at significance level 0,000. The respondents state that the most important motive for investing in ICT is to gain competitive advantage. The other motives have much less means of importance when compared.

Table 24
Friedman Test for ICT Investment Reasons

	Mean	Mean Ranks	Test Statistics(a)	
Because my competitor does	1,63	1,78	N	43
Because of gaining competitive advantage	4,21	3,56	Chi-Square	65,388
Because my customer wants	2,72	2,58	df	3
Because my supplier wants	2,05	2,08	Asymp. Sig.	,000
1= absolutely disagree, 5= absolutely agree			a Friedman Test	

Sixth Friedman test was applied to measure the difference between the reasons for not making the necessary ICT investments. The test is conducted to answer of the question "why do you think the level of ICT investments is not enough?". The total number of cases is 28 which is the sum of respondents that answer the question "Do you

believe that ICT investments of your company are adequate?" as "1=absolutely not believe", "2=not believe", "3=neither believe nor not believe" (see Table 17).

H6: There is significant difference between the mean scores of not making enough ICT investment

The executives who believe the ICT investments are not enough in their companies say that the main reason for not making investment is the lack of trained people that will use these technologies (mean score is 3,18). It is followed by the costs of investments, the complexity of technologies, the lack of reliable suppliers and the size of the company. There is a significant difference between the reasons of not making enough ICT investment at significance level 0,001. Hypothesis 6 is proved.

Table 25
Friedman Test for not making Necessary ICT investments

	Mean	Mean Ranks	Test Statistics(a)	
Because my company is not big enough	2,21	2,34	N	28
Because the investment costs are very high	3,00	3,52	Chi-Square	19,146
Because the technologies are too complex to use	2,54	2,82	df	4
Because there is not enough trained employees to use ICTs	3,18	3,71	Asymp. Sig.	,001
Because there is not enough reliable ICTs suppliers	2,32	2,61	a Friedman Test	
1= absolutely disagree, 5= absolutely agree				

5.3 Kruskal Wallis H Test Results

The Kruskal-Wallis test, an extension of the Mann-Whitney U test, is the nonparametric analog of one-way analysis of variance and detects differences in distribution location (SPSS).

Here Kruskal Wallis test is applied to see if the answers of executives to the question “do you think ICT tools are too complex to use in your company?” differ according to their education level.

H7: The executives’ thoughts about the complexity of ICT tools differ according to their education level.

The results that are listed in Table 26 are significant at level 0,011, therefore hypothesis 7 is proved. This means that, according to the education level of the respondent the perception of ICT complexity changes significantly. When the mean ranks are compared, high school education level has the biggest rank (19,50). It is followed by University (15,41) and Graduate (5,40) levels respectively.

Table 26
Kruskal Wallis Test for Education Level and ICT Complexity

	Education Level of Executives	N	Mean Rank	Test Statistics ^{a b}	
ICT Tools Complexity	High School	6	19,50	Chi-Square	9,058
	University	17	15,41	df	2
	Graduate	5	5,40	Asymp. Sig.	,011
	Total	28	19,50		

a Kruskal Wallis Test

b Grouping Variable: Education Level of Executives

5.4 Wilcoxon Signed-Rank Test Results

The Wilcoxon signed-rank test considers information about both the sign of the differences and the magnitude of the differences between pairs (SPSS).

First Wilcoxon test is applied to the ranking question pairs about the export market competitors before and after quota elimination.

H8: The importance of an export market competitor before quota elimination is different from the importance after quota elimination.

Table 27 indicates that the hypothesis is proved for Turkey, Eastern Europe, China and Asia (except China). The quota elimination makes a significant difference about the importance of these markets.

Table 27
Wilcoxon Test for Export Market Competitors Before and After Quota Elimination

		N	Mean Rank	Sum of Ranks	Test Statistics^c	
Turkey (domestic competitors) before Q.E.*- Turkey (domestic competitors) after Q.E.	Negative Ranks	3	8,33	25,00	Z	-2,059 ^a
	Positive Ranks	12	7,92	95,00	Asymp. Sig. (2-tailed)	,039
	Ties	22				
	Total	37				
Eastern Europe before Q.E.- Eastern Europe after Q.E.	Negative Ranks	1	4,50	4,50	Z	-2,484 ^a
	Positive Ranks	9	5,61	50,50	Asymp. Sig. (2-tailed)	,013
	Ties	11				
	Total	21				
Western Europe before Q.E.- Western Europe after Q.E.	Negative Ranks	2	5,00	10,00	Z	-1,807 ^a
	Positive Ranks	8	5,63	45,00	Asymp. Sig. (2-tailed)	,071
	Ties	17				
	Total	27				
China before Q.E.- China after Q.E.	Negative Ranks	10	5,50	55,00	Z	-2,840 ^b
	Positive Ranks	0	,00	,00	Asymp. Sig. (2-tailed)	,005
	Ties	23				
	Total	33				
Asia (except China) before Q.E.- Asia (except China) after Q.E.	Negative Ranks	8	6,94	55,50	Z	-2,038 ^b
	Positive Ranks	3	3,50	10,50	Asymp. Sig. (2-tailed)	,042
	Ties	15				
	Total	26				
Latin America before Q.E.- Latin America after Q.E.	Negative Ranks	1	4,50	4,50	Z	-,828 ^a
	Positive Ranks	4	2,63	10,50	Asymp. Sig. (2-tailed)	,408
	Ties	14				
	Total	19				
Africa before Q.E.- Africa after Q.E.	Negative Ranks	3	2,00	6,00	Z	-1,732 ^b
	Positive Ranks	0	,00	,00	Asymp. Sig. (2-tailed)	,083
	Ties	15				
	Total	18				

a Based on negative ranks.

b Based on positive ranks.

c Wilcoxon Signed Ranks Test

* Q.E. - Quota Elimination

Second Wilcoxon test is applied to see if there is a different between utilization and competitive advantage expectation of ICT tools.

H9: The utilization of ICT tools in the companies differs from the competitive advantage expectation of ICT tools.

The mean graph (Figure 17) shows the gaps between the mean scores of utilization and competitive advantage expectation of ICT tools. The means of utilization and competition advantage expectation of CAD are very close. The highest gap of means is in the customer analysis systems. The means of utilization and expectation of web based marketing, sales and procurement tools are both low. The results of Wilcoxon test in Table 28 also prove that these gaps are significant for all the software applications except CAD.

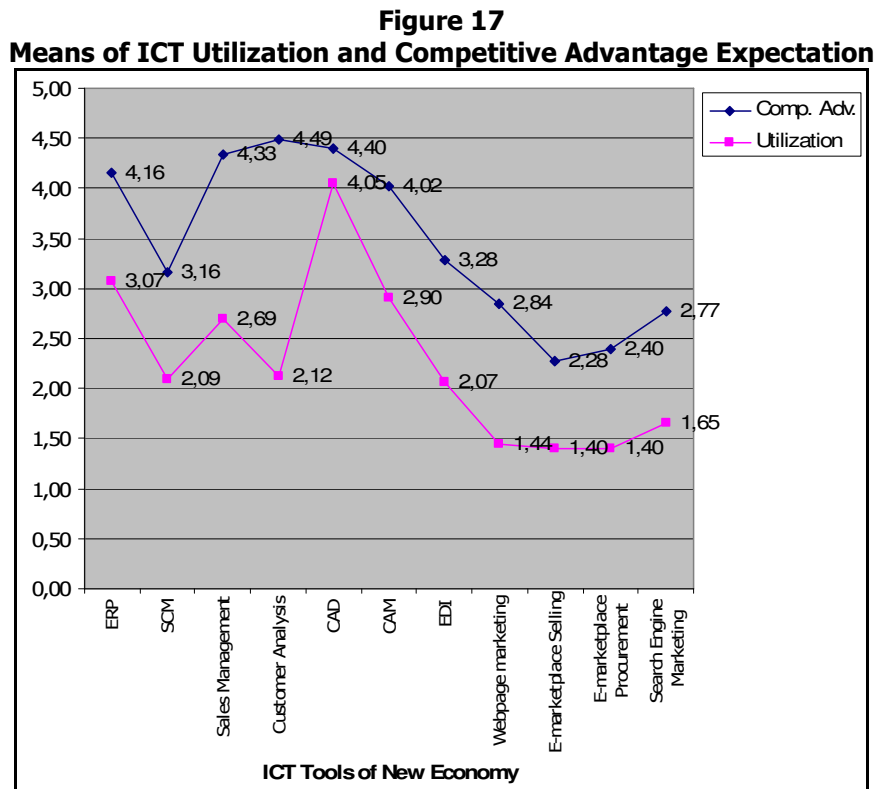


Table 28
Wilcoxon Test for ICT Utilization and Competitive Advantage Expectation

		N	Mean Rank	Sum of Ranks	Test Statistics^b	
ERP utilization – competitive advantage	Negative Ranks	6	5,17	31,00	Z	-3,567 ^a
	Positive Ranks	19	15,47	294,00	Asymp. Sig. (2-tailed)	0,000
	Ties	18				
SCM utilization – competitive advantage	Negative Ranks	1	8,50	8,50	Z	-3,757 ^a
	Positive Ranks	20	11,13	222,50	Asymp. Sig. (2-tailed)	0,000
	Ties	22				
Order Mng (CRM) utilization – competitive advantage	Negative Ranks	3	4,33	13,00	Z	-4,367 ^a
	Positive Ranks	25	15,72	393,00	Asymp. Sig. (2-tailed)	0,000
	Ties	15				
Customer Analysis (CRM) utilization – competitive advantage	Negative Ranks	0	,00	,00	Z	-4,959 ^a
	Positive Ranks	31	16,00	496,00	Asymp. Sig. (2-tailed)	0,000
	Ties	12				
	Total	43				
CAD utilization – competitive advantage	Negative Ranks	2	5,00	10,00	Z	-1,513 ^a
	Positive Ranks	7	5,00	35,00	Asymp. Sig. (2-tailed)	0,130
	Ties	34				
CAM utilization – competitive advantage	Negative Ranks	2	3,50	3,50	Z	-3,717 ^a
	Positive Ranks	18	10,36	186,50	Asymp. Sig. (2-tailed)	0,000
	Ties	23				
EDI utilization – competitive advantage	Negative Ranks	3	11,83	35,50	Z	-3,591 ^a
	Positive Ranks	23	13,72	315,50	Asymp. Sig. (2-tailed)	0,000
	Ties	17				
Webpabe marketing utilization – competitive advantage	Negative Ranks	0	,00	,00	Z	-4,158 ^a
	Positive Ranks	22	11,50	253,00	Asymp. Sig. (2-tailed)	0,000
	Ties	21				
E-marketplace selling utilization – competitive advantage	Negative Ranks	2	10,50	21,00	Z	-3,036 ^a
	Positive Ranks	17	9,94	169,00	Asymp. Sig. (2-tailed)	0,002
	Ties	24				
E-marketplace procurement utilization – competitive advantage	Negative Ranks	2	4,50	9,00	Z	-3,851 ^a
	Positive Ranks	20	12,20	244,00	Asymp. Sig. (2-tailed)	0,000
	Ties	21				
Search engine marketing utilization – competitive advantage	Negative Ranks	4	8,00	32,00	Z	-3,696 ^a
	Positive Ranks	22	14,50	319,00	Asymp. Sig. (2-tailed)	0,000
	Ties	17				
	Total	43				

a Based on negative ranks.

b Wilcoxon Signed Ranks Test

5.5 Spearman Rank Correlation Coefficient Analysis Results

Spearman rank correlation coefficient analysis is performed to see if the hypothetical relations between selected variables exist (SPSS).

Hypotheses that correlations tested are below:

H10: The utilizations of ICT tools are positively related between each other.

H11: The perceptions about utilizations of ICT tools will create competitive advantage are positively related between each other.

H12: The factors to create competitive advantages are positively related between each other.

Tables 29, 30 and 31 provide the results of correlation analysis of the hypotheses respectively. Table 29 shows that there is a strong linear correlation between the utilization of ERP and Order Management systems as well as Order Management and Customer Analysis Systems. Table 30 indicates E-Marketplace Selling has high positive correlations with E-Marketplace Procurement, Web Marketing and Search Engine Marketing systems. And table 31 shows Market Proximity, High Quality Products and Brand Formation have positive correlations between each other.

Other significant correlations are shown in the tables with bold numbers. The duplicate results are cleared to make it easy to read the tables.

Table 29
Spearman Analysis for the Utilization of ICT tools

N=43		ERP	SCM	Order Mng (CRM)	Customer Analysis (CRM)	CAD	CAM	EDI	Webpage marketing	E-marketplace Selling	E-marketplace Procurement	Search Engine marketing
ERP	Corr. Coeff. Sig. (2-tailed)	1,000 .	,406(**) ,007	,831(**) ,000	,630(**) ,000	,401(**) ,008	,516(**) ,000	,443(**) ,003	,111 ,478	-,001 ,993	,291 ,058	,199 ,200
SCM	Corr. Coeff. Sig. (2-tailed)		1,000 .	,441(**) ,003	,340(*) ,026	,235 ,129	,513(**) ,000	,768(**) ,000	,305(*) ,046	,122 ,434	,472(**) ,001	,565(**) ,000
Order Mng (CRM)	Corr. Coeff. Sig. (2-tailed)			1,000 .	,700(**) ,000	,380(*) ,012	,463(**) ,002	,424(**) ,005	,036 ,818	-,061 ,699	,261 ,090	,072 ,648
Customer Analysis (CRM)	Corr. Coeff. Sig. (2-tailed)				1,000 .	,279 ,070	,575(**) ,000	,449(**) ,003	,074 ,637	-,022 ,891	,225 ,146	,301 ,050
CAD	Corr. Coeff. Sig. (2-tailed)					1,000 .	,272 ,078	,133 ,396	-,050 ,750	-,037 ,816	,067 ,671	,160 ,306
CAM	Corr. Coeff. Sig. (2-tailed)						1,000 .	,624(**) ,000	,146 ,350	-,050 ,749	,248 ,109	,387(*) ,010
EDI	Corr. Coeff. Sig. (2-tailed)							1,000 .	,356(*) ,019	,111 ,477	,433(**) ,004	,619(**) ,000
Webpage marketing	Corr. Coeff. Sig. (2-tailed)								1,000 .	,334(*) ,029	,499(**) ,001	,324(*) ,034
E-marketplace selling	Corr. Coeff. Sig. (2-tailed)									1,000 .	,521(**) ,000	,372(*) ,014
E-m.place procurement	Corr. Coeff. Sig. (2-tailed)										1,000 .	,350(*) ,022
Search engine marketing	Corr. Coeff. Sig. (2-tailed)											1,000 .

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 30
Spearman Analysis for the Perceptions of ICT Utilization Will Create Competitive Advantage

N=43		ERP	SCM	Order Mng (CRM)	Customer Analysis (CRM)	CAD	CAM	EDI	Webpage marketing	E-marketplace Selling	E-marketplace Procurement	Search Engine marketing
ERP	Corr. Coeff. Sig. (2-tailed)	1,000	,362(*) ,017	,496(**) ,001	,209 ,179	,049 ,755	,251 ,104	,351(*) ,021	,309(*) ,044	,260 ,093	,319(*) ,037	,138 ,376
SCM	Corr. Coeff. Sig. (2-tailed)		1,000	,300 ,051	,319(*) ,037	,088 ,576	,392(**) ,009	,146 ,351	,281 ,068	,293 ,057	,473(**) ,001	,279 ,070
Order Mng (CRM)	Corr. Coeff. Sig. (2-tailed)			1,000	,439 ,003	,174 ,263	,397(**) ,008	,230 ,137	,289 ,060	,330(*) ,030	,197 ,206	,032 ,839
Customer Analysis (CRM)	Corr. Coeff. Sig. (2-tailed)				1,000	,334(*) ,029	,178 ,253	-,025 ,873	,250 ,106	,148 ,343	,244 ,114	,140 ,371
CAD	Corr. Coeff. Sig. (2-tailed)					1,000	,371(*) ,014	,017 ,916	-,069 ,661	-,038 ,807	-,051 ,746	,233 ,133
CAM	Corr. Coeff. Sig. (2-tailed)						1,000	,304(*) ,047	,103 ,510	,204 ,188	,217 ,163	,188 ,227
EDI	Corr. Coeff. Sig. (2-tailed)							1,000	,398(**) ,008	,380(*) ,012	,308(*) ,045	,214 ,169
Webpage marketing	Corr. Coeff. Sig. (2-tailed)								1,000	,662(**) ,000	,583(**) ,000	,349(*) ,022
E-marketplace selling	Corr. Coeff. Sig. (2-tailed)									1,000	,688(**) ,000	,650(**) ,000
E-m.place procurement	Corr. Coeff. Sig. (2-tailed)										1,000	,559(**) ,000
Search engine marketing	Corr. Coeff. Sig. (2-tailed)											1,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 31
Spearman Analysis for the Factors to Create Competitive Advantages

		Market Proximity	High Quality Products	Brand Formation	Design Creation	Low Cost Production
Market Proximity	Corr. Coeff. Sig. (2-tailed)	1,000 .	,577(**) ,000	,313(*) ,041	,060 ,704	,074 ,636
High Quality Products	Corr. Coeff. Sig. (2-tailed)		1,000 .	,434(**) ,004	,286 ,063	,124 ,427
Brand Formation	Corr. Coeff. Sig. (2-tailed)			1,000 .	,387(*) ,010	,214 ,168
Design Creation	Corr. Coeff. Sig. (2-tailed)				1,000 .	,018 ,911
Low Cost Production	Corr. Coeff. Sig. (2-tailed)					1,000 .

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

6. CONCLUSION

World textiles and clothing (T&C) industry has been faced the most serious change since the industrial age. With the elimination of the quotas, the trade balance between the world T&C exporting countries is unbalanced in favor of the Far Asian countries. This new conditions forced T&C exporting countries like Turkey to determine new strategies in order to stay competitive. The utilization of ICT tools is regarded as an important factor that can create competitive advantage for T&C companies by increasing the speed and efficiency of companies' internal and external business processes. This thesis aims to find out how do Turkish T&C companies see themselves in this new era and what are the utilization and competitive advantage expectation levels of ICT t in these companies.

Depending on the questions about how Turkish T&C companies evaluate the non-quota period and what kind of changes they face, most of the respondents think that the industry will be negatively affected with quota elimination. In other words, general tendency at participant companies is that a difficult period has started for Turkish T&C industry after quota elimination. Through the one-to-one interviews done with executives that think "quota elimination will be positive", it is seen that they expect benefits as a result of learning the importance of design, the need of brand building, and effective marketing because of the serious competition.

When the past 1,5 years are examined, there is no big change yet in business and export volumes in the industry after quota elimination. The expectations for the changes in the business and export volumes for the following 5 years are a little more pessimistic but again not at that critical level. Therefore when these two results are summed up, it is possible to say that, the respondents are pessimistic and expect worse conditions in the long term.

The interviews with the companies that faced positive changes in the business volumes during the last 1,5 years indicates that those companies mostly sell high quality and high priced products to the niche markets with low quantity. However, it is also a fact that the companies give up good profit margins in order to continue the increase in their business volumes.

Even if some of the companies express that they will focus in the domestic market to cover the decrease in the export markets, high positive correlation between the changes in business volumes and export volumes (both in past 1,5 years and next 5 years) indicates the business focus will still be in the export markets for the new age.

From the viewpoint of competitors, the research shows the quota elimination has changed the ranking and the importance of the international competitors significantly. In the non-quota period, Chinese and Asian companies take the lead in the sector and this is parallel with the questionnaire results conducted by DPT in 2001. China keeps the leadership, but the importance has increased. In addition, local companies which are second in competitor ranking before quota elimination, lose their places to Asian companies after elimination.

About the steps to be taken to achieve competitive advantage, the respondents consider all the steps questioned in the survey important, but the most important one is forming authentic collections. In parallel to this, CAD systems, which are used for design purposes, are the most frequently used ICT tools by the surveyed firms. Positioning Turkey as a brand, ICT investments and produce high quality products follows forming authentic collection in order to achieve competitive advantage. The government support takes the lowest place in ranking. This finding is explained in-depth interviews as, the companies have low expectation regarding the government will contribute to the sector with exchange rates and regulations. The most importantly expected government support

emphasized in the interviews is to reduce the costs of production inputs and the tax on the employment so that costs can be lowered.

Even though making low cost production is at the bottom in ranking of the factors of competitive advantage, most of the respondents agree or absolutely agree about the importance of it. During the interviews the companies mentioned that especially in the competition with European and local companies, price is still a characteristic factor. Besides, even though the production cost levels of far-eastern companies can never be caught, by closing the gap between the costs, proximity to the market and service quality could be emphasized better.

When the answers to the questions about the markets are examined, Western Europe is considered as the most important market both in frequency and importance ranking, parallel to DPT research mentioned in literature study. Russia, Eastern Europe and USA follow the Western Europe respectively. The proximity to the markets has a high level of importance for the companies as a result of this market ranking.

If the answers to the questions related to ICT investments are evaluated, ICT is the third important issue among the steps to be taken to achieve competitive advantage. This shows that ICT utilization -the main subject of this thesis- is a general tendency for the companies as it provides competitive advantage. When basic infrastructure investments are examined, the investments such as internet, local network connection and web site are at high level. This ensures that the infrastructure that further ICT investments will be built on is ready in the companies. Nevertheless, when ICT utilization and the expectation of the utilization to provide competitive advantage is compared, companies do not make necessary investments for the technology even though they believe that this technology will provide high level competitive advantage. One exception is CAD systems that both the expectation and the investment levels are high. For the tools other than CAD systems, the utilization level is significantly low compared with competitive advantage

expectation. The utilization of ERP and CAM systems follows CAD respectively but with a high gap.

Customer focused applications as order management and customer profitability analysis applications are mostly believed to provide competitive advantage after CAD systems. This is the indicator of that customer relations and customer profitability is important issues for the companies in new age. High positive correlation between ERP and order management applications shows that order management systems are preferred not as separate systems but modules in ERP systems. Nevertheless all of the companies interviewed, that are not using special software application for customer and order management, are still using spreadsheet applications to track their orders and some of them are also using the spreadsheets to analyze their customers. This result is because of critical need of the order and customer tracking for the T&C companies.

However a group of applications among the ICT tools is significantly behind in terms of utilization and competitive advantage expectation. The executives have little in online sales, procurement and marketing applications to create competitive edge to their companies. The utilization level of these online applications is also very low. The interviews indicate that there are two important reasons for this negative opinion. As mentioned before in the literature study, first reason is because of the tangible characteristics of the products are not suitable for online sales. Second reason is the risk of competitors copying the authentic designs. The design of a textile or a clothing product is the most important characteristics of it. Since this is a visual thing, it is very easy to duplicate a design once its image is copied. The companies, trying to achieve a competitive edge by creating design and collections, are not willing to publish their work on the web. Related to this, companies websites are used just signboards but not for sales and marketing purposes. In brief it is possible to say that e-commerce applications do not seem as an option for the T&C companies today.

Even if the companies states that they invest on ICT tools to achieve competitive advantage, reason for the low level of utilization is mainly the lack of trained staff that will use these technologies. The executives are afraid of the investments to become idle because the untrained staff rejects to use the technologies. Another important point between education and utilization is that the perception of ICT complexity differs significantly between the education level groups of the executives. Second reason for low level utilization is the high cost of ICT investments especially for the technologies like ERP, SCM and EDI.

The new era in T&C trade seems to be a hard one for Turkish T&C companies. The factors of competitive advantage in this new are commonly known and agreed by the companies. ICT utilization is considered as a common tool for competition. However the study shows that even if the expectation of competitive advantage is high, the utilization is not at desired level. On the basis of the findings of this study, there are some further steps that can be taken by both researchers and practitioners. In the next section these implications are mentioned.

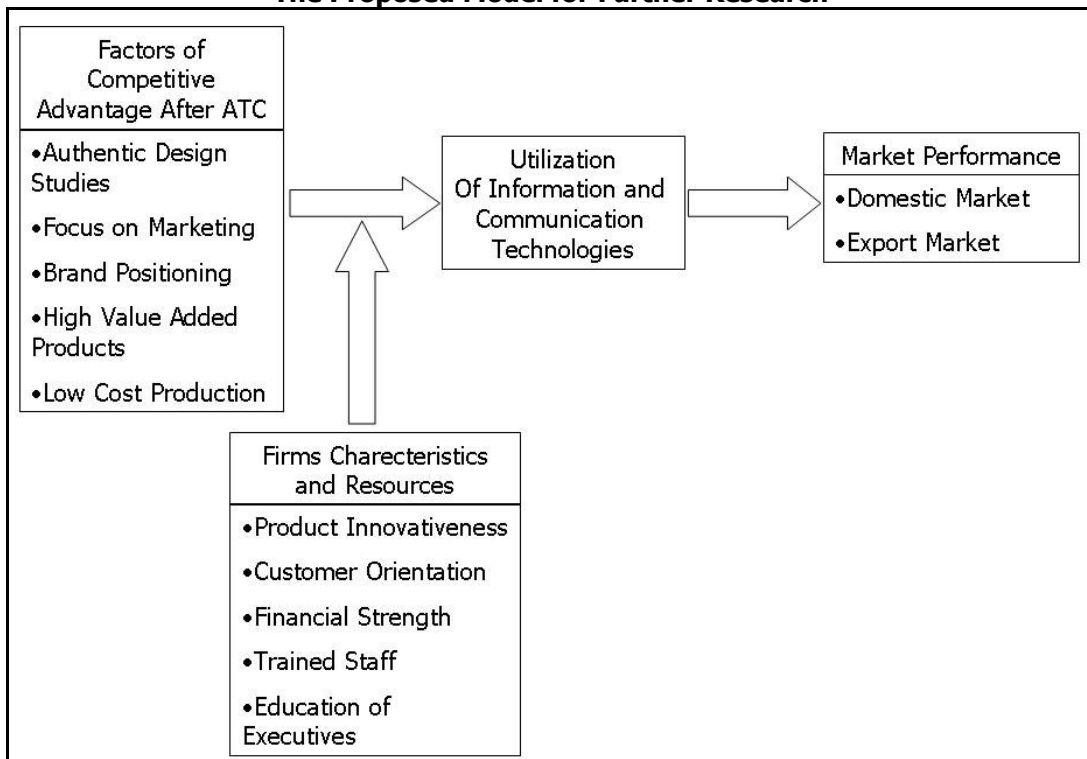
7. IMPLICATIONS

This study implies valuable information for further academic or business studies to researchers and practitioners.

7.1 Implications for Researchers

This thesis shows a tendency of the T&C companies instead of a generalization about the industry because of the sample size. However the anticipations and expectations about the non-quota era and the information about the relation between ICT utilization and competitive advantage will provide a solid basis for the researchers who may conduct further study about this topic. The researchers can also test the following proposed model in Figure 18 by forming a probability sample.

Figure 18
The Proposed Model for Further Research



This proposed model anticipates there is the realization of competitive advantage factors changes the level of ICT utilization of the companies and this change in utilization effects the performance of companies' domestic and export market performance. Besides the characteristics and resources of the companies' have an effect over this relationship as moderating variable.

7.2 Implications for Practitioners

This research provides valuable implications for the industry representatives and associations. The following studies can be conducted on the basis of thesis findings.

The certification courses, trainings and apprenticeships can be arranged in association with ICT organizations to overcome the biggest obstacle, which is the lack of trained staff to use the technologies, in front of the ICT utilization. These associations can also produce and sell sector based low cost software applications to the industry to eliminate the high cost of ICT investments which is the second important obstacle in front of the ICT utilization.

In order to enhance and spread the authentic design studies, the vocational high schools and colleges can open courses for textile and clothing design. The industry associations can conduct trainings and design contests to attract young and creative population.

8. LIMITATIONS

The data is gathered from the members of the population who are conveniently available for filling the survey and taking the interview. So the method of sampling, which is non-probability convenience method, is a limitation.

The number of filled questionnaires limits the generalization of the research results and shows the tendency of the sample. Therefore the number of sample is a limitation.

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APPENDIX

APPENDIX 1: The Research Survey

APPENDIX 1 : The Research Survey

**T.C MARMARA ÜNİVERSİTESİ,
İŞLETME ANA BİLİMDALI, İNGİLİZCE İŞLETME BÖLÜMÜ,
YÜKSEK LİSANS TEZİ ANKETİ**

Sayın İlgili,

Bu anket Marmara Üniversitesi, İşletme Anabilim Dalı, İngilizce İşletme Bölümü, Yönetim ve Organizasyon Yüksek Lisans Bitirme Tezi için Yüksek Lisans öğrencisi Orkun Göze tarafından tekstil sektöründe bilişim teknolojisinin etkilerini araştırmak üzere hazırlanmıştır. Verdiğiniz her bilgi kesinlikle gizli tutulacaktır.

Anket, **Firma ve Demografik Bilgiler, 2005 Sonrası Tekstil Sektörünün Durumu ve Sektörde Bilgi Teknolojilerinin Kullanımı** olmak üzere 3 bölümden ve toplam 37 sorudan oluşmaktadır.

Anket süresi yaklaşık 10 dakikadır.

Değerli zamanınızı ayırdığınız için teşekkür ederim.

Orkun GÖZE

Tez Konusu: 2005 Sonrası Kotasız Dönemde Türk Tekstil ve Konfeksiyon Sektöründe Rekabet Avantajı Sağlayacak Araç Olarak Bilişim Teknolojilerinin Kullanımı

Hazırlayan: Orkun GÖZE

Tez Danışmanı: Yrd. Doç Dr. Müjdelen Yener

Not: Anket sorularının cevaplanmasını kolaylaştırmak amacı ile bazı soruların cevap seçenekleri kutular şeklinde verilmiştir. Lütfen her soru için sadece bir kutuyu işaretleyiniz...

İstanbul, 2006

FİRMA BİLGİLERİ

1 Firmada kaç çalışmanız var?

2 Hangi sektörde faaliyet göstermektediriniz

- TEKSTİL
 KONFEKSİYON
 HER İKİSİ

3 Firmanız kaç senedir bu sektörde çalışıyor?

4 Ağırlıklı olarak hangi pazara çalışıyorsunuz? Yüzde olarak belirtir misiniz?

İç Pazar % _____
Dış Pazar % _____

5 İhracat yapıyorsanız, pazarlarınızı yoğunluklarına göre 1'den 8'e kadar sıralar mısınız?
(1-en yoğun, 8-en az)

- ___ ABD-Kanada
___ Doğu Avrupa
___ Batı Avrupa
___ Rusya
___ Uzak Doğu
___ Asya - Orta Doğu
___ Latin Amerika
___ Afrika

6 İhracat yapıyorsanız, kaç yıldır ihracat yaptığınızı belirtir misiniz?

DEMOGRAFİK BİLGİLER

1 Yaşınız?

2 Eğitim durumunuz?

- İLKÖĞRETİM
 LİSE
 ÜNİVERSİTE
 YÜKSEK LİSANS

3 Cinsiyetiniz?

- ERKEK
 KADIN

2005 SONRASI DURUM

1 Kotalar kalkmadan önce iç ve dış pazardaki rakiplerinizi 1'den 7'ye kadar büyükten küçüğe sıralar mısınız?
(1-en önemli rakip, 7-en zayıf rakip)

İç Pazar

- Yerli firmalar
 Doğu Avrupa
 Batı Avrupa
 Çin
 Asya (Çin hariç)
 Latin Amerika
 Afrika

Dış Pazar

- Yerli firmalar
 Doğu Avrupa
 Batı Avrupa
 Çin
 Asya (Çin hariç)
 Latin Amerika
 Afrika

2 Kotalar kalktıktan sonra iç ve dış pazardaki rakiplerinizi 1'den 7'ye kadar büyükten küçüğe sıralar mısınız?
(1-en önemli rakip, 7-en zayıf rakip)

İç Pazar

- Yerli firmalar
 Doğu Avrupa
 Batı Avrupa
 Çin
 Asya (Çin hariç)
 Latin Amerika
 Afrika

Dış Pazar

- Yerli firmalar
 Doğu Avrupa
 Batı Avrupa
 Çin
 Asya (Çin hariç)
 Latin Amerika
 Afrika

3 Kendi markanız ile üretim/satış yapıyor musunuz?

- EVET
 HAYIR

4 Kendi markanız ile üretim/satış yapıyorsanız, bu iş hacminizin yüzde kaçını oluşturuyor?

% _____

5 Kotaların kalktığı 2005 yılı başından bu yana geçen 1,5 senede toplam iş hacminiz nasıl değişti?

Çok azaldı

1

Azaldı

2

Değişmedi

3

Arttı

4

Çok arttı

5

6 Kotaların kalktığı 2005 yılı başından bu yana geçen 1,5 senede ihracat hacminiz nasıl değişti?

1

2

3

4

5

7 Önümüzdeki 5 yıllık dönemde iş hacminizdeki değişimin nasıl olacağını öngörüyorsunuz?

Çok azalacak

1

Azalacak

2

Değişmeyecek

3

Artacak

4

Çok artacak

5

8 Önümüzdeki 5 yıllık dönemde ihracat hacminizdeki değişimin nasıl olacağını öngörüyorsunuz?

1

2

3

4

5

9 Kotaların kalkmasının Türk tekstil ve konfeksiyon sektörünün geleceği için nasıl bir etkisi olacağını düşünüyorsunuz?

- OLUMLU
 OLUMSUZ
 ETKİSİ OLMAYACAK

10 Aşağıda listelenen maddelerin önümüzdeki dönemde Türk tekstil ve konfeksiyon sektörüne rekabet avantajı sağlayacağına katılıyor musunuz?	Kesinlikle katılmıyorum				Kesinlikle katılıyorum
Yurtdışı pazarlara yakınlık	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Yüksek kalitede ürün üretmek	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Marka oluşturmak	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Koleksiyon oluşturmak	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Düşük maliyetli üretim yapmak	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
11 Rekabet avantajı sağlayacak maddelerin hayata geçirilmesi için aşağıdakilerden hangilerinin yapılmasının etkili olacağını düşünüyorsunuz?	Kesinlikle katılmıyorum				Kesinlikle katılıyorum
Devletin sektöre desteği artmalı	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Özgün tasarım çalışmalarına ağırlık verilmeli	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Üretimden ziyade satış ve pazarlama faaliyetlerine ağırlık verilmeli	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Türkiye uluslararası bir kalite markası olarak konumlandırılmalı	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Fason üretimin payı azaltılıp marka üretimine geçilmeli	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Yeni pazarlar bulunmalı	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Katma değer yüksek ürünlerin üretimine ağırlık verilmeli	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Bilgisayar destekli tasarım ve üretim yazılımları, müşteri ilişkileri yönetimi uygulamaları, elektronik ticaret gibi bilgi teknolojilerine yatırım yapılmalı	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

BİLGİ TEKNOLOJİLERİ KULLANIMI

1 Firmanızda internet erişiminiz var mı?	<input type="checkbox"/> VAR <input type="checkbox"/> YOK				
2 Firmanızın web sitesi var mı?	<input type="checkbox"/> VAR <input type="checkbox"/> YOK				
3 Firmanızın yerel network ağı var mı?	<input type="checkbox"/> VAR <input type="checkbox"/> YOK				
4 Firmanızda satınalma, satış, üretim, insan kaynakları gibi iş süreçlerinizi yönetmek için kurumsal kaynak planlaması (erp) sistemi;					
a. kullanıyor musunuz?	Hiç kullanmıyoruz				Sürekli kullanıyoruz
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum				Kesinlikle düşünüyorum
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
5 Firmanızda tedarikçilerinizle ilişkilerinizi yönetmek için tedarik zinciri yönetimi (scm) sistemi;					
a. kullanıyor musunuz?	Hiç kullanmıyoruz				Sürekli kullanıyoruz
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum				Kesinlikle düşünüyorum
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
6 Firmanızda satış siparişlerinizi takip etmek için bir uygulama (crm);					
a. kullanıyor musunuz?	Hiç kullanmıyoruz				Sürekli kullanıyoruz
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum				Kesinlikle düşünüyorum
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
7 Firmanızda müşteri karlılığını analiz etmek için bir uygulama (crm);					
a. kullanıyor musunuz?	Hiç kullanmıyoruz				Sürekli kullanıyoruz
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum				Kesinlikle düşünüyorum
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
8 Firmanızda ürün tasarımı için tasarım (cad) programı;					
a. kullanıyor musunuz?	Hiç kullanmıyoruz				Sürekli kullanıyoruz
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum				Kesinlikle düşünüyorum
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
9 Firmanızda bilgisayar destekli üretim sistemi (cam);					
a. kullanıyor musunuz?	Hiç kullanmıyoruz				Sürekli kullanıyoruz
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum				Kesinlikle düşünüyorum
	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4				<input type="checkbox"/> 5

10 Müşterilerinizle veya tedarikçilerinizle olan faaliyetlerinizde bilgi alışverişi için basılı evrak yerine elektronik veri değişimi (edi) sistemi;					
a. kullanıyor musunuz?	Hiç kullanmıyoruz <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Sürekli kullanıyoruz <input type="checkbox"/> 5
b. kullanmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Kesinlikle düşünüyorum <input type="checkbox"/> 5
11 Firmanızda kendi web siteniz üzerinden ürün pazarlaması/satışı;					
a. yapıyor musunuz?	Hiç yapmıyoruz <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Sürekli yapıyoruz <input type="checkbox"/> 5
b. yapmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Kesinlikle düşünüyorum <input type="checkbox"/> 5
12 Firmanızda internetteki pazaryerleri üzerinden ürün satışı;					
a. yapıyor musunuz?	Hiç yapmıyoruz <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Sürekli yapıyoruz <input type="checkbox"/> 5
b. yapmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Kesinlikle düşünüyorum <input type="checkbox"/> 5
13 Firmanızda internetteki pazaryerleri üzerinden ürün tedarigi;					
a. yapıyor musunuz?	Hiç yapmıyoruz <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Sürekli yapıyoruz <input type="checkbox"/> 5
b. yapmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Kesinlikle düşünüyorum <input type="checkbox"/> 5
14 Firmanızda internetteki pazaryerlerinde ve/veya arama sitelerinde ürün pazarlaması/reklamı;					
a. yapıyor musunuz?	Hiç yapmıyoruz <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Sürekli yapıyoruz <input type="checkbox"/> 5
b. yapmanın rekabet avantajı sağlayacağını düşünüyor musunuz?	Kesinlikle düşünmüyorum <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Kesinlikle düşünüyorum <input type="checkbox"/> 5
15 Firmanızda yukarıda sayılan bilişim teknolojileri yatırımlarının neden yaptığınızı düşünüyorsunuz?	Kesinlikle katılmıyorum				Kesinlikle katılıyorum
Yatırımları rakiplerimiz yaptığı için yapıyoruz	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Yatırımları rekabet avantajı sağlamak için yapıyoruz	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Yatırımları müşterilerimiz istediği için yapıyoruz	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Yatırımları tedarikçilerimiz istediği için yapıyoruz	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
16 Firmanızda cad/cam, crm, erp, edi vb. gibi yatırımların yeterli seviyede olduğunu düşünüyor musunuz?	Kesinlikle düşünmüyorum <input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	Kesinlikle düşünüyorum <input type="checkbox"/> 5

17 Firmanızda bilişim teknolojilerinin yeterince kullanılmadığını düşünüyorsanız, bunun sebebinin aşağıdakilerden hangisi olduğunu düşünüyorsunuz?	Kesinlikle katılmıyorum				Kesinlikle katılıyorum
Firmamızın bu yatırımlar için yeterince büyük olmadığını düşünüyorum	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Bu yatırımların maliyetlerinin çok yüksek olduğunu düşünüyorum	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Bu teknolojilerin firmada kullanılmak için çok karışık olduğunu düşünüyorum	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Bu teknolojileri kullanacak yeterli eğitime sahip iş gücümüzün olmadığını düşünüyorum	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Bu teknolojileri sağlayacak güvenilir bilişim tedarikçisi firma olmadığını düşünüyorum	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Anket Sonu...
Zaman ayırdığınız için teşekkür ederim.
Orkun Göze

