

CETIA FROM GOODS TO MATERIALS

**INNOVATION PLATFORM
DEDICATED TO THE RECYCLABILITY
OF TEXTILE AND LEATHER GOODS**



ACCELERATE



«Tomorrow, garments and shoes will be partly made from recycled textile materials in order to stop extracting resources, to give a second life to the 200,000 tonnes of French textile waste that is exported, to respond to the soaring price of raw materials and **to regain our sovereignty over materials** and industrial production.

This proximity model is a common sense solution to meet consumer and regulatory needs.

Today at CETIA, **we are building this sustainable future** by developing the technologies that will make it possible and by making them accessible to all. We are convinced that there will be no sustainable transition in the textile-clothing industry without the **creation of a technologically efficient and economically competitive textile recycling industry** on a European scale.

CETIA's ambition is to participate in the creation of this sector by developing **industrial solutions** for the key link in the value chain : **the preparation of the material for recycling.**

Chloé Salmon Legagneur, Director of CETIA.

PILOTING INNOVATION ON RECYCLABILITY

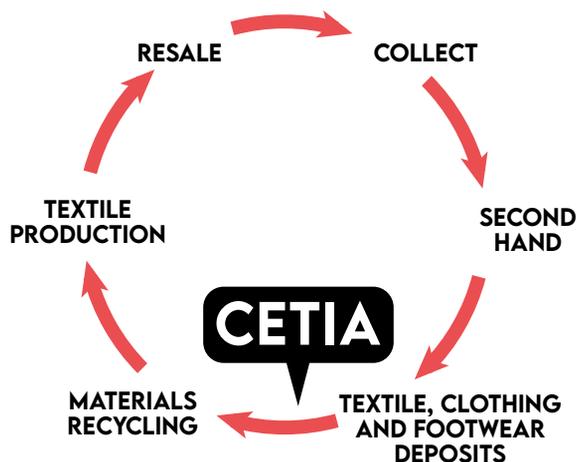
PRODUCING TEXTILE-TO-TEXTILE DEPOSITS

CETIA is the first innovation platform dedicated to the automated sorting and dismantling of end-of-life or unsold textile and footwear items.

Created in 2021 by ESTIA engineering school and the CETI, the CETIA was born of their ambition to accelerate the development of a competitive textile-to-textile recycling sector in Europe.

CETIA supports brands, collectors/sorters and material processors in their innovation programmes.

The CETIA develops technologies to industrialise the transformation of textile, clothing and footwear deposits into resources.



CETIA's role: to remove technological barriers and drive innovation to produce textile-to-textile raw material deposits on an industrial scale.

Today, the preparation of material deposits is done manually, which is a major obstacle to its large-scale deployment.

Only by automating the sorting, dismantling, identification and preparation of deposits will it be possible to provide the ecosystem with the necessary deposit volumes to scale up.

At CETIA, we develop these technologies, demonstrate their efficiency and performance, and then make them available to industry by transferring technical solutions to them.

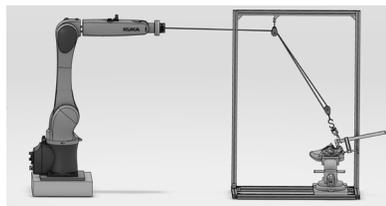


INNOVATE
TO CREATE
THE RESOURCE
OF THE FUTURE

BY YOUR SIDE TO ACCELERATE YOUR TRANSFORMATION

CETIA supports its partners

in the design and deployment of innovative solutions to bring their textile and leather recovery projects to life.



01 BY PROTOTYPING INNOVATION

- Removing technological barriers.
- Developing proofs of concept.
- Designing smart solutions.



02 BY DEMONSTRATING THE INDUSTRIAL FEASIBILITY

- Assessing the technical feasibility on an industrial scale.
- Developing pilot lines.
- Launching pre-series.



03 BY TRANSFERRING SOLUTIONS TO CUSTOMER SITES

- Deploying technological solutions.
- Transferring business skills.
- Facilitating the establishment of industrial sites in the territories.

CETIA transfers its expertise *on the recyclability of fashion and footwear.*

TO LEARN HOW TO DESIGN IN CIRCULAR MODE

- Workshops aimed at sharing CETIA's expertise applied to your collections with the UNLINEAR methodology.

CETIA brings together the players *of the fashion and textile industry.*

AROUND THE INNOVATION ECOSYSTEM ON RECYCLABILITY

- Developing technological knowledge and keep abreast of the latest innovations.
- Sharing problems and co-constructing answers together.

OUR SCOPE OF ACTION

Increasing the recyclability of finished products, regardless of components and assemblies.

PRODUCT LINES



FOOTWEAR



CLOTHES



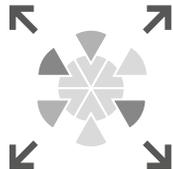
ACCESSORIES

AREAS OF WORK

Innovate at every stage: from the reception of items to the preparation of new resource-material deposits ready for recycling.



1 IDENTIFICATION
Establishing the product identity to direct it to the right dismantling process



2 DISMANTLING
Deconstructing a product to separate materials for recycling



3 DETECTION
Determining the composition and colour of material deposits



4 SORTING
Automatically sorting the deposits by composition and colour



5 PREPARATION
Making the deposits suitable for processing by the recovery centres

OUR EQUIPMENT

At the beginning of 2023, the first CETIA equipment will be available in HENDAYE (FRANCE) in a 1200 m2 building entirely dedicated to innovative solutions for textile and leather preparation operations.

SORTING



TO SORT TEXTILES BY COMPOSITION AND BY COLOUR

- FIBERSORT machine™ from VALVAN.
- Composition and colour detection.
- NIR and RGB technologies.
- 1 garment / second.
- 10 sorting bins.

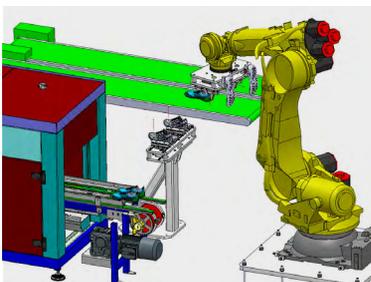
RECOVERING FIBRES



TO ISOLATE MECHANICALLY THE FIBRES OF THE CLOTHES

- 2 opening machines and 1 CLEANING WILLOW system by DELL'ORCO Y VILLANI.
- Separation of fibres and impurities.
- Pre/post-consumer clothing.
- 600 kg / hour.

SEPARATE



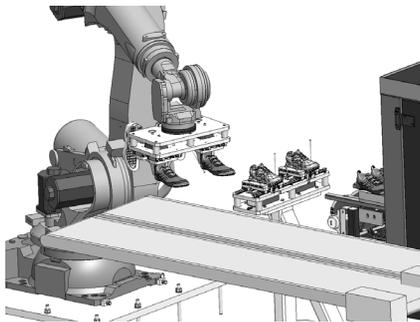
TO SEPARATE AND SORT AUTOMATICALLY THE SOLES OF SHOES

- CETIA's proprietary systems.
- Leisure, sport and luxury shoes.
- Glued, stitched, injected and vulcanised.
- 120 shoes / hour (to date).

ONGOING PROGRAMS

Re_SHOES

INDUSTRIAL PILOT FOR THE AUTOMATED SEPARATION AND SORTING OF SHOE SOLES.



In order **to accelerate the circular transition** of the footwear industry, one of the keys to be exploited is **the automation** of the different steps to obtain a **qualitative source of recyclable materials** from existing footwear.

The programme is a continuation and implementation of CETIA's studies on **shoe dismantling**, which highlighted the priority issues to be resolved. Its ambition is to support brands in obtaining a **fully reusable deposit**, thanks to the design of an automated line for the **separation of soles** in their footwear collections.

1 MILLION EUROS

of investment co-financed by the Nouvelle-Aquitaine Region.

4 INNOVATIVE CELLS

for a 100% automated line: removal of thick soles from glued shoes, optimised cutting of sewn, injected and vulcanised soles, detection of sole compositions and sorting.

FIRST 6 PARTNERS

involved in the development of the solution, including DECATHLON, GROUPE ERAM, ZALANDO, REVALOREM and L'ATELIER DES MATIÈRES. The programme can mobilise up to 10 players.

120 SHOES PROCESSED PER HOUR

80% of the market categories and all types of assembly processed.

IDSHOES

DEMONSTRATOR FOR THE AUTOMATED RECOGNITION OF SHOE MODELS



To facilitate the processing of end-of-life footwear, the main challenge is to **know the materials and assembly processes** used during the manufacture of the footwear models. In the absence of traceability devices, visual recognition makes it possible to associate a used shoe with its reference model and **to access the product passport of the article**.

After an initial proof of concept in 2021, CETIA, in partnership with DECATHLON and the ERAM GROUP, is developing a **demonstrator** which, thanks to **artificial intelligence and computer-assisted vision**, will make it possible to associate a product reference with the picture of a shoe at the end of its life.

97% SUCCESS RATE

for the 300 shoe models integrated into the demonstrator.

PROCESSING TIME LESS THAN 0.3 MILLISECONDS

allowing for an industrial solution to be deployed in a sorting centre.

Re_CLOTHES

SEMI-AUTOMATED CONNECTED & MODULAR LINE FOR THE PREPARATION OF SIMPLE AND COMPLEX CLOTHING

To address a flow of non-standardised items and of varying complexity, the industry needs to develop **flexible and intelligent solutions** while maintaining **an economically viable throughput level**.

The ambition of the programme is to **deploy an automated system for collecting and analysing data** on the entire material preparation process (from the identification of the deposit to the material ready to be recycled) by article type, and according to the specifications of the materials expected in output.

These data will be crucial to transfer competitive solutions to the recycling industry and thus **structure an efficient and competitive sector**.

Programme planned for **2023-2026** open to market players.

CETIA, FACILITATOR OF CIRCULAR FASHION

A committed multidisciplinary team.

CETIA brings together skills in artificial intelligence, robotics, vision, image processing, automation, design, and prototyping to support the transition of the industry. This complementary expertise is the key to designing industrial programmes that combine several cutting-edge technologies and make automation possible.

An unprecedented collaboration between players in the fashion industry.

Gathered within the CETIA's innovation committee, fifteen players from the fashion, luxury goods, sports, collection and sorting sectors are working together to build the innovation roadmap for the textile, clothing and footwear recovery sector in Europe.

The CETIA is proposing joint cooperation programmes to industrialists in order to jointly remove the technological barriers of circular fashion.

All our programmes are open to all industry players who are working towards sustainable fashion.

In the service of the circular transition.

- To implement CSR commitments on an industrial scale,
- To share investments,
- To outsource R&D and stay focused on day-to-day activities,
- To collaborate with peers on common industrial issues.

To find out more about our programmes or to visit the platform, contact us:

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ABOUT US

A strategic partnership between ESTIA engineering school and CETI.

CETIA is the first innovation platform dedicated to the automated sorting and dismantling of end-of-life or unsold textile and footwear items. Created in 2021 by the ESTIA engineering school, an establishment of the CCI-Bayonne Pays Basque, and the CETI, the company was born of their ambition to accelerate the development of a competitive textile-to-textile recycling sector in Europe.

Created in 2012, **CETI** is a European platform for the experimentation and industrialisation of textile materials, a real cutting-edge tool enabling all advances in circularity. Both a creative and technological authority, the CETI is equipped with 6 pilot and industrial scale platforms. It thus enables the big names in nonwovens, fashion, sports, luxury and professional equipment to carry out tests ranging from prototyping to the production of mini series.

Located in the Basque Country, on the IZARBEL technology park in Bidart, **ESTIA** Engineering School has established itself as one of the best engineering schools in France.

Benefiting from a powerful innovation ecosystem, ESTIA is perfectly suited to the needs of an era of re-industrialisation. A leader in the Smart Factory field, it is already supporting numerous industrial sectors in their technological and managerial transformation.

Recognised by French manufacturers committed to circularity.

Stemming from the research work of the BALI (Biarritz Active Lifestyle Industry) Chair conducted since 2017 by ESTIA with textile industry players, **CETIA's activities are being structured with major French groups** involved in the first R&D programmes on the circularity of clothing and footwear: DECATHLON, GROUPE ERAM, PETIT BATEAU

Supported by the Nouvelle-Aquitaine Region.

Through its Neo-Terra roadmap, the New Aquitaine Region aims to play an active role in the fight against climate change. Its support for a more sustainable textile and fashion industry and its actions with CETIA are part of this logic. As a financial contributor to the initial equipment and a supporter of the ongoing footwear programmes, the Region is a major partner of CETIA.



CETIA

FROM GOODS TO MATERIALS

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