Product’s Selection for the Moroccan Technical Textile Industry by Using Custom’s Imports Data and Analytic Models

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Abstract
This paper proposes a model of product’s selection for Moroccan technical Textile industry. In a first step, using software, the study selects technical textiles positions, classes them by technologies segments, and extracts their import’s data from governmental data based, in term of value, volume, unit price and suppliers. In a second step overweight various segments and products using Analytical Hierarchy Process (AHP) to calculate attractiveness and competitive strength and chooses which of them are the most suitable for investment by using a Mckinsey matrix. From the 481 products considered as technical textiles, the study chooses 21 (4.3%) products representing 44.14% from the total value of Moroccan technical textile imports.

Keywords: Moroccan Imports Data, Technical textile, Segments and Products Selection, AHP, Mckinsey Matrix

1. Introduction
Because of the globalization of trade and the opening of the customs borders of Morocco, the Moroccan textile industry, which mainly produces classic fabrics for the local market, faces a growing concurrence from the Far East and Turkey (Belouas, 2012).

In this context, like what happened in industrialized countries, in the second half of the 20th century (Direction générale des entreprises, 2005), and in order to give a new start to the Moroccan textile industry, ESITH (Higher School of textile industries and clothing) and AMITH (Moroccan Association of Textile and clothing) are the precursors of an ambitious evolution from traditional textiles to technical textiles, which are: textiles materials and products manufactured primarily for their technical and performance properties rather than their esthetic or decorative characteristics. (Horrocks, 2000). The world technical textile market value was in 1995 about 65 billion Euros, 85 billion Euros in 2005 and 100 billion Euros in 2010 (David rigby associates, 2003), (Weidmann, 2010).

In 2012, in partnership with the Ministry of Industry, a study was assigned to the international research firm McKinsey, to develop vision 2025. McKinsey conducted this study in collaboration with Moroccan and international experts, which I was part, thanks to the first results of this study, subject of this article. The results of this study were presented at the beginning of 2013 (Gharbaoui, 2013); it recognized three strategic business areas with high potential for the development of the Moroccan textile industry: Clothing, home textile and the technical textiles. Thus, and to seize opportunities offered by the new stats industrial development plan, professionals interested in the technical textiles sector, have formed a cluster (CTTM Moroccan technical textiles cluster) which has as a goal, creating a synergy between the different companies members, to develop and produce technical textiles with high added value (Stoullig, 2015).

The first and most important step is to determine the market segments and products that are most appropriate for starting this new activity. Professionals unanimously agree that at the beginning they may first grasp the local
Markets opportunities before going to the international markets. Moroccan production of technical textiles is insignificant, the demand is almost entirely satisfied by imports (Traube, 2010), and demand analysis can be developed through the analysis of imports.

The data of Moroccan technical textiles imports are available on the web through two sites: the site of the Exchange office (Exchange office Morocco, 2015) and of Customs (Customs Morocco, 2015). The problem is that the customs nomenclature classifies imports by nature (types of textile material: cotton, wool ...; Structure: yarn, fabric, knitting ... ) but not by field of use, or the technical textiles are considered as such, due to their technical use. Thus, to extract data of Moroccan technical textiles imports, it was necessary to combine both, good knowledge in customs code and textile products to select the products that can be considered as technical textiles, and also, to classify them by technological segments. The use of computers for data processing was required and has facilitated the exploitation and the updating of results (David rigby associates, 2003).

The selection of segments and products, which are imported actually and represent real opportunity for investment in technical textile in Morocco, is done by using a Mckinsey matrix also known as market attractiveness/competitive strength’s matrix, which is a nine cells portfolio matrix, developed by Mc kensey & company in the 1970’s, it has two axes, Market attractiveness and competitive strength more developed than the classic BCG matrix (Van Laethem, 2007). the value of the market attractiveness and competitive strength are calculate from the custom’s data using Analytic hierarchy process (AHP) which is the main tool used by researchers and managers of multi-criteria decision making (Hlyal, 2015).

2. Method

2.1 Custom’s Import Data Extraction and Trial

The Harmonized Commodity Description and Coding System generally referred to as "Harmonized System" or simply "HS" is a multipurpose international product nomenclature developed by the World Customs Organization (WCO).

It comprises about 5,000 commodity groups; each identified by a six digit code, arranged in a legal and logical structure and is supported by well-defined rules to achieve uniform classification.

The system is used by more than 200 countries and economies as a basis for their Customs tariffs and for the collection of international trade statistics. Over 98 % of the merchandise in international trade is classified in terms of the HS.

The HS contributes to the harmonization of Customs and trade procedures, and the non-documentary trade data interchange in connection with such procedures, thus reducing the costs related to international trade. It is also extensively used by governments, international organizations and the private sector for many other purposes such as internal taxes, trade policies, monitoring of controlled goods, rules of origin, freight tariffs, transport statistics, price monitoring, quota controls, compilation of national accounts, and economic research and analysis. The HS is thus a universal economic language and code for goods, and an indispensable tool for international trade (World custom's organization).

The harmonized system gives a nature description of product but don’t give any indication about uses, technical textiles are defined as such because of their use, so with custom’s data; we can’t extract directly technical textiles data. It was necessary to analyze all the position of the HS and by using my experience in this sector, shoes with which of them are use as technical textiles. So I selected 481 positions, and I classified them in eleven technological processes: Coated textiles; Narrow textiles; Nonwoven; woven technical yarns, technical yarns, knotted technical yarns, coated nonwovens, yarns with technical fibers, braiding, technical clothing, and technical fibers.

The use of computers for data processing was required and has facilitated the exploitation and the updating of results. Software programmed with access database, is uses to manipulate and analyze the 481 positions ten times (because 10 years of data, between 2005 and 2014).

For each position and for years between 2005 and 2014, we extract the import’s value in KDHS, the import’s volume in Kg, the supplier’s countries, and their value and volume of technical textiles imports towards Morocco.

By dividing the import value by the import volume we obtain the unit price which is correlated to the value added of each product.

The study of the evolution of import’s value by year between 2005 and 2014 give us the market growth value for each product and each segment.
2.2 Attractiveness Value Calculates Using Analytic Hierarchy Process (AHP)

2.2.1 Attractiveness

The attractiveness of a product depend on the value of the market (and not only by the growth of the market as it considered by the BCG Matrix), every business activity is evaluate in term of opportunities or obstacles for all concurrent regardless their strengths and weaknesses (Bojin, 2006).

The value of the market depends of several criteria, but the most important are: the market part (Mp), the market grow (Mg) and the price level (Pl) (Yami).

For each selected product, we had extracted and calculate these three criteria

Market part of the product “i”

\[ M_{pi} = \text{the value of import of product } i \text{ Millions Dhs} \]

Price level of the product “i”

\[ P_{li} = \frac{M_{pi}}{M_{vi}} \]

Mvi: the volume of import of product “I” in Mega Kg

Market growth of the product “i”

\[ M_{gi} = \left[ \frac{M_{pi}^{2015} - M_{pi}^{2005}}{M_{pi}^{2005}} \right] - 1 \quad \text{And were } n= \text{number of time period } = 9 \]

2.2.2 Using AHP

The AHP is the main method used by researchers and managers in multi-criteria problem. The using of AHP is c in planning, choosing the best scenarios, resource management (Vaidya, 2006). In Marketing the AHP method is used in (Wind, 1980):

- The portfolio decisions of a firm whose management is concerned with the determination of the desired target portfolio and allocation of resources among its components
- Determination of the directions for new product development
- Generation and evaluation of marketing mix strategies

In this study we are concerned by the portfolio analysis, the AHP is used as framework and methodology for the generation and the and evaluation of alternative portfolio strategy (Wind, 1983).

2.2.3 AHP Attractiveness Criterions Weight

By expert judgment, each attractiveness criteria is given absolute importance (weight) on the basis of previous relative importance on a scale ratio, with the constraint that the sum of the weights equals to 1. The AHP method is currently the method most commonly used in the industrial application of the aggregated performance expressions. The method compares the different criteria in five levels of importance to overall satisfaction, “equal”, “low”, “critical”, “proven” and “absolute” respectively quantified at 1, 3, 5, 7 and 9 Intermediate values between the two levels are allowed. Experts attribute an intensity number that represents the true preference of each criterion with respect to others. The significance factor of intensity “i” on factor is equal to aij, and the intensity factor of importance “i” above “j” is equal to 1/aij. If we compare n factors, we develop an n x n matrix A to represent the importance of these factors (Hyal, 2015).

\[
\begin{pmatrix}
a_{11} & \cdots & a_{1n} \\
\vdots & \ddots & \vdots \\
a_{n1} & \cdots & a_{nn}
\end{pmatrix} = A
\]

Where n is the order of the matrix (1)

To determine the weight of each criterion, we used interviews with experts. In other words, the weight between criteria was explored on the basis of the response of investigators:
Table 1. Pairwise Comparison Matrix

<table>
<thead>
<tr>
<th>a_{ij}</th>
<th>Mp</th>
<th>Pl</th>
<th>Mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mp</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pl</td>
<td>1/3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mg</td>
<td>1/3</td>
<td>1/3</td>
<td>1</td>
</tr>
</tbody>
</table>

\[ \sum_{i,j=1}^{n} a_{ij} = 1.67 \quad 4.33 \quad 7 \]

Table 2 represents the matrix A_1 as the normalized comparison matrix that is calculated as shown below:

\[
\begin{pmatrix}
  a'_{11} & \cdots & a'_{1n} \\
  \vdots & \ddots & \vdots \\
  a'_{n1} & \cdots & a'_{nn}
\end{pmatrix} = A_1 \quad \text{and} \quad a'_{ij} = \frac{a_{ij}}{\sum_{i,j=1}^{n} a_{ij}} \quad \text{for} \quad i,j=1,2,\ldots,n, \quad (2)
\]

Table 2. Matrix A1

<table>
<thead>
<tr>
<th>a'_{ij}</th>
<th>Mp</th>
<th>Pl</th>
<th>Mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mp</td>
<td>(1)/1.67</td>
<td>(3)/4.33</td>
<td>(3)/7</td>
</tr>
<tr>
<td>Pl</td>
<td>(1/3)/1.67</td>
<td>(1)/4.33</td>
<td>(3)/7</td>
</tr>
<tr>
<td>Mg</td>
<td>(1/3)/1.67</td>
<td>(1/3)/4.33</td>
<td>(1)/7</td>
</tr>
</tbody>
</table>

\[
\begin{pmatrix}
  w_1 \\
  w_2 \\
  \vdots \\
  w_n
\end{pmatrix} = w \quad \text{and} \quad w = \sum_{i,j=1}^{n} a'_{ij} \quad \text{for} \quad i,j=1,2,\ldots,n, \quad (3)
\]

Table 3. Determination of attractiveness criteria’s weight

<table>
<thead>
<tr>
<th>a'_{ij}</th>
<th>Mp</th>
<th>Pl</th>
<th>Mg</th>
<th>\sum_{i,j=1}^{n} a'_{ij}</th>
<th>\sum_{i,j=1}^{n} a'_{ij}</th>
<th>Weight (w_i)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mp</td>
<td>0.60</td>
<td>0.69</td>
<td>0.43</td>
<td>1.72</td>
<td>(1.72)/3</td>
<td>0.57</td>
</tr>
<tr>
<td>Pl</td>
<td>0.20</td>
<td>0.23</td>
<td>0.43</td>
<td>0.86</td>
<td>(0.86)/3</td>
<td>0.29</td>
</tr>
<tr>
<td>Mg</td>
<td>0.20</td>
<td>0.08</td>
<td>0.14</td>
<td>0.42</td>
<td>(0.42)/3</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Table 3 shows the importance of each weight, in fact, the weight of Market part (Mp) was the highest with a value of 0.57, followed by the weight of Price level 0.29 and at the last position the weight of market growth 0.14.

2.2.4 The Product’s Attractiveness Criterions Weight

For the three attractiveness criterions we calculate the weight of each product comparatively to the others, for example for the market part, we start by a matrix B:
\[
\begin{pmatrix}
 b_{1n} & \cdots & b_{in} \\
 \vdots & \ddots & \vdots \\
 b_{n1} & \cdots & b_{nn}
\end{pmatrix} = B
\]

Where “n” is number of products and “bij” is the market part value of the product (i) divided by the market part value of the product (j).

After we calculate the matrix \( B_1 \):

\[
\begin{pmatrix}
 b'_{1n} & \cdots & b'_{in} \\
 \vdots & \ddots & \vdots \\
 b'_{n1} & \cdots & b'_{nn}
\end{pmatrix} = B_1 \quad \text{and} \quad b'_i = \frac{b_{ij}}{\sum_{i,j=1}^{n} b_{ij}} \quad \text{for } i,j=1,2,\ldots,n.
\]

The product’s market part weight (PMpw) is calculated as bellow:

\[
\begin{pmatrix}
 PMpw_1 \\
 PMpw_2 \\
 \vdots \\
 PMpw_n
\end{pmatrix} = PMpw \quad \text{and} \quad PMpw_i = \frac{\sum_{i,j=1}^{n} b'_{ij}}{n} \quad \text{for } i,j=1,2,\ldots,n.
\]

We will repeat the same operation for the three attractiveness criterions and will obtain also for all the products, the product’s price level weight (PPlw) and the product’s market growth weight (PMgw). And will group the results in the matrix of product’s criterions weight (PCw)

\[
\begin{pmatrix}
 PMpw_1 & PPlw_1 & PMgw_1 \\
 \vdots & \vdots & \vdots \\
 PMpw_n & PPlw_n & PMgw_n
\end{pmatrix} = PACw
\]

2.2.5 The Product’s Attractiveness Value

The attractiveness value (Atti) for each product (i) will be obtained by the multiplication of the two matrixes PACw (the product’s attractiveness criterion weight) and W (the attractiveness criterion weight)

\[
\begin{pmatrix}
 w_1 \\
 w_2 \\
 \vdots \\
 w_n
\end{pmatrix} = \begin{pmatrix}
 PMpw_1 & PPlw_1 & PMgw_1 \\
 \vdots & \vdots & \vdots \\
 PMpw_n & PPlw_n & PMgw_n
\end{pmatrix} \times \begin{pmatrix}
 Att_1 \\
 Att_2 \\
 \vdots \\
 Att_n
\end{pmatrix}
\]

2.2.6 The Product’s Attractiveness Level

As needed in the Mc Kinsey Matrix, we define three level of attractiveness, low, medium and high. We calculate the average (ATTav), and SD of attractiveness.

- The product has a high level of attractiveness when: \( ATT_i \geq ATTav + \frac{SD}{2} \)

- The product has a Medium level of attractiveness when:

\[
ATTav - \frac{SD}{2} \leq ATTi < ATTav + \frac{SD}{2}
\]

- The product has a low level of attractiveness when: \( ATTi < ATTav - \frac{SD}{2} \)
2.3 Competitive strength Value Calculates Using Analytic Hierarchy Process (AHP)

2.3.1 Competitive Strength

The competitive strength of an organization (in our case Moroccan textile industry) is a comparative indicator between this organization and their competitors concerning their internal forces and weaknesses (Bojin, 2006). It’s depend from several criterions, by expert judgment, we shoo five competitive criterions: Labor cost (Lc), Energy cost (Ec), Proximity (Px), technological competences (Tc), production volume (Pv).

So we start by extracting for each product the actual supplier countries, and we regroup them in seven groups: Europe, Asia, USA and Japan, Turkey, Egypt, Arabian Saudi, Eastern Europe.

2.3.2 AHP Supplier’s Competitive Strength Criterions Weight

For Morocco and for each supplier, we use the AHP to calculate the weight of competitive strength criterions, the method used is the same used for attractiveness criterions weight (paragraph 2.2.3), for five criterions : Lc , Ec , Px, Tc and Py.

We repeat this method for the eight groups of countries, table 4 gives the obtained results:

Table 4. Moroccan and Supplier’s competitive criterions weight

<table>
<thead>
<tr>
<th>Competitive criterions</th>
<th>Morocco (Mwi)</th>
<th>Europe (EUwi)</th>
<th>Asia (Awi)</th>
<th>USA/JAP (UJwi)</th>
<th>Turkey (Twj)</th>
<th>Egypt (Ewj)</th>
<th>Eastern Europe (EEwj)</th>
<th>Arabian Saudi (ASwj)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lc</td>
<td>0,24</td>
<td>0,07</td>
<td>0,18</td>
<td>0,07</td>
<td>0,18</td>
<td>0,28</td>
<td>0,19</td>
<td>0,18</td>
</tr>
<tr>
<td>Ec</td>
<td>0,18</td>
<td>0,13</td>
<td>0,24</td>
<td>0,29</td>
<td>0,18</td>
<td>0,28</td>
<td>0,19</td>
<td>0,29</td>
</tr>
<tr>
<td>Px</td>
<td>0,29</td>
<td>0,27</td>
<td>0,06</td>
<td>0,07</td>
<td>0,18</td>
<td>0,17</td>
<td>0,19</td>
<td>0,18</td>
</tr>
<tr>
<td>Tc</td>
<td>0,18</td>
<td>0,33</td>
<td>0,24</td>
<td>0,36</td>
<td>0,24</td>
<td>0,17</td>
<td>0,25</td>
<td>0,12</td>
</tr>
<tr>
<td>Py</td>
<td>0,12</td>
<td>0,20</td>
<td>0,29</td>
<td>0,21</td>
<td>0,24</td>
<td>0,11</td>
<td>0,19</td>
<td>0,24</td>
</tr>
</tbody>
</table>

2.3.3 AHP Product’s Competitive Strength Criterions Weight

With expert judgment, we evaluate the importance of the five competitive strength criterions for each product, we give five level of importance, very low importance (note 1), low importance (note 2), medium importance (note 3), high importance (note 4) and very high importance (note 5).

We use the AHP method used for calculate the product’s attractiveness criterions strength weight (paragraph 2.2.3) to calculate the product’s competitive strength weight.

We obtained the product’s competitive criterions weight (PCCw) matrix:

\[
PCCw: \begin{pmatrix}
P_{LCw1} & P_{ECw1} & P_{Pxw1} & P_{Tcw1} & P_{Pyw1} \\
\vdots & \vdots & \vdots & \vdots & \vdots \\
P_{LCwn} & P_{ECwn} & P_{Pxwn} & P_{Tcwn} & P_{Pywn}
\end{pmatrix}
\]

PLcw: Product’s labor coast weight
PEcw: Product’s energy coast weight
PPxw: Product’s proximity weight
PTcw: Product’s technological competences weight
PPyw: Product’s production volume weight
n: product number 481

2.3.4 Competitive Strength Value

For Morocco and for each supplier group of country we calculate the competitive strength value by multiplication of supplier’s competitive criterions weight by the PCCw matrix:

For example for Morocco:
Moroccan competitive strength value: MCs Matrix
We repeat the same operation for all the suppliers group of countries the competitive strength matrix for each of them: European competitive strength value (EUCs), Asian competitive strength value (ACs), European competitive strength value (EUCs), USA&Japan competitive strength value (UJCs), Turkian competitive strength value (TCs), Egyptian competitive strength value (ECs), European competitive strength value (EUCs), Eastern European competitive strength value (EECs), Arabian Saudi competitive strength value (ASCs),

2.3.5 Moroccan Textile Industry Competitive Strength Level for Each Product

As needed in the Mc Kinsey Matrix, we define three level of competitive strength, low, medium and high.

For each product we found the first and the second supplier group of countries, we compare the Moroccan competitive strength value (MCs) to the competitive strength value of the first supplier (FSCs) and to the competitive strength of the second supplier (SSCs).

- Moroccan textile industry has a high level of competitive strength for the product (i) when \( MCsi \geq FSCsi \)
- Moroccan textile industry has a Medium level of competitive strength for the product (i) when \( SSCsi \leq MCsi < FSCsi \)
- Moroccan textile industry has a low level of competitive strength for the product (i) when \( MCsi < SSCsi \)

2.4 Products Selection Using Mckinsey Matrix

The Mckinsey matrix combine to criterions, the attractiveness level and the competitive strength level, it result nines areas regrouped in three zones: A; B and C (Bojin, 2006).

Each business activity is poisoned in the matrix depending several criterions. The choice of these criterions depends of the organization and the market in which it operate. The exactitude of this method depend of the pertinence of market’s and concurrent information (Johnson, 2006).

3. Results and Discussion

3.1 Moroccan Technical Textile Market’s Imports

3.1.1 Static Approach

Table5 shows that Moroccan technical textiles imports, totaled in 2014, 4.2 Billion dhs and 77.6 Mega Kg. so a
global unit price of 54.17 dh/kg.

Table 5. Moroccan technical textiles value and weight of imports from 2005 to 2013

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value in Billion dhs</td>
<td>2.11</td>
<td>2.46</td>
<td>2.98</td>
<td>2.94</td>
<td>2.67</td>
<td>2.88</td>
<td>3.37</td>
<td>3.91</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Weight in Mega kg</td>
<td>32.9</td>
<td>41</td>
<td>53.4</td>
<td>56.05</td>
<td>58.7</td>
<td>51.9</td>
<td>55.4</td>
<td>60</td>
<td>67.7</td>
<td>77.6</td>
</tr>
</tbody>
</table>

Table 6 shows that the coated textiles and narrow textiles, top the list of Moroccan imports. In 2014, they totaled successively 1202 million dhs and 751 million dhs, representing successively 28.6% and 17.9% of the total value of imports. Nonwoven ranks third with 708 million dhs and 16.8% of the total value of imports. These three positions represent 63.3%. The remaining imports are mainly shared between two groups, first group is constituted by: woven technical yarns, technical yarns, knotted technical yarns, coated nonwovens, successively with 8.8%, 7.8%, 7.4% and 6.4%, they represent 30.4% from the total value of imports. The second group constituted by: yarn with technical fibers, braiding, technical fibers and technical clothing, with successively 2.4%, 1.5%, 1.5%, and 1.3%. It represents only 6.3% of the total value of imports.

Table 6. Moroccan technical textiles imports in 2014 by segment

<table>
<thead>
<tr>
<th>Segments</th>
<th>2014 in million dhs</th>
<th>% in 2014 Relative to the total value</th>
<th>2014 in Mega kg</th>
<th>% in 2014 Relative to the total weight</th>
<th>Unit price Dhs/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coated textiles</td>
<td>1203</td>
<td>28.6%</td>
<td>19.5</td>
<td>25.1%</td>
<td>62</td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>751</td>
<td>17.9%</td>
<td>3.8</td>
<td>4.8%</td>
<td>200</td>
</tr>
<tr>
<td>Non woven</td>
<td>708</td>
<td>16.8%</td>
<td>17.5</td>
<td>22.5%</td>
<td>40</td>
</tr>
<tr>
<td>Woven technical</td>
<td>371</td>
<td>8.8%</td>
<td>6.2</td>
<td>8.0%</td>
<td>60</td>
</tr>
<tr>
<td>Technical yarns</td>
<td>327</td>
<td>7.8%</td>
<td>8.1</td>
<td>10.4%</td>
<td>40</td>
</tr>
<tr>
<td>Knotted technical</td>
<td>312</td>
<td>7.4%</td>
<td>6.4</td>
<td>8.3%</td>
<td>49</td>
</tr>
<tr>
<td>Yarn with technical fibers</td>
<td>269</td>
<td>6.4%</td>
<td>5.7</td>
<td>7.4%</td>
<td>47</td>
</tr>
<tr>
<td>Braiding</td>
<td>86</td>
<td>2.0%</td>
<td>1.9</td>
<td>2.4%</td>
<td>46</td>
</tr>
<tr>
<td>Technical fibers</td>
<td>65</td>
<td>1.5%</td>
<td>0.6</td>
<td>0.8%</td>
<td>102</td>
</tr>
<tr>
<td>Technical clothing</td>
<td>55</td>
<td>1.3%</td>
<td>0.5</td>
<td>0.6%</td>
<td>121</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4206</td>
<td>100%</td>
<td>77.6</td>
<td>100%</td>
<td>54.17</td>
</tr>
</tbody>
</table>

Table 6 shows, also, that the narrow textiles represent 17.9% of the total value of imports but only 4.8% of the total weight of imports, which demonstrates that they are textiles with high added value (200 dh / kg). In opposition, nonwovens represent 16.8% of the total value of imports and 22.5% of the total weight of imports, which demonstrates that they have low value (40 dh / kg). Coated textiles have approximately the same percentage of the total imports in weight and value, successively 28.6% and 25.1%, which demonstrates that they have a medium added value (62 dh / kg). The global price’s level average is 54.17 dh/kg.

3.1.2 Dynamic Approach

Table 1 shows that at the global level, Moroccan imports of technical textiles were in 2005, 2.11 billion dhs, they have increased gradually by 37% between 2005 and 2007 and reached 2.98 billion dhs. Between 2007 and 2009 they decreased by 15% to 2.53 billion dhs. Between 2009 and 2013 they re-increase successively by 5.2%, 8%, 17.2% and 16% to 3.38 billion dhs. Between 2013 and 2014 this growth is smaller; they reached 4.2 Billion dhs with 7.5% of increasing. The calculated global annual growth is 8% (paragraph 2.2.1).
Table 7 shows that the principle segments had the following evolutions:

Coated textiles imports, between 2005 and 2008, increased by 42% (from 517 to 735 million dhs). Between 2008 and 2009, they decrease by 25% to 548 million dhs. Between 2009 and 2014 they re-increase successively by 5.3%, 15.1%, 20.3%, 30.9 and 14.9% to reach 1203 million dhs. They occupy the first position of Moroccan technical textiles imports. Between 2005 and 2014, they recorded the first largest increase in value 686 million dhs, with an annual average of increasing of 9.8%.

Narrow textiles imports, between 2005 and 2007, increased by 23.4% (from 569 to 702 million dhs). Between 2007 and 2009, they decreased by 24.8% to 528 Million dhs. Between 2010 and 2012 they stagnate in approximately the same value (594, 592 and 604 million dhs. Between 2012 and 2014 they increase by 24.3%, and reach 751 Million dhs and occupy the second position of Moroccan technical textiles imports. Between 2005 and 2014, they had a small increase in value, 183 million dhs, with a small annual average of increasing of 3.1%.

Nonwoven textiles imports, between 2005 and 2007, highly increased by 103.6% (from 241 million to 491mllions dhs). Between 2007 and 2011, they stagnate between 400 and 500 million dhs. Between 2011 and 2013 they re-increase highly by 72.3%, reaching 731 million dhs. They occupy the third position of Moroccan technical textiles imports. Between 2005 and 2013, between 2013 and 2014 they stagnate at nearly the same value 708 million dhs. They recorded the second largest increase in value, 467 million dhs, with a high annual average of increasing of 12.7%.

Table 7. Moroccan technical textiles imports between 2005 and 2014 by segment in Million dhs

<table>
<thead>
<tr>
<th>Segment</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Annual average of increasing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coated textiles</td>
<td>517</td>
<td>554</td>
<td>708</td>
<td>735</td>
<td>548</td>
<td>577</td>
<td>664</td>
<td>800</td>
<td>1046</td>
<td>1203</td>
<td>9,8%</td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>569</td>
<td>575</td>
<td>702</td>
<td>698</td>
<td>528</td>
<td>594</td>
<td>592</td>
<td>604</td>
<td>723</td>
<td>751</td>
<td>3,1%</td>
</tr>
<tr>
<td>Nonwoven</td>
<td>241</td>
<td>391</td>
<td>491</td>
<td>407</td>
<td>466</td>
<td>467</td>
<td>542</td>
<td>572</td>
<td>731</td>
<td>708</td>
<td>12,7%</td>
</tr>
<tr>
<td>Woven technical</td>
<td>244</td>
<td>261</td>
<td>345</td>
<td>311</td>
<td>239</td>
<td>219</td>
<td>255</td>
<td>295</td>
<td>320</td>
<td>371</td>
<td>4,7%</td>
</tr>
<tr>
<td>Technical yarns</td>
<td>94</td>
<td>115</td>
<td>162</td>
<td>200</td>
<td>210</td>
<td>198</td>
<td>228</td>
<td>270</td>
<td>290</td>
<td>327</td>
<td>14,9%</td>
</tr>
<tr>
<td>Knotted technical</td>
<td>232</td>
<td>214</td>
<td>261</td>
<td>278</td>
<td>281</td>
<td>274</td>
<td>313</td>
<td>349</td>
<td>326</td>
<td>312</td>
<td>3,3%</td>
</tr>
<tr>
<td>Nonwoven</td>
<td>118</td>
<td>150</td>
<td>138</td>
<td>116</td>
<td>103</td>
<td>172</td>
<td>195</td>
<td>243</td>
<td>241</td>
<td>269</td>
<td>9,6%</td>
</tr>
<tr>
<td>Yarn with technical</td>
<td>31</td>
<td>121</td>
<td>37</td>
<td>25</td>
<td>31</td>
<td>45</td>
<td>55</td>
<td>63</td>
<td>68</td>
<td>86</td>
<td>12,0%</td>
</tr>
<tr>
<td>Braiding</td>
<td>41</td>
<td>45</td>
<td>55</td>
<td>55</td>
<td>59</td>
<td>54</td>
<td>67</td>
<td>78</td>
<td>72</td>
<td>65</td>
<td>5,3%</td>
</tr>
<tr>
<td>Technical fibers</td>
<td>1</td>
<td>1</td>
<td>38</td>
<td>74</td>
<td>6</td>
<td>3</td>
<td>21</td>
<td>48</td>
<td>30</td>
<td>61</td>
<td>53,9%</td>
</tr>
<tr>
<td>Technical clothing</td>
<td>25</td>
<td>37</td>
<td>40</td>
<td>39</td>
<td>63</td>
<td>63</td>
<td>52</td>
<td>66</td>
<td>55</td>
<td>8,9%</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Product’s Selection

Table 8 shows that from the 481 imported products considered as technical textile, 21 products are located in the Mckinsey matrix’s zone A. So they represent a real opportunities of investment because they have a high or medium attractiveness level and morocco is more competitive than the actual suppliers of these product's.

Table 8 shows for each selected product it market data : Market value en 1000 dhs; price level (Dh/ kg) and market growth %.

Table 8. Product’s selection for Moroccan technical textile sector

<table>
<thead>
<tr>
<th>Segment</th>
<th>SH product code</th>
<th>Competitive strength level</th>
<th>Attractive strength level</th>
<th>Attractive strength value</th>
<th>Mckinsey matrix zone</th>
<th>Moroccan competitive strength</th>
<th>first supplier competitive strength</th>
<th>first supplier group</th>
<th>second supplier competitive strength</th>
<th>second supplier group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical clothing</td>
<td>59119 09099 59039</td>
<td>high medium</td>
<td>1,25%</td>
<td>A</td>
<td>EU</td>
<td>1,46%</td>
<td>1,33%</td>
<td>EU</td>
<td>1,33%</td>
<td>EU</td>
</tr>
<tr>
<td>Coated</td>
<td></td>
<td>high high</td>
<td>5,89%</td>
<td>AAA</td>
<td>ASIA</td>
<td>1,14%</td>
<td>1,12%</td>
<td>EU</td>
<td>1,13%</td>
<td>EU</td>
</tr>
</tbody>
</table>
Table 9. Product’s selection Data

<table>
<thead>
<tr>
<th>Segment</th>
<th>SH Product code</th>
<th>Products</th>
<th>Market value 1000 DH</th>
<th>Price level</th>
<th>Market growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical clothing</td>
<td>591190 9099</td>
<td>AUTRES ARTICLES TEXTILES POUR USAGES TECHNIQUES</td>
<td>33462</td>
<td>190</td>
<td>10,5%</td>
</tr>
<tr>
<td>Coated textiles</td>
<td>590390 9099</td>
<td>AUTRES TISSUS IMPREGNES OU ENDUITS DE MATIERES PLASTIQUES</td>
<td>360009</td>
<td>47</td>
<td>55,7%</td>
</tr>
<tr>
<td>Coated textiles</td>
<td>590320 9099</td>
<td>AUTRES TISSUS NON IMPREGNES AVEC DU POLYURETHANE</td>
<td>324628</td>
<td>105</td>
<td>38,3%</td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58063 29000</td>
<td>high high 5,46% AAA 1,26% EU 1,23% EU 1,23%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58062 09000</td>
<td>high medium 1,02% A 1,14% ASIA 1,12% EU 1,13%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58062 09000</td>
<td>high medium 1,03% A 1,14% ASIA 1,12% EU 1,13%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58062 09000</td>
<td>high medium 0,77% A 1,23% EU 1,19% EU 1,19%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58062 09000</td>
<td>high high 3,14% AAA 1,14% EU 0,99% EU 0,99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58062 09000</td>
<td>high high 3,78% AAA 1,14% EU 1,07% EU 0,99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58071 00090</td>
<td>high high 2,98% AAA 1,32% EU 1,22% EU 1,22%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58071 00010</td>
<td>high high 2,63% AAA 1,32% EU 1,22% EU 1,22%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58079 09000</td>
<td>high high 2,51% AAA 1,32% EU 1,22% EU 1,22%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58063 90090</td>
<td>high medium 1,22% A 1,14% EU 0,99% EU 0,99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58063 19090</td>
<td>high medium 1,26% A 1,14% EU 0,99% EU 0,99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>58063 21000</td>
<td>high medium 0,79% A 1,14% EU 0,99% EU 0,99%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woven technical yarns</td>
<td>54082 29999</td>
<td>high high 2,14% AAA 1,05% EU 1,02% EU 1,02%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woven technical yarns</td>
<td>63053 39100</td>
<td>high medium 1,12% A 1,05% EGP 1,04% EGP 1,04%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woven technical yarns</td>
<td>54082 49999</td>
<td>high medium 1,43% A 1,08% EU 1,00% EU 1,00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knotted technical yarns</td>
<td>56081 11000</td>
<td>high high 1,80% AAA 1,27% EU 1,11% EU 1,11%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.3 Segment's Analyze

Table 10 shows that the selected product has a market value in 2014 of 1857 millions dhs, and represent 44.1% from the total value of technical textile Moroccan’s import (4206 millions dhs), even if it represent 4.4% in number. It has a very high average of price level (86.23 dhs/kg) and a very high market growth 32.1%.

Table 10 also shows that the selected products are grouped in six segments, coated textiles have the highest Market value 822 millions dhs (44.3% from the total selected product’s value) and the highest market growth 56.1% by year in average. Narrow textiles are in the second position in term of market value 6336 Millions dhs (34.1% from the total selected product’s value), and the highest price level 241 dhs/kg (The global average 54.17 dh/kg, the selected product’s average 86.23 dh/kg). Together those two segments represent 78.4% from the total selected product’s value.
Table 10. Selected products data by segments

<table>
<thead>
<tr>
<th>Segment</th>
<th>Market part 1000 Dhs</th>
<th>Market part % from selection</th>
<th>Price level DHS/KG</th>
<th>Market growth</th>
<th>number of products</th>
<th>Moroccan Competitive strength level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coated textiles</td>
<td>821731</td>
<td>44,3%</td>
<td>61,2</td>
<td>56,1%</td>
<td>5</td>
<td>High</td>
</tr>
<tr>
<td>Narrow textiles</td>
<td>633559</td>
<td>34,1%</td>
<td>240,0</td>
<td>10,8%</td>
<td>8</td>
<td>High</td>
</tr>
<tr>
<td>Woven technical yarns</td>
<td>195568</td>
<td>10,5%</td>
<td>67,9</td>
<td>12,3%</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>Knotted technical yarns</td>
<td>105446</td>
<td>5,7%</td>
<td>58,3</td>
<td>4,0%</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Technical yarns</td>
<td>66997</td>
<td>3,6%</td>
<td>108,8</td>
<td>52,4%</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>Technical clothing</td>
<td>33462</td>
<td>1,8%</td>
<td>189,6</td>
<td>10,5%</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Total selection</td>
<td>1856763</td>
<td>100%</td>
<td>86,23</td>
<td>32,1%</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Total selection %</td>
<td>44,1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,4%</td>
</tr>
</tbody>
</table>

4. Conclusion

This study gives statistics of Moroccan technical textile market; these statistics are the official ones because they are published by the unique Moroccan textile university “ESITH”. It also selects technical textiles imported products which offer the biggest opportunities for investment. Toward the strategic objective of substituting importations by local production in the first step of Moroccan technical textile industry development strategy, the experience acquired will be used to export to the nearest countries, south of Europe and sub Saharan’s western Africa.

The next step would be to go to the real market and study in details these products, their sub products, their customers and their technologies and human skills.

Acknowledgments

We thank Mr. Mohamed LAHLOU, President of the Moroccan technical textile cluster (C2TM), and CEO of Higher School of textile industries and clothing (ESITH) for the ideas, the help and the support for the realization of this study.

References


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