

# RESET – RESEARCH CENTERS OF EXCELLENCE IN THE TEXTILE SECTOR



## ACTION PLAN FOR THE MUNICIPALITY OF PRATO AND NEXT TECHNOLOGY TECNOTESSILE

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## 1. GENERAL INTRODUCTION

### 1.1 AIM OF THE RESET PROJECT

European textile and clothing sector is a most relevant economical source for the EU, accounting for 4% of the total added value of the manufacturing sector, with 173.000 companies and a turnover of 165 billion €. Its competitiveness is linked to increased investments in innovation and research both public and private which are key drivers for European companies to lead the market in the coming years. Due to its enormous environmental impact, sustainability and environment-friendly production is emerging as a new driver of textile process, product innovation and technology development. The overall objective of the project is to generate a policy change in the implementation of regional policies and programmes of the Structural Funds related to the strengthening of research, technological development and innovation to assure the sustainability of the T&C sector in the partner regions. It will be achieved through policy learning and capacity building activities on public policies supporting innovative, green and sustainable T&C production and processes. The learning potential embedded in **interregional exchange** will result in the **uptake of new Good Practices and projects by the partner regions** enabling to support excellence in R&D, to promote investments by enterprises, to develop innovative skills of T&C stakeholders, and in a deeper integration between research and innovation policies for the sector's sustainability. Sustainability driven research and innovation will concern primarily the production processes and product development and addresses **six key themes**:

1. Recycling in textile and waste disposal
2. Water consumption and energy saving, sustainable company organisations
3. New sustainable chemistry, including reduction of chemical substances
4. Smart textiles and new ways of production
5. Eco-creativity, natural fibres, short value chains
6. New materials and new applications

## **1.2 OBJECTIVE OF THE ACTION PLAN**

An action plan in general is a sequence of steps that must be taken or activities that must be performed successfully for a strategy to succeed. An action plan has three major elements (1) Specific tasks: what will be done and by whom. (2) Time horizon: when will it be done. (3) Resource allocation: what specific funds are available for specific activities.

Produced by each region, the action plan of RESET project is a document providing details on how the lessons learnt during the project and from the cooperation with other partners and regions will be exploited in order to improve the policy instrument tackled within that region. It specifies the nature of the actions to be implemented, their timeframe, the players involved, occurring costs and potential funding sources.

## **1.3 REGIONAL ANALYSIS OF THE PARTNER REGION**

Tuscany's gross domestic product (GDP) corresponds to 6.80% of the total Italian GDP. Its economy has a particular inclination towards international trade; the share of Tuscan exports in comparison to the total number of Italian exports is around 7.5%. The fashion and engineering sectors are the ones which work most with foreign countries, followed by the goldsmithery sector.

The most important regional area for T&C sector is represented by Prato district. There are over 28,000 businesses operating in this area, including ancillary processes. Prato's production fabric is made up of a variegated universe of SMEs located in a territory with a significant entrepreneurial vocation. Prato district covers around 700 square kilometers, taking in 13 municipalities, employing more than 35.000 people. Prato industrial system is based on division of production among independent SMEs, each one specialising in a specific activity (spinning, twisting, warping, weaving, dyeing and trimming or finishing).

In recent years, a new trend is becoming more and more important: the link between Prato's SMEs and the industry of fashion (in particular, clothing industry). This trend is due to the huge progress, in terms of quality, of textile production, thanks to important industrial investments and the in-depth specialist knowledge of operators, whose combination of experience, style and creativity means, are able to offer products that are always new and required. In this frame, there are many clothing brands, that have started to work in the district. Nowadays, also thanks to the presence of foreign businesses (only in the city of Prato, 15% of the residents are of foreign origin, compared to a national average of 7.5%), there are almost the same number of clothing

manufacturers as there are textile producers. Prato is also well known for highly specialised articles, the result of technological innovation and research, accompanied by smart investment in innovative machinery. For instance, there are companies producing different technical textile products: paper textiles, medical textiles, textiles used in aeronautics, textile for building, agriculture and so on. This combination of high quality production, technical features of product and enormous creativity is possible since every stage of textile production can be found in this district. In statistic terms, in average, every six months, Prato's district develops 2,000 new yarns, 60,000 new textile designs and hundreds of new textile collections. Every year Prato's textile industry produces around 90,000 tons of yarn, 300 million meters of cloth, 110 million meters of technical textiles and 12 million garments. The general value of production in Prato stands at around €5,500 million. Most of the products are exported to Europe, United States and Japan and used by many famous labels and stylists, which have chosen textiles from Prato to create their collections.

## 2. ACTION PLAN

### **PART I – GENERAL INFORMATION**

Project: RESET Project

Partner organisation: PP1 Municipality of Prato

Other partner organisations involved (if relevant): PP2 Next Technology Tecnotessile

Country: Italy

Country (NUTS1): Italy

Region (NUTS2): Tuscany

City (NUTS3): Prato

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### **PART II – POLICY CONTEXT**

The Action Plan aims to impact:

#### **Investment for Growth and Jobs programme**

Name of the policy instrument addressed:

#### **Regional Operational Programme of the Tuscany Region 2014-2020 (ERDF)**

This policy instrument pursues Europe 2020 objectives of a smart, sustainable and inclusive growth and economic, social and territorial cohesion, by increasing investments on research and innovation processes, to achieve the aims provided in terms of expenditure/ regional product of R&S and to reduce its gap in comparison with the European average. This increase is sought by improving the productivity through stimulating processes of

technological, environmental and social innovation and a greater sustainability that can be fostered by innovation processes. Most of support activated by the ERDF ROP 20142020 to increase innovation in enterprises fall under Axis 1. Strengthening research, development and technological innovation. It will operate to improve the business system through innovation and R&D activities, along the technological roadmaps identified by the regional S3, declined in terms of development sustainability. Support actions will also try to increase the availability of qualified human capital (researchers) and spread a more collaborative approach while conducting R&D projects with other companies and R&D centres. It is expected to achieve a greater effectiveness of policy actions to promote innovation and research in terms of: a) greater exploitation of research results for productive purposes; b) higher number of researchers working with and within enterprises; c) more cooperative R&D projects between R&D centres and enterprises.

## **PART III – DETAILS OF THE ACTIONS ENVISAGED**

### **ACTION 1: NOVIFRA**

1. **Relevance to the project** (please describe how this action derives from the project and in particular from the interregional exchange of experience. Where does the inspiration for this action come from?)

The project “NOVIFRA” was inspired by two Good Practices presented during the 4th project seminar on “Smart textiles and new ways of production” (Chemnitz (DE), 20th June, 2017). The GPs are: “Smart textiles for wearable technology” presented by the partner STFI and “From wearables to smart textiles - from performance to emotion” presented by the partner CETI. The project is about the implementation of innovative systems for the improvement of well-being and living conditions of the so-called "biologically fragile user" (elderly and disabled people) and it will exploit the traceability technology, developed in the fashion sector, for monitoring actions.

2. **Nature of the action** (please describe precisely the content of action 1. What are the specific activities to be implemented?)

The action is about the study and implementation of innovative systems for the improvement of well-being and living conditions of the so-called "biologically fragile user", based on raising the effectiveness of non-pharmacological treatments.

This project is composed of two main activities.

- 1) Development of an integrated system for monitoring, safety and orientation of fragile users in support of non-pharmacological therapies
- 2) Study and realization of an innovative garden for fragile users with non-pharmacological therapeutic functions

The system will be based on non-invasive tracking technologies which will be updated and re-designed according to the project needs. The system will be able to support, orient and monitor patients hosted by health center and similars. This functions will allow to support the wellbeing and the security of these patients, representing an effective help to non-pharmacological therapies.

**3. Stakeholders involved** (please indicate the organisations in the region who are involved in the implementation of the action 1 and explain their role)

The project will be implemented by three SMEs, Generali Arredamenti, Giardineria Italiana, HIHO and the research center Next Technology Tecnotessile. In the implementation and testing phase of the project a retirement home will be involved.

The role of the project partners will be the following:

**GENERALI ARREDAMENTI S.R.L.** – This is the Project coordinator, that will be in charge of the study and development of the equipments of the furniture which will incorporate elements of guidance, support and relaxing/well-being and will decorate and furnish the therapeutic garden; it will be also in charge of the designing and the realization of the vibro-acoustic pergola and the of the benches.

**GIARDINERIA ITALIANA – SOCIETA' COOP. SOCIALE A R. L.** – This Partner will be in charge of the outdoor equipments, such as the sound garden and the vibro-acoustic pergola, bringing in its skills in agrarian field, studying plants and paths, and creating and testing the garden.

**HIHO S.R.L.** - This Partner will be in charge of the software development for the data processing and for the definition of measures to assist patients, with the final goal of improving their life and health conditions.

**NEXT TECHNOLOGY TECNOTESSILE – SOCIETA' NAZIONALE DI RICERCA R.L.** - This Partner will cooperate with all the other industrial partners for the definition of the main technologies on which should focus the R&D. It will design and realize the detection and traceability system to be connected to the SW and to all the therapeutic aids, supporting the partners even after the end of the project, during the phase of industrial development and commercialization.

**4. Timeframe** (please specify the timing envisaged for action 1)

The project is in its implementation phase; the scheduled final date of the project is September 30th, 2019.

At the beginning of April 2019, the testing phase of the monitoring system developed in the first part of the project at a retirement home located in the province of Florence has started. If the testing phase will provide the expected results, the system could be applied to several nursing/retirement homes all over Tuscany and Italy with the common scope to verify the effectiveness of non-pharmacological treatments. Furthermore, in the future, this system could

be applied also in other sectors such as kindergartens, for the safety of children, SPA and Gym to offer to the clients new services designed for specific and individual needs as tailor made services. These new business opportunities will be evaluated at the end of the project.

Starting date: 01/10/2017 - Estimated Final date: 30/09/2019

5. **Indicative Costs** (please estimate the costs related to the implementation of action 1)

Total project cost: 500.000 Euro (250.155 € thereof funded by the ROP – see below)

6. **Indicative funding sources** (please describe how action 1 will be financed. Is it through the policy instrument(s) indicated in part II)

Grant: 250.155 Euro (Bandi Ricerca e sviluppo 2017 – POR CReO FESR Regione Toscana 2014-2020)

## **ACTION 2: NANECO**

1. **Relevance to the project** (please describe how this action derives from the project and in particular from the interregional exchange of experience. Where does the inspiration for this action come from?)

The project NANECO was influenced by a GP presented during the 4th project seminar on “Smart textiles and new ways of production” (Chemnitz (DE), 20th June, 2017). The GP title is “Nanostructured textiles to promote cell growth in severe burn injuries” and was presented by the Spanish partner AITEX. The inspiration “topic” was the use of nanofibers which have technical properties that can be used and adapted in the production of innovative panel for construction sector.

2. **Nature of the action** (please describe precisely the content of action 2. What are the specific activities to be implemented?)

The action is about the development of panels and nanotechnology for acoustic adjustment in public buildings and energy sustainability in industrial facilities. The panels will be developed using innovative technologies and materials in order to reach excellent performance in terms of acoustic and climatization of ambient. The prototypes developed will be tested in public building in order to verify the performances and to compare the results with the one of the other panels available on the market.

3. **Stakeholders involved** (please indicate the organisations in the region who are involved in the implementation of the action 2 and explain their role)

The project will be implemented by a single SMEs, Manifattura di Maiano with the support of the University of Florence and the research center Next Technology Tecnotessile. The innovative product developed with the project will be tested in a public school/building.

4. **Timeframe** (please specify the timing envisaged for action 2)

The project is in its implementation phase; the scheduled final date of the project is September 30th, 2019.

Currently, a prototype of the new sound-absorbent panel with nanofibers and innovative chemicals has been developed; the technical activities of the next months will regard the creation of the final panel and the testing activities on the field.

The territorial impact expected by the project will be the use of this panel in schools and other public buildings at regional and national level. The actual business opportunities will be evaluated and defined at the end of the project.

Starting date: 04/10/2017 - Estimated final date: 30/09/2019

5. **Indicative Costs** (please estimate the costs related to the implementation of action 2)

Total project cost: 240.500 Euro (84.188,29 € thereof funded by the ROP – see below)

6. **Indicative funding sources** (please describe how action 2 will be financed. Is it through the policy instrument(s) indicated in part II)

Grant 84.188,29 (Bandi Ricerca e sviluppo 2017 – POR CReO FESR Regione Toscana 2014-2020)

## **ACTION 3: COM4PRO**

**1. Relevance to the project** (please describe how this action derives from the project and in particular from the interregional exchange of experience. Where does the inspiration for this action come from?)

The COM4PRO project was influenced and inspired by the GPs presented at Alcoi (Spain) during the first thematic semina. The topic of the seminar was: “recycling in textile and waste disposal”; the inspiring GPs were:

- 1 - “Carbon Fibre Recycling Concept – Re-use of carbon fibres in nonwovens”, presented by the partner STFI;
- 2- “Textile blankets made from plastic bottles wastes”, presented by the partner CITEVE;
- 3- “Textile Recycling Valley”, presented by the partner CETI

**2. Nature of the action** (please describe precisely the content of action X. What are the specific activities to be implemented?)

The project is about the development of an automated process for the production of a mattress prototype with a high degree of thermo-physiological comfort made from textile waste materials.

The project consists of three main activities: 1) the development of a mattress made of a 3D composite based on recycled materials such as polyurethane, latex and virgin or recycled synthetic textile fibers; 2) the development of the removable shell that will contain the mattress that will be made of a fabric properly treated to give it anti-odour propertie (for the textile support, recently formulated fibres will be used); 3) the development of a line of automatic machines for the stitching of the shell and the assembly of the mattress and its packaging.

**3. Stakeholders involved** (please indicate the organisations in the region who are involved in the implementation of the action X and explain their role)

The project will be implemented by three SMEs, Technoplants, Fidertessile and Officina Meccanica Montenero. The research center Next Technology Tecnotessile will be involved as

consultant for the implementation of specific actions regarding the development of innovative textile machines.

**4. Timeframe** (please specify the timing envisaged for action X)

The project is in its implementation phase; the scheduled final date of the project is March 31th, 2020.

Currently, the project is in the phase of the development/design of the new machines for the mattress creation. At the moment, the companies involved in the action have received various request of information from potential clients interested in better understanding the technical process and the kind of waste materials that can be used for the final product.

The first steps of the project are really promising and the coordinator of the project (Technoplants Srl) is planning to exploit the project results through the creation of a start-up.

Starting date: 02/10/2017 - Estimated Final date: 31/03/2020

**5. Indicative Costs** (please estimate the costs related to the implementation of action X)

Total project cost: 864.100 Euro (425.000 € thereof funded by the ROP – see below)

**6. Indicative funding sources** (please describe how action X will be financed. Is it through the policy instrument(s) indicated in part II)

Grant 425.000 (Bandi Ricerca e sviluppo 2017 – POR CReO FESR Regione Toscana 2014-2020)

### **3. SUMMARY**

The Action Plan is comprised of three projects (partly) funded by the Regional Operational Programme of the Tuscany Region - Policy Instrument addressed by PP1 and PP2 of the RESET project. The projects have been approved in 2018 and are currently under development by the respective partnerships. They will be monitored during Phase 2 of the RESET project and finalised between the end of 2019 and beginning of 2020.

The following territorial impact / market development is expected from the projects:

#### **ACTION 1: NOVIFRA**

The project partners could become sector leaders for the development of systems for helping patients with various diseases; this will be feasible thanks to joint commercial policies which will be realized at the end of the project, after the validation of the effectiveness of the new support systems developed. The new systems will allow the loyalty of existing customers (such as retirement and nursing homes) and, above all, will allow the acquisition of new healthcare facilities. The expected economic effects are considerable, and concern the possibility of acquiring new market shares in the field of health care facilities, both in Italy and abroad.

This project will enable the partners to strongly stand out from the regional and national competitors. The project will have a great impact also on the scientific community, thanks to the opportunity of offering innovative solutions for the improvement of patients' life conditions and health.

#### **ACTION 2: NANECO**

Manifattura Maiano decided to develop the Naneco project after general optimistic market projections in the sector of panels for construction and furnishing industries. In particular, the new panel studied in the project, can be used in public buildings and schools which represent a relevant market for the company.

The R&D activities for the development of the new panel will be lead in order to make it applicable in schools and similar public buildings; these activities will consider all the specific law requirements. If the projects' results will be positive, this will allow Manifattura Maiano to become a leader in providing acoustically-absorbing ecosustainable panels for the acoustic improvement in classrooms. This results will allow Maiano to expand its potential market towards other kind of buildings where the noise represents a problem, such as restaurants, offices, hotels and also industrial building.

## **ACTION 2: COM4PRO**

At the end of the project, the partners will have the possibility to become leader companies in the field of sustainable and certificated mattresses production, thanks to joint commercial policies which will be realized at the end of the project, after the testing activities for the evaluation of the potentiality of the new production systems and of the new recycled materials used. In particular:

- Technoplants will develop materials and foam recycling machines, using technologies currently available in the non-woven sector.
- Fidertessile will be involved in research activities about the mattress' external casing; the aim of its activity is to create a textile with anti-odour properties and anti-mould properties, and able to release fragrances for increasing the users' sense of comfort
- Officina Montenero will develop materials sewing and assembling machines according to Industry 4.0. principle

This project will enable the 3 partners to strongly stand out from the national competitors. The project will have a great impact also on the scientific community, thanks to the opportunity of proposing innovative solutions for the improvement of user's comfort. The projects results will also increase the value of the region, as an area in which there are concrete opportunities to develop ideas and projects also connected with social welfare.