



Building a circular textile value chain: Portugal GreenTex Hub

Introduction to the Hub, Interregional Focus Group and Presentations of SMEs

13 March 2025 • 10:30-11:30 • Online



Webinar Procedures



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video



Type questions
in the chat



Raise your hand
when you wish
to speak



When you are invited
to speak, unmute mic
and show video
(if possible)

Agenda

Introduction
*Charlotte Denis,
Textile ETP*

**TINTEX:
Naturally
Advanced**
*Pedro Magalhães,
TINTEX*

**Norte Region of
Portugal**
*Raquel Meira,
CCDR-Norte*

Q&A

**Building a
circular textile
value chain:
Portugal
GreenTex Hub**
*Tiago Pinto,
CITEVE*

**Improved
mechanical
recycling process
for complex textile
wastes**
Miguel Silva, SASIA

**Portuguese
Textile
Cluster**
*Maria José
Carvalho,
Portuguese
Textile
Cluster*

Conclusion
*Charlotte
Denis,
Textile ETP*



COMMUNITY TALKS

Online animation activities play a pivotal role in sustaining the engagement of SMEs within the digital ecosystem. To stimulate interaction, a series of **14 intra-consortium webinars**, the RegioGreenTex Community Talks, are taking place throughout the duration of the project. **The RegioGreenTex Community Talks promote the latest progresses and results of the project, and well as encouraging dialogue and knowledge sharing in the textile sector, focusing on sustainability and the green transition.**

The RegioGreenTex Community Talks are organised as part of WP2 (T2.4 Animation of the Ecosystem) and managed by Textile ETP, with the support of Euratex, NE RDA, Ariadne Innovation, OOST NL and Techtera.

Building a circular textile value chain: Portugal GreenTex Hub

Tiago Pinto, CITEVE



Co-funded by
the European Union



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TEXTILE TECHNOLOGY

citeve

TEXTILE TECHNOLOGY

Technological Centre for the Textile and Clothing Industries of Portugal

*Commitment to Quality,
Compliance and Innovation*



PORTUGAL | BRASIL | TUNISIE | CHILE | ARGENTINA | PAKISTAN | INDIA

Services

Testing

Product & Process Certification

Research, Technology Development & Engineering

*Sustainability, Bio
& Circular Economy*

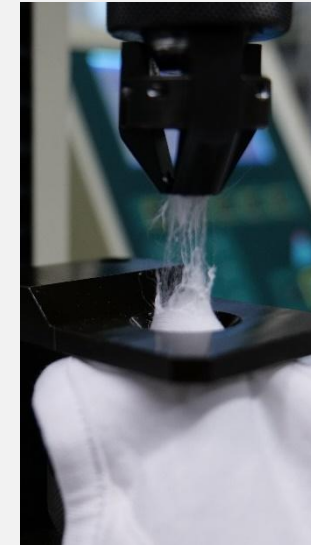
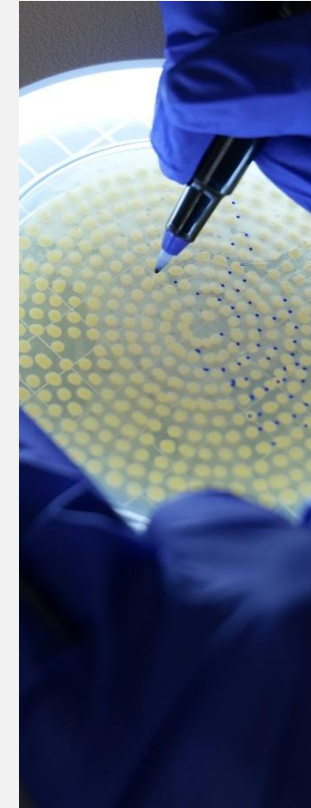
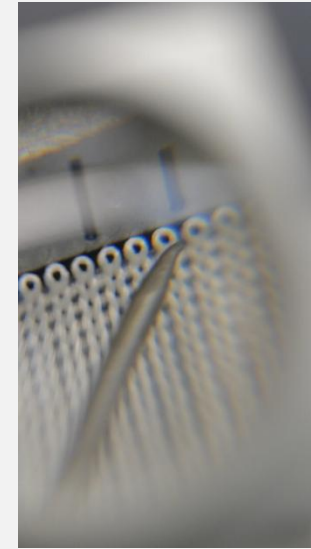
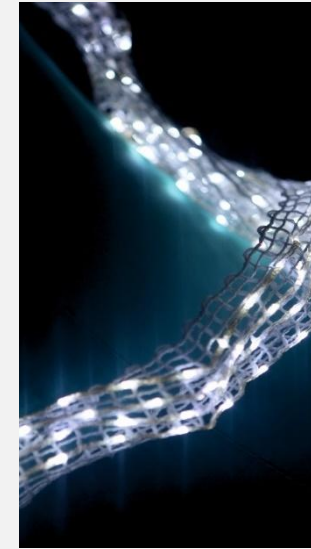
*Manufacture Digitalization
& Industry 4.0*

High Level Training & Coaching

Support to Innovation Capacities & Entrepreneurship

International Consultancy

Design & Fashion Intelligence



Market oriented

Fashion

Sports

Defence and PPE

Mobility & Transport

Workwear

Health & Well-being

Architecture & Construction



Annual Figures



60

R&D + INNOVATION
PROJECTS



2500+

ACTIVE
CLIENTS



240

FULL TIME
STAFF



48,400

CAMPUS
AREA (m²)



100k

LABORATORY
TESTS



600+

STANDARDS



1500+

CERTIFIED
PRODUCTS



Purpose of the Hub

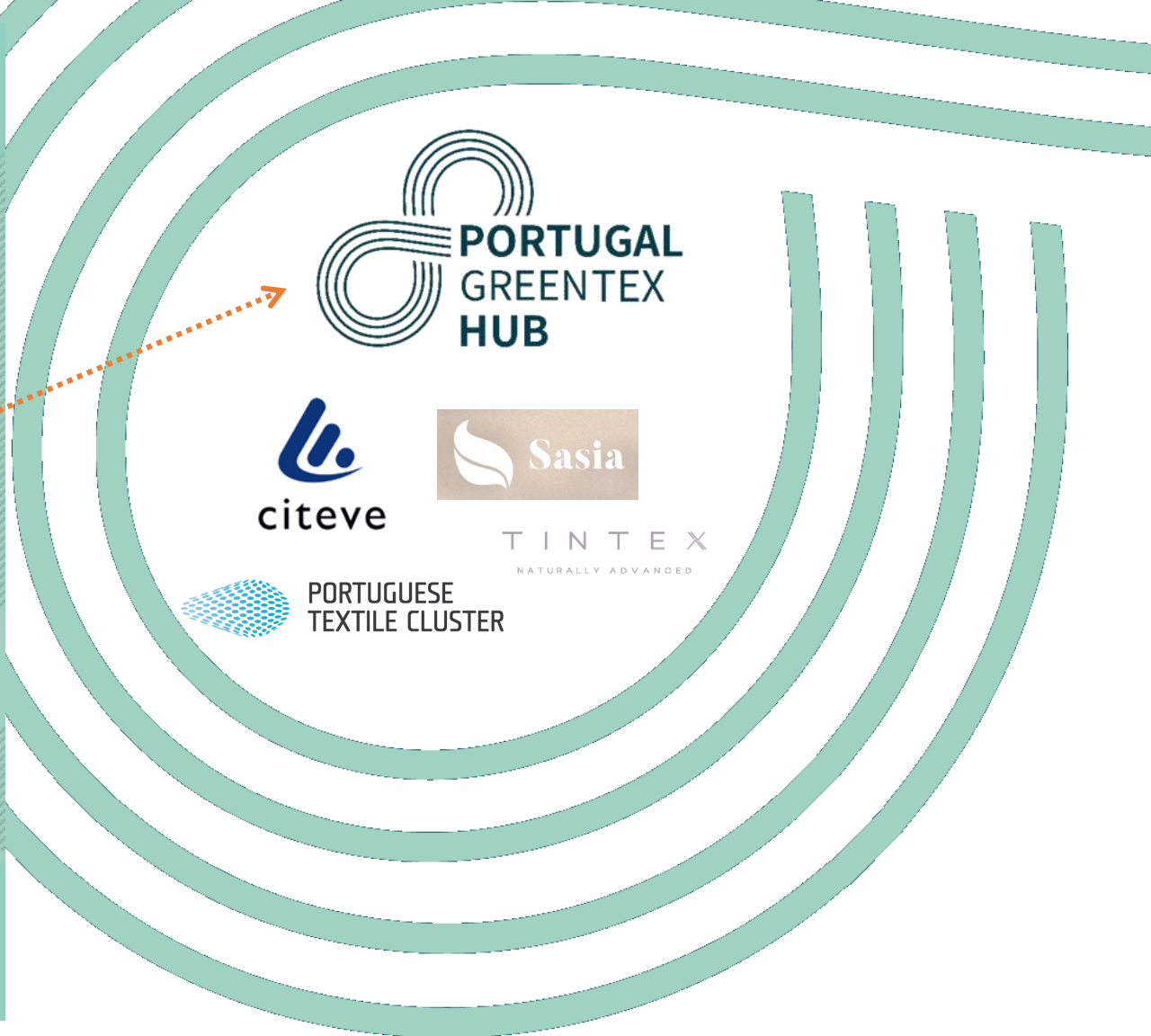
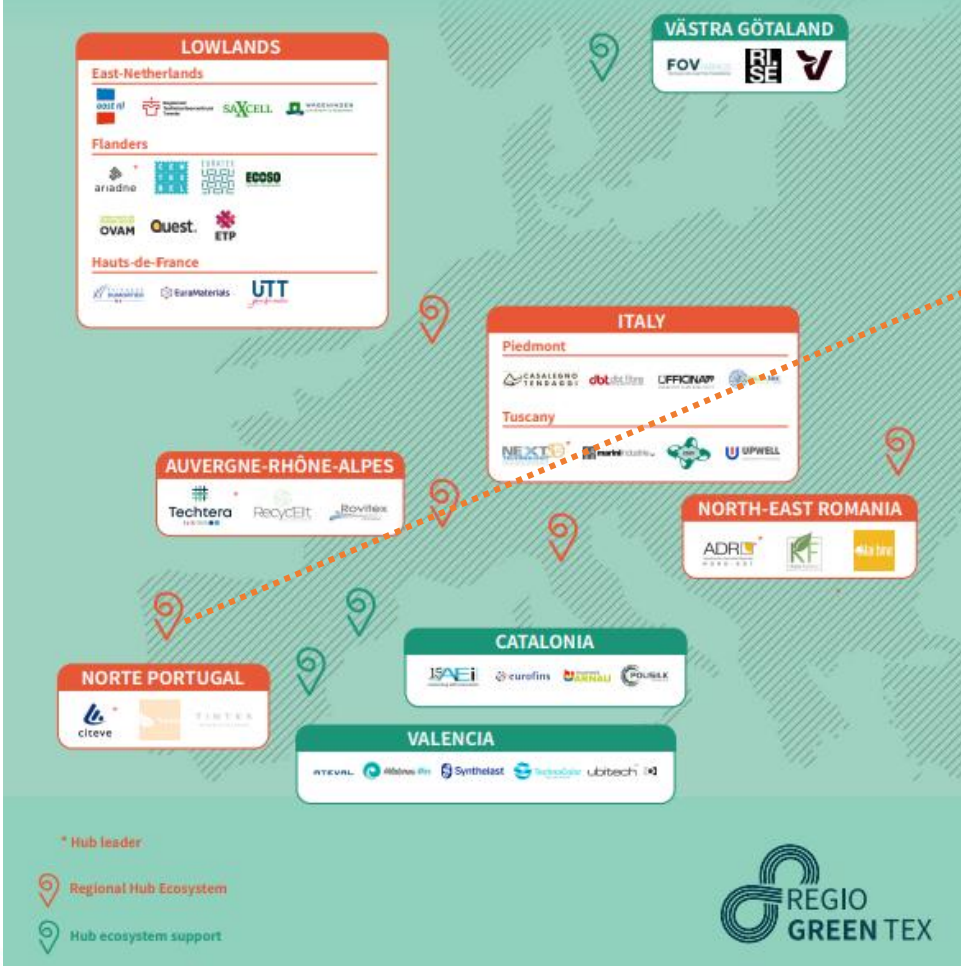
- ✓ The Portugal GreenTex Hub aims to mobilise different stakeholders within the regional textile ecosystem, and support them in the development of concrete actions towards maximising the recycling potential.
- ✓ It intends to reach potential companies that could perform recyclability tests and prototypes. This work is done within the expertise of CITEVE, Sasia and Tintex, supported by the Portuguese Textile Cluster, that also have the needed conditions to scale the business afterwards.

To increase recycled materials content on textile products during the next few years



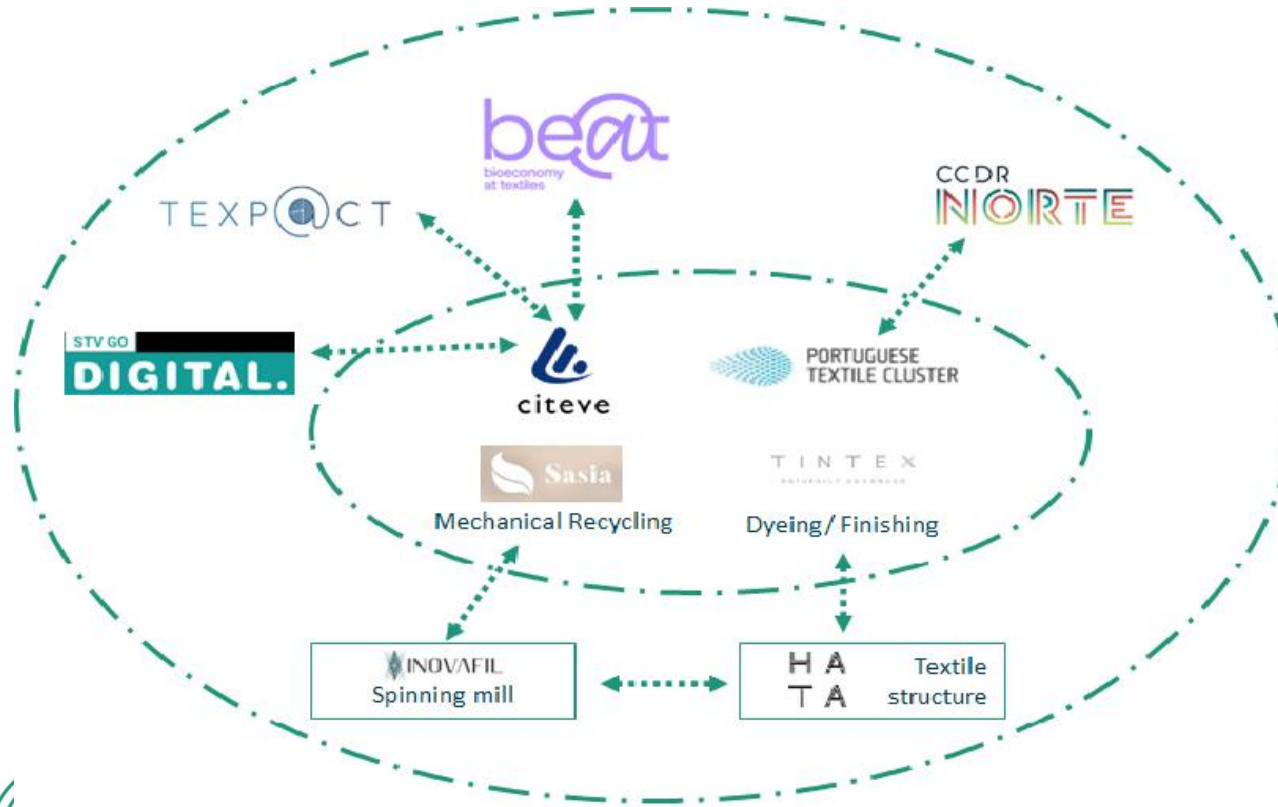
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RegioGreenTex Regional Hubs



Portugal GreenTex Hub

It is aimed to plan the activities of the Portugal GreenTex Hub and define the scope of the value chain case. The figure below presents the concept of Portugal GreenTex Hub.



- Interact with organizations/industries at regional and national level with the objective to build a complete ecosystem, focused at the recycled materials content on textile products
- Fulfil the gaps of the value chain and to improve the knowledge:
 - Regional authority – CCDR Norte
 - Spinning company – Inovafil
 - Knitting company – Hata

be@t (<https://bioeconomy-at-textiles.com/>)

Texp@ct (https://www.citeve.pt/technological_intelligence/projects/txp_ct_2-4d1d0227)

STVgoDigital (<http://www.stvgodigital.pt/>)

Activities of the Hub

Creation of the Special Interest Centre

- Recycling-related services to recycle textile products, pre and post-consumer, on a large scale;
- Guide SMEs to circularity, recycling at the industrial level and meeting the Green Deal targets;
- Reach potential companies that could perform recyclability tests and prototypes.

Consulting services

Companies interested in recycling services (research, development, and industrialization of recycled products) contacts CITEVE. With a focus on the customer requirements, the feasibility and potential of the recyclability is evaluated. A proposal is elaborated and if validated by client, it moves on the next stage.

Industrial Validation

In order to assure the industrial validation:

- SASIA produces the recycled fibre that is the raw material for the yarn;
- TINTEX applies sustainable dyeing and finishing treatments to demonstrate the feasibility of the industrial process.

Recycling process at pilot scale

- **Mechanical recycling line** - cutting + shredding machines;
- **Spinning line** (ring-spinning);
- **Sorting line** and a **chemical/enzymatic recycling line** (in development).

Portugal GreenTex Hub - Technologies

Mechanical recycling line consists of a cutting (Starcut 500 model) and a shredding (Cadette model) machines from LAROCHE.



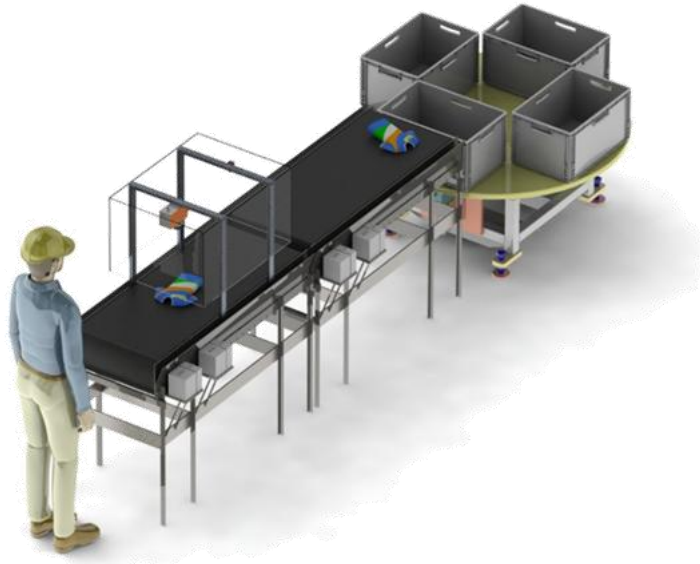
Portugal GreenTex Hub - Technologies

After mechanical recycling, to spin the fibers, CITEVE is equipped with a **spinning line**, at pilot scale, from Mesdan.



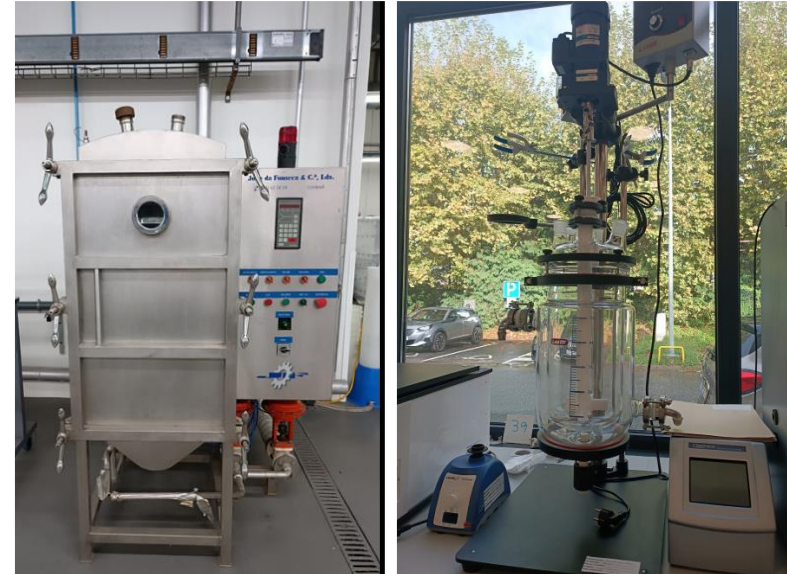
Portugal GreenTex Hub - Technologies

A **sorting line** and a **chemical/enzymatic recycling line**, at lab scale, are being added to CITEVE facilities.



Sorting line:

- two sensors for detect composition and colour;
- robotic arm with a proper system for removing accessories on the textile waste products.

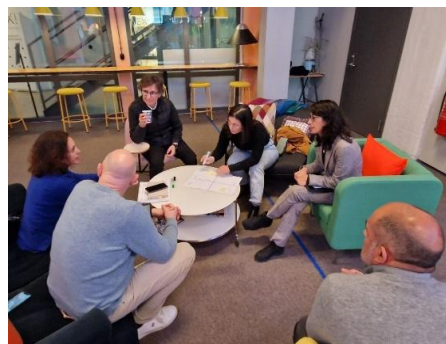


Chemical/enzymatic recycling line:

- reactors and pre-treatment processes to enable the dissolution of the wastes cellulosic fraction into new materials.

Portugal GreenTex Hub – Communication & dissemination

- ❑ Awareness of the Portugal GreenTex Hub activities
- ❑ Promoting the recycling pilot line
- ❑ Showcasing Sasia and Tintex developed products



Thank you!

Tiago Pinto (tpinto@citeve.pt)
Catarina Guise (cguise@citeve.pt)



TINTEX: Naturally Advanced

Pedro Magalhães, TINTEX



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T I N T E X NATURALLY
ADVANCED

Company Introduction

T I N T E X NATURALLY
ADVANCED

Industry Focus

Dyeing, finishing and coating for Fashion, Athleisure
and Innerwear markets

Mission: To develop responsible textile solutions, renowned by their design, innovation and sustainability, maximized through cooperation, knowledge, transparency and passion.

Vision: To build a new generation of textile solutions, truly supported by an eco-sustainable strategy focused on circular knits innovation.

Company Introduction



Vila Nova de Cerveira
Portugal



132 Workers



14,8 M€ in 2024

Company Introduction



Dyeing

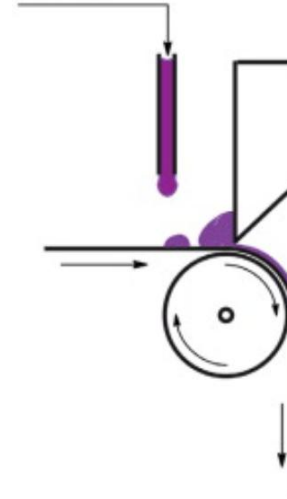


Finishing

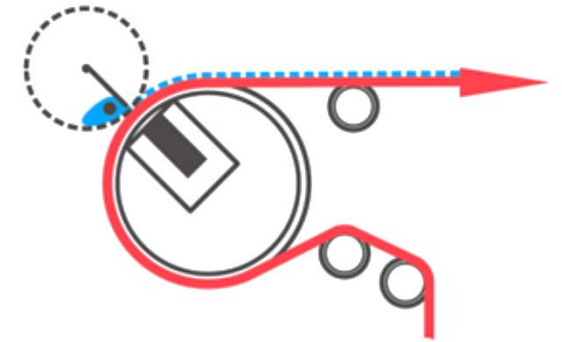
Company Introduction



Coating



Knife
over Roll

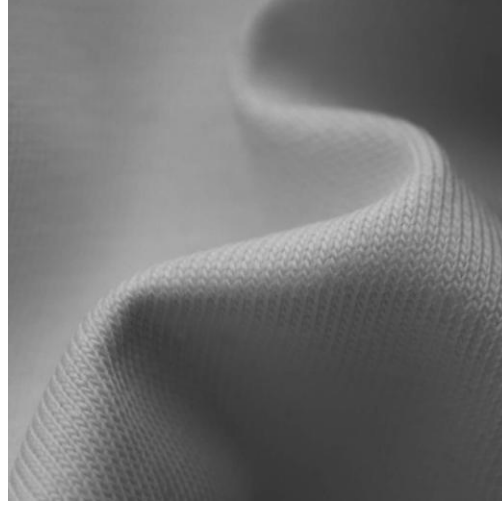


Rotary
Screen

Company Introduction



Interlock
100.0% Cotton
120 g/m²



Jersey
100.0% Organic
Cotton
150 g/m²



French Terry
100.0% Organic
Cotton
290 g/m²



Interlock
100.0% Cotton
390 g/m²

Company Introduction

In the last few years TINTEX has been involved in different R&D projects having in mind the possibility to create new ways of manufacturing, saving resources without compromising the premium quality and reaching new market segments.



Project Description & Objectives

New knitted fabrics produced with recycled waste from Tintex's production and finished with recycled water from the company's conventional processes

1. Use of Tintex's production textile waste to develop recycled yarns
2. Development of knitted fabric structures using recycled yarns
3. Application of alternative dyeing and finishing processes using recycled water on new recycled yarn textile structures
4. Scale-up of developments

└─→ These results can be mimicked by different SME's!



- Industry goes from linear to circular value chains
- Environmental impact is reduced

Project Updates & Evolution

2023							2024												2025					
M.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.
Tasks																								
1.																								
2.																								
3.																								
4.																								

Tasks

1. Development of recycled yarns from own production textile wastes
2. Development of knitted fabric structures using recycled yarns
3. Development, adjustment and application of alternative dyeing and finishing processes using recycled water on knitted fabrics made out of new recycled fibres
4. Scale-up of operations

Project Updates & Evolution



Current Challenges

- Operational cost of water recycling process compared to conventional cost
 - Satisfying performance requirements for the recycled fibers/knits
 - Light fastness for natural dyeing products

European Perspective:

- Collaboration Opportunities with other stakeholders from across Europe
 - Processing of fabrics from different stakeholders
- Collaboration to implement similar systems on different partners/regions

Next Steps:

Implementation and process scale-up

Opportunity

High demand of lower impact products with high transparency of the supply chain

Thank you!

Pedro Magalhães

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Improved mechanical recycling process for complex textile wastes

Miguel Silva, SASIA



Co-funded by
the European Union

SASIA - TEXTILE RECYCLING

**Improved mechanical recycling process for complex textile
wastes**

Textile Recycling Since 1952



- **Foundation: September 1952**
- **Location: V.N.Famalicão**
- **3th generation**
- **Pioneers in Textile Recycling in Portugal**
- **30 Workers**
- **Final product: Textile recycled fiber**
- **We recycle all textile waste**
- **4 last generation machines**





Mechanical Recycling:

- No water;
- No chemicals;
- No CO₂ emissions;

PRODUCT APPLICATIONS



Spinning



Construction



Automobile Industry



Mattress Industry



Hydrophilic



Geotextile

Improved mechanical recycling process for complex textile wastes

Acquisition and installation of a new cutting equipment with the aim of cutting more precisely and to cut differentiated materials, increasing its portfolio of processed textile wastes. The development of new products will be achieved by testing new blends and different sources of raw materials, this allowing the scaling up the process for the preparation of sustainable and innovative fibers.

Objectives:

- Reduce resource consumption
- Decrease environmental impact
- Reintegrate processed wastes into industrial value chains by developing at least one process to recycle mechanically complex textile wastes into new fibers

Old cutting machine



Average energy consumed in a day of work (kWh)

Old Cutter	New Cutter
76	22,4

The obtained values show that the new cutter is significantly more energy efficient, requiring approximately 70% less energy per day compared to the old cutter



New cutting machine

Successful trials with different source of raw materials

Knitted rolls (100% cotton) instead of scraps



The cutting capacity of the new equipment was evaluated thus allowing a trouble free feeding of knitted cotton rolls.

Aramid



Aramid is a challenging material to process due to its exceptional mechanical strength, which complicates the cutting process and requires significant force to break the fibres.

Texturized polyester various types and shapes



Polyester is designed to be resistant to tension, deformation, and wear, which makes cutting and separating the fibres challenging and requires more powerful and efficient equipment.

Thank you!

Miguel Silva

sasia@sasiareciclagem.com

Norte Region of Portugal

Raquel Meira, Norte Regional and Development Commission
(CCDR-Norte)



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RegioGreenTex

NORTE REGION OF PORTUGAL PRESENTATION

March 13th of 2025

Raquel Meira | Head of Unit for Planning and Regional Development

Norte Regional and Development Commission (CCDR-Norte)

CCDR NORTE: brief presentation

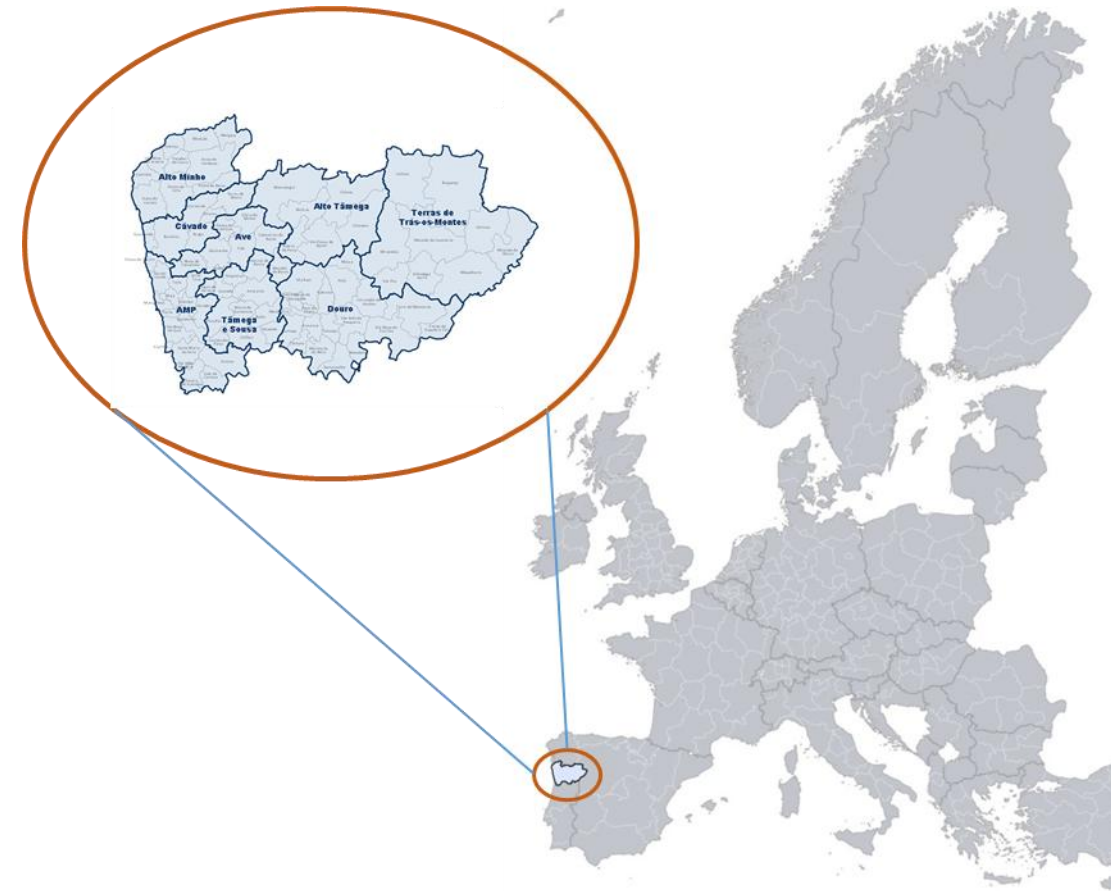
Brief Presentation

Norte Regional Coordination and Development Commission (CCDR NORTE, I.P.) is a decentralised body of central government whose activity, since 1969 aiming to an integrated and sustainable development of the Portuguese Norte region, contributing to the competitiveness and cohesion of the national territory.

Since January 1st of 2024 CDR NORTE, I.P. is a public institute with new areas of competence, such as innovation, culture and agriculture and fisheries.

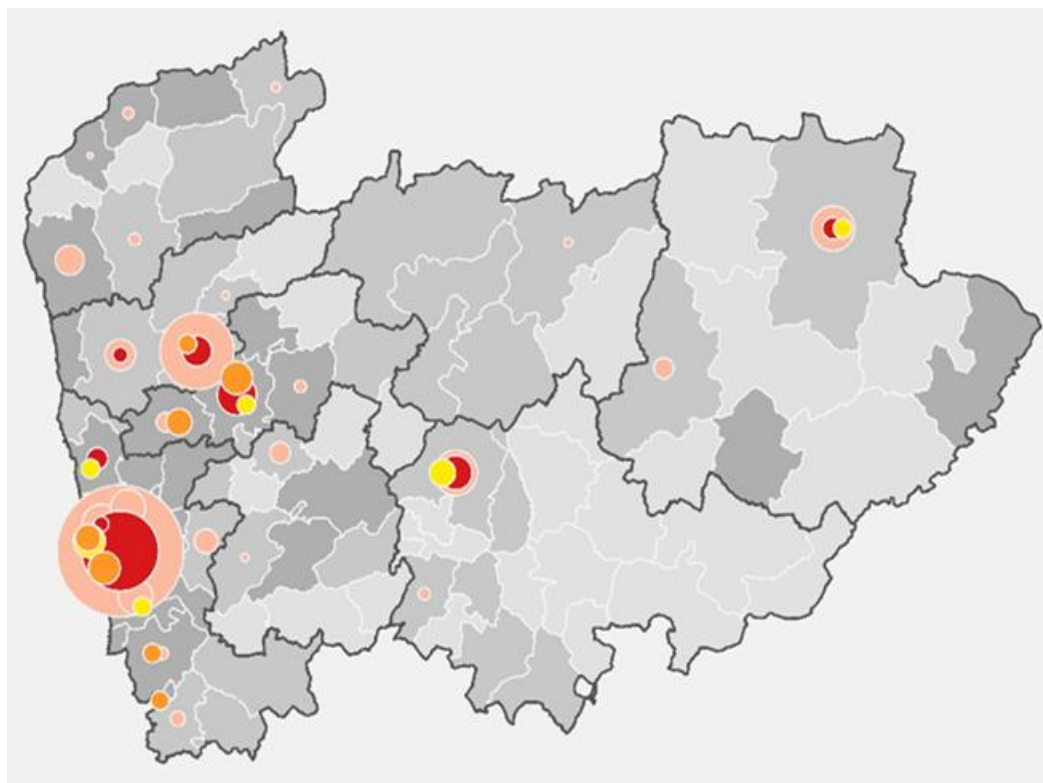


Norte Region: basic figures



- The most populous region in Portugal: 3.7 million inhabitants representing 35% of the Portuguese population (2023)
- A strong manufacturing industry tradition: 9th most industrialized region in Europe (2022)
- The leading Portuguese goods exports region: 34% in the total Portuguese exports of goods (2024)
- Main exporting sectors: automotive components, **textile, clothing**, furniture, machinery, footwear
- Science, technology and excellence: Relevant critical mass for high quality RDTT activities.
- Still a less development Region **GDP per inhabitant** below the EU-27 average (\cong 69 in PPS) (2023)

Norte Regional Innovation Ecosystem: some figures



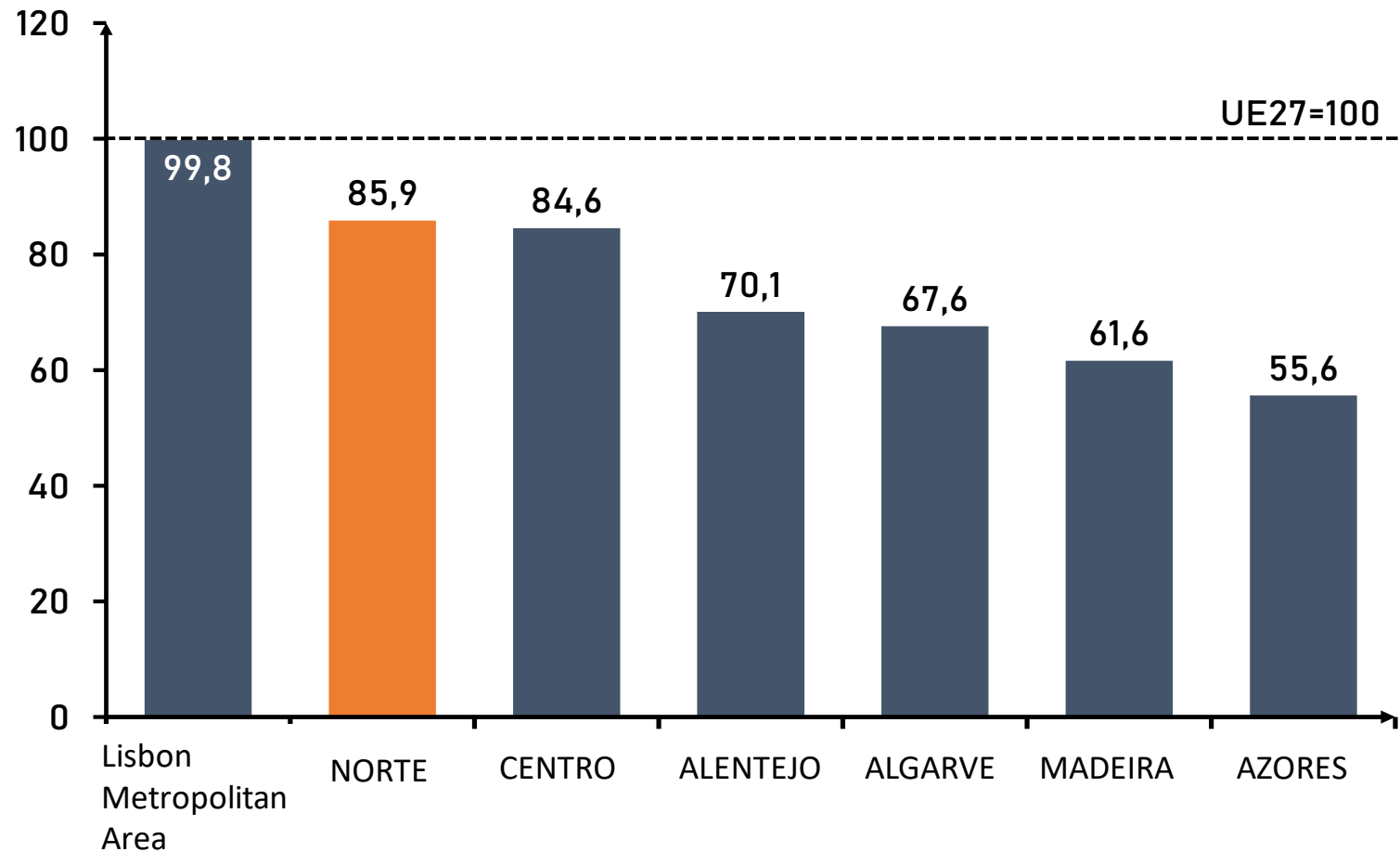
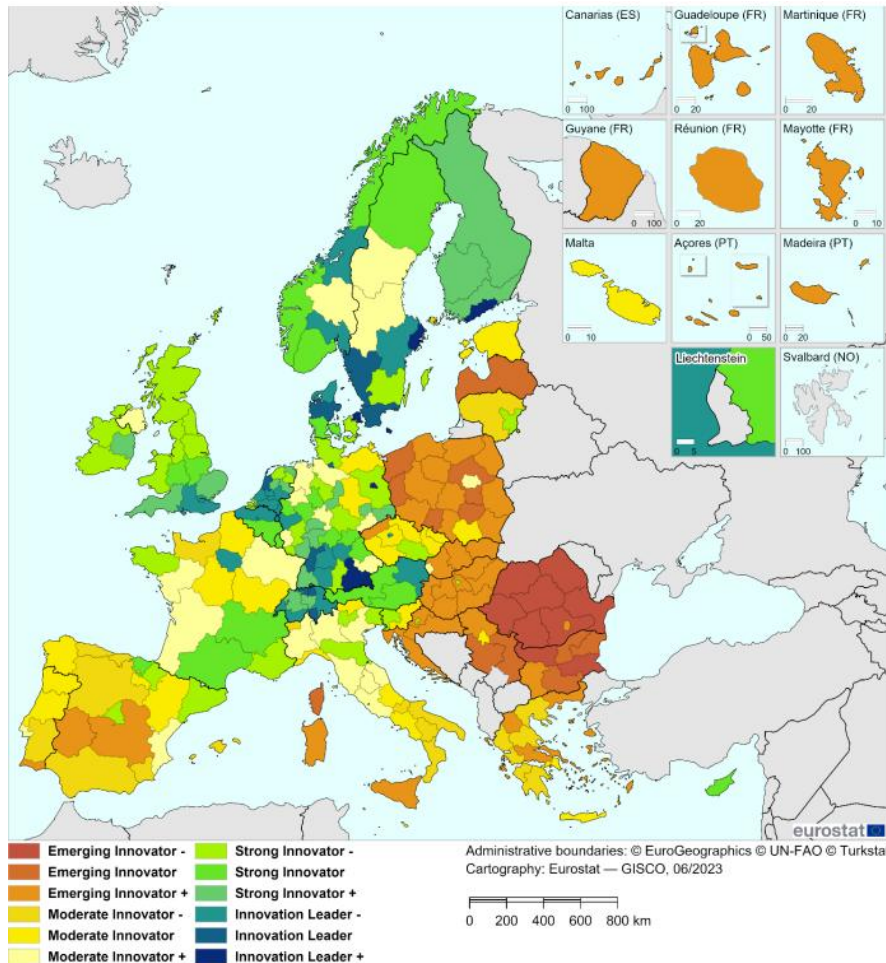
● Students enrolled in higher education institutions (n.er)

● Scientific and technological institutions (n.er)

■ Specializations in RIS3 domains (n.er)

- Norte is classified as a **“Moderate Innovator”** region, being the 2nd most innovative region in Portugal
- Remarkable progress in the share of population aged 30-34 with tertiary education (18.1% in 2009 to 42.1% in 2024)
- 44 Higher Educations Institutions (public and private) with 150,760 enrolled students in 2023/2024, representing 34% of the total in Portugal.
- 9 public higher educations institutions (3 Universities and 4 Polytechnics Schools) representing 74% of the enrolled students in Norte region (57% universities and 43% Polytechnics Schools)
- Around 32.988 students graduated in 2022/2023 (73% from public and 27% from private)
- 1,692 R&D units: 1st region in Portugal

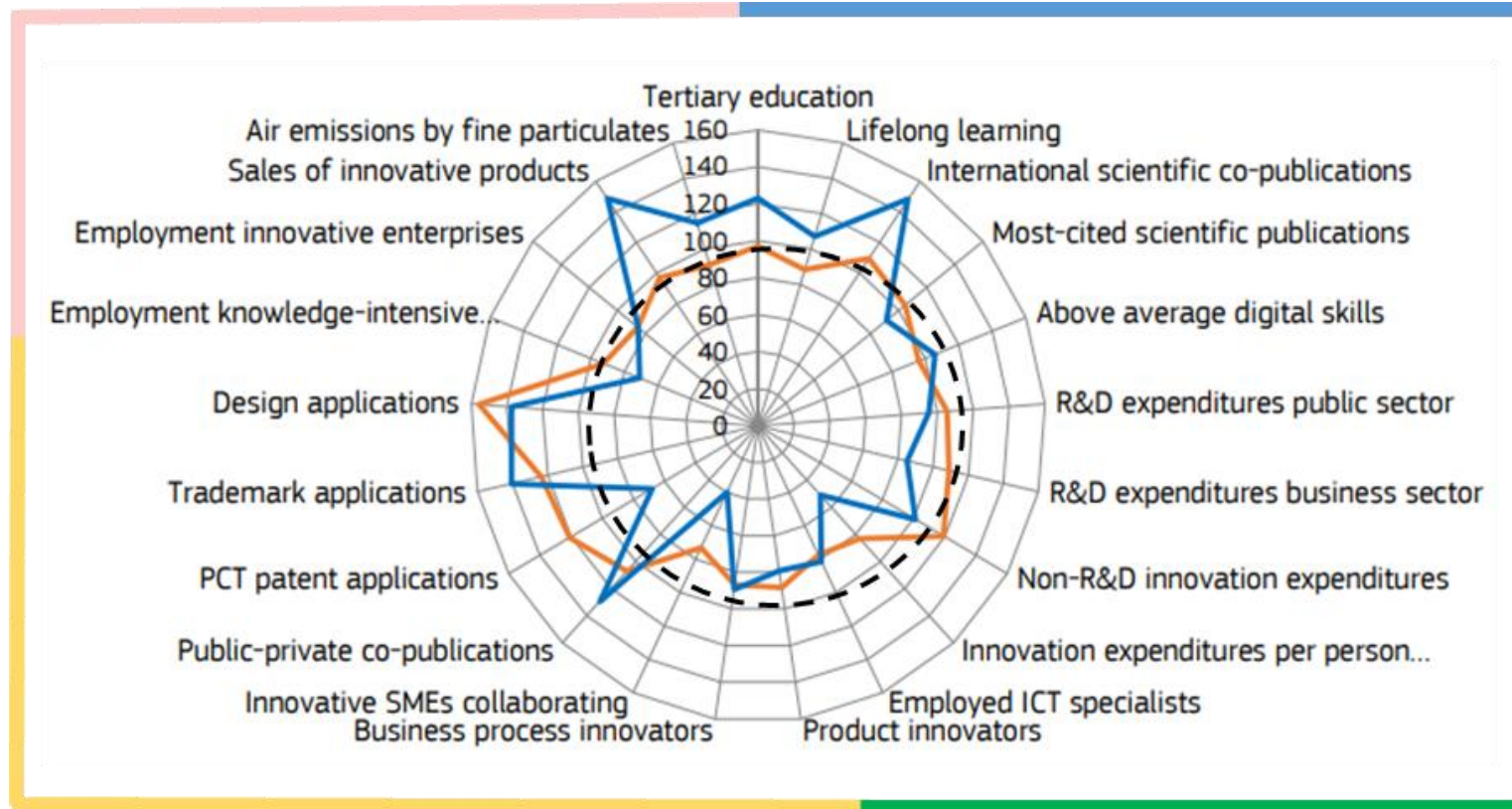
Norte Regional Innovation Ecosystem: Regional Innovation Scoreboard



Norte it is classified “Moderate Innovator”

Norte 2nd most innovative region in Portugal and 143rd in EU

Norte Regional Innovation Ecosystem: Regional Innovation Scoreboard



- Norte is classified as a “Moderate Innovator” region, being the 2nd most innovative region in Portugal and 143rd in EU.
- There are still structural weaknesses in the regional innovation system: Innovation expenditures per person and Innovative SMEs collaboration.
- Norte economic tissue still faces some productivity challenges, and a significant employment share remains allocated to economic activities with low added value.

Impacts

Innovation Activities

Framework Conditions

Investments

Regional Innovation System some examples of Textile Industry and Circular economy

Business Associations



Competitiveness Cluster



Digital Innovation Hub



Technology, Transfer and Valorisation Centres



- companies of Norte Region recorded a turnover of 5.2 Billion€ and a GVA of 1.7 Billion€,
- exported 3.5 Billion€, around 67% of the total production, indicative of the sector's high export orientation,
- Employment: 89,209 people employed in the sector, representing around 83.0% of Portugal in this sectors.

Norte Regional Programme 2021-2027

Priority: 2A. “Norte Green and Low-carbon”, Specific Objective 2.6 - Promote the transition to a circular and efficient economy in the use of resources.

Call presently open to companies SMEs – **9 Million € of ERDF**, and 50% co-financing

Purposes and objectives the call aims:

- Accelerate the transition to a carbon-neutral economy and strengthen business competitiveness, encouraging the decarbonization of economic activities, energy efficiency and the reduction of greenhouse gas emissions, promoting environmental and economic sustainability;
- Support the diversification of renewable energy production, from sources and technologies that are not sufficiently widespread in the market;
- Promote the **circular economy and regenerative production processes**, and improve compliance with European Union environmental legislation and policy, with a view to increasing the productivity of the economy resulting from the increased reintroduction of recovered materials into production processes and water circularity, taking into account the regional dimension.

Thank you!

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Portuguese Textile Cluster

Maria José Carvalho, Portuguese Textile Cluster



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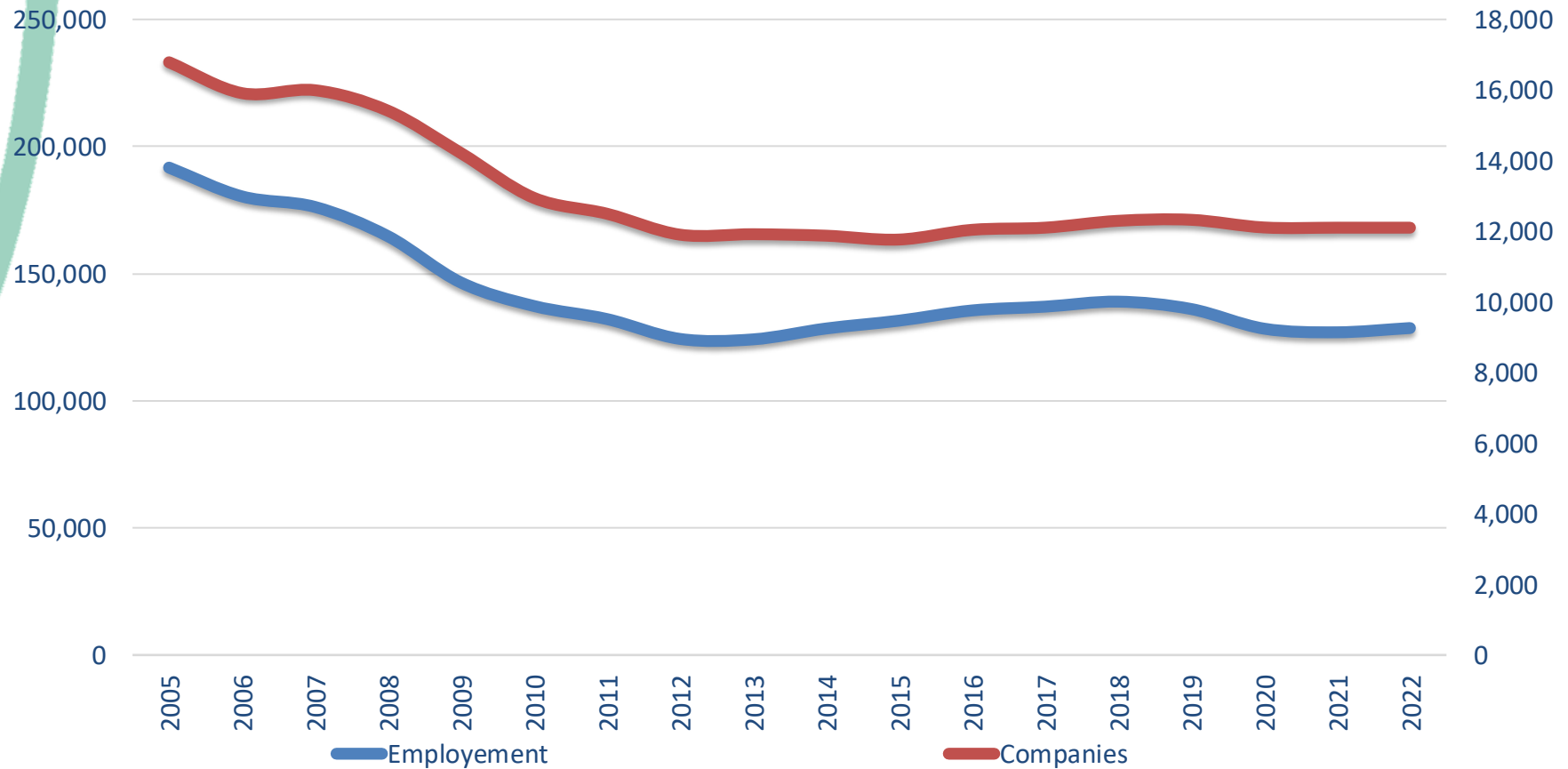
Building a circular textile value chain: Portugal GreenTex Hub

Portuguese Textile Cluster

RegioGreenTex Community Talks :: 13.03.2025

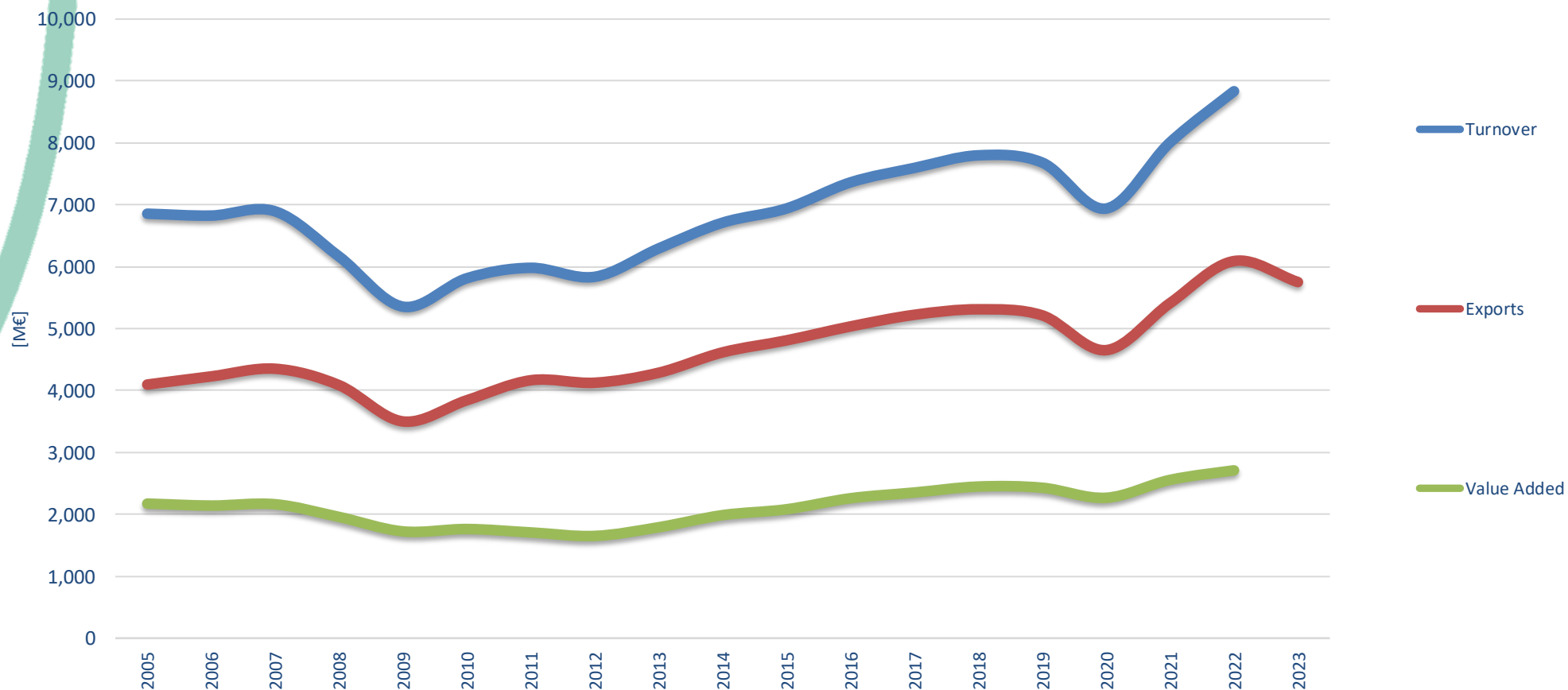
Portuguese Textile and Clothing sector

Number of Companies and Employees



Portuguese Textile and Clothing sector

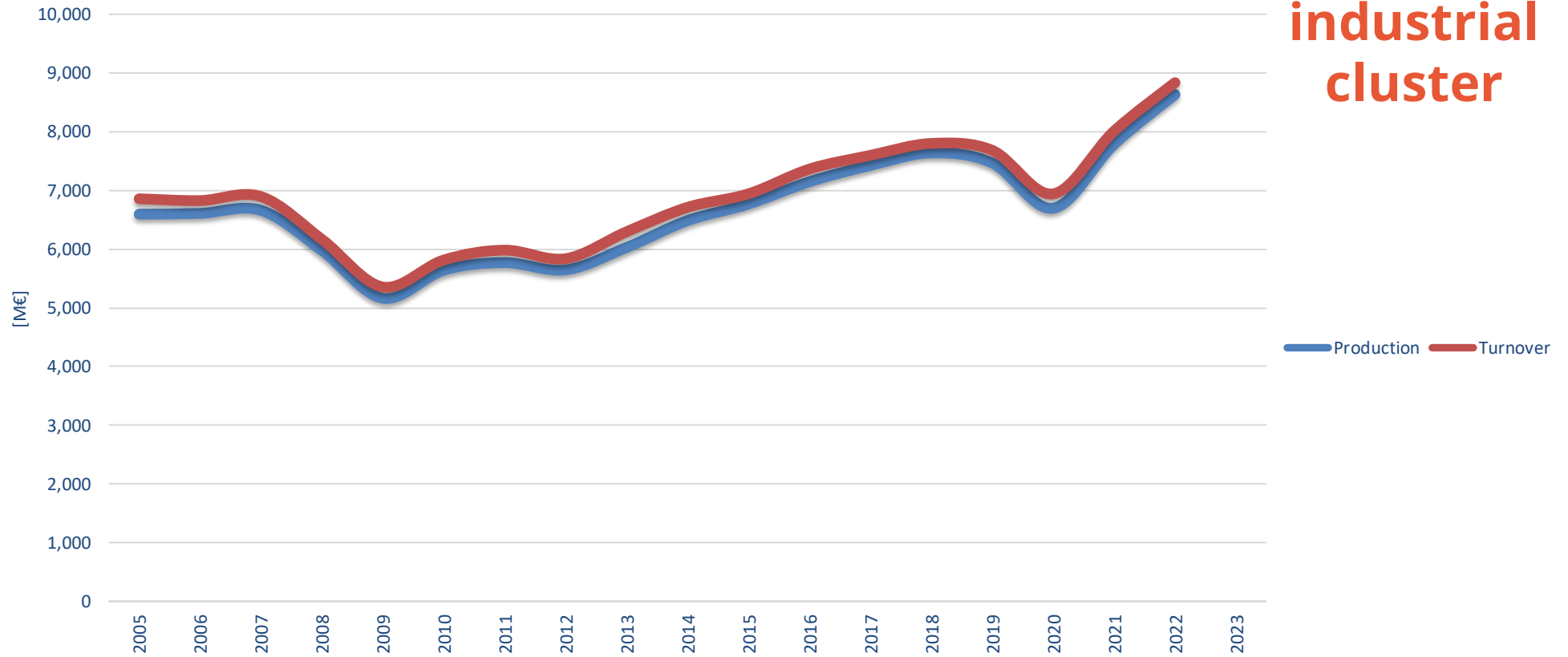
Turnover, Exports and Added value



Portuguese Textile and Clothing sector

Turnover vs Production

An
industrial
cluster



Portuguese Textile and Clothing sector

A natural cluster

Geographically concentrated (75% of companies are in Norte Region, representing 89% of the turnover)

Complete – it has eclectic production capacities and operates in all subsectors

- Fashion – Inner and outerwear, for men, women, children and babies
- Household, Hotel and Decoration Textile
- Technical and functional textiles, including sports, workwear, uniforms, mobility, with a greater focus on the automotive, health and well-being, military and protection, construction, among others

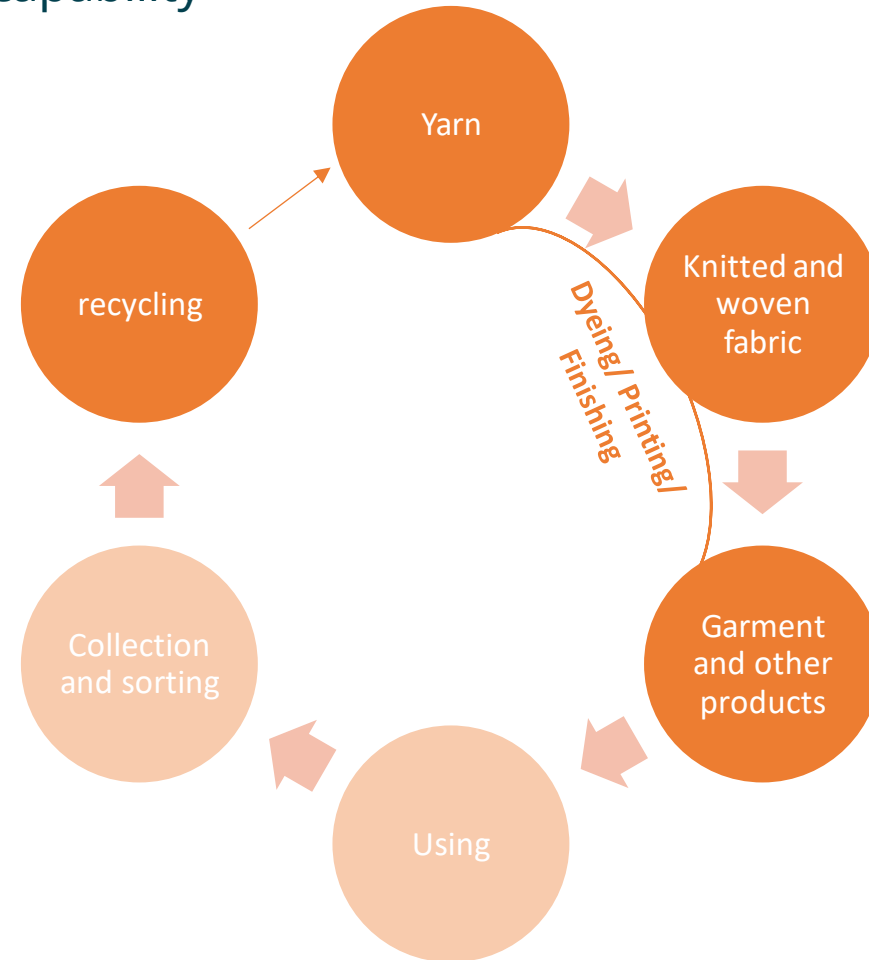
With a developed Scientific and Technological System

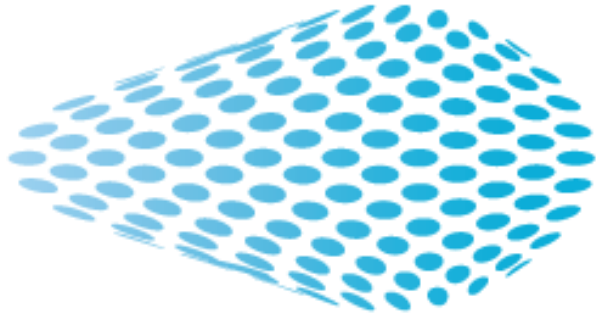
High level of interaction/ cooperation between companies

Portuguese Textile and Clothing sector

Production capability

Other products, like:
Non-woven fabrics
Stuffing/ filling
material





PORTUGUESE TEXTILE CLUSTER

Founded in **February 2017**

Officially recognized by the Portuguese Government (**Competitiveness cluster** recognized for 2024-2030 cycle)

Sectoral support structure – textile and clothing sector

To **stimulate** processes of **interaction, articulation, collaboration** and **information sharing** within the economic aggregate, acting in a supplementary manner to the actions of its own members, as an instrument for obtaining **increased competitiveness** through **innovation** and **internationalization**, in a logic of collective efficiency

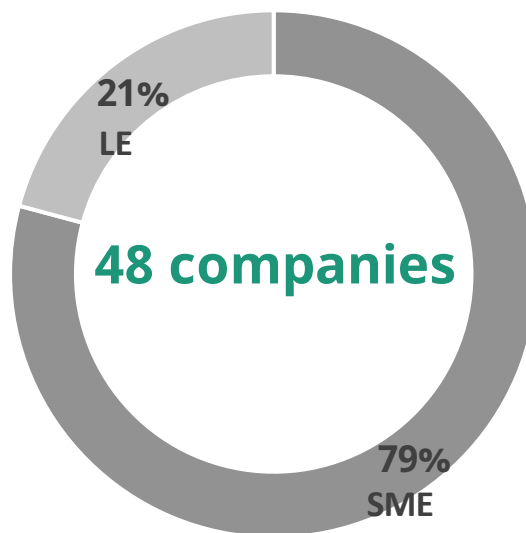
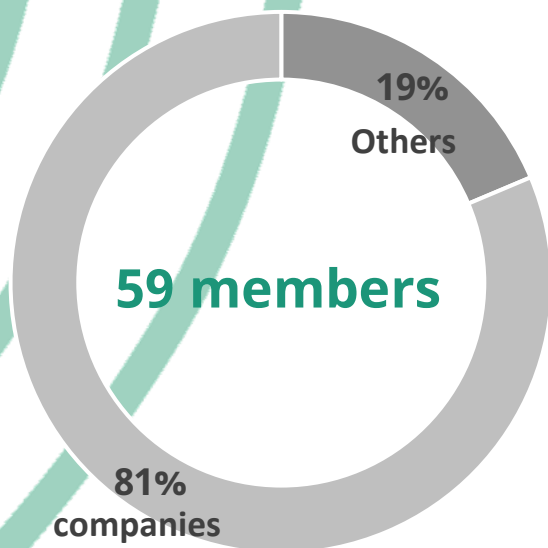
Portuguese Textile Cluster mission

Promote the integrated and sustainable development of textiles, clothing and technical textiles economic aggregate, contributing to the **competitive strengthening** of the strategic support pillars

- **Sustainability & Circular Economy**
- **Industry 4.0 & Digital Transition**
- **Innovation and creativity**
- **Human capital**
- **Interclustering & Internationalization**

Stimulating **strong cooperation** between the different players that integrate the cluster, as well as the **approach** with **complementary** and **strategic value chains**

Portuguese Textile Cluster ecosystem



48 members are companies:

- 38 from textile and clothing industry
- 10 from other activities (trade in textiles and clothing, technology, footwear, cork and equipment)

11 members are:

- 5 RTO
- 3 associations
- 2 academia
- 1 municipality

Portuguese Textile Cluster activities

Boost the **sharing of relevant information**

Facilitate the **generation of strategic thinking**

Develop opportunities to promote **R&D+I activities**

Promote **structuring projects** of a collective nature

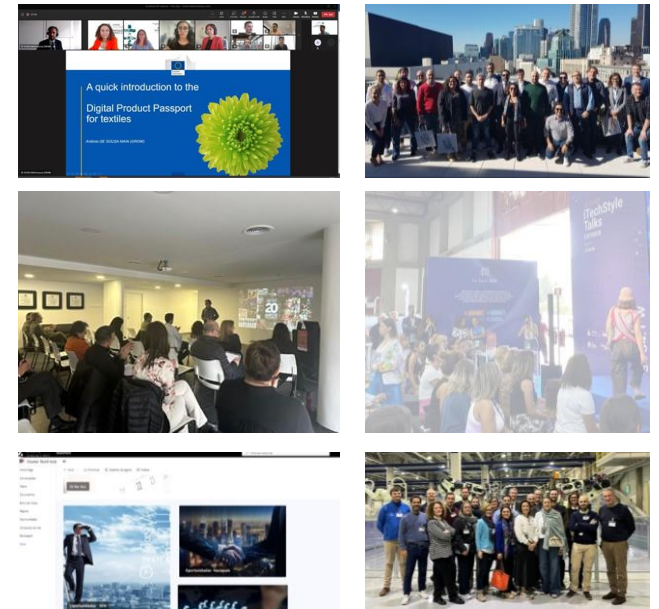
Facilitate **international** deployment

Support the definition and implementation of **public policies**

Promote **cross-fertilization** with clusters from other sectors in Portugal and with other textile clusters in the EU

Promote **networking, matchmaking** and **marketplace** activities

Communicate activities (internally and externally)



PORTUGUESE
TEXTILE CLUSTER



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the European Union



Thank you!
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<https://www.clustertextil.pt>

<https://www.linkedin.com/company/cluster-t%C3%AAtil-tecnologia-e-moda/>



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Q&A

Thank you

*For more information about the RegioGreenTex Community Talks,
contact: charlotte.denis@textile-platform.eu*



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GOING GREEN TRAININGS

Navigating EU Textiles and Chemical Legislation

Implications for SMEs

10 April 2025 • 10:30-11:30 • Online

