



SUSTEXNET

**COMPARATIVE REPORT OF THE 4
COUNTRIES INVOLVED (SPAIN, ITALY,
TUNISIA AND EGYPT)**

**WP4- Analysis of current situation of textile sub-sectors and
competitive models adopted in involved regions**

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strumenti
per l'innovazione



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I. PART I

I.1. DEFINITIONS, CLASSIFICATIONS AND COMPARABILITY OF STATISTICS

We relied on two main different sources of data. The one provided by the partners of single countries for what it concerns the characterization of the industry in relation with the domestic economy (*SUSTEXNET Project, Country reports*) and data from *EURATEX and other entities*, where possible, to attempt a comparison among the four countries and to complete missing information not found in each SUSTEXNET country report. Data could sometimes not be consistent with each other and that is due to the different criteria used for data collection. Nonetheless, we believe the data accurately represent the proportion of the industries of the four countries and the respective weight of the sector in the national economy.

I.2. SUMMARY OF THE GENERAL OUTLOOK

General outlook compared: number of activities, turnover, employees, percentage in national manufacture activity.

Before getting into the details of the involvement of the four countries in the Textile and Clothing (T&C) industry, there is the need to have in mind the proportions of the single economies with the others. In the table below we present general data, to give an idea of the different size of the industries.

Table 1. General data on the T&C sector in the four countries (2014; 2011).

	Companies	Employees	Turnover (M €)
Spain (2013)	8.400	120.000	9.400
Italy (2012)	48.771	368.357	58.435
Tunisia (2014)	1.826	174.283	n/a
Egypt (2011/2013)	4.224	230.000 - 500.000	n/a

Data source: *SUSTEXNET Project. Country reports (2014).*

In general terms, can be considered that the Italian T&C has by far the biggest size in terms of revenues, number of employees and number of companies. This is not surprising since Italy ranks at the first position even with the EU28 countries,



considering T&C turnover, exportations and number of companies. Nonetheless, the T&C sector retains a relevant position in the economy of all four countries.

In **Spain** T&C represents around 7% of the total companies in the different industrial sectors, 1,7% of the total turnover of the industry and 4% of national workforce (*source: MINETUR. Presentaciones Sectoriales. Sector Textil y Confección. 2014*).

In **Italy**, in 2011, the T&C industry employed the 15% of national workforce and the accounted for 13% of local units of all manufacture activities (*source: EURATEX. Structural data. 2011-2012*).

In **Tunisia** the sector is considered the pillar of national economy, in fact it represents: 32% of the Tunisian manufacturing industry; 31% of the manufacturing industry exports (excluding energy and mines); 34% of manufacturing industry employment (*source: API Data. CETTEX treatment. 2014*).

In **Egypt** T&C is the third contributor to the GDP and in 2013, it accounted for 30% of local employment and for the 14% of non-petroleum exports (*source: General Organization of Export and Import Control - GOEIC. 2014*).

Geographical distribution.

In all four countries, activities related to the T&C tend to cluster in specific areas (*source: SUSTEXNET Project. Country reports, 2014*).

In **Spain** the main textile industry (from spinning and weaving to finishing) focuses on the Mediterranean regions, Catalonia and Valencia (85-90%), while clothing and knitwear is distributed throughout the Spanish territory (10-15%). In **Italy** we find a rather clear concentration per subsectors at a territorial level: spinning and weaving activities are concentrated in the Central part of the country, while dyeing and finishing are predominantly located in the Northern regions. On the other hand, the apparel activities spread almost equally throughout the territory, with the Southern regions having only a slightly less percentage than the Centre and the North.

In **Tunisia** T&C industries are highly concentrated in the North (40% of companies) and the Center East (44%). The South, and mainly the area of Sfax, represents the 11% of activities in the sector. In **Egypt**, the Greater Cairo region hosts around 1,053 textile installations in various subsectors. The great majority of spinning and weaving factories are settled in el-Kaliobia, while the city of Cairo specializes in knitting and garment manufacture. The city of Alexandria and the Middle Delta Region are also

experiencing an expansion with foreign and nation companies planning to establish facilities in these areas.

Employment and production per subsector.

We now try to get more in-depth in the division and capacities of single subsectors (Textile and Clothing) in the four countries. There is also a differentiation of specialization among the four countries, which is although less clear than the territorial concentration of activities within the countries (*source: SUSTEXNET Project. Country reports, 2014*).

Spain does not present a clear propensity in any sector, but it is characterized by an interesting growth in the technical textiles sector: in the year 2011, around 320 Spanish companies with a working force of around 4.200 employees were dedicated to technical textiles (turnover of these companies was around 2.100 million euro). In general, while the **Italian** and **Tunisian** industries focus more on the clothing sector, **Egyptian** industry comprises the whole value chain of textile related products being strongly focused on cotton production and weaving/clothing manufacturing. The major players in the Egyptian textile value chain are the growers (cotton farmers), processors (ginning factories, weavers/cloth makers, and ready-made textile producers), and sellers (exporters and retailers). The public-sector is strongly involved in Egypt's textiles industry, especially in the weaving (60%), spinning (50%) and hemming (50%) sub sector, while private companies established themselves in the garmenting sector and account for about 90% of the garmenting capacity. The clothing sectors focuses almost entirely on the production of ready-made garments (RMG), which represent the majority of exportations of the T&C.

Diachronic analysis

The general economic downturn of advanced economies in recent years, have negatively influenced the T&C sector in Europe and, due to the many commercial relationship of North Africa with Spain and Italy, it affected the performances of these countries too.

Table 2. Variation on the production index and employment (last 10 years).

	Production index	Employment
Spain	-29% (2006-13)	-35% (2006-13)
Italy	-19% (2005-11)	-25% (2005-11)
Tunisia	-20% (2008-13)	-15% (2004-13)
Egypt	n/a	n/a

Data source: SUSTEXNET Project. Country reports (2014).

The period from 2008 to 2011 was the worse for European economies. In those four years, **Spain** lost almost 32% of enterprises and 25% of jobs in the T&C industry; if the analysis covers last 7 years, production has fallen by 29% and employment by 35% (*source: SUSTEXNET Project. Country report - Spain, 2014*).

In **Italy**, from 2005 till 2011, the T&C lost 19,5% of its productive capacity, in terms of number of enterprises and 25,4% in terms of employees. The spinning and weaving subsectors have experienced the worst decline with more than 30% loss in number of enterprises and employees. The clothing sector has lost 18% of companies and 22% of employees (*source: ISTAT*).

The **Tunisian** T&C has followed the international economic trend, experiencing the highest peak in the production index around the year 2007/2008 and then a sudden decline till 2013. The only subsector that in the last year experienced an almost constant increase was the leather and shoe industry (+29% from 2000 to 2013). The sector suffering the most from the crisis was the textile spinning, weaving and finishing that lost 20,5% in the productive index 2008/2013, followed by hosiery (-14,1%). The RMG in the same period sector instead, has lost the 11%, demonstrating more resistance in comparison with the other sectors (*source: SUSTEXNET Project. Country report - Tunisia, 2014*).

The data for **Egypt** were not available.

I.3. STRATEGIC POSITION OF THE INDUSTRIES IN EACH COUNTRY AND IN THE INTERNATIONAL MARKET

This section treats the issues of import-export and FDIs. This data helps understanding how the four countries reacted to the economic difficulties encountered in the last years. It is interesting to see how different are the trends of import/export compared with the productivity.

Table 3. Most important countries/regions for textile exports in each SUSTEXNET country.

	Main exportations to:
Spain	Europe (France, Portugal, Italy), China, USA, Saudi Arabia
Italy	Europe, China, USA, Japan, Russia
Tunisia	Europe
Egypt	Europe, USA

Data source: SUSTEXNET Project. Country reports (2014).



Spain has followed in the last years, somehow similar trend. During the first half of 2012, exports of Textile / Clothing Sector experienced an increase of 7,5% in value over the same period last year. This figure confirms the dynamism of foreign markets, which contrasts with the sharp decline of the Spanish market, burdened by low consumption growth.

The products that were sold in the foreign market were clothing (38.1 % out the total), followed by knitwear (28.4 %).

Regarding to the total Spanish textile sector, exports that have increased are those to non-European markets, especially to Asia and America, highlighting the growth experienced in China, United States and Saudi Arabia. However, in 2012 Europe was still the main customer and received nearly 70% of total exports. Major customers included France (14 % of exports), Portugal (12.1 %), Italy (10.1 %), Morocco (6.8 %) and Germany (6.4 %). Regarding weaving and spinning exports it has been registered a sharp decline after 2008 and a rising from 2010 in absolute value.

As regards imports, it continues the strong presence of Asian products, almost half of total imports, with China as the main supplier (although have stagnated while increasing in Bangladesh, Pakistan and Vietnam), followed by countries like Italy, Turkey and Morocco. The crisis of consumption in Spanish domestic markets is reflected in decreasing import (-9,2% in 2011/2012). The balance of trade has in fact increased from 2008, even though it was still negative (*source: Cityc*).

In **Italy**, in parallel to the dramatic downsizing of the industry, in the last 10 years it was registered a stable increase in the T&C export in the absolute value. According to the WTO statistics, with its 35,3 billion dollars exports, Italy still represents the second world exporter of T&C.

The export of apparels is more relevant in comparison with textiles. In general terms, both subsectors are increasing exportations but considering the long-term trend, it is evident that the gap widening.

The majority of exportations are still directed toward European countries (53,9%). Nonetheless, from 2011 to 2012 exportations to countries situated outside the EU have registered a major growth. The destinations with the greatest increases are China (+18,3%), United States (+14,9%), Japan (+14,9%) and Russia (+9,5%). On the other hand markets such as Spain, Romania and Tunisia have decreased their share respectively -6,1%, -7,9% and -12,5%.

Important changes have been experienced also in the imports trend, which in 2012 has lost almost 12 percentage points in comparisons with its values in 2011. All major suppliers have decreased the exports of textiles and clothing toward Italy: China, still maintaining the biggest share, has lost -18,4%; Turkey -8,6% and France -7,9%. The worst decline has been in the imports from India and Pakistan, respectively -24,4% and -29,8%. The only countries which have consistently augmented their exports to Italy are Bangladesh (+8,8%) and Spain (+5,7%). Italy is one of the few countries in the EU 27 that experiencing in recent years a positive balance of trade (*source: Il Settore Tessile-moda Italiano nel 2012-2013” – Federazione Tessile e Moda for Pitti Immagine, 2013*).

In **Tunisia**, the T&C sector has a strong export orientation: 83% of Tunisian companies are totally exporting and represents 90% of the employment. T&C is the second exporter in manufacturing industries. More than 2.420 Million Euros exports were achieved during the year 2013, decreasing by 4.6% in comparison with 2012. 90% of Tunisian T&C exports go to the EU. The main export products are clothing with a share of 86% of the total value of exports in 2013, or 2.089 Million Euro. In the first quarter of 2014 ranked at the sixth position of the major suppliers of clothing with 56 million Euros exportations. More than 86% of exports are clothing, which are manufactured in Tunisia in subcontracting for the account of European brands and order givers mainly. A small proportion of these exporters, not exceeding 10%, offer extended services to their European customers with creations of collections and / or inputs sourcing.

The imports of T&C sector in Tunisia reached more than 1.735 million Euros in 2013. Fabrics represent more than 80% of total imports, valued at 1.399 million Euros, while pre-cut clothes for processing and re-export represent 19,38% of total imports. The main suppliers of Tunisia in terms of value are: Italy (30.3%), France (23.2%), Turkey (10.6%), Belgium (7.1%) and Germany (6.8%). Clothing exporters are also the largest importers, this because their inputs (mainly fabrics) are imported. Indeed, the Tunisian textile sector remained undersized compared to the clothing industry and has not the ability to provide the necessary inputs in quality and quantity.

The Tunisian T&C sector is characterized by a very strong partnership with 804 companies with mixed or foreign capital; they represent 44% of the sector companies and 58.8% of the employees. Out of the 1826 companies in T&C, 1527 are producing only for the export (*source: SUSTEXNET Project. Country report - Tunisia, 2014*).

Egypt's textile industry is considered the biggest in Africa and the Middle East, comprising the entire production process starting from the production of cotton to the



production of RMG. In the first quarter of 2014, Egypt ranked in the ninth position of EU major suppliers of textiles, with 12,8 Million Euro. RMG have the biggest share of textile related exports. In 2013 48% of all textile related exports were RMG of which 33% were exported to the EU and 52% to the USA. Cotton textiles and cotton yarn are the second biggest export commodity group. Although cotton was in the past a traditionally important export commodity group and although Egyptian cotton is renowned for its quality it accounted only for 6% of all textile related exports in 2012/13. Political instability and the government's policy towards cotton pricing caused an alternating export performance during last years (*source: General Organization for Export & Import Control (GOEIC): Egyptian non-petroleum Foreign Trade Monthly Digest, March 2014, p. 23*).

Egyptian importations of textile related products have been increasing lately. Industry sources attribute the raise of textile imports to the fact that domestic cotton products have become relatively more expensive. These products have accounted for 15% of the manufacturing costs, which is substantially higher than in countries like Indonesia or Turkey. Subsequently the demand for domestic cotton products deflated. Imports of RMG have also increased during the last years, which is not only caused by high prices for domestic raw material but also due to the fact that in relative terms wages are higher in Egypt.

On the contrary exportation in the T&C have experienced ups and downs after 2007/2008, increasing in 2010/2011 and then decreasing again in 2011/2012. In 2012/2013, the merchandise balance of textiles and textile related products was negative. Exports increased by 8,3% reaching US\$ 2.1 billion and imports remained stable at 2,8 US\$ billion (*Source: Central Bank of Egypt. May, 2014*).

Concerning the presence of international companies in the national territory, we have to rely on data of 2008. Up to that year, Egypt has attracted 56 foreign investment companies in the textile sector, employing 14,169 workers with total investment value of US\$ 172.3 million, and total production value of US\$ 370.6 million. Furthermore, Egyptian-Foreign joint venture companies totalled 150; employing 30,635 workers; with an investment of \$ 515 million, and a total production value of 509.4 million in 2008 (*source: Industrial Development Authority, 2010*).

I.4. ANALYSIS OF RELATIONS BETWEEN THE 4 COUNTRIES INVOLVED

In order to draw a representing picture of the structure of Mediterranean T&C, it is now necessary to go a little more in depth into the trade occurring among the four countries. We are going to start from Tunisia, which seems to be the most integrated with the other countries' economies (*source: SUSTEXNET Project. Country reports, 2014*).

Especially the **Tunisian** T&C, in fact, appears strongly bounded with Europe, and Italy in particular. Italy is the first supplier of Tunisia in terms of value, with 423,9 million Euros, representing the 30,3% of total T&C imports. Tunisia has also importations for a value of 69,9 Million Euros from Spain and 7,4 Million Euros from Egypt. The main imports from Italy are fabrics (61%), pre-cut clothes for the making and re-exports (21%) and Yarn (7%). With Spain there is almost the same structure of imports with fabrics (74%) and pre-cut clothes (10%) and yarn (4.9%). For Egypt, import structure is different with Fabrics accounting for 32% of total, then Fibers (22%) and Yarn (11%).

Tunisian T&C Exports are 650 Million Euros for Italy, 107 Million Euros for Spain and 1,2 Million Euros for Egypt. Tunisian exports to Italy are 90% made of clothes. Also for Spain, this proportion is 85%. Tunisian exports of T&C to Egypt are globally marginal.

Another interesting point is the strong presence of Italian companies in Tunisia. There are 219 companies with Italian capital or joint Tunisian-Italian capital, and despite a large number of clothing companies (145), the Italian presence is diversified on the textile activities (4 in spinning, 3 weaving, 43 Knitting and 11 Finishing). Companies in partnership with Spanish investors are in number of 5 and are specialized in Clothing & household linen.

Egypt has strong commercial connection with both Spain and Italy. In 2014 they respectively ranked in the fifth and sixth positions as major destinations in the clothing sector (considering RMG and home wear that consist in the majority of Egyptian clothing production). Spain represents also the third country of imports in the clothing sector, even if the great majority of products is originating from China.

Italy is the second world destination for spinning and weaving exports after Turkey and it is in the fifth position for what it concerns the imports. China, India and Turkey although represent by far the most important exporters.

Italian T&C industry is strongly devoted to exportation and it has commercial relations



with the other three countries. The only relevant trade partner for exportation is although Spain, which in 2012 ranked in the fifth position as a major destination for T&C.

Concerning the imports, Italian sources are very varied and the four countries represent only the 6% (Spain), 2% (Tunisia) and 1% (Egypt) of total importations' value.

The **Spanish** exports to Italy are, in percentage, more relevant for the Spanish textile industry. The 16,6% of spinning and weaving exportation are directed to Italy and importations from Italy for the same subsectors are around 11% of total imports.

From the data exposed so far, it is possible to attempt a scheme of their trade relationships. Egypt exports raw materials, or textile products to European countries to serve as inputs for textile and apparel companies. Many of those companies then delocalize or offshore their production in other countries with a minor labor cost, such as Tunisia. Because of this, in fact, in the Tunisian T&C there is a very strong presence of European FDIs and most of the Tunisian companies designate their entire production to exportation. On their side, the advanced economies of Italy and Spain, find it more and more profitable to sell their final products abroad due to the restriction of domestic demand and the expansion of some external markets such as China and Saudi Arabia or, because of the fall in trade restrictions, the United States.

I.5. KEY PLAYERS: EXEMPLARY COMPETITIVE MODELS IN THE FOUR COUNTRIES

The key players identified in the four countries are 28 and divided as follows:

Spain: 10

Selvafil S.A. <http://www.selvafil.com/>

Antex <http://www.antex.es/>

Hilaturas Ferre <http://www.hifesa.com/>

Textil Santanderina S.A. <http://www.textilsantanderina.com/>

Lanitex S.A. <http://www.lanitex.com/web/?lang=es>



Colorprint Fashion <http://www.colorprintfashion.com/colorprint/>

Tintes i Laminats Orient. <http://www.tintesorient.com/>

MITSA <http://www.mitsa.com/index.php/es/>

INDITEX <http://www.inditex.com/en/home>

MANGO <http://www.mango.com>

Italy: 4

Marzotto Group <http://www.marzottogroup.it/global-network>

Ermenegildo Zegna. <http://www.zegna.com/it/home.html>

Giorgio Armani Group <http://www.armani.com/it>

Prada <http://www.pradagroup.com/>

Tunisia: 6

SARTEX <http://www.sartex.com.tn/>

VTL Group <http://www.vtl.com.tn/>

TUNICOTEX GROUP <http://www.tunicotex.com/>

DEMCO www.demcointer.com

SITEX.

ITS.

Egypt: 8

Oriental Weavers <http://www.orientalweavers.com/>

Misr Spinning and Weaving (El Mahala El Kobra) <http://www.misrhelwantextile.com/>

The Abo El Sebaa' weaving company <http://abo-elsebaa.com/>



Al-Arafa Investment and Consulting <http://arafaholding.com/>

Egyptian Spinning & Weaving Company (ESW) <http://egyptianspinning.com/>

EI-Nasr Clothes and Textiles (KABO) <http://www.kabo.com.eg/home>

Alexandria Spinning & Weaving Co. (SPINALEX) <http://spinalex.com/>

Chourbagi Moderne for Clothing and Textiles S.A.E. "Charmaine"
<http://www.charmaine.com.eg/>

The most relevant **Spanish** companies in textiles have their comparative advance in the high-tech characteristics of their machineries and facilities. Many firms specialize in specific processes or treatments (such as lamination, cotton spinning or finishing). They have a high productivity, especially in the technical fibers. As the Tunisian ones, those firms settle with niche products directed to export.

The biggest and more known firms in the T&C are although the big brands exporting all over the world such as Inditex (Zara, Pull&Bear, Bershka, Oysho, etc...) and Mango. Those firms belong to a different competitive model that has in the organization and extension of retailing its strengths. This model comprehends many firms from Italy too, such as Benetton and Max Mara. Mango has its peculiarity in the efficiency of its logistic system, which is created and controlled entirely by the company's management and allows the maximum responsiveness and efficiency in distribution. Another important factor in this kind of competitive model is the range of products offer, which aims to comprise the whole demand for clothing ("total look").

Most **Italian** well known fashion firms (such as Armani or Prada), have followed a similar model, differentiating production and applying the brand in perfumes, accessories and any kind of products. The success of these brands originates from the uniqueness of their style and creativeness of the design, which is almost the only phase of the production chain, still maintained under direct control. This system has although started to show its weaknesses, since the exaggerated focus on design and fashion produce an increase in price, and a decrease in quality. The image and symbolic content of these brands, combined with the expansion of market in developing countries still allow for big revenues and increasing turnover. Moreover these firms have carried on a further strategy of differentiation keeping in Italy the most peculiar part of their production (*haute couture* collections for Armani and leather accessories for Prada) to supply the highest market shares.



A peculiar case is represented by Ermenegildo Zegna, which is considered to be the only fashion brand in Italy to have a completely vertically integrated production. It has very high quality control standards from the selection and purchase of raw materials along every steps of the processing of the fibers, to the production of clothes and the distribution of products.

Moreover there are firms experiencing great expansion that introduced innovative methods to distribute and retail fashion and clothing products. One example is YOOX, which in less than five years has doubled its income by selling clothes online. Many other brands have then opened brands following this low cost, vast reach distribution method.

The preeminent model followed by **Tunisian** companies is also devoted to export. While Egyptian companies have realized or tried acquisitions and expansions in the retailing and distributing sectors in order to become recognized brands, most of the Tunisian companies remain in the position of suppliers for foreign brands. A successful strategy has been to adapt to international market request, by lowering costs and differentiating production, but very few attempts have been made to establish vertical integration of the production and upgrade along the value chain. On the contrary promising efforts are focusing on the improvement of technological assets of firms; important incentives are given by the government to support specialized treatments and sophisticated finishing.

Tunisia and Egypt both relies heavily on importation of raw materials and fibres from external markets. While Tunisia is trying to improve technological potential and specializing its production, Egypt focuses on the improvement of vertical integration. Egypt is although facing on serious problems of lack of investments and it is missing connections among its activities.

The identified players in the **Egyptian** textile industry are on average big size firms with public capital, big scale, export-oriented production, directed to European or American brands. They usually focus on specific products or single steps of the value chain, even if there is the effort towards verticalisation. In certain cases the verticalisation strategy succeeds and the company is able to integrate different subsectors. For example Al-Arafa Investment and Consulting has expanded its production in the luxury, formal and casual wear comprising the three production segments (textiles, apparel & tailoring and retail & distribution) for all three compartments. In other cases, companies found an alternative to traditional vertical integration in the strengthening of production linkages among different companies along the value chain. That is the case of the group formed by MNC, ESW and Kabo. Their production encompasses the whole cotton value chain



from raw material to garments. In general, although, there is a lack of coordination among different subsectors and value chain steps, and because of the higher labor and product costs compared with other emerging countries, domestic suppliers of raw and intermediate products are losing ground against international competitors.

The analysis of the key players gives an interesting overall portrait of the emerging competitive model in the four countries. Looking at the individual company strategies it is possible to draw a map of strategic groups which break the national boundaries.

A first strategic group is formed by those companies which build high barriers against competitors throughout process innovation, either in specific segments of the value chain, such as spinning and weaving in Spain (Selvafil S.A., Antex, Hilaturas Ferre, Textil Santanderina S.A., Lanitex S.A., Colorprint Fashion; finishing in Tunisia (SARTEX, ITS), or through vertical integration thanks to an advanced control of the whole value chain (a brilliant example are the Italian Ermenegildo Zegna and Marzotto group), which involves advanced ICT and logistic solutions. The Egyptian Oriental Weavers could be considered part of this group, other Egyptian companies are playing their competitive game at the borders, still followers of this strategic group: Chourbagi Moderne for Clothing and Textiles S.A.E. "Charmaine", Misr Spinning and Weaving (El Mahala El Kobra), Al-Arafa Investment and Consulting, Egyptian Spinning & Weaving Company (ESW) are using the vertical integration strategy and should consider thoroughly how to achieve sustainable competitiveness within this strategic groups. The Tunisian DEMCO could also be considered as follower of this strategic group.

A second strategic group gather together those companies which use the product innovation, diversification and branding, targeting the high price/high quality segment of market competitive lever mainly through design and branding (typical examples are Armani, Prada). In this macro strategic groups presently leaded by the Italians there are important differences and new comers are knocking the door, especially those Egyptian companies which are using the vertical integration to compete but are moving from a process based strategy to a market oriented perspective, among them Al-Arafa Investment and Consulting but also Oriental Weavers and Chourbagi Moderne for Clothing and Textiles S.A.E. "Charmaine". Potential powerful competitors could be the Spanish companies of the first group, which are investing in process innovation as a key foundation to introduce new product in spinning and weaving. They may reinforce the national T&C industry competition through either productive or commercial alliances with the Spanish group INDITEX and Mango and develop a vertical integration especially throughout alliances with Tunisian companies which are investing in technologies especially in the finishing process.



A third strategic group gathers all those companies which achieve a distinct competitive advantage by investing in distribution channels and logistics, a typical example is YOOX , Inditex (Zara, Pull&Bear, Bershka, Oysho, etc..) and Mango. They need high profile ICT platforms to ensure a strong process control. They serve lower level market segments compared with the second strategic group.

Each strategic group has some strength and some weaknesses and should prevent specific risks and face specific threats. All companies cannot seriously defend the competitive position achieved in the strategic groups without investing in those innovation and technology solutions necessary to enforce the strategy:

- Process innovation for the first strategic group privileging green technologies;
- Product innovation for the second strategic group;
- ICT and logistics advanced technologies for the third group.

II. PART II

II.1. COMPARISON OF THE ORIGIN OF THE MAIN SUPPLIERS OF RAW MATERIALS AND CLASSIFICATION DISTINGUISHING FROM NATURAL/SYNTHETICS.

Fiber types.

There is no doubt that cotton represents by large the most relevant natural fibre in terms of use and trade worldwide. In fact, it represents a 27% of the total fibre consumption. Natural fibres have experienced a good rate of growth in the recent years due to the introduction of genetically modified cotton which made production more profitable. However, this trend is ending and nowadays man-made fibers are winning the battle. And the 4 countries involved, as we are going to see, are not an exception (*source: SUSTEXNET Project. Country reports, 2014*).

Natural fibers.

In **Spain**, in general terms, the most important supplier of raw materials is China with almost a 25%, followed by Italy and the rest of Asia and EU. The main spinning Spanish companies are still using cotton fibers as the major raw material. In addition, cotton fabrics are also the most manufactured and finished by Spanish textile industries. The main countries of origin in Spain of this raw material are China, India and USA. Wool is also included in the main natural raw material used, with a price of 7370 US\$/Tm, and its origins are Australia, Argentina and China.

Italy is heavily dependent on the import of natural fibres and due to the storage of arable lands and high costs of labor; but also due to the strong lobby of the man-made fibres industry, a measurable investment in research to the natural fibre sector has not been dedicated. In a period of ten years, the import of cotton reduced to about 1/5 of the original quantity and of ½ of the total value in this country. The other fibres remained more stable but with major variations in prices for what it concerns wool, that represents the second most relevant imported commodity.

In **Tunisia**, cotton also has the highest share in terms of fiber imports. Wool and linen are also important raw materials. In this country, the main countries of origin are Greece, Italy, Taiwan and China. On the other hand, Tunisian handicrafts sector is highly developed. They have used local wool in the areas of clothing and furniture. The amount of wool exported in raw form represents 70% of national production.

On the other hand, in **Egypt**, cotton also plays the most important role in terms of production. Cotton imports to Egypt are coming mainly from Greece and the US during the last years. But now African countries are expected to be significant competitors.

Nevertheless, Egyptian cotton production has been subject to great fluctuations in recent years due to political instability and the global economic crisis. In general farmers shifted from planting cotton to more profitable crops like rice and corn. Actually there is an increasing competition for arable terrain for the production of food, animal feed and bio-fuels causing difficulties to the expansion of areas dedicated to the cultivation of cotton.

Synthetic fibers.

All subsectors of **Spanish** textile industry use, after cotton, mainly synthetic fibres as a raw material (mainly polyesters, PES-FR, polyamides, elasthane, aramids...) is the current situation.).

At a European level, **Italy** is in the second position after Germany for quantity and value of fibre exports, most of which are constituted by man-made fibres. For instance, Italy holds the record for the production of polyamide fibres. The Italian perspective at this moment is priority given to man-made fibres. The obvious consequence of these trends is that Italy has been concentrating its imports, manufacturing and exports on man-made fibres. However, this data could also reflect the increase in the relocation of production in the industry in countries producers of raw materials.

The “cellulose gap” has contributed to support Italian man-made fibres industry and to enhance exports. It has favored particularly the markets of polyester flocks and filaments, viscose flocks and nylon. In this context Italian enterprises in the man-made fibres sector have continued their efforts to experiment new synergies (through joint venture and acquisitions) and to start important internationalisation initiatives (through new productive investments in countries with a growing demand for fibres). In addition we can expect increasing performances generated by the growth of international consumption by the BRIC countries, and especially China.

Man-made fibres are currently used not only in the apparel and furniture sectors, but also are employed in technical applications such as medical products, sport and safety clothing, geotextile, etc.

In **Tunisia**, synthetic fibres (types not available) represent 34,7% of share (value) in year 2013, very close to cotton figures; in relation with yarns as a raw material,



polyester, viscose and polypropylene are the most important materials.

The data for **Egypt** were not available.

Use of chemicals.

(source: *SUSTEXNET Project. Country reports, 2014*).

As raw material, **Spanish** textile industry can be considered that is intensive in the consumption of the following chemicals: sizing/desizing agents for yarns and fabrics, dyeing compounds, pigments, digital inks, binders, functional chemicals for finishing (dispersions of fluorocarbons, flame retardants, antimicrobials, silicones, acrylics) and thermoset hotmelt polyurethane adhesives. Most important -in terms of consumption- are: general chemicals (hydroxides, peroxides, acids, enzymes, urea, silicones...) with more than 63.000 Tons/year, inorganic salts (more than 23.000 Tons/year), auxiliary chemicals (surfactants, detergents, waxes, glues, gelatines, adhesives, sizing products, dye accelerators, fixatives for colouring agents...) with more than 15.000 Tons/year.

The **Italian** textile industry shows this distribution of main raw materials: paraffin and oils (spinning), caustic soda solution, enzymes, sodium hypochlorite and hydrogen peroxide (preparation of yarns/fabrics), dyes, sizing/desizing agents (weaving) and several chemicals used for finishing (auxiliaries and functional compounds).

The main families of chemical products used in the different subsectors in **Tunisia** are as follow: spinning (oxidant, sodium carbonate, sea salt, acetic acid, etc), dyeing (enzymes, dyes, detergents, softening, etc) and denim washing (pumice stone, peroxide, oxygenated water, etc). Also finishing agents, pigments and binders are present. Most important -in terms of consumption of chemicals used in finishing/denim processes- are: Finishing agents (8.138 Tons/year), pumice stone (5.958 Tons/year), binders (3.947 Tons/year) and pigment dyes (1.463 Tons/year).

In **Egypt**, we can find different chemicals used during textile processes: sizing and desizing (starch, CMC, CMS, PVA, waxes and oils, enzymes, hypochlorite, etc), scouring (anionic and cationic detergents, antistatic agents, soaps, sulphuric acid, etc), bleaching (sodium hydroxide, hydrogen peroxide, enzymes), mercerizing, dyeing (different kinds of dyes), printing and finishing (formaldehyde-based resins, flame-proof finishes).

II.2. THE ENVIRONMENTAL POLICIES.

All data shown here are extracted from the *SUSTEXNET Project. Country reports, 2014.*

In **Spain**, there are some general policies about industrial pollution. Specifically, the Law for the Integrated Prevention and Pollution Control (LPCIC; Law 16/2002) intends to prevent, or where this is not possible, reduce and control the air, water and ground pollution, by establishing a system of integrated prevention and control of pollution. From 2002, it affects more than 5.000 companies of different industries, including textile industry.

The estimation of the volume of wastes of the Spanish textile industry is exposed bellow. If we talk about liquid wastes (salts, sizing agents, surfactants, urea, etc) the total is greater than 35.000 tons/year. In the case of gas emissions, the volume of the textile Spanish industry was of 915,3 thousands of tons of CO₂ equivalent in year 2011. And, finally, the volume of solid wastes (colouring agents, packaging, chemical products, etc) in Spain is more than 300.000 tons/year. Spanish industry is also following REACH legislation.

We also have information about energy consumption, knowing that about 20% of total industrial energy consumption in Spain is related to the textile sector. In the textile sector, energy consumption by subsector is preparation/spinning (21%), knitting/weaving (25%), finishing (24%), confection of garments (11%) and others (19%).

In Spain, the main regulatory law regarding health of workers is established by the 'Ley 31/1195 de Prevención de Riesgos Laborales' (Law for the Prevention of Risks in the Working place). Tis law defines the main risks/impacts of the worker activity in each subsector and prevention measures established by 31/1995. Moreover, an example of direct impact in citizen's health of textile activity in Spain was Legionella's disease, which is related with the textile industry and their facilities (refrigeration towers and HVAC installations). About this, different laws and decrees were developed by Valencian autonomic government and some Special Action Areas (ZAE) were defined such as Alcoy (reaching 245 affected people). Other communities following the Comunidad Valenciana tendency were Catalunya (202 affected people), Andalucia (159) and the Basque Country/Euskadi (100).

In **Italy**, textile industry has deep rooted strong artisanal tradition and water streams adequate to support the manufacture activities. The history between Italian industry documents the connection between the chemical industry and the mechanic-textile



one, in addition to the world of research and services. The law intervention on production processes (penalization and preventing polluting phenomena, water purification, wastes and sewage treatment, safeness in the working environments, security of the product put in the market) forced companies to talk and cooperate with other institutional and production parts, such as energy industries and companies for industrial sewage and waste treatment. Main activities polluting in Italy are mercerizing, scouring, bleaching (sodium hypochlorite, hydrogen peroxide), dyeing, seizing and weaving. After that, there is a large amount of textile wastes of spinning and knitting/weaving processes that we can classified in: atmospheric emissions (dusts, fumes, noise), solid wastes (packaging, textiles, solvent residues, fluorescents tubes, batteries, etc.) and liquid wastes (effluents, oils, waste water, detergents, etc.).

In recent years the Detox campaign, realised by Greenpeace, put media pressure on fashion brands for the elimination of 11 chemical substances from the production processes, forcing them to implement specific commitments in the managing of the supply chain. This experience demonstrated that the certification system was not anymore a guarantee of the lack of toxicity in obtained materials. Moreover, it has induced the commissioner companies to implement their own certifications, integrating or strengthening the rules established by the REACH regulation (Registration, Evaluation, Authorisation and Restriction of Chemicals).

In **Tunisia**, A National Environment Action Plan (PANE) was prepared in 1990. There is some legislation about different issues, such as water consumption, energy consumption, wastewater emissions, etc. In the Textile Industry, the activities polluting in Tunisia are mainly spinning, weaving, dyeing, printing and washout. Some of the polluting substances these activities generate are sodium carbonate, caustic soda, sea salt, acetic acid, enzymes, dyes, peroxide, etc.

In Tunisia, it exists also legislation about noise pollution and lots of data collected about energy consumption, water wastes, etc. To make us an idea, Textile and Clothing sector represents in this country around 4% in energy consumption.

In addition, in 1995 Tunisia formalized its sustainable development program (National Agenda 21). The overall approach of the program is to promote "an integral way of development based on social equity and ensuring the well-being of everyone in a safe and protected environment." This policy is based on three priority action areas: (i) the promotion of a competitive economy, based on an effective partnership between the public administration and the private sector; (ii) the promotion of a model of equitable society based on national solidarity and aimed at the eradication of poverty and social exclusion and (iii) a rational and sustainable development of the potential of the country (urban and rural), natural resources and environment. Tunisia has also opted for the implementation of Local Agenda 21 in order to integrate environmental concerns into

local plans and development programs, and currently more than one hundred localities have their local Agenda 21. Agenda 21 is a conceptual guide for policy makers and used to guide the various plans for economic and social development.

In the case of **Egypt**, we can classify textile pollution by subsector: spinning, knitting, weaving, etc. The highest water use was detected in scouring (200-400 l/kg), dyeing (100-350 l/kg), bleaching (50-150 l/kg), sizing/desizing, etc. After that, processing of wool and blends also needs to use large amount of water and, finally, processing of synthetic fibres produces different liquid waste pollutant according to each kind of fibre: rayon (oil, dye, lubricants, etc), acetate (chlorine, sulphate, etc), nylon (soap, NaNO₂, soda, etc), etc.

The National Labor Law provides comprehensive guidelines on labor relations, including hiring, working hours, termination of employees, training, health, and safety.

II.3. TECHNOLOGICAL PROFILES OF THE TEXTILE INDUSTRY IN THE 4 COUNTRIES INVOLVED.

All data shown here are extracted from the *SUSTEXNET Project. Country reports, 2014*.

The **Spanish** textile industry can be considered as multi-sectorial, having some strong companies in each subsector of the value chain. In general terms it can be considered that the spinning/weaving/knitting companies are characterized by a wide experience in textile market, wide product portfolio and specialization in different textile end-applications (from technical yarns, fabrics and garments to conventional clothing and knitwear) and investment on new machinery and technological level of equipment can be considered as very low/low.

It can be considered that there is a lack of special textile raw materials for developing innovative products; cotton, polyester, elasthane... are the main fiber/yarns used. Fiber production doesn't exist and conventional/technical fibers are always imported (except PES or PA). Blended and technical yarns can be developed by the main spinning Spanish companies and sometimes only on-demand. Consumption of yarns like high-performance materials (polyester FR, polyamides, aramids...) is mainly covered with national/European suppliers and consumption of conventional yarns is covered with national and Asian-located suppliers.

The dyeing/finishing/printing subsector is characterized by a wide number of very



small/small companies mostly focused on traditional processes; some of them and also some medium-sized companies are also specialized in technical finishing processes and development of technical textiles through implementation of emerging technologies as coatings, hotmelt lamination, inkjet printing, nanotechnologies or smart textiles and own know-how based on the development of 'in-house' finishing formulations; investment on new machinery is currently focused on new coating and laminating technologies (e.g. knife coating, foam coating, hotmelt lamination and inkjet printers) with a technological level that can be considered as medium (with some difficulties for funding). Finally, it is compulsory to remark that some strong companies exist in the confection subsector due to their international presence and turnover (however, manufacturing of garments is mainly outsourced to third countries like Morocco, Tunisia, Turkey, Bangladesh or India; on the other hand, designing tools/human resources are mainly located in Spain and Western Europe).

In **Italy**, despite of a relevant reduction of the capacity installed and the low level of investments, the industry shows a strong capacity to react and modify its strategy in order to protect the "made in Italy". The general outlook of the statistical data shows that in a context of a very difficult international economic recession, a critical national institutional crisis, a dramatic reduction of bank credit, and the total lack of serious national industrial policies, Italian Textile & Apparel companies faced many obstacles to structural change. Nonetheless, in many cases, they succeeded in adopting appropriate solutions, compatible to their business models. They have used a different combination of the five major levers:

- innovation without large financial investments mainly focusing on organizational, market and product innovation strategies;
- offshoring manufacturing capacities in low cost countries;
- reinforcing both Design & Branding policies;
- investing in logistics, distribution channels and e-commerce;
- engineering finance management throughout various forms of joint ventures, and selling of capital shares.

This may explain the fact that, despite of a stable or decreasing ratio of investment per employee and a decreasing companies' average size, the productivity and some indicators of the capacity of innovation, have increased. We must speak about adaptation rather than structural innovation: low rate of investment, downsizing of the companies beside increased productivity and innovation capacity.

The lack of big investments in well focused national research programmes and a belated attention in the industrial and environmental biotechnology, defines the current situation of the Italian Textile & Apparel (T&A) industry. However, light forms of



investments in digital technologies & branding strategies and new business models have been introduced, and also the man-made fibres industry have a strong position in Italy. In fact, the “Man-made” fibres industry (second position after Germany for quantity and value of fibre exports) is vital for the competitiveness of Italy, not limitedly for the textile and apparel industry, and presents a remarkable capacity to invest in research. Even a solid art & craft heritage inspires and maintains the uniqueness of Italian style. The T&A should not be perceived as a declining traditional industry. On the contrary, it should be perceived as a national spearhead sector for Italian innovation in the fast growing creative industry and biomaterials, with a prevailing role of the research driven component of the value chain (fibre industry, functional biomaterials, advanced e-commerce, logistics, bio chemicals for finishing and dyeing).

Concerning **Tunisia**, the upgrade national program support industrial enterprises to improve their production tools and integrate technologies more modern and advanced. The T&C sector is the largest beneficiary of this program, but it is clear that it has benefited more to the Clothing than the Textile industry, probably because of the very high cost of equipment in the textile sector. Indeed, the textile sector remained relatively embryonic, and cannot meet the very important needs of the Clothing sector. SWOT technical analysis of the main textile subsectors reveals (in a general view) low compliance with national standards for discharges, small number of certifications to ISO standards, small size of the companies, the high average age of equipment and also an insufficient exploitation of installed capacity.

Tunisian T&C sector must continue to move to upmarket especially in certain niches particularly promising (high quality clothes, technical textiles, hosiery, finishing, etc.). The industry must capitalize on the advantages of proximity and reactivity to be positioned for small and medium series, expanding its value chain, beyond sewing, both upstream (via the development of logistics services, activities of finishing and creation & design) and downstream (particularly through the development of logistics services), but also by increasing the clustering around the textile competitive park of Monastir to promote the upmarket and the innovation.

Handicraft should also be taken into account: The strategic Objective of The Handicraft sector is Making Craft a coherent economic and social sector, bearer of own identity underpinned by values inherited from a long tradition but which modernity is expressed in the most current fashion. The quality of the wool used in many Tunisian handicrafts products depends heavily on collection methods, quality of spinning, dyeing and finishing. Wool Yarn spinning, Dyeing & finishing, and Fabric & Garments Design are areas in which there are surely many opportunities of synergy between Craft and Textile industry.



And regarding **Egypt**, its technological profile is strongly influenced by the structure of the Textile sector in this country. The major players in the Egyptian textile value chain are the growers (cotton farmers), processors (ginning factories, weavers/cloth makers, and ready-made textile producers), and sellers (exporters and retailers) with a strong influence of the public sector in Egypt's textiles industry: weaving (60%), spinning (50%) and hemming/confection (50%); Meanwhile private companies established themselves in the garmenting sector are accounting for about 90% of the garmenting capacity.

Most public-sector companies are mid- to large scale companies, which are struggling with over employment, poor maintenance of machines, operational inefficiencies and inferior technology. Therefore upstream textile production suffers from low responsiveness to customer preferences which resulted in an increase of yarn and fabric imports in order to feed the Egyptian RMG industry.

Cotton textiles and cotton yarn are the second biggest export commodity group. Although cotton was in the past a traditionally important export commodity group and although Egyptian cotton is renowned for its quality it accounted only for 6% of all textile related exports in 2012/13. Political instability and the government policy towards cotton pricing caused an alternating export performance during the last years.

The Egyptian textile industry is one of the most polluting industries in the world. The waste produced contaminates all the natural resources and cause damage to the human if not properly handled. Apart from the water and air contamination, the textile manufacturing industry causes noise pollution which affects the workers daily. In order to reduce such negative effect, major Egyptian environmental and research authorities have taken serious interest in reducing pollution levels, implement laws and regulations, creating solutions and spreading awareness. Along with these authorities, colleges, specialized training centres and research institutes have taken a focused role also into spreading awareness to the younger generations through technical secondary schools.

II.4. ANALYSIS OF INTER-RELATIONS BETWEEN R&D PROGRAMMES AND ENTITIES OF THE 4 COUNTRIES INVOLVED.

All data shown here are extracted from the *SUSTEXNET Project. Country reports, 2014.*

4 countries involved have some possibilities for joining collaboration programmes. In fact, ENPI CBC MED Programme is one of the most common funding programme for projects joined by South-European and North-African partners and countries.

In **Spain**, some of the R&D programmes are focused to strength relations between R&D entities and industrial sectors. Some national programmes are funded by CDTI (Centre for Industrial Technological Development) and the Ministries of Industry and Economy/Competitiveness. However, a strong decreasing of R&D funds has been produced in the last years (2011 - 2014).

The responsibilities of the Ministry of Economy and Competitiveness have varied greatly over time, until 2000 grouped industrial competence and energy and until 2010 integrates economy and industrial development. Even funding programmes for R&D in Spain depend on.

CDTI (Centre for Industrial Technological Development) is an institution that promotes R&D actions and funding national/international programmes. In 2014, CDTI have some agreements for collaborative industrial projects with the EU-28 zone (including Italy) and South America, and even with Eastern/African countries like Argelia, Egypt, UEA, Indonesia, Malaysia, Morocco, Singapore, Thailand and Taiwan. Specifically, for Egypt (El Cairo) a business office is located in the Spanish embassy.

Starting of EU Programme Horizon2020 is a major opportunity to receive funds for Spanish companies and R&D entities.

Regarding R&D programmes in **Italy**, even if the Italian Textile and Clothing industry plays a role in the world, it seems that the public policies for science, research and innovation have abandoned the industry considered a traditional labour intensive component of the industrial activity. The traditional perspective of industrial policies as well as that of research and innovation policy focuses on sector instead of clusters of enabling technologies. This has generated a serious underestimation of the role of



innovation in the industry and especially the important role played by specific component in the whole value chain, such as fibres, logistics, ICT and Multimedia, etc.

While the public policies seem to have abandoned the textile industry, the private sector seems to have seen in the research and innovation a true competitive lever. In a serious lack of recent studies and research work, the most reliable data are provided by the national Institute of statistics. The study interprets a set of indicators and the Input Output Tables, published by ISTAT. According to this source the Textile and Clothing industries have dedicated increasing attention to research and innovation both in absolute value and in terms of percentage on the total value added. These figures could also confirm that the Italian industry has maintained in Italy the strategic component.

Funding programmes like Eureka or Eurostars (EU-28 zone) are promoted by the national entities or ministries. The National Eureka office belongs to MIUR (Ministry of Education, University and Research) which appoints the National Project Coordinator and the High Level Representative. The Main Funding Agency for financing Eureka projects is MIUR; however Italian partners participating in Eureka projects can also receive Public Funding from MSE (Ministry for Economic Development) and MAE (Ministry of Foreign Affairs).

Like Spain, starting of EU Programme Horizon2020 is a major opportunity to receive funds for Italian companies and R&D entities.

In **Tunisia**, the Agency for the Promotion of Industry and Innovation (APII) is a public establishment, responsible for the implementation of the Government's policies relative to the promotion of the industrial sector. APII provides a support structure for companies and promoters (investors). APII's services are focused on 6 major categories:

- Company Incorporation and Investment Advantages Management;
- Training for promoters and Business Incubation Centers (BIC);
- Task Force- Industry Modernization and Upgrading;
- Studies;
- Industrial Information;
- APII / TIC Package.

The current competitive positioning of Tunisia and the challenges over the next decade are summarized in the following key points:

- Tunisia could not enforce cost competitiveness as a sustainable argument. Tunisia should develop qualitative arguments: stability, innovation, services,

reactivity, business environment, quality of products, logistics capabilities, environment and quality of life.

- Competing countries on the southern shore of the Mediterranean have taken up the challenge of foreign direct investment on activities with high added value: R&D, technical textiles, health products...
- The challenge of innovation provides space for countries with limited market and opens for them the way to be positioned in niches with high content of knowledge and high added value.

The proposed priorities in the R&D for the Tunisian textile and clothing sector are as follows:

- Development of ecological processes for finishing treatments and treatment of articles made.
- Use of natural fibers, non-woven.
- Environment.
- Composite material, coating, encapsulation.
- The natural dye.
- Other important issues merit also to be worked out through different types of initiatives such as detailed studies, pilot projects or research (Development of production of fibers in Tunisia - Cotton, Breeding Merino sheep for wool production; Management and Supply Chain Optimization; The flexible / modular organizations; The fashion Marketing and Brands development).

Tunisia has clearly established as a priority the vision for a EUROMED Region of Textile & Clothing Excellence in R&D and Innovation (e.g. TEMP Project).

And regarding **Egypt**, it should be remarked that have a research community numbers today around 98,000 theoretical and applied scientists in 19 government universities and 198 research centres. Despite the fact that it harbours some great talent Egypt suffered in the last decades from a lack of innovation culture. This lack can be directly linked to a decade long underinvestment in R&D, poor planning of the way research funds are spent, excessive bureaucracy and uninspiring curricula. Between 2004 and 2010 governmental R&D expenditure averaged around 0.25% of GDP, on a par with the Arab world but below the sub-Saharan African average (excluding South Africa) and barely one-tenth the OECD average.

In addition to that the private sector contributes only 5% to the country's R&D budget, one of the lowest rates in the world. Thus it is comprehensible that industry related R&D is a predominantly government dominated affair. Only one institution is specialized in textiles with relevant R&D actions. Apart from that there are some public



institutions that offer diverse funding schemes to R&D in Egypt's industry.

The National Research Center (NRC) is Egypt's largest multidisciplinary R&D center devoted to basic and applied research within the major fields of the national economy. The NRC is divided into 14 divisions of which one is designated to research in the textiles industry. The NRC Textiles Division is subdivided into research departments for the following subsectors:

- Spinning and weaving.
- Pretreatment & Finishing of Cellulose Based Textiles.
- Dyeing, printing and pretreatment auxiliaries.
- Clothing and knitting.
- Protein and synthetic fibers.

On the other hand, The Industrial Modernization Centre (IMC) is the leading Egyptian Development Agency for Industry contributing to competitiveness, economic growth, export growth, employment, poverty alleviation and gender equality. The IMC's objective is to support all industrial enterprises, individually or by sector, according to their development needs, through comprehensive and customized business competitiveness programs.

The IMC was established by the Presidential Decree number 477/2000 as an independent body to give an impetus to the modernization of the Egyptian industry. It was jointly funded by the European Union (250 million Euros) the Egyptian government (103 million Euros) and the Egyptian private sector (73 million Euros) with a total budget of 426 million Euros. The following research projects related to the textiles industry have been approved for funding:

- Design and development of efficient air-joint splicers for long staple yarn auto winders.
- Production of low cost eco-friendly knitted printed garment.
- Identification of the causes of and solution to non-homogeneity and poor colour fastness to washing of nylon fabrics problem, especially in dark colours.
- Cost reduction and efficiency improvement for waste water treatment station.

II.5. STRENGTHS AND LACKS OF THE EDUCATION/TRAINING SYSTEMS AND THE SOCIAL/WORK SITUATION.

All data shown here are extracted from the *SUSTEXNET Project. Country reports, 2014.*

Regarding cooperative public/private education programs we can find AITEX in **Spain**, which is a private association that encompasses textile and textile-related companies. Moreover, AITEX participates in more than 160 textile training courses. There are three kinds of courses: initial vocational education (video-conference, training for employment and workplace trainings), university system (college degrees or masters with Polytechnic University of Valencia or CEU-Cardenal Herrera) and continuing vocational training (for companies).

Goymar Fashion and Design School is another entity that organizes several textile trainings in Spain. This centre is composed of three entities (Pattern making industrial office, Technical and cultural centre of fashion and Fashion and design school Goymar Galicia). Other organizations that teach textile trainings are Lantoki or CCC Studies Centre.

If we talk about Spanish university system, there are 3 places where we can study courses related to textile: Polytechnic University of Catalonia (Terrassa and Canet de Mar, Catalunya), Polytechnic University of Valencia (Alcoy, Valencia) and University of Salamanca (Béjar, Castilla y León).

Regarding social model and work situation in Spain, the textile and clothing industry is an activity that employs a relatively high proportion of the workforce. Because of the process of globalization which has led to a growing international relocation of production, the textile population has reduced by 1/3 in the last eight years to end 2008 with 182,000 employees. In the period 2008 - 2012, employment in the textile industry in Spain has deployed from 182.000 to 136.000 people, following the general trend of unemployment in the country, caused by the economic crisis and the 'austericide' policies established by the World/European ('Troika') and Spanish governments.

The age pyramid on the textile employees (no clothing), shown as the majority of the employees are in the age range of 30 to 49 years, which is due to higher additions that occurred in the second part of the eighties and the late nineties. The textile sector is



highly feminised, since women account for over 60% of all the staff. These are concentrated in the late stages of preparation and administrative and design areas, while the finishing and logistics, are managed by men. With a share of 16% of graduates and 21% with a secondary level, the level of the education in the sector has increased dramatically in recent years, which is explained by the increasing of personnel for jobs as superior design, administration and logistics and the strong reduction of the production staff.

In **Italy**, there are 63 national technical institutes and 6 of them are specifically preparing technicians in the Textile & Apparel ecosystem. There are also a large number of universities, public and private, where studies related to textile are offered: Uninumbria (Textile Industrial Chemistry and Management) La città Studi di Bella (Textile Engineering), University of Cattaneo of Castellanza, University of Bergamo, Politecnico di Torino (it is part of AUTEX Association, which includes the most important textile universities in Europe), etc.

After that, there are different institutions that offer courses about design, fashion, model-making, etc) such as Domus Academy, AFOL Moda, Istituto Polimoda di Firenze, Accademia Altieri, etc.

Regarding social model and work situation in Italy, labour relations are governed primarily by laws and collective agreements. Such agreements are signed by employers and workers' representatives (so-called - CCNL National Collective Labour Agreement).

From 2005 the Italian textile and apparel industry has lost almost 1/3 of its capacity in terms of employees and number of local units; this certainly resulted in a dramatic effect on workers' who have become unemployed in a difficult structural crisis that did not allow mobility from job to job.

In **Tunisia**, the national system of vocational training has undergone successive reforms that have put in place the institutional framework. However, these reforms have not achieved their objectives. Indeed, they were characterized by the absence of a clear and precise logic and were marked by the domination of the political at the expense of economic and social dimensions. The Ministry of Vocational Training and Employment provides educational supervision of the national system of vocational training composed by different stakeholders.

The national vocation training device in textile has 8 sectorial centres and fifty multipurpose centres. The centres provide, in general, 3 levels of training. These



include the Certificate of Professional Competence (CPC), Certificate of Professional Technician (BTP) and Higher Technician Certificate (BTS). The training duration is 2 years on average. Some of these public centres are: The sectorial training centre on Textile (La Goulette, Bir Kasaa, Monastir...), The sectorial training centre on Clothing (Tunis, Manouba...), etc. Continuous vocational training is provided either by the state agencies, as CETTEX (Textile Technical Center) or by private training/Consulting firms. In addition, there are several private schools to provide for certain both the initial and continuous training: ESMOD, Collège laSalle Tunis, etc. After that, we can find higher education in the public system such as National School of Engineers of Monastir, where you can study textile engineering.

Regarding social model and work situation in Tunisia, the number of employees in the textile and clothing sector has declined since 2009 due to the international economic and financial crisis (from 202.000 to 174.000 in 2013). The types of contracts in the T&C sector are distributed as follows: Permanent (permanent contract, 53%), Non-Permanent (fixed term contract, 40%), Stagiaires et Apprentis (Apprentices and trainees, 7%). Concerning the employment structure by gender, the Tunisian Textile & Clothing sector is highly feminised with 80% of all the employees. The regime for the Textile & Clothing sector is that of 48 hours per week.

Tunisia has a regulatory and institutional framework consistent with international standards. That said it was clear during the last years the importance of internal enterprise policy of management and development of human resources. Indeed, companies with developed practices at this level are doing much better despite the different disruptions caused by the national and international environment.

Vocational education in **Egypt** suffers from serious structural problems due to low funding, excessive bureaucracy and a lack of curriculum standardization. Thus the vocational branch of Egypt's educational system proved to be incapable of supplying adequately skilled labor to the industries. Basic technical and vocational education is provided through the Ministry of Education and the Ministry of Higher Education. There are also a range of other governmental and para-governmental agencies that work on technical education. The system includes technical secondary schools and technical and vocational entities, a few of which offer 3 and up to 5 year diplomas, but most of which offer short term courses, such as technical colleges (currently placed within universities) and institutes.

One of the foundational services available to factories in Egypt to improve the competitiveness of Egyptian enterprises in the domestic and international markets is the EU-Egypt cooperation project titled Technical Education and Vocational Training



(TEVT), which was initiated in 2002. This project was based on a labor market study conducted by international experts from the European Union and the World Bank. However, a main problem that the industry faces is that not enough people want to work in the ready-made garment sector. Despite the fact that TEVT places advertisements in the newspaper on a regular basis, young workers or graduates are not applying for the trainings that are offered.

If we focus on University programs for textile sector, the number of graduates in Textile engineering in 2011 was 53 students. The universities in Egypt that offer a specialization in a textile related study program are: Cairo University, Mansoura University and Helwan University.

Regarding social model and work situation in Egypt, labor unions in Egypt have had an increasingly active role that empowers workers after the January 2011 revolution. The companies visited highlighted the increased freedom that workers experience today in expressing their concerns and demands. The large number of strikes witnessed throughout the industry in the past two years is a proof of that. One of the main reasons why workers have been taking to the streets is the majority of firms have neither collective bargaining agreements nor an internally developed grievance or whistle blowing system for workers to voice their concerns freely and without fear of reprisals. Although the large majority of companies visited assured that they respect human and labor rights, workers in the industry remain highly unsatisfied. Workers have repeatedly expressed their dissatisfaction by going on numerous strikes and have ignored accepted values and ethics of freedom of expression resulting in violence in many cases. Companies incurred significant losses due to the strikes; such actions adversely affect the industry's overall performance and its credibility in the international market in keeping up with desired quality and on-time deliveries.

II.6. SWOT ANALYSIS AND CONCLUSIONS.

GENERAL CONSIDERATIONS PER COUNTRY.

Looking at the national private and public policy in each partner country a clear picture appear.

In both **Spain and Tunisia** the attention is to compete through process innovation. In Spain the major focus is acquiring a competitive advantage in the technical fibre market, in Tunisia the major attention is in introducing high and green technology in the field of finishing and special treatment, but also important is the attempt to achieve vertical integrations and logistic effectiveness.



Tunisia is also focusing on supporting producers in the sport ware and possibly in the luxury apparel industry. If they will be able to develop their rich heritage of art, craft and design and create their own capacity in the design and branding, they will find a solid strategic positioning in the Mediterranean Basin T&C ecosystem.

The distinctive role which could be played by Tunisia in a Mediterranean T&C industry depends on its capacity to invest seriously in logistics, process innovation, design and Creativity. Alliances may be established with the most powerful Spanish and **Italian** companies that are leaders in distribution channels, logistics and ICT, such as Inditex and YOOX.

Italy confirms two major trends: process innovation to achieve a strong control of the value chain through the logistic and ICT high profiled technology solution and investment in design, creativity and branding policy.

The serious challenge is to invest massively in process and product innovation not only in Design, Branding and Commercial Channels. The capacity to establish proper alliances and ensure control of the most critical components of the value chain, especially the finishing sub sector and fibre industry, is as well vital.

In **Egypt** prevails the attention to lower costs and improve quality throughout the vertical integration. A serious lack of investment and a still weak capacity of integration among the different sectors represent a serious weakness.

GENERAL CONSIDERATIONS PER SUBSECTOR.

The SUSTEXNET COUNTRY REPORTS concisely summaries in this section clearly highlight that a T&C industry ecosystem is almost autonomously emerging in the Mediterranean Basin with distinctive assets in each country.

The fiber industry and its relation with knitting/weaving in the macro region is finally achieving its identity: to compete with the emerging economies in the south Asia, India and China, the effort already deployed in Spain, Italy and Tunisia must be reinforced while Egypt must afford its serious lack of investments.

In the finishing subsector is almost clear that Tunisia could achieve a prominent leading role and joint businesses could be promoted among the various countries in order to create a strong competitive power in the Mediterranean Basin concerning finishing and special treatments, based on green technologies.



Reinforcing the vertical integration through massive investments in logistics, ICT, commercial alliances especially in the distribution channels could reinforce and orient the emerging of a few strong Mediterranean Multinational Corporations which could successfully compete at global level.

It seems that each country could develop its own unique and distinctive assets and cooperate in a macro region approach. A serious effort to cooperate among the four countries could be made supported by SUSTEXNET and a concertation process promoted in order to start the drafting of a strategic action plan which identifies distinctive assets of each countries and cooperation programmes.

TEXTILE INDUSTRY IN SPAIN.

The Spanish textile sector is still involved in a process of change, adaptation and relocation of the whole competition/production model. During last 15 years it had to accept continuously rising import shares from Asian countries (China in particular) and the elimination of the Agreement on Textiles and Clothing (2005) in combination with a continuous growth of imports on raw materials and manufactured textile products from low-cost countries have left the textile industry in a pre-critical situation. These effects were also pushed by the global crisis that -after 2008- has caused a production and employment strong fall (around 30%). However, in general terms the Spanish market consumption has increased almost 20% in the last 7 years.

In any case, the Spanish textile industry can be considered as multi-sectorial, having some strong companies in each subsector of the value chain. In general terms it can be considered that the spinning/weaving/knitting companies are characterized by a wide experience in textile market, wide product portfolio and specialization in different textile end-applications (from technical yarns, fabrics and garments to conventional clothing and knitwear). The dyeing/finishing/printing subsector is characterized by a wide number of very small/small companies mostly focused on traditional processes; some of them and also some medium-sized companies are also specialized in technical finishing processes and development of technical textiles through implementation of emerging technologies as coatings, hotmelt lamination, inkjet printing, nanotechnologies or smart textiles and own know-how based on the development of 'in-house' finishing formulations. Finally, is compulsory to remark that some strong companies exist in the confection subsector due to their international presence and turnover.

It can be considered that there is a lack of special textile raw materials for developing innovative products; cotton, polyester, elasthane... are the main fiber/yarns used. Fiber production doesn't exist and conventional/technical fibers are always imported (except



PES or PA). Blended and technical yarns can be developed by the main spinning Spanish companies and sometimes only on-demand. Consumption of yarns like high-performance materials (polyester FR, polyamides, aramids...) is mainly covered with national/European suppliers and consumption of conventional yarns is covered with national and Asian-located suppliers.

The environmental policies are strictly followed by the textile industry and no special/hard problems are currently detected. However, health problems (like Legionella's disease) sometimes appear on HVAC installations and water distribution systems. In the last years, some innovative actions, projects and innovative measures have been developed by different Spanish textile entities (public/private) in order to avoid/minimize them and also to improve the energy efficiency of the textile processes, machinery and devices. Treatment/revalorization/recycling of textile wastes or textile wastewaters have been also considered in different R&D actions and programmes.

It can be considered that Spain has a strong distribution network of textile goods by road and ports. Also the network to enhance cooperation and commerce between regions and countries is very well established in Spain from many years ago.

The impact of the financial and economic crisis has decreased the R&D investment and also the working force dedicated to research and innovation around the Spanish textile industry. There is a clear risk of closure of training institutions and education programmes specialized in textiles (even at University level). These trends are reflected in a low attractiveness for young people and a lack of experience in manufacturing processes.

Table below identifies and summarizes strengths and weaknesses and also indicates opportunities and threats to be considered for the Spanish textile industry:

Table 4. Main strengths and weaknesses of the current Spanish textile industry.

STRENGTHS	WEAKNESSES
Good position in technical textiles and tech-markets	High external dependency of raw materials
Experienced working force	Low motivation/entrepreneurship of companies
Brands of large enterprises well considered	Difficulties for funding and modernization
Environmental/health/workforce issues are respected	New distribution/selling channels not developed
ICTs with a positive penetration on the industry	Traditional/hand-made goods partially disappeared
Leading position in fashion design/branding/innovation	
OPPORTUNITIES TO BE CONSIDERED	THREATS TO BE CONSIDERED
Increasing demand on technical/high-value goods	Delocalization and low-cost imports still continue
Production of some items is coming back to Spain	Global changes affecting national economy

Improvements on energy efficiency	Other industries (automotive, chemical...) highly affect the textile industry
Green/sustainable products as marketing tool	Closing-up of emerging countries in high value
Flexibility for adaptation to changes on demand ratios	Economic situation of the country/consumers

TEXTILE INDUSTRY IN ITALY.

From 2005 the Italian textile and apparel industry has lost almost 1/3 of its capacity in terms of employees and number of local units; this certainly resulted in a dramatic effect on workers' who have become unemployed in a difficult structural crisis that did not allow mobility from job to job.

Only in 2012 the Italian industry lost 2,5% enterprises and 3,6% employees, a similar trend was forecasted for 2013, while a stabilization is expected in 2014. The size of the whole industry should account to about 62.161 enterprises and 490.305 employees, by 2012. Despite of a relevant reduction of the capacity installed in Italy and the low level of investments, the industry shows a strong capacity to react and modify its strategy in order to protect the "made in Italy".

The general outlook of the statistical data shows that in a context of a very difficult international economic recession, a critical national institutional crisis, a dramatic reduction of bank credit, and the total lack of serious national industrial policies, Italian Textile & Apparel companies faced many obstacles to structural change. Nonetheless, in many cases, they succeeded in adopting appropriate solutions, compatible to their business models. They have used a different combination of the five major levers:

- innovation without large financial investments mainly focusing on organizational, market and product innovation strategies;
- offshoring manufacturing capacities in low cost countries;
- reinforcing both Design & Branding policies;
- investing in logistics, distribution channels and e-commerce;
- engineering finance management throughout various forms of joint ventures, and selling of capital shares.

This may explain the fact that, despite of a stable or decreasing ratio of investment per employee and a decreasing companies' average size, the productivity and some indicators of the capacity of innovation, have increased.

The Italian Textile and Apparel industry has superb examples of soloists, who are both large industrial groups and very small business, but as a system, it has not afforded structural changes yet. We must speak about adaptation rather than structural

innovation: low rate of investment, downsizing of the companies beside increased productivity and innovation capacity.

Table below identifies and summarizes strengths and weaknesses and also indicates opportunities and threats to be considered for the Italian textile industry:

Table 5. Main strengths and weaknesses of the current Italian textile industry.

STRENGTHS	WEAKNESSES
Light forms of investments in digital technologies & branding strategies and new business models have been introduced	Lack of a system approach to change anticipation and risk prevention, throughout social dialogues Decreasing trust and a realistic national strategy. Absence of a shared national vision on the future of the Italian Textile and Apparel industry
Unique know-how and long lasting manufacturing and craftsmanship tradition embedded in the social capital of specific territories. A solid art & craft heritage inspires and maintains the uniqueness of Italian style	Lack of big investments in well focused national research programmes and a belated attention in the industrial and environmental biotechnology Real capacity to use the huge opportunity given by the structural funds and the EU Framework Research programme has still to produce a rigorous assessment
The “Man-made” fibres industry presents a remarkable capacity to invest in research	Enormous number of technicians, specialist workers simply fired, not re-located
OPPORTUNITIES TO BE CONSIDERED	THREATS TO BE CONSIDERED
A better consciousness must raise about the importance of developing environmental and industrial biotechnologies	Offshoring policy has very often been used to postpone/move away structural problems
There are slight signs of recovery from the deep depression. These factors could give the public and private bodies more space to invest in the national T&A industry, but a set of requisites should be met, and a new perspective should be introduced	Investments of the Textile & Apparel industry in East Europe, North Africa and South Asia Emerging economies are starting to look at new advanced sustainable models and are developing a wise national strategy to find their competitive positioning

TEXTILE INDUSTRY IN TUNISIA.

The T&C sector is a pillar of the Tunisian industry. This sector occupies an important place in the national economy and contributes to the socioeconomic balance of Tunisia. Moreover, among the most important characteristics of the sector there is a strong export orientation, a very strong partnership with 44% companies with mixed or foreign capital, and the presence of a large number of small businesses. The main activities of the T&C (T&C) sector in Tunisia are spread over the following sub-sectors:



Spinning, Weaving, Knitting, Finishing, Other textile industries and Clothing.

Indeed, on the whole T&C sector, 83% of Tunisian companies is totally exporting and represents 90% of the employment. More than 86% of exports are clothing, which are manufactured in Tunisia in subcontracting for the account of European brands and order givers mainly. A small proportion of these exporters, not exceeding 10%, offer extended services to their European customers with creations of collections and / or inputs sourcing. However, most exporters perform for their customers sampling, prototyping, pattern making, grading, etc. Clothing exporters are also the largest importers, this because their inputs (mainly fabrics) are imported. Indeed, the Tunisian textile sector remained undersized compared to the clothing industry and globally has not the ability to provide the necessary inputs in quality and quantity.

That said, the T&C sector is strategic for the Tunisian economy, in fact it represents 32 % of the Tunisian manufacturing industry, 31% of the manufacturing industry exports (excluding energy and mines), 34% of manufacturing industry employment.

The main strengths of the Tunisian T&C are Geographic proximity to Europe; Just-in-time production, Free Trade Agreement, Level of quality, delivery time, short runs, production costs, skilled human resources, Training and support bodies, Modernization programs and Respect of social standards.

The European Union accounts for over 90% of exports in the T&C sector, with a concentration of 79% of exports in 4 major markets: France, Italy, Germany and Belgium. Nearly 89% of exports to the EU countries are clothing, followed by Household linen representing 2.47% and fabrics representing 2%. The year 2013 was characterized by a decline in exports to Italy and an orientation towards growth markets such as Germany, the Netherlands, Spain and the United Kingdom Country. International Promotion of Tunisian T&C sector and conquest of new potential markets are among the strategic priority actions for the sector.

With over 60% of imports, the European Union is the main provider of Tunisia with Italy followed by France in the lead and totaling both 42% of T&C imports. Purchases from these two partners continue to decline in favor of new suppliers outside the European Union as Turkey (10.7%) and China (7.6%) which supplies are growing. The very large majority of raw material needs of the Tunisian T&C Industry is satisfied by the imports. In order of importance, these imports are fabrics (1088 ME in 2013), yarns (112 ME) and fibres (44 ME). The price of a kilogram on imports of these matters grew until 2011, followed by a decline over the years 2012 and 2013. These changes are most likely related to changes in cotton price in the world and a geographical repositioning of



sourcing to the most advantageous areas. The economic and financial crisis, the decline of European consumption and rising materials prices have led to significant pressure on selling prices of Tunisian producers.

Strengthening the industrial, technological and commercial synergies between EuroMed countries is of paramount importance so that the T & C sector continues to contribute to the prosperity of our area.

Concerning the technological level, the upgrade national program support industrial enterprises to improve their production tools and integrate technologies more modern and advanced. The T&C sector is the largest beneficiary of this program, but it is clear that it has benefited more to the Clothing than the Textile industry, probably because of the very high cost of equipment in the textile sector. Indeed, the textile sector remained relatively embryonic, and cannot meet the very important needs of the Clothing sector. SWOT Analysis of the main Textile subsectors revealed, except for the most efficient plants, Low compliance with national standards for discharges, Small number of certifications to ISO standards, small size of the companies, The high average age of equipment and Insufficient exploitation of installed capacity.

In The Strategic Guidelines, the Tunisian T&C sector must continue to move to upmarket especially in certain niches particularly promising (high quality clothes, technical textiles, hosiery, finishing, etc.). The industry must capitalize on the advantages of proximity and reactivity to be positioned for small and medium series, expanding its value chain, beyond sewing, both upstream (via the development of logistics services, activities of finishing and creation & design) and downstream (particularly through the development of logistics services), but also by increasing the clustering around the textile competitive park of Monastir to promote the upmarket and the innovation.

The strategic Objective of The Handicraft sector is Making Craft a coherent economic and social sector, bearer of own identity underpinned by values inherited from a long tradition but which modernity is expressed in the most current fashion. The quality of the wool used in many Tunisian handicrafts products depends heavily on collection methods, quality of spinning, dyeing and finishing. Wool Yarn spinning, Dyeing & finishing, and Fabric & Garments Design are areas in which there is surely many opportunities of synergy between Craft and Textile industry.

The T&C industry have several impacts on environment, such as: water consumption, wastewater emissions, energy consumption, air emissions and solid wastes. At the same time, the environmental-regulatory framework of the Tunisian legislation is well



developed. We can mention in particular texts and standards governing the following aspects: the Environmental Impact Assessment; Classified establishments, unhealthy or inconvenient; Water consumption; Energy consumption; Wastewater emissions; Air emissions; The air emissions consist mainly of boiler combustion gases (CO₂, CO, SO₂, etc.). Sound values of equipment and machinery used are generally less than the regulations specified in the Tunisian Labour Code, except for the Weaving where is often necessary to protect the ears of employees working near machinery.

Particular attention should be paid to the search for more environmentally friendly, especially substitute chemicals, especially at colouring. In addition to this measure, replacing the water softener with a reverse osmosis unit to avoid industrial overload chlorides releases and increase the life of the boiler and other equipment.

Industrial water is the main source of pollution to the environment, and given the pollution load of industrial wastewater, a unit of physico-chemical or biological treatment should be recommended to treat them in accordance with the Tunisian Standard. It is also important to remember the large quantities of pumice stones, fabric cutting waste of the clothing sector and solid waste of the old clothes recycling sub-sector.

Energy consumption is often attributed to loss in transportation circuits, at the age and Technology of equipment used, and calibration of flow and power subscribed with the energy provider.

Concerning social dialogue, Tunisia has a regulatory and institutional framework consistent with international standards. That said it was clear during the last years the importance of internal enterprise policy of management and development of human resources. Indeed, companies with developed practices at this level are doing much better despite the different disruptions caused by the national and international environment.

Table below identifies and summarizes strengths and weaknesses and also indicates opportunities and threats to be considered for the Tunisian textile industry:

Table 6. Main strengths and weaknesses of the current Tunisian textile industry.

STRENGTHS	WEAKNESSES
Strong export orientation and a very strong partnership (companies with mixed or foreign capital)	The Tunisian textile sector remained undersized compared to the clothing industry and globally has not the ability to provide the necessary inputs in quality and quantity.

Geographic proximity to Europe; Just-in-time production, Free Trade Agreement, Level of quality, delivery time, short runs, production costs	In general terms: low compliance with national standards for discharges, small number of certifications to ISO standards, small size of the companies, the high average age of equipment and insufficient exploitation of installed capacity
The upgrade national program support industrial enterprises to improve their production tools and integrate technologies more modern and advanced	Lack of equipment in some schools and academic institutions. The training of trainers and teachers have not evolved enough
The existence of many organizations dedicated to training in the textile / clothing sector (higher education, vocational education and training) and financial instruments for continuous training	The training provided is often theoretical and not adapted to the changing of the sector and trades. Manufacturers are not sufficiently involved in the training programs (initial, higher and professional)
OPPORTUNITIES TO BE CONSIDERED	THREATS TO BE CONSIDERED
The Tunisian T&C sector must continue to move to upmarket especially in certain niches particularly promising (high quality clothes, technical textiles, hosiery, finishing, etc.). And also looking for synergies between Craft and Textile industry.	The economic and financial crisis, the decline of European consumption and rising materials prices have led to significant pressure on selling prices of Tunisian producers
Training and support bodies, Modernization programs and Respect of social standards	Lack of qualified and operational staff (medium and long term). Young people are not very attracted by trades related to T & C
Partnership Opportunities - twinning with European higher education institutions	
The sector is evolving with the emergence of new professions/businesses that could attract young people: Logistic, supply chain Management, quality systems, technical textiles, environment (recycling of wastes, waste treatment...), innovation, energy-efficient processes...	Companies that do not hire graduates: - for lack of skill / qualification - for not paying sufficient wages (for example engineers)

TEXTILE INDUSTRY IN EGYPT.

Egypt is home to the only fully vertically integrated textiles industry in the Middle East, with the entire production process -from the cultivation of cotton to the production of yarns, fabrics and ready-made garment- carried out domestically. The sector plays an extremely central role in the Egyptian economy.

Egypt's textiles industry is considered to be the biggest in Africa and the Middle East, comprising the entire production process starting from production of cotton to the production of ready-made garments (RMG). Despite the overall economic downturn within the country textile related exports have remained relatively stable and accounted 14% of all non-petroleum exports in 2013, being worth about USD 3.1 Bio. As a traditionally labor intensive industry, the textiles sector is a vital employer in Egypt's



economy. Estimations on the number of the workforce directly employed by the textiles sector is set between 230.000 workers according to CAPMAS (2010/2011) and 500.000 workers according to the United Nations Economic Commission for Africa in 2013.

Low labor costs, the proximity to developed export markets and several trade agreements that alleviate exports are contributing to the strength of Egypt's Textiles Industry. Nevertheless, the textiles industry faces enormous challenges: a lack of integration of the subsectors, poor management and low rates of investment have resulted in low rates of labor productivity, increase of prices of Egyptian textiles and a shift in the domestic demand towards imported textiles. Especially the poorly developed trading links between the subsectors are a major obstacle to growth in the textiles industry in Egypt, subjecting the production of textiles and textile related goods to price fluctuations of imported goods, while the economic potential in the domestic industries is not being used.

According to numbers of the General Authority for Investment (GAFI) in early 2014 Egypt's textiles industry consisted of 4306 companies of which 199 were operating in free zones to produce goods for foreign markets.

The major players in the Egyptian textile value chain are the growers (cotton farmers), processors (ginning factories, weavers/cloth makers, and ready-made textile producers), and sellers (exporters and retailers).

The public-sector is strongly involved in Egypt's textiles industry, especially in the weaving (60%), spinning (50%) and hemming (50%) sub sector, while private companies established themselves in the garmenting sector and account for about 90% of the garmenting capacity. Most public-sector companies are mid- to large scale companies, which are struggling with over employment, poor maintenance of machines, operational inefficiencies and inferior technology. Therefore upstream textile production suffers from low responsiveness to customer preferences which resulted in an increase of yarn and fabric imports in order to feed the Egyptian RMG industry.

Ready-made garments have the biggest share of textile related exports. In 2013 48% of all textile related exports were RMG13, of which about 33% were exported to the EU and 52% to the USA. Cotton textiles and cotton yarn are the second biggest export commodity group. Although cotton was in the past a traditionally important export commodity group and although Egyptian cotton is renowned for its quality it accounted only for 6% of all textile related exports in 2012/13. Political instability and the government policy towards cotton pricing caused an alternating export performance



during the last years.

The QIZ agreement has facilitated the exporting of the Egyptian textile products to the USA, which is the major market for Egyptian (RMG) for US brands like GAP and Tommy Hilfiger, carpets and cotton yarn. On the other hand, the Free Trade Areas agreement has also contributed to the increase of exports to the EU market. Combined, the US and EU are major target markets with more than 70% of the textile exports as reported in 2013. Cotton and cotton yarn come in second largest export commodity. The manufacturing of yarns and finished fabrics in some eastern countries like Indonesia, India and Turkey have aided in increasing the imports to feed the RMG industry in Egypt. In the past year exports have increase with almost 10% but the imports have remained stable. The increase in the exports is a result of the increased demand for house textile products like bedding and kitchen linen.

The textile industry is one of the most polluting industries in the world. The waste produced contaminates all the natural resources and cause damage to the human if not properly handled. Apart from the water and air contamination, the textile manufacturing industry causes noise pollution which affects the workers daily. In order to reduce such negative effect, major Egyptian environmental and research authorities have taken serious interest in reducing pollution levels, implement laws and regulations, creating solutions and spreading awareness. Along with these authorities, colleges, specialized training centers and research institutes have taken a focused role also into spreading awareness to the younger generations through technical secondary schools.

Table 7. Main strengths and weaknesses of the current Egyptian textile industry.

STRENGTHS	WEAKNESSES
Egypt has the only fully vertically integrated textiles industry in the Middle East	Lack of integration of the subsectors
Foreign direct Investment as an important vehicle of the economy. Public-sector is strongly involved in Egypt's textiles industry	Poor management and low rates of investment have resulted in low rates of labor productivity, increase of prices of Egyptian textiles and a shift in the domestic demand towards imported textiles
Low labor costs, the proximity to developed export markets and several trade agreements (USA and EU) that alleviate exports are contributing to the strength of Egypt's Textile Industry	By now the majority of Egyptian spinning mills is not equipped to process extra long or long staple cotton. Some textiles and yarn factories only work on half of their capacity due to supply shortages of cotton and experienced a decrease of quantity of sales by 30%

<p>The manufacturing of yarns and finished fabrics in some eastern countries like Indonesia, India and Turkey have aided in increasing the imports to feed the RMG industry in Egypt.</p>	<p>Lack of innovation culture: a decade long underinvestment in R&D, poor planning of the way research funds are spent, excessive bureaucracy and uninspiring curricula. Maybe the same for education/training</p>
<p>OPPORTUNITIES TO BE CONSIDERED</p>	<p>Environmental lacks on the production process and consumption of raw materials and energy/water</p>
<p>Training of qualified new recruits</p>	<p>Poorly developed trading links between the subsectors is a major obstacle to growth</p>
<p>The free zone has all the basic infrastructure (internal roads, water, networks, sewage system, electricity, telecommunication networks), and natural gas is being installed. The General Authority for Investment and Free Zones (GAFI) is working on new locations and infrastructure projects to prepare new investment projects</p>	<p>Political instability and the government policy towards cotton pricing caused an alternating export performance during the last years.</p>
<p>National Labor Law provides comprehensive guidelines on labor relations, including hiring, working hours, termination of employees, training, health, and safety. Nevertheless, most recent strikes are illegal (under the labor law workers must acquire permission from the general federation to protest, which is controlled by the government)</p>	<p>The private sector contributes only 5% to the country's R&D budget</p>
<p>Major Egyptian environmental and research authorities have taken serious interest in reducing pollution levels, implement laws and regulations, creating solutions and spreading awareness</p>	<p>The production of textiles and textile related goods is subjected to price fluctuations of imported goods, while the economic potential in the domestic industries is not being used</p>