



RESearch Centres of Excellence in the Textile Sector

ACTION PLAN

Project Partner: CITEVE



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1. GENERAL INFORMATION

Project	RESET – Research Centers of Excellence in the Textile Sector
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2. INTRODUCTION

2.1. Background of the Action Plan – T&C sector

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 programs 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**:

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

The Portuguese Textile and Clothing Industry exports more than 5 billion euros annually to over 180 countries around the globe and is responsible for around 10% of all Portuguese exports of goods. The Portuguese balance of trade in textile and clothing creates a surplus of over 1 billion euros – making this one of the most important activities for the country's economy. The Portuguese Textile and Clothing (T&C) Industry comprises over 6.100 corporations and a little more than 5.900 individual companies, employing in total about 134.000 direct workers and generating a turnover of 7,6 billion euros in 2017. Individual companies represent 1,2% of the generated turnover and 5,3% of the employment in this industry.

It is one of the most important Industries of the Portuguese economy, accounting for 10% of the national exports of goods, 20% of the manufacturing industry employment and 8% of the manufacturing industry turnover. It is one of the activities with a positive trade balance of goods, registering often a balance of more than one billion euros.

2.1. The objective of the Action Plan for Portuguese T&C sector

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 that participate in the project, 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.

The performance indicator of RESET for CITEVE is generate additional turnover returned by new products or processes based on R&D+I activities. Taking this in consideration, CITEVE activities were focused to boost new R&D+I activities truth new projects submitted under the national policy Portugal 2020 (manage by COMPETE 2020) and with a particular emphasis in the North Region of Portugal where is mainly establish the Portuguese textile and clothing industry. Based on the Best Practices presented truth seminars and workshops as also with the experience collected from the Interregional Learning Events, several R&D+I ideas come up with different stakeholders (in particular SME) which were converted to new projects proposals submitted under the policy.

3. REGIONAL ANALYSIS OF PORTUGAL REGION

3.1. The Textile and Clothing Sector

The Portuguese Textile and Clothing Industry is mainly located in the “Norte” region of Portugal which represents 87% of the sector’s turnover and 86% of employment, followed by the “Centro” region (11% of the turnover and of the employment).

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The “Norte” region has the higher employment concentration when compared with other European Regions (EU-28). The manufacture of outerwear, except for leather and workwear is the activity with higher turnover (38%), followed by manufacture of made-up textile articles, except clothing, among which home textiles are included (30%), by weaving (9%), and by finishing of textiles (7%). Portugal is one of the most important European players in terms of textile and clothing industry. Strongly export-oriented, this industry has on EU markets its main destinations, with Spain representing over one third of total exports. USA is the main non-EU market destination, representing from 5% to 6% of the total textile and clothing Portuguese exports.

After a decline period generated by the global T&C liberalization (2005) with the entry of new players in the world T&C trade and the impact of the global economic and financial crisis (2008), with consumption disruptions in the most important Western markets, the Portuguese T&C Industry began to recover in 2010. It traced from there a sustained growth path, driven by a set of critical success factors that characterise this industry: industrial know-how, including design and product development, high quality of goods and services, flexibility, adaptability and great reactivity, a culture of business to business, specialized human

resources with extensive experience and diverse skills, quick response ability, a wide range of high value-added services, strong innovation skills, complete, structured and dynamic textile and clothing pipeline.

All of these achievements were supported by consistent and developed competence centres, namely the T&C specialised CITEVE (Technological Centre for Textile and Clothing Industry), CeNTI focused on Nanotechnology and Smart Materials and other R&D centres and Universities which have in their portfolio competences and background knowledge relevant and for the new challenges of T&C industry for the upcoming years.

3.2. Local/regional agents/stakeholder and role

Name of agents/stakeholder (regional agencies or national authorities):

1. COMPETE2020
2. CCDR-n Regional Norte Portugal Regional Coordination and Development Commission
3. ANI Portuguese National Innovation Agency
4. IAPMEI Agency for Competitiveness and Innovation

Type of organization

1. COMPETE is the managing authority of Thematic Program POCL.
2. CCDR-n is a public institution that works towards the integrated and sustainable development of the NORTE Region of Portugal, contributing to the country's competitiveness and cohesion.
3. ANI is a public agency whose mission is to promote knowledge transfer through greater and better collaboration and cooperation between enterprises and the research & knowledge production institutions. The ANI mandate is to promote innovation through research funding.
4. IAPMEI mission is to promote competitiveness and business growth, to support the design, implementation and evaluation of public policies aiming strengthening innovation, entrepreneurship and business investment. IAPMEI is a public agency under the Ministry of Economy.

Role/influence on TC sector

1. Responsible for the Smart Specialization Strategy definition and implementation for the NORTE region. Financial instruments implementation.
2. Managing of incentives to promote competitiveness and internationalization, promoting the consolidation of competitive advantages.
3. Implementation of R & D, Innovation and Entrepreneurship policies with a technological base in the areas of Science and Economy, with the main attribution of promotion of knowledge valorisation, namely through greater and better collaboration and coordination between companies and RTDs.

4. A strategic partner for the innovation and growth of companies, and entrepreneurs. IAPMEI is the managing authority for Clusters in Portugal and responsible for clusters policies implementation.

4. POLICY CONTEXT

The Action Plan aims to impact:

- ☐ Investment for Growth and Jobs programme
- ☒ European Territorial Cooperation programme
- ☐ Other Regional Development Policy Instruments

4.1. POCI - COMPETE 2020 Operational Programme

The POCI thematic program is anchored in major national strategic policy guidelines and the Europe 2020 strategy. The contribution of the program is particularly relevant to the priority "smart growth" and to develop an economy based on knowledge and innovation. Main objectives of the Axis 1, closely related to the national RIS3 are:

- Increase business investment in R&D by increasing the economic intensive activities in knowledge and value creation based on innovation, strengthening the link between companies and other entities of the research and innovation. Development of new products and services, especially in more technology intensive activities and knowledge as result of business cooperation with R&D centres and universities through new projects and activities and successful share of its results.
- Strengthening networks and other forms of partnership and cooperation oriented to innovation of enterprises and value chains through enhanced clustering initiatives and their effectiveness and efficiency in terms of innovation and competitiveness
- Increase business investment in innovative activities promoting tradable production and changing the productive economic base profile, by developing innovative solutions based on the results of R&D and integration and convergence of new technologies and knowledge. Improvements to be proposed for this policy instrument relate to a greater focus on the environmental sustainability to be promoted by R&D processes and activities.

5. ACTION LINES

5.1. Stage 1

The **first stage** was composed by several activities occurred during the project execution which included workshops, seminars, interregional learning events, public dissemination of the project developments, meetings with different national stakeholders (in particular SME) all of them with the objective to increase the participation of the sector in new R&D+I projects and with that also increase the turnover generated by the sector.

This first stage got a duration of 3 years (between April 1st 2016 and March 31st 2019) and from those activities performed during the first stage, results started to come up in the preparation and submission of several R&D projects with companies and others scientific entities truth the areas of RESET project. Bellow we find a summary of those projects that were submitted under the policy instrument PORTUGAL 2020 R&D projects (manage by the Portuguese authority COMPETE 2020):

Action: Project RePESCar

Status: Proposal submitted May 2018 (**under evaluation**)

Key Theme Addressed: Recycling + Waste

Linked GP: CETI Textile Recycling Valley

Action: Project TraCE

Status: Proposal submitted May 2018 (**under evaluation**)

Key Theme Addressed: Water + energy

Linked GP: CETI 100% Biodegradable water industrial filters

Action: Project iTechDye

Status: Proposal submitted May 2018 (**under evaluation**)

Key Theme Addressed: Chemistry

Linked GP: AITEX Sustainable textile finishing using ozone and nanobubble technologies

Action: Project ipVEST

Status: Proposal submitted June 2017 (**running**)

Key Theme Addressed: Smart Textiles

Linked GP: CLUTEX Kompozitex – Emergency evacuation

Action: Project TexBoost - PPS5 - Circular Economy

Status: Proposal submitted October 2016 (**running**)

Key Theme Addressed: Eco Creativity + Natural Fibers

Linked GP: CITEVE Eco-Creativity in Home Textiles with Cork waste

Action: Project ErCoSys - Erosion Control Systems

Status: Proposal submitted July 2017 (**running**)

Key Theme Addressed: New Materials + New Applications

Linked GP: AITEX Use of algae wastes to develop nonwovens and composite materials

The Actions already approved and running are detailed in the next pages as also included for monitoring during the second stage of the project RESET.

NAME OF THE ACTION
<p>ACTION 1 Project ipVEST</p> <p>R&D Project in Copromotion running under the policy Portugal 2020, pillar POCI (Operational Program for the competitiveness and Internationalization).</p>
<p>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?)</p> <p>Derived from the presented good practice Kompozitex – Emergency evacuation under the Smart Textiles Key theme, presented by CLUTEX RESET partner, the aim of the project is to find R&D of innovative solutions for technical and functional clothing with intelligent multirisk protection, using new textile materials with advanced performances and new integrated sensor systems, thus promoting individual protection and user information.</p>
<p>Nature of the action (please describe precisely the content of action 1. What are the specific activities to be implemented?)</p> <p>The activities to be implemented is a set of intelligent multi-hazard protective clothing with 2 components designed to perform specific functions:</p> <ul style="list-style-type: none"> i) the first one will protect against aggressive climatic conditions such as wind, rain, heat, cold, electrical risks, chemical exposure, and the ii) second will act in an active way containing all the sensing and communication for the protection and alert of the worker (integrated sensor and / or compatible with plug & play systems, respective communication system and interconnection with wireless data network). <p>Textile structures combining multiple protection factors and advanced electronics with biometric sensors, electromagnetic radiation, temperature and humidity measurement and communication system will be used. Specific objectives are to develop multifunctional and intelligent hybridization textile structures, sensing system, control hardware and firmware, interface system and software and data transmission, as well as the process of global integration of solutions.</p>
<p>Stakeholders involved (please indicate the organisations in the region who are involved in the implementation of the action 1 and explain their role)</p> <p>2 Companies:</p> <p>SCORECODE TEXTEIS, LDA. Role: coordinator & clothing producer</p> <p>VIATEL - TECNOLOGIA DE COMUNICAÇÕES S.A. Role: developing of communication systems protocols</p> <p>2 RTDs entities:</p> <p>CITEVE – Technological Center for Textiles and Clothing of Portugal Role: electronic integration into textiles/clothing</p> <p>CeNTI – Technological Center for Functional and Intelligent Materials and Nanomaterials Role: developing of electronic materials</p> <p>CITEVE will implement (because is part of the consortium) and monitor the action at the same time.</p>

Timeframe
Starting: 01-01-2018 End: 31-12-2020
Indicative Costs
Total investment: 802.140€
Indicative funding sources
549.633€ ERDF from Policy Instrument Portugal 2020 – POCI R&D Copromotion Projects 252.507€ Private funding

NAME OF THE ACTION
ACTION 2 Project TexBoost - PPS5 - Circular Economy R&D Mobilizing Project running under the policy Portugal 2020, pillar POCI (Operational Program for the competitiveness and Internationalization).
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?) Derived from the presented good practice Eco-Creativity in Home Textiles with Cork waste , presented by SEDACOR stakeholder in the workshop for: Eco Creativity + Natural Fibers , the aim of this project is the research and development of a new generation of coated textile solutions, through the use of waste and by-products from the dairy industry, with new multifunctional properties combined with design and special fashion effects.
Nature of the action (please describe precisely the content of action 1. What are the specific activities to be implemented?) It is intended to correspond to what has been registered with regard to the attitude of consumers, who are increasingly concerned with ethical, environmental and sustainability issues, and to develop products that have the potential to be applied in technical and functional areas and that are in significant expansion: tecnofashion, ecodesign, clothing, decoration, home textiles, footwear, fashion accessories, sport, protection, among others.
Stakeholders involved (please indicate the organisations in the region who are involved in the implementation of the action 1 and explain their role) 5 Companies: TÊXTEIS PENEDO S.A. Role: coordinator & home textiles producer RIOPELE S.A. Role: textiles & clothing producer SEDACOR – SOCIEDADE EXPORTADORA DE ARTIGOS DE CORTIÇA LDA. Role: cork producer and waste cork supply TINTEX TEXTILES S.A. Role: finishing textile company ERT - Têxtil Portugal, SA

<p>Role: automotive textiles producer</p> <p>2 RTDs entities:</p> <p>CITEVE – Technological Center for Textiles and Clothing of Portugal Role: supply R&D activities related with textiles and clothing</p> <p>CeNTI – Technological Center for Functional and Intelligent Materials and Nanomaterials Role: supply R&D activities related with materials</p> <p>CITEVE will implement (because is part of the consortium) and monitor the action at the same time.</p>
Timeframe
<p>Starting: 01-07-2017</p> <p>End: 30-06-2020</p>
Indicative Costs
Total Investment: 1.615.944€
Indicative funding sources
<p>1.121.657€ ERDF from Policy Instrument Portugal 2020 – POCI R&D Copromotion Projects</p> <p>494.287€ Private funding</p>

NAME OF THE ACTION
<p>ACTION 3</p> <p>Project ErCoSys - Erosion Control Systems</p> <p>R&D Project in Copromotion running under the policy Portugal 2020, pillar POCI (Operational Program for the competitiveness and Internationalization).</p>
<p>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?)</p> <p>Derived from the good practice of AITEX RESET partner – Use of algae wastes to develop nonwovens and composite materials, under the key theme New Materials + New Applications, the aim of the project is the research and development of new and sustainable geotube solutions based on large tubular technical fabrics with high performance in terms of mechanical properties and durability, adequate water drainage level and without the traditional seams.</p>
<p>Nature of the action (please describe precisely the content of action 1. What are the specific activities to be implemented?)</p> <p>The main purpose of the developed solutions will be sand retention and water drainage for the mitigation of coastal erosion and protection / rehabilitation of dune systems. It is intended to study and develop new materials (high-performance technical yarns) and new tubular multilayer textile structures (without seams normally used for layers assembly) to obtain new solutions of geotubes with a high level of regularity in what concerns to mechanical resistance and durability and by this way overcome the constraints associated with existing products on the market. The target market for the new product are</p>

civil engineering and construction companies dedicated to the installation of this type of products. With this project, the company intends to follow up on its growth strategy through the exploration of new business areas and new clients namely with solutions for coastal protection and erosion control.

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

1 Company:

SICORNETE - FIOS E REDES LDA

Role: coordinator & fishing net producer

1 RTDs entity:

CITEVE – Technological Center for Textiles and Clothing of Portugal

Role: supply R&D activities related with textiles

CITEVE will implement (because is part of the consortium) and monitor the action at the same time.

Timeframe

Starting: 01-01-2018

End: 31-12-2020

Indicative Costs

Total Investment: 2.867.681€

Indicative funding sources

1.343.766€ from Policy Instrument Portugal 2020 – POCI R&D Copromotion Projects

1.523.915€ Private funding

In order to finish the 1st stage of RESET Project and with the objectives to be disseminated and to be available for the Portuguese textile and clothing industry, a Portuguese Action Plan written in Portuguese and according an interactive book (flipbook) was developed, covering the activities carried out during this first stage of the project as well as the actions that took place in order to demonstrate European good practices of R&D and simultaneously maintain the influence within the national companies for the launch of new R&D projects.

Some print screens of the flipbook bellow:



5.2. Stage 2

The second stage of RESET Project, which it will carry out from April 1st 2019 to 31st March 2021, it is composed by activities to monitoring the execution of the actions (projects) and evaluate the impact of them in the turnover for the sector.

The state of fulfilling the actions already running (quantity and quality) and the given performance indicators (for the actions running as well for new potential actions) will be done regularly with checkpoints during 2 periods as it is presented in the next table:

Indicator	Key indicators	Monitoring tools	Timeframe
Ind 1	Turnover generated by ACTION 1	Value of turnover generated	December 2020 March 2021
Ind 2	Turnover generated by ACTION 2	Value of turnover generated	June 2020 March 2021
Ind 3	Turnover generated by ACTION 3	Value of turnover generated	December 2020 March 2021
Ind 4	Number of events (fairs, workshops, seminars, roadshows, workshops, webinars, presentations) where project results and GPs were presented, number of contacted SME companies	Participating lists, minutes of meetings, number of handed out flyers and factsheets	March 2020 March 2021
Ind 5	Number of submitted project proposals under the policy instrument Portugal 2020, resulting from RESET Project Good Practices activities	Number of projects approved	March 2020 March 2021
Ind 6	Number of approved project proposals under the policy instrument Portugal 2020, resulting from RESET Project Good Practices activities	Number of projects approved	March 2020 March 2021

Ind 7	Turnover generated by other ACTIONS resulting from Indicator number 6	Value of turnover generated	March 2020 March 2021
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6. CONCLUSION

RESET project has been an important tool to increase the participation of SME companies in R&D activities. In fact, after dissemination of RESET Good Practices, brainstorming aligned with the Portuguese Textile Cluster and companies boosted new R&D ideas that were converted (some of them) into new R&D projects under the policy instrument COMPETE2020/Portugal2020.

On that way, the territorial impact is being achieved in the means that sustainable networks of innovation, partnerships and cooperation are being established, leading to an increasing number of textile SME participating in the R&D activities bring to them value chain products/services with smart specialization and added value to them services/products which is aligned with the national RIS3 of Portugal 2020: "... promotes the reindustrialization centred on the strengthening of research, technological development and innovation with the aim to modernize and boost the national industrial sectors...".

The vision of the Portugal 2020 policy is a reference of industrial competitiveness founded on continuous R&D and innovation and on dynamic capabilities and drawing a new trajectory of fast growth and job creation.

Smart cooperation is an important element to achieve this goal, being fundamental to pinpoint the best combinations of each region's knowledge and productive bases in order to integrate value chains and build, together, new competitive advantages founded on collaborative innovation.