

## INNOVATION AND LAUNCHING OF NEW PRODUCTS IN ROMANIAN TEXTILE-CLOTHING SECTOR CLUSTERS

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### ABSTRACT

*This paper aims to analyze the state of innovation and launching of new products in Romanian textile-clothing sector clusters. It also presents the main trends in the production and sale of products in the industry analyzed, focusing on new world-tendencies in the creation of new industries based on innovation, namely the intelligent textiles. On this paper we made a study of the state of innovation and new product launch in the four clusters of textile and clothing in Romania, research who reveals mainly poor cooperation between companies and research organizations belonging to the cluster profile.*

**KEY WORDS:** *innovation; nanotechnologies; Romanian clusters; smart textiles; textile-clothing sector.*

**JEL CLASSIFICATION:** *O31; L14; M21*

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### 1. INTRODUCTION

Under the impact of three major forces supporting generally development of the markets – technology, consumer tastes, competition initiatives – renewal of supply of goods is inevitable (Ristic A., L. (eds.), John Franc, V., Tanasescu, D., Thomas, A., melted, M., 2002, p. 332).

Enterprises decide for renewal strategy product range under pressure of some reasons, grouped by J. Lendrevie and D. Lindon (Lendrevie, J., Lindon, D., 1997, p. 271) on three levels:

a) **Progress of the market.** On saturated markets, innovation is the only effective means to boost demand in a significant manner.

b) **Product life cycle.** Launch of new products, although expensive, allows restoration of products marks that support rapid and continuous degradation of image.

c) **Relationships between producers and en-detail distribution.** Although the relationship between these two partners, under the action of a complex of factors, bowed today for supermarket chains, innovation remains an exclusive and well mastered weapon of manufacturers. Distributors are always sensitive to new products attractive to their potential customers.

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Combining technical degree of originality of the new products to the degree of change that they are likely to challenge the behavior of consumers, we can distinguish three main types of product innovation (Lendrevie, J., Lindon, D., 1997, p. 274):

1. **New products without advanced technology.** It can be:
  - an extension of existing products range;
  - launching in a country of a product that the company already sells it in a different country;
  - a new product for the company, but that has already been launched by one of its competitors.
2. **New technologies** who does not entailing significant changes in consumers behavior. These changes aimed to improve product performance and reduce manufacturing costs, which can increase consumer satisfaction, but do not involve significant changes in their usage habits.
3. **„Revolutionary” innovations generating new consumer behaviors** (so-called "breakthrough innovation"). It involves major technologies that respond to consumer needs hitherto dormant and even create new needs.

According to JJ Lambin (Lambin, JJ, 1994, p. 342) innovations can be classified on three criteria (Table 1):

- a).degree of novelty for the enterprise;
- b).inherent nature of the concept underlying product innovation;
- c).innovation intensity.

**Table 1. Classification of innovations**

Criteria	Product categories
a) The novelty for the enterprise	<ul style="list-style-type: none"> <li>⇒ Original products</li> <li>⇒ Reformulated products</li> <li>⇒ Repositioned products</li> </ul>
b) Inherent nature of the concept underlying product innovation	<ul style="list-style-type: none"> <li>⇒ Technological and commercial innovation (marketing)</li> <li>⇒ Innovation created on the laboratory, but generated by demand (by market)</li> <li>⇒ Rupture innovation</li> </ul>
c) Innovation intensity	<ul style="list-style-type: none"> <li>⇒ Radical innovation</li> <li>⇒ Relative innovation</li> </ul>

*Source:* Lambin, J. J., *Le marketing stratégique*, Ed. Ediscience International, Paris, 1994, p. 342-347

a) **The novelty for the enterprise.** Assessment of the degree of novelty of a product requires a dual statement:

- there is a clear distinction between the "new" product and "new company" product;
- a new product for enterprise rarely correspond to a “new” product, ie a product for a new market and a result of new technologies.

Any organization that chooses strategy of innovation will have to face a strategic risk due, on the one hand, the degree to which new product concept originality will determine the responsiveness of the market (market risk) and on the other hand, the degree to which

technology innovation in relation to new product concept will be feasible (technological risk).

Booz Allen quoted Ph. Kotler and B. Dubois in his Marketing – Management book (Kotler, Ph., Dubois, B., 1992, p. 352-353) identified up to six types of new products by the degree of innovation, both for business and the market:

- *new products*: rise to the creation of new markets;
- *new products for the enterprise*: allow the company to establish in an existing market;
- *extension of an existing product range*: extending a product range already implanted in a market;
- *reformulated products*: improve performance or enhance the image of existing products;
- *repositioned products*;
- *new products less expensive*: the equal quality, are less expensive (by innovation processes).

b) ***The nature and origin of innovation.*** This second classification distinguishes innovations:

- *technological innovation*, focusing on the physical characteristics of the product, is the result of sciences application in industrial practice (to the manufacturing process level, the use of a new component or a new material, the new conditionality), and innovation as the *commercial (marketing) dominance* focused on the organization models, distribution and communication who enroll in the marketing process (e.g., a new presentation of a product, a new mode of distribution, a new advertising support, etc.);
- *innovation created on laboratory having as starting point the analysis of market needs*; such innovation is more effective than a strategy taking the reverse route (laboratory invention aimed at seeking a market, creating an application with a custom marketing mix);
- *breakthrough innovation* when perceived product value market as significantly higher than that of a reference offer; we can talk about strategic rupture when the appearance of the new product make obsolete existing reference product (Strategy, 1997, p. 82).

c) ***Innovation intensity.*** This classification, focusing on intensity innovation distinguishes between:

- *radical or rupture innovation* (is that sometimes lead to the creation of new markets and new users, this strategy confers a competitive advantage in that imitation by competitors is more difficult);
- *relative innovation* (which requires improvement of the product and at the best generates a new market segment; this strategy is generated usually as a result of market research and customer feedback analysis (Chirouze, Y., 1995, p. 125)

## 2. TRENDS IN THE PRODUCTION AND SALE OF APPAREL-TEXTILE INDUSTRY

The effects of globalization generate increasing international trade and the integration of remote areas of the world in technological chain. The textile-apparel industry has migrated to areas that offered mainly low value labor and, in some cases, abundant raw material.

In these circumstances, Romania, which experienced a peak period on textile industry especially when salaries were very small and developed skilled labor force, could not maintain this advantage when wages rose and therefore foreign investors migrated to other countries. Thus, from production based mainly on Lohn system, Romanian companies have had to develop their own brands, which involves funding for the acquisition of raw materials and supplies, rebuilding creation, technical and marketing departments, and at macro level reinstatement of foremen and technologists schools.

Firms belonging to analyzed industrial sector must adapt fast-fashion trend (5-6 collections / year instead of 2, small and limited production series to give the consumer a sense of exclusivity, uniqueness and to satisfy the desire to break patterns of ordinary mass-market). Inditex, H & M and Mango chain stores offer changes almost daily, leading to special offers on countries and even regions of the country. Also, consumers are becoming increasingly sensitive to environmental and social factors when making daily decisions to buy, making company managers to face a volatile set of issues impacting the consumer acceptance products, programs and stores. Beyond its glamour and special charm, the fashion industry implies the use of elements harmful both to the planet and to consumers' health. In this context, a series of eco adepts have emerged in this field as well, under the banner of green fashion (Popescu, I. D., 2013).

Another trend identified is on promoting quality clothing, coming from brands that are motivated to respect traditions and local cultural influences. In terms of consumer behavior can no longer speak of the concept of consumer irrational or impulsive buying.

Advanced companies have begun to fight to loyalty of the consumer rather than satisfaction, to ensure their enthusiasm (the consumer company surprises by anticipating or creating needs and desires unexpressed - unmet needs). Consumer enthusiasm is considered to be the new frontier that allows differentiation from the competition offer.

Among company reactions made to identify needs irretrievable in current market demand (unmet needs) we include the development or modification of a product that meets the needs unexpressed. It refers to the use of major technologies that respond to consumer needs hitherto dormant and even create new needs (breakthrough innovation). On textile industry, this means, for example, the emergence and development of *intelligent textiles* (Popescu, I., D., Popa, C., Popa, I., Hâncu, D., 2009, p. 334).

An irretrievable consumer needs in the current market can offer strategic importance in that it may represent opportunities for those seeking to gain market position and may present threats to those trying to maintain their market position.

According to one of the 2014 consumption trends (identified by analysts of Trend Watching London), consumers need to have "soul" objects and this involves in the industry analyzed necessity to use intelligent textiles. Thus, it involves products that either monitor or improve health or help save money or tasks in better conditions. The

example given by Trend Watching is the Canadian company OMsignal with his star shirt of the collection Omsignal Biometric Smartwear. This shirt has integrated sensors that monitor the wearer's health data (heart rate, respiration and movement). The sensors are incorporated into the fabric and collect information that is sent to the mobile phone carrier. Shirt is machine washable and is designed to be worn under clothing or gym.

In this context, one of the solutions to revive the textile and clothing industry is the growth of value added embodied in the development of a product generated by a workforce that could be formed and perfected as to develop a new type of industry.

Therefore, the Romanian companies belonging to textile-clothing sector can benefit from the positive effect of globalization if they manage to join the new world tendencies regarding the creation of new industries based on innovation and intelligent textiles.

Intelligent textiles incorporating technology emerged in recent years in the IT, electronics, telecommunications, design sectors, creating textiles that incorporate sensors and microsystems that provide interconnectivity to the environment in real time with immediate applications in civil defense, military space technology, medical electronics, monitoring and tracking.

Unlike traditional industry, smart textiles allow a relatively low raw material consumption through the use of specific technologies: nanotechnologies, micro-electronics, biotechnology, photonics and advanced materials.

*Nanotechnology* refers to the design, manufacture and use of complex structures at the molecular level with electrical, magnetic, mechanical, chemical, biological, optical properties totally different from macro scale ones. Thus, compared with traditional textile industry, which involves high consumption of raw materials, nanotechnologies enable to reduced consumption of raw materials.

The most advanced studies related to nanotechnology, in the past decade, have found application in almost all sectors, with a huge potential for applications in the textile industry. The most advanced studies in nanotextile sector are those of the main textile research institutes in Germany. At Institut für Textilmaschinen und Textile Hochleistungswerkstofftechnik, TU Dresden, nanofibers from biopolymers are made of nowoven materials to come into use in regenerative medicine, namely the creation of artificial tissue implants. Non-woven materials made of nanofibers may also be used in filter technology, for example on the ambient air in the building filtration and the filtration of liquids. Also, films coated with zinc or zinc oxide nanoparticles of titanium oxide due to the large coverage area has a large capacity to absorb ultraviolet radiation.

At Deutsches Textilforschungszentrum Nord-West were developed nanotextile completely waterproof, with a very good protection against UV, abrasion resistance and keeping the degree of bleaching.

Institut für Textilchemie und Chemiefasern Denkendorf completed a study in which nanoparticles have been used to improve dimensional stability and wear resistance of artificial fibers, which are subject to high levels of mechanical stress or to direct sunlight (car seat covers, for example).

Deutsches Institut für Wollforschung, RWTH Aachen in collaboration with partners such as Wirth Fulda and Märkische Faser have achieved significant results in improve hydrophilic properties of woven polyester. Using very thin polyamide skinning they proved feasible to increase the absorption of water in PET microfiber fabrics up to 40%

compared to the original material. Also were significantly improved degree of washing and water resistance, resulting the cost savings compared to traditional solutions (Turp-Balazs, A., 2013, p. 28-29).

*Electronic microsystems* refers to highly miniaturized semiconductor components who are integrated on great physical volume products. Miniaturization reduces costs, helps to transport on long distances quickly and transforms any product into a "smart" one. In recent years, miniaturization has expanded into areas such as automotive, medical, and consumer goods. System expansion to other sectors including textiles, generating increasingly important results in nanotechnology and advanced manufacturing technologies.

*Biotechnology* represent the application of technology using microorganisms in industrial processes for the production of biomaterials, biofuels and on final part of the production of textiles, leather and paper. Biotechnology has the advantage of being environmentally friendly, because rely on a lesser extent on the use of traditional energy resources, recycling instead what we call "waste" materials.

*Photonics* is the science and technology of generating and controlling photons as carriers of energy, gradually replacing the role that in the past they had on electronics industry Photonics, as a science, is related to quantum optics, and optoelectronics with somewhat fuzzy boundaries between these areas (<http://ro.wikipedia.org/wiki/Categorie:Fotonic%C4%83>, accessed on August 23, 2014). Photonics technology is essentially a "green" one who can transport energy without loss.

*Advanced materials* are those materials having an internal structure that gives them much improved properties compared to traditional ones. Their importance is given to specific applications in all industries, helping to reduce costs and increased performance or/and competitiveness. The trend is to increase the number of applications for each new material discovered. Also, advanced materials have a positive impact on the environment compared to traditional products (Ungureanu, A., 2014, p. 24).

From these results of technological advances should also benefit the textile industry, especially from Romania.

Table 2 present the global market potential of new technologies. The statistics in this table are based on applications of new technologies in all fields.

**Table 2 Global market potential of new technologies**

Technology type	2006/2008 USD	2012/2015 USD	The annual growth rate
Nanotechnology	12 bln	27 bln	16%
Electronic microsystems	250 bln	300 bln	13%
Biotechnology	90 bln	125 bln	6 %
Photonics	230 bln.	480 bln	8%
Advanced materials	100 bln	150 bln	6%

Source: Ungureanu, A., Propunere de dezvoltare a clusterelor în industria textilă românească, Dialog Textil, 3/ 2014, p. 24

### **3. INNOVATION IN ROMANIAN CLUSTERS BELONGING TO TEXTILE-CLOTHING INDUSTRIAL SECTOR**

Innovation, crucial element of regional development in the new social-economic context, is and can be supported through the creation of clusters, and namely their proliferation.

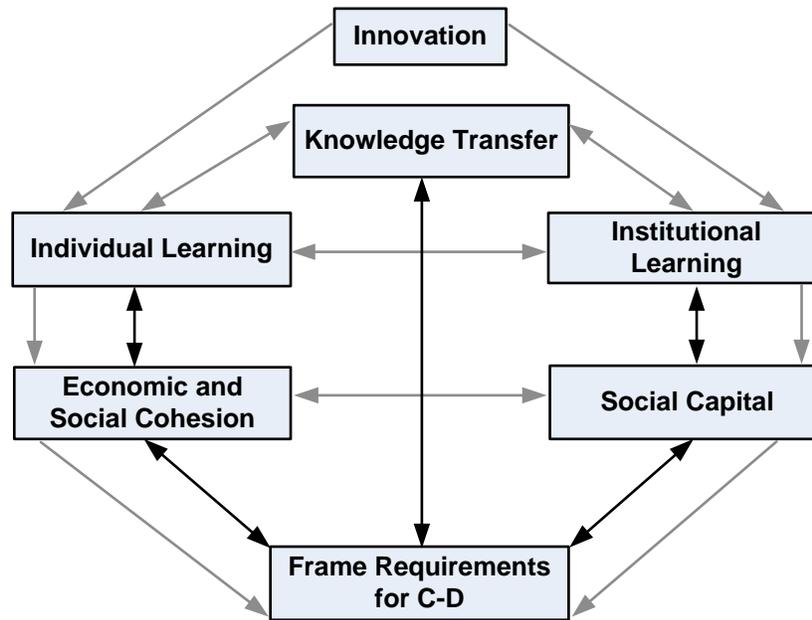
The most successful clusters have been created spontaneously, as a result of natural competitive advantages, of market forces or simply of chance (Popescu, D., Ceptureanu, S., Ceptureanu, E., Alliances and Competitive Advantage, 2011, p. V 2 -685).

"Clustering" has become an important element of the innovation policy in the EU Member States, supporting an approach based on regional innovative clusters, not only in developed urban centers, but also in poorer or rural regions. Thus, starting with 2008, amid financial crisis, EU policy to promote innovative clusters intensified. Their proliferation in EU countries was performed mainly from 2010.

In Romania, most clusters were based on already established associations, in the areas of development and/or business incubators (Ceptureanu Sebastian Ion, Ceptureanu Eduard Gabriel, Knowledge Based Management Trends In Romanian Companies, Knowledge Based Organization The 18<sup>th</sup> International Conference, Academia Fortelor Terestre Sibiu, 2012). Lines of funding were opened at European level for regional development through clusters that attract SMEs in clusters. Also, a line of funding to support cluster activities, forming poles of competitiveness, was recently opened. This comprehensive approach is aimed at sustainable regional development and thereby the reinvigoration of the EU countries economies, after the global crisis.

Successful businesses are conditioned by the quick and easy access to knowledge, better qualified workforce, technical and social specialized assistance, as well as by swift identification of suppliers, customers and innovative solutions. These requirements can be most easily achieved through clustering.

Since 2006, the European Commission has identified the development of innovative clusters as one of the strategic priorities for successfully promoting innovation. In this context, the Centre for Innovation and Technology of North Rhine-Westphalia - ZENIT (Germany) has developed the model of "the new diamond of innovation" (Fig. 1).



**Figure 1. The new diamond of innovation**

Source: Ministerul Economiei, Comerțului și Mediului de Afaceri - *Ghid de implementare în România a conceptului de cluster inovativ*, București, 2009 available online at <http://www.fabricadebani.ro/news.aspx?iid=21932&sid=170>, accessed on August, 25, 2014

„The considerations which led to the development of the model „New diamond of innovation” are the following:

- innovation is based on extensive scientific knowledge supported by a modern infrastructure;
- innovation is built on individual and institutional learning;
- individual and institutional learning can take place if a set of common norms, rules and visions is established;
- economic and social cohesion is the requirement in order to implement the processes of technologic transfer and innovation.

An application of the systematic theory of innovation, combined with the concepts of individual and institutional learning, is found in the paradigm "triple helix" of technology transfer and innovation, applied to the concept of "innovative cluster" (Ceptureanu Sebastian, Ceptureanu Eduard, Tudorache Alina, Management in Romanian SME'S, 17<sup>th</sup> International Economic Conference IECS 2010 „The Economic World' Destiny: Crisis And Globalization?" Sibiu, Romania May 13-14, 2010). Thus, to achieve technology transfer and innovation, the participation of the following categories of actors is necessary:

- universities, research institutes, training centers;
  - industry, especially SMEs (including start-ups and spin-offs);
  - authorities (central and local) with competence to facilitate innovative processes"
- (Ministry of Economy, <http://www.fabricadebani.ro/news.aspx?iid=21932&sid=170>, accessed on August, 25, 2014)

Given the fact that in Romania experience has shown that the three natural partners of the "Triple Helix" model do not cooperate, in most cases they do not know and do not get to talk to each other, it was considered necessary to adapt the model, namely its transformation into a "four clover" model ("four-leaf clover"). In this model, the fourth actor is represented by catalyst organizations, entities that are specialized in technology transfer and innovation, consulting firms.

To strengthen the innovative capacity of clusters, mainly their competitiveness for sustainable regional development, the recent EU policy towards the establishment and development of clusters is to follow the model quintuple (Quintuple Model). In this model, the fifth actor is represented by the banks. In Romania the implementation of this recent model is to succeed, currently the majority operating in the form of Romanian "Four clover" clusters (Popa, I., Popescu, I., D., 2013).

The big number of companies on the market in the textile-clothing sector, and especially in the clothing subsector led to a real competition environment and to the creation of clusters.

At this moment, there are 4 developing textile clusters in Romania.

In the North – East Region the *ASTRICO Textiles Cluster* was created. ASTRICO producers association is already operating for some time and it is a strong industrial group in the field of knits production and sales, based on Rifil Company, the most important producer of knitting yarns in Eastern Europe. The quality of this group's products ranges at medium – high level and the products are predominantly – over 80% - exported on the European market (France, Italy, Germany, Spain, Great Britain etc.) and USA. The majority of these products are processed in lohn system.

The group comprises 12 companies, and each of the members has a range of representative products such as: knitting yarns (Rifil SA is one of the most important producers of acrylic yarns), circular knitting products (Ema SA), knitted garments (pyjamas, body wear - Sofiaman Impex SRL), knits combined with leather and leather garments (Staro SA), knits with embroidery elements (Anca Rom SA and Ema SA), knitted products made on linear electronic machines ( Anca Rom SRL, S&B Comp SRL, Smirodava SA, Sporul CM, Jatex SA, Bucovina Tex SA). These companies have market recognition of their brands (Ema, Sense, Smirodava, Sofiaman, Sofiaman Kids, Sporul, Anca Rom, Jatex, Staro, S&B, Bucovina, Rifil, Kinga Varga) - <http://clustero.eu/cluster-textil-astrico-nord-est/> , accessed on August 19, 2014.

The cluster includes 2 research entities (The National Research & Development Institute for Textiles and Leather, and The Faculty of Textiles, Leather and Industrial Management, "Gheorghe Asachi" Technical University of Iași), a public authority (Regional Development Agency North East - ADR North East-) and a catalyst company (Inno Consult SRL).

Since 2012, two companies have introduced technological innovation, a company - product innovation, respectively new products for the enterprise, and at the level of whole cluster are used 31 patents. The companies that use patents have obtained reformulated products and new products for enterprise.

Within cluster, only four companies were able to access European funds, respectively three companies (Rifil SA, Smirodava SA and Sofiaman) have implemented technological solutions to energy efficiency, one firm (S&B) has launched new product ranges.

Also, Sofiaman uses as distribution channel "world of consumption", selling their products in stores "Home Collection" and "Home Sweet Home" (commercial innovation). The ***Romanian Textile Concept Cluster Bucharest*** was formed in 2011 in the Bucharest – Ilfov Region. The cluster is centred on an association of 27 producers with established tradition in the garments, knitwear, footwear and leather products.

The companies in this cluster produce a large variety of products: light and heavy garments (Conflux, Frangipani Fashion, Mod Conf Trend, Tanex, Focus, Samric, Katty Fashion, Glamour Fur, Rexton, Caremil, BD International, Ring Textile Production, Madirom Conf, Practic Prodcom), knitwear (Impex Trading, Tanex, Datsa Textil, Eurotricot), socks (Overall Co), footwear/leather products (Import Export Gygy, Angela Internațional, Sfera Factor Association), cotton and denim type fabrics (UCO Tesatura, UCO Filatura, Sigma Filatura, Iasitex, Siderma).

Within this cluster the catalyst companies and organizations offer a wide range of services such as consulting, training, marketing, advertising, transportation, logistics, storage, event organizing. There are 16 catalyst companies. These are: Chamber of Commerce and Industry of Bucharest, Chamber of Commerce and Industry of Romania, Chamber of Commerce, Industry and Agriculture Vrancea - Focsani, Vrancea County, Union of Bilateral Chambers – Bucharest, Expert Body in Accessing European Structural & Cohesion Funds – Bucharest, Employers' Association of Leather Shoes Manufacturers SFERA FACTOR – Iasi, Technological and Industrial Park North Giurgiu (PTIGN), Association for Promoting Electronic Technology (APTE), Society of Professional Designers from Romania (SDPR), National Council of Private SMEs from Romania (CNIPMMR), Romanian Furniture Manufacturers Association (APMR), SC Steinbeis Transfer Management SRL, Ronald S. Lauder Foundation Romania/Educational Complex Lauder - Reut – Bucharest, ELTRA Logis Pitești, Argeș County, Etiquette Models Management –Voluntari, Ilfov County, and Desario Boutique București. The large number of catalyst companies (incomparable with that of the other clusters in the field) explains the excellent results recorded within this cluster in terms of companies' competitiveness.

The cluster includes 1 research entity (The National Research & Development Institute for Textiles and Leather), 4 universities (The Faculty of Textiles, Leather and Industrial Management, "Gheorghe Asachi" Technical University of Iași, The University of Art and Design Cluj- Napoca, The Bucharest University of Economic Studies, and The National University Of Arts Bucharest –UNArte-), 1 public authority (local town hall of Sector 6, Bucharest).

Most of the members of the association have their own innovative brands (product innovation, respectively new products for enterprise and reformulated products, and/or technological innovation), such as: Tata și Fiul, Andreea Vrajitoru, Papucei, Corvari's, Miracat's, Glamour, Miragal, 27th Avenue, Andreea Tincu, Sense, with which they

participate in international specialized fairs in Paris, London, Dusseldorf, Tokyo, New York etc. Since one of the important objectives of the cluster is related to the implementation of the concept of "Consumption of Romanian product", most companies have their own innovative brands recognized at national and international level. Another key objective is represented by the creation of a cluster's own brand.

Some members of the cluster have collaborated with fashion designers to achieve a 100% RO couture collection, organized by the artistic director of the French Embassy in Bucharest, for the purpose of promoting Romanian cultural heritage. The collection is presented on several occasions to promote the country abroad, contributing to the publicity of the cluster and responding to another major trend, namely respect for traditions and cultural influences.

In June 2013, Romanian Textile Concept Cluster has been awarded with bronze label for Clusters of Excellence, an European qualification and internationally recognized, after participated to ESCA benchmarking within SEENECO program (<http://clustero.eu/romanian-textile-concept-cluster-bucharest/>, accessed on August 19, 2014).

In 2014, a company has introduced product innovation – original products-, a company has introduced technological innovation, and at the level of the whole cluster are used 11 patents. This is the result of collaboration with The Faculty of Textiles, Leather and Industrial Management, "Gheorghe Asachi" Technical University of Iasi and The National Research & Development Institute for Textiles and Leather for the process innovation, of collaboration with the University of Art and Design Cluj-Napoca, The National University of Arts Bucharest -UNArte and Society of Professional Designers from Romania (SDPR) for product innovation.

Within the cluster were conducted four research projects with European funds, one of them regarding achievement of ecological products (by using eco technological processes and raw materials 100% natural), and another twelve projects with funds from other public sources. Thus, The Romanian Textile Concept cluster has developed and runs the largest number of research projects of all textile clusters from Romania.

Moreover, this cluster has initiated the project of uniting the four existing textiles clusters into the competitiveness pole "Noatex" for which will require funding through the program from 2014 to 2020.

Thus, in terms of innovation, this cluster recorded the best results from all the Romanian textile clusters.

In the Centre Region the cluster *Transylvania Textile & Fashion* was formed, and its objective is to strengthen the already existing relations in the field of student internships and specialist training and also to identify all the opportunities to make innovative products with a higher added value by technology transfer and applied research.

Representative for this cluster are the clothing products and accessories (excluding body wear), travel articles and harness articles. This group is formed of 11 companies: Favorit Bradul SA, Secuiana SA, Super Home Textil SRL, Exopalma PROD-COM-CONFECTII SRL, Variart SRL, Dreiconf S.A, Rustica Comerț SRL, George SRL, New- Fashion SA,

Producție Prestări Comerț Dia-Dal SRL and Ban Import Export SRL (<http://clustero.eu/transylvania-textile-fashion-cluster>, accessed on August 19, 2014).

The cluster includes 1 research entity (The National Research & Development Institute for Textiles and Leather), 1 university (Babeş Bolyai University – with 2 Sfântu Gheorghe Extensions, namely The Engineering of Biotechnical and Ecological Systems and Economics of the Firm), 3 public authorities (Local Council Sf. Gheorghe municipality, Local Council of Covasna, Regional Development Agency Centre), 3 banking units (CEC Bank SA, Suc. Sf. Gheorghe, Transilvania Bank SA, Suc. Sf. Gheorghe, Raiffeisen Bank, Suc. Sf. Gheorghe), 2 agencies (Agency for Environmental Protection Covasna and Local Agency for Labour Force Occupation in Covasna). The catalyst companies are: The Chamber of Commerce and Industry Covasna, The Business Incubator Sfântu – Gheorghe and Grupul școlar Kós Károly.

Within the cluster was conducted only one research project regarding the implementation of eco-efficient production systems (technological innovation).

One of the companies of the cluster produces clothing for a certain segment of sports, namely paragliding and hang gliding through develop niche business (process innovation, respectively technological innovation) by using “smart textile” from import.

Companies within this cluster participate predominantly to local fairs, unlike the companies belonging to other textiles clusters which participate to fairs both national and international.

In the South-East Region the cluster *Traditions Manufacture Future – TMV- South – East* was formed. The organizations in this cluster have previous collaboration relations. In this cluster, the companies that represent the industrial sector are big, medium and small enterprises, and their experience is based on at least 15 years of tradition in the textile field.

The range of products and services in this cluster is broad: high quality men, women and children garments from the whole range of raw materials ( Sorste SA, Artifex SRL), chemical finishing (Textile Blue Wash SRL), high complexity garments (Pandora Prod SRL), women’s garments (Contempo Tex SRL, Ro-Design SRL), various clothing items (Tricotton Junior SRL, Ardesa SRL), various textile & fashion products (Verona Mode SRL), trade with industrial equipment, consumables and accessories specific to the field (Migami SRL), cardboard package production (Comunivers 912 SRL), transportation and commerce (Eltra Logis SRL).

The cluster includes 1 research entity (The National Research & Development Institute for Textiles and Leather), 2 universities (The Faculty of Textiles, Leather and Industrial Management, “Gheorghe Asachi” Technical University of Iași, and the University of Art and Design Cluj -Napoca), 2 public authorities (Regional Development Agency South+East and Chamber of Commerce, Industry and Agriculture Buzau), and 3 catalyst organizations (Bucharest Fashion Alliance Association, SC Steinbeis Management Transfer and SC EX-AEQUA SRL).- <http://clustero.eu/cluster-traditions-manufacture-future-tmv-sud-est/>, accessed on August 19, 2014.

In 2014, three of cluster's companies have introduced technological innovation, two companies have introduced product innovation – new products for enterprise and reformulated products.

Within cluster were conducted three research projects, 2 of them regarding the implementation of technological solutions for energy efficiency (technological innovation), the other to increase the employability of unemployed people in the South East, Bucharest-Ilfov, North West regions and for workforce training.

#### 4. CONCLUSIONS

Analysis of the innovation and launch new products in the textile industry clusters, garments belonging reveals that the number of contracts is very little research conducted except Romanian Textile Concept Cluster (in terms of innovation, this cluster recorded the best results from all the Romanian textiles clusters). Also, both product innovation and the technology are made by few firms in the cluster, where product innovation is mostly about reformulated products, widening the range of products available and, to a lesser extent, new products enterprise. Only one firm belonging to cluster Textile & Fashion Transylvania introduced technological innovation using smart textiles as raw material (raw material imported) (Turp-Balazs, A. (2013), *Idei inovatoare pentru noi aplicații*, *Dialog Textil*, 6, 28-29).

Only one firm, belonging to cluster ASTRICO NE, introduced innovation in distribution, using marketing in stores organized on "consumption universe." No firm introduced forms of innovation promotion, some of them limited to joint marketing in general, mostly aimed at the practice of discounts.

In order to meet the global trend of the creation of a new textile industry based on innovation, respectively on the intelligent textiles, the efforts of companies belonging to the Romanian clusters must directed to enhancing the implementation the new technological solutions and creating green products that capitalize traditions and Romanian culture, and also to making products from smart textile.

Romanian Clusters have the following points to support the research The National Research & Development Institute for Textiles and Leather and The Faculty of Textiles, Leather and Industrial Management, "Gheorghe Asachi" Technical University of Iasi. Unfortunately, limited cooperation EVC students practice and improve labor firms within clusters and do not develop proper research. This requires the identification of specific needs related to products and technologies that ultimately create competitive advantages and ensure the diffusion of innovation within the cluster. Cooperation with research institutions just to prepare the workforce is a temporary solution, insufficient considering that assist in the development and expansion of new technologies, focusing on nanotechnologies that are central to the textile industry. Also the cooperation of firms within clusters is a poor, with few companies managed to apply for European funds.

Innovation and launching new products based on smart textile is the prerogative of clusters, based on a strong interdisciplinary research integrating results from different fields: IT, communications, electronics, physics, chemistry, etc. Thus, these clusters must integrate new technologies emerging in the world for the development of creativity embedded in the new, revolutionary. For this purpose, can be used existing patents.

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