The Center for Applied Research and Innovation

To
Conceive, Prototype, Industrialize
Textile Materials and Products

The Proof of Innovation by Doing It

Performance of Fibrous Materials
- Tri-Component Spinning
- Advanced Functionalized Fibres and Nonwovens
- Multiple combinations of Nonwovens Technologies
- 3D Nonwovens

4.0 Design Revolution
- Eco-Responsible Development
  - Eco-Conception of Products
  - Eco-Conceived Fibres (Bio-Based, Natural, Organic)
  - Circular Economy
  - End-of-Life Treatments for Products
- Personalization and Integrated Short Circuit

Textiles are an “empathetic” ground for innovation since they are spontaneously associated with a strong, reassuring imagery. By their nature, they facilitate the appropriation and integration of high-level technologies on an everyday basis. From their use in intimate contexts to the role they play in public spaces, textiles are present everywhere.

Today the CETI’s engineering strengths in the research and development of advanced textiles legitimize its European leadership and position it as one of the Top 5 technical centers worldwide.

This textile intelligence also helps companies find answers to current challenges in society as well as addressing the many needs of individuals.

It is worth noting that the revolution brought about by the advent of digital and smart technologies is making a strong impact on the future of the textile industry.

In the same way, the optimization of the environmental footprint of textiles that integrates eco-conception and their ability to participate in a circular economy is at the heart of the CETI’s current developments.

For all these axes of progress, prototyping is the DNA of our organization while our associated Material, Digital and Sustainable Development platforms help prove the pertinence of each concept by actually putting it in work.

These advances, that hybrid innovation and added value for society, help energize local economies and develop close-proximity production with small and mid-sized (PME) French companies while giving projects an international scope and promoting “French Tex”.

Our Answer to Society’s Challenges
Environmental Footprints
Digital Transformations
Smart Technologies

Pascal Denizart, CEO and Gilles Damez, President
KEY FIGURES

2018

2857 K€ Operating Income

1788 K€ R&D Turnover

AN INCOME MODEL FOCUSED ON PRIVATE ACTIVITY

BY MARKET

Luxury, Fashion & Sport: 37%
Others industries: 14%
Agriculture: 7%
Health & Hygiene: 24%
Transport: 5%
Building: 13%

BY EXPERTISE

Engineering prototyping: 94%
Transfer of good practice training: 6%

R&D TURNOVER BREAKDOWN

BY ACTIVITY

Textile material: 1677 K€
Sustainable development: 1224 K€
Digital transformation: 928 K€

BY SIZE OF COMPANY

Very small company: 1%
Medium sized company: 11%
Major accounts & intermediate sized company: 88%

80 CLIENTS IN 2018

GÉOGRAPHICAL

France: 42%
Rest of Europe: 58%
Hauts-de France: 31%
Rest of France: 27%
A TEAM THAT OPERATES AT THE CORE OF INNOVATION

The CETI coordinates the profiles of various experts to unfurl a rich palette of textile trades. This multi-talented, multi-cultural team encourages meetings between experts.

In 2019, the CETI has expanded its business development staff to reinforce its presence internationally and regionally.

“For each client need, we custom-make both the value chain and the network of associated expertise.”

FUNDAMENTAL VALUES

AMBITION

PROXIMITY

EXCELLENCE

1 OPEN-MINDED, MULTI-REGIONAL SCIENTIFIC COMMITTEE

4 axes and research themes supported by the committee

THE DEVELOPMENT OF APPLICATIONS USING TEXTILES WITH BIOSOURCED POLYMER BASES

INTELLIGENT TEXTILES REQUIRE A TRANSVERSAL APPROACH

3D PRINTING

COMPOSITE TEXTILE MATERIALS
INTERNATIONAL VISIBILITY

ACCOMPANIES THE STRATEGIC EVOLUTIONS OF COMPANIES.

INDUSTRY INNOVATION, BOTH “UPSTREAM” AND “DOWNSTREAM”, AS PART OF A WORLDWIDE ECONOMY.

A REINFORCED POSITION: THE CETI IS A EUROPEAN LEADER OF INNOVATIVE TEXTILES.

MEMBER OF AN INTERNATIONAL NETWORK

- International Textile Manufacturers Federation (ITMF).
- European apparel and Textile confederation (EURATEX).
- European Technology Platforms (ETP).
- Union of Textile Industries (UIT).
- EDANA International association for nonwovens and related industries.

PRESENT AT TRADE FAIRS/PROFESSIONAL TEXTILE SYMPOSIUMS

- Fashion:
  • TEXWORLD "AVANTEX"
  • TRAFFIC
  • MADE IN FRANCE
- Technical Textiles:
  • TECHTEXTIL
  • EXPOPROTECTION
- Nonwovens:
  • IDEA19
  • INDEX2020
  • OUTLOOK

ORGANIZER OF WORKSHOPS

- The challenges of the Textile/Fashion 4.0 sector.
- Recycling textiles.
- A responsible and committed brand.
- The "connected" shop of the future.

PARTNER OF TECHNOLOGICAL LEADERS

- ANDRITZ
- HILLS INC
- LECTRA
- PERCALL
- TDV INDUSTRIES

PARTNER OF SCHOOLS

- ESPITH
- LA FABRIQUE
- ENSAIT
- ISEM

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CONCEIVING INNOVATION

Through a methodology based on the principles of “design thinking”, our experts help encourage each client to do collaborative work using a creative, active approach.

Learning how to confront an idea with market realities and being able to structure it will help identify levers for success and optimize the human resources needed to realize a project.

INNOVATIVE DESIGN USING 6 PROOFS FOR VALUE

“INTEGRATE USES AND THE PROSPECTIVE OBSERVATION OF MARKETS.”

DEVELOPING TALENTS

ENHANCING THE PERFORMANCE OF NONWOVENS

INTRODUCTION TO NONWOVENS - WEBINAR
NONWOVENS INTERMEDIATE COURSE
CARDING ADVANCED COURSE
SPUNBOND ADVANCED COURSE
MELTBLOWN ADVANCED COURSE

ADAPTING TO 4.0 TEXTILE INDUSTRY TRANSFORMATION

CONJUGATE CO-CREATION AND PERSONALIZATION TO THE HEART OF THE BRAND STRATEGY
CO-CREATION AND ACCELERATION OF PRODUCT DEVELOPMENT INTEGRATING THE CONCEPT AND COLLABORATIVE DESIGN
IMPACT OF MASS CUSTOMIZATION ON THE SHORT CIRCUIT

BECOMING A RESPONSIBLE AND COMMITTED BRAND

AXES OF A RESPONSIBLE COMMITMENT
ECO-DESIGN OF PRODUCTS
CIRCULAR ECONOMY
ECONOMY OF FUNCTIONALITY
TRACEABILITY

PROTOTYPING INNOVATION FOR DNA

Thanks to its semi-industrial pilot lines, the CETI guarantees the feasibility of an idea through prototyping which helps accelerate its transfer to industrial viability.

PROTOTYPING EFFECT

WITHOUT PROTOTYPING WITH PROTOTYPING

IDEA SLOW FAILURE FAST FAILURE SUCCESS

A COLLABORATIVE, ONLINE PLATFORM PERSONALIZED BY THE CETI WITH OUR PARTNER VIANEO
Analysis of a product’s technical feasibility, desirability, financial & humane viability, acceptability, legitimacy, all synthetized to a business canvas.

“INTEGRATE USES AND THE PROSPECTIVE OBSERVATION OF MARKETS.”
MAKE TEXTILE THE MATERIAL FOR THE FUTURE

CETI - CENTRE EUROPÉEN DES TEXTILES INNOVANTS
Imagine our future with textile materials!

CETI is now more than just a tool offered to businesses to encourage and accelerate innovation in the field of advanced textiles. It is a place for inventing and developing new products that meet all the needs of tomorrow’s world. Its service offer remains abreast of societal challenges: Environmental footprints - Smart technology - Live well.

In this approach, nonwoven technologies are a key differentiator. The nonwoven fabric market has a vast growth potential as indicated by the EU scenario for Technical Textiles and the Gherzi analysis. Medical sutures, man-made filament fabrics and spunmelt nonwovens are three of the highest growth items. In this field, the major breakthrough of nonwoven fabrics used in manufacturing absorbent hygiene products (AHPs) must be cited. It is clear that high-profile companies have quickly seized the opportunity to supply this accelerated production (Trend: 9% CAGR).

Meanwhile, efforts to make the textile and clothing supply chain more environmentally sustainable tended to focus, in the past, on production processes and raw materials. But today, nonwoven initiatives regarding already-used, upcycled fibres are extremely pertinent.

In its latest survey dated Dec. 2016, XERFI, one of the most reliable economy analysts, concluded that France represents a fertile ground, favourable for establishing a sector of excellence as far as Technical Textiles are concerned. The survey noted that France has all major advantages to become a leading country in this field. It quotes, as the first of these assets, the excellence of its world reference Research Centers and points out CETI as a partner for many French and international companies who are keen to develop their innovations.

Therefore, CETI is running applied innovation product developments that offer solutions for high-level responses to meet hygiene and medical market needs:

- “lofty spunbond” improving comfort, softness, bulkiness and lighter weights,
- bio-based nonwovens reducing environmental footprint,
- functionalized nonwovens enhancing performances,
- fine filament increasing homogeneity separation performance,
- airthrough carded web with flat oven equipment.

“WE FORM A TEAM WITH OUR CUSTOMERS TO MAKE INNOVATIVE TEXTILES AN ESSENTIAL VECTOR FOR OUR FUTURE.”
A POSITIONING/ENHANCE PRODUCT & PROCESS

CETI is the center for applied research and development, leader in the prototyping of textile materials. In one place, it concentrates the textile industry’s key manufacturing processes and encourages the cross-fertilization and development of company partnerships that will accelerate the transfer of industrial skills and ability to bring products to the market more quickly.

CONSTRUCT YOUR PROJECT
• A source of inspiration.
• State of the art.
• Positioning product innovation in the market.
• Managing associated risks.

DEVELOP YOUR NEW PRODUCTS
• Identification of innovative raw materials.
• Elaboration of specifications.
• Spinnability and processability of materials.

IMPROVE YOUR INNOVATION
• Product eco-conception.
• Upgrading products/added value.
• Fine-tuning innovative processes by combining technologies.
• Technical transfer.
• Identification of the value chain/market positioning.
• Promotion of your innovation.

PROTOTYPE YOUR PRODUCTS
• 3-D virtualization of the material’s performance.
• Identifications of raw materials choices.
• Development of new filaments and nonwovens.
• Multi-component and multi-layer product innovations.

OPTIMIZE YOUR PROCESS
• Optimization of raw material uses.
• Search for alternative raw materials.
• Optimization of production costs.
• Integration of specific functionalities.

DEVELOP YOUR SKILLS
• Transfer to industry.
• Evolution of skills.

FROM FUNCTIONALIZED POLYMERS TO HIGH PERFORMANCE FIBRE

A COLLECTIVE INTELLIGENCE

CONTACT/INNOVATION@CETI.COM
ONE OF A KIND NONWOVENS PLATFORM

FACILITIES WITH HIGH FLEXIBILITY

**MECHANICAL BONDING**
- HYDRO-ENTANGLEMENT
- ENGRAVING CALENDER
- OMEGA AIRTHROUGH OVEN
- KISS ROLL (INLINE)
- SQUEEZER (INLINE)
- SMOOTH CALENDER (OFFLINE)

**THERMAL BONDING**
- SPUNLAID WEB FORMING
- THERMAL BONDING
- FLAT AIRTHROUGH OVEN
- FLAT AITHROUGH OVEN

**SPUNLAID WEB FORMING**
- BICO SPUNBOND
- BICO MELTBLOWN

**THERMAL BONDING**
- DRYLAID WEB FORMING
- CARD
- AIRLAY
- CROSS LAPPER

**DRYLAID WEB FORMING**
- OMEGA AIRTHROUGH OVEN
- BICO MELTBLOWN

**NONWOVENS POST-TREATMENT**
- KISS ROLL (INLINE)
- SQUEEZER (INLINE)
- SMOOTH CALENDER (OFFLINE)

*OVER 150 POSSIBLE COMBINATIONS*

*MORE THAN 90% OF BONDING TECHNOLOGIES*
**HILL’S INC PARTNERSHIP**

**LOFTY SPUNBOND**

With Hills Inc., the world’s leader in multi-component spinning, CETI invested in spunlaid spinning technologies like Spunbond and Meltblown. Since the first partnership with the constructor, CETI has accompanied Hills Inc. and its international clients by prototyping new bi-component, lofty, Spunbond nonwovens with insulation, absorption, filtration, resilience or lightness properties. This new range of three-dimensional spunbond nonwovens answers various needs in a wide variety of markets.

“BI-COMPONENT SPUNBOND TECHNOLOGY IS NOW ASSOCIATED WITH A THERMAL ACTIVATION PROCEDURE IN A SINGLE STEP.”

**HIGHLOFT CARDED**

In a collaboration that began in 2012 with ANDRITZ, the world leader in formation and consolidation technologies for nonwovens, CETI chose to invest in developing carding, needlepunching, hydrojet bonding, calendering and impregnating technologies for nonwovens.

In 2017, ANDRITZ PERFOJET and CETI intensified their collaboration by formalizing a new partnership with the implantation at CETI of a flat oven with a cross-flow hot air that is ideal for lightweight carded webs that correspond to Spunbond bi-component technology. This partnership allows the two companies to develop new high-loft, carded nonwovens, specifically for the hygiene market. This technology for consolidating nonwovens means CETI now covers 90% of technologies used in industries today.

“LIGHTWEIGHT, HOT AIR CARDED NONWOVENS THERMO-BONDED”

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**ANDRITZ PARTNERSHIP**

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**LOFTINESS**

**SOFTNESS**
**MONO, BI- AND TRI-COMPONENT MELT SPINNING PLATFORM**

**POLYMER FUNCTIONALIZATION**

**CREATING CONDUCTIVE FILAMENTS**

**PROTOTYPING FUNCTIONALIZED FILAMENTS**

**ADDING PROPERTIES INTO THE FIBER CORE**

**FILAMENTS / FIBRES**

**MELT SPINNING**

**CO-EXTRUSION**

**METALLIC-CORE EXTRUSION FILAMENT**

**DURATEX** project is the development of ecofriendly fluorine-free & hydro- and oleophobic and silver-free antimicrobial textiles for durable applications in construction and architecture. Three approaches will be envisaged to obtain water and oil repellent properties: Deposition of nanofibres via layer-by-layer (LbL) technology and chemical modification based on branched hydrocarbons, sol-gel hybrid layers and layer deposition by local solution-reprecipitation using green solvents. Moreover, Biobased product or non-toxic biocides will be incorporated in coatings and filaments in order to obtain antibacterial properties.

**ECO-FRIENDLY ANTI-STAINING AND ANTIMICROBIAL TEXTILES**

**INTERREG**

**PARTNERS**

CENTEXBEL – CERTECH – CETI – ENSAIT – UCL

**CETI EXPERTISE**

- Prototyping of mono and bi-component filament with antimicrobial properties using the process of mass functionalization.
- Trials of the formulations on compounding and melt-spinning CETI’s pilot lines.
SEABIOCOMP will develop and deliver demonstrators using innovative bio-based thermoplastic composite materials with the following characteristics:

- Tailored durability according to the specific application (2 to >20 years) for a demonstrator in a marine environment as measured by newly developed analytical methods.
- Mechanical properties that are at least equivalent to the ones of conventional oil-based composites.
- Reduced CO2 emission (30%).
- Reduced ecotoxic impact on the marine environment by microplastics as measured by newly developed analytical methods.
- Demonstrated recycling potential of the used materials in the demonstrator.

These characteristics should decrease the overall environmental impact by 50% compared to conventional oil-based counterparts through the entire value chain from production to waste treatment. The proposed bio-composite materials and developed analytical protocols for long-term durability and ecotoxicity should lead to a shifted mind-set along the value chain about bio-based composites being a realistic alternative to oil-based counterparts.

To achieve this objective, PHOTOTEX proposes to take inspiration from photonic structures, which are nanostructures that interact with light according to their wavelength (i.e., their color). They allow, for example, some butterflies to display their shimmering colors. If their manufacture uses nanotechnologies, we will, in PHOTOTEX, generate similar structures adapted to the infrared «light» via methods compatible with the textile industry.
**DEVELOPING TALENTS**

As a training organization dedicated to textile innovations, CETI mentors European companies in the extended Textile industry. The strength of conviction of CETI’s instructors helps each trainee to push their limits to better approach the transformations.

**NONWOVENS TRAINING**

CETI is the reference in Nonwovens thanks to its collaboration with EDANA’s : The International association of nonwovens and its industry, EDANA, asked CETI and its R&D teams to communicate their skills and knowledge of nonwovens to become the official trainer for The Nonwovens Learning Cycle.

**NONWOVENS INTERMEDIATE COURSE**

Identification of different processes of web forming / Discovering the characteristics of technologies for web binding.

Sessions
February 26-27-28, 2019
May 21-22-23, 2019
September 17-18-19, 2019

**CARDING ADVANCED COURSE**

Innovations in nonwoven drylaid products / An in-depth focus on web forming technology - CARDING.

Sessions
March 13-14, 2019
July 10-11, 2019
November 6-7, 2019

**MELTBLOWN & SPUNBOND ADVANCED**

Innovations in nonwoven spunlaid products / An in-depth focus on web forming technologies SPUNBOND – MELTBLOWN – SPUNMELT webs.

Sessions
February 20-21, 2019
November 13-14, 2019

**CUSTOMERS BLUEPRINT**

The originality of these trainings is due to a more concrete, pedagogical approach that includes sharing client experiences and obtaining a hands-on understanding of CETI’s pilot lines and semi-industrials lines for prototyping new textile.

**ON DEMAND TRAINING**

**NONWOVEN BASIC**
Impact of belt forming on nonwoven processes.

**MEDICAL MARKET**
Nonwoven materials and processes applied to the medical market.

**HYGIENE MARKET**
Nonwoven materials and processes applied to the hygiene market.

**REGISTRATION/ TRAINING@CETI.COM**

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FUNDAMENTAL VALUES
AMBITION
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STIMULATE PRODUCT INNOVATION BY USING THE NEW RESOURCES OF DIGITAL
How to integrate and meet the new requirements of an over-solicited customer with commercial proposals?

More and more brands are exploring the subject of personalized fashion, which reflects the need to consume better and more responsibly. A new approach to design, product validation on 3D virtualization to avoid unnecessary prototypes, product customization, limiting inventories of materials and products, relocation and short circuit are opportunities to meet these expectations.

Since its creation in 2012, CETI has integrated digital textile innovation as a source of competitiveness and growth for brands. Start-ups have more natural ease to launch themselves by using digital tools at all stages of the brand development process because they are more agile than large traditional players whose organizational and information systems are more considerable and complex to evolve.

It is in an approach to support creativity within brands and the evolution of tomorrow’s professions that CETI has created an experiential 4.0 space-workshop digitised from design to prototyping to short circuit series using the customer experience in store and based on the 2 paradigms, sustainable and local.

**"TO FACILITATE THE MANAGEMENT OF THE**

**ECONOMIC AND SOCIETAL REVOLUTIONS EXPERIENCED BY COMPANIES IN THE TEXTILE SECTOR, CETI IS TAKING UP THE CHALLENGE OF INVESTING IN DIGITAL INNOVATION AS A SOURCE OF COMPETITIVENESS AND NEW BUSINESS EXPERTISE, ALONGSIDE RECOGNISED PARTNERS: LECTRA, PERCALL, PTC."**
A POSITIONING/ THE 4.0 DESIGN REVOLUTION

CETI supports the Fashion/Sport/Luxury and Professional Equipment brands to strengthen their identity by placing innovation design and the short circuit at the heart of differentiation.

INNOVATIVE DESIGN USING 6 PROOFS FOR VALUE

Through a methodology based on the principles of “design thinking”, our experts help encourage each client to do collaborative work using a creative, active approach. Learning how to confront an idea with market realities and being able to structure it will help identify levers for success and optimize the human resources needed to realize a project.

DESIGN / CO-CREATION MATERIALS AND PRODUCTS

ZERO WASTE DESIGN
- Rethinking the creative process.
- Designing products differently.
- Analyzing the savings in material consumption.

MASS-PERSONALIZATION
- Capitalizing on the customer experience.
- Co-creating with the client.
- Integrate the data collected.

SMART & ECO-RESPONSIBLE HIGH-END BRAND MATERIALS AND PRODUCTS
- Defining the steps and partners.
- Studying the feasibility of prototyping through to industrialization.

3D COLLABORATION/ PRODUCT DEVELOPMENT

THE DESIGN OFFICE, DECISION CENTER
- Rethinking the creative and product validation process.
- Developing skills with CAD and PIM software.

3D PROTOTYPING
- Visualizing 3D creations.
- Accelerating validation and decision making.
- Reducing costs and increase efficiency.

VIRTUAL REALITY
- Discovering the ease of remote collaboration.
- Gaining in immediate understanding of requests.

PERSONALIZATION / INDUSTRIALIZATION

FASHION ON DEMAND
- Validating customization requests.
- Understanding the benefits and integrate it into the collection process.
- Assistance in the transfer of skills and organisation.

PROCESS AND SUPPLY-CHAIN TRACEABILITY
- Integrating the flow traceability process throughout the entire value chain (RFID, ...).

ACCOMPANY TO THE SCENARIOS OF CLIENT EXPERIENCES
- Using the connected shop to test customer behaviour.
- Analyzing business data to propose new services.

VIRTUAL REALITY
- Testing co-creation with a community of consumers.

RETAIL / CUSTOMER EXPERIENCES

AUGMENTED REALITY
- Testing augmented reality on products and build your sales argument.

MARKETING & SALES DEVELOPMENT
- Decrypting the benefits of the 4.0 approach applied to textile and fashion.

Fabienne Hindré
Development Manager of the activity

She has contributed to the development of brands such as Aigle® and Poivre-Blanc® as well as the deployment of the Lectra FashionPLM® software.

She joined CETI in early 2019 to support companies on their brand strategy and their evolution towards a 4.0 approach.

INNOVATION@CETI.COM

Fabienne Hindré is a professional in the textile-clothing industry and has been working in the worlds of sport, fashion, lingerie and luxury for more than 25 years as Product Marketing Manager for major French companies.

CENTRE EUROPÉEN DES TEXTILES INNOVANTS

STIMULATE PRODUCT INNOVATION BY USING THE NEW RESOURCES OF DIGITAL
“Surrounded by professional experts, the CETI positions itself as a demonstrator and beta-tester to facilitate each brand’s ability to make decisions. It is also a catalyst for the fashion industry of tomorrow.”

CETI’s experimental workshop space aims to promote the discovery and experimentation of 4.0 technologies for the creation of products and materials, the digitalisation of processes and the prototyping of all innovative products based on new consumer behavioural experiences. The objective is to enable the various companies in the textile sector to make the right changes in this transformation of traditional activities.
Hanes Brands Inc, designer and manufacturer specialized in lingerie, carries the brands DIM, WONDERBRA, PLAYTEX internationally.

Since 2017, a leader in its field, Hanes France, formerly DBA (Dim Branded Apparel), has been committed to a digital strategy that impacts several internal activities, including product development. The objectives are clearly expressed: to respond effectively to the need for rapid renewal of the product offer for retail. To achieve this, CETI supports creative teams in validating collection plans at an early stage through the virtualization of new designs, using CLO 3D software.

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The CENTRE EUROPÉEN DES TEXTILES INNOVANTS stimulates product innovation by using the new resources of digital validation of the virtual collection before prototype assembly.

CETI-LECTRA PARTNERSHIP

Help evolve & accelerate the conception of textile (materials) and fashion products (finished garments) and accessories.

Feasibility and desirability of co-creation

Reinforce competitiveness by letting us put innovative products or products reinvented by co-creation with consumers into the market faster and help remove the Client/Supplier divide to benefit a long-term, collaborative relationship.

Capitalize on new types of consumption by using social networks, Internet, mobility and new experiences expected by the consumer.

Saving time and reduce costs on the whole value chain.

Imagine the design office of the future that will allow us to rethink the value chain collaboratively by placing the client at the heart of the strategy.

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THE TEXTILE AND FASHION REVOLUTION 4.0

DATE 13-14 May 2020
DURATION 2 days
PRICE 2000 €HT/Participants
PUBLIC Buyer - Stylist/Designer Marketing Manager – Product Manager - Supply chain Manager Innovation Manager – Market Manager - Collection Manager
PLACE CETI - 41 rue des métissages 59200 Tourcoing France
TRAINERS Pascal Denizart, Fabienne Hindré.
REGISTRATION Tel/ +33 (0)6 40 05 05 47 Email/ training@ceti.com

DEVELOPMENT OF TALENTS

As a training organisation dedicated to textile innovation, CETI supports companies in the extended Textile, Fashion/Luxury and Distribution sector in their evolution and transformation towards digital innovation.

The originality of this training lies in a more concrete pedagogical approach through the sharing of experience between brands and manufacturers and through demonstrations on the CETI platform dedicated to TEXTILE & FASHION DESIGN 4.0.

CETI TRAINING CAMP

THE "CONNECTED" SHOP OF THE FUTURE

The connected shop, installed only at CETI, allows brands to offer new services based on a better knowledge of their customers.

This place provides different technologies and scenarios including the use of virtual reality in co-creation and the demonstration of the personalization of its product. The purchasing process becomes more concrete and innovative. The data is retrieved and analyzed to improve the performance of plant activities.

PARTNERSHIP

PERCALL is a European provider of software and services related to product lifecycle management (PLM) and the Internet of Things (IoT). Founded in 2000, Percall has been providing Internet of Things solutions for over four years and has extensive experience in projects related to retail, environmental and smart city management.

THE "CONNECTED" SHOP OF THE FUTURE

"REINVENTING THE CUSTOMER’S PURCHASING JOURNEY AND THE ATTRACTIVENESS OF THE POINTS OF SALE."

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THE TEXTILE AND FASHION REVOLUTION 4.0

CONJUGUATE CO-CREATION AND PERSONALIZATION TO THE HEART OF THE BRAND STRATEGY

CHALLENGE CHARACTERIZATION
Decipher the new challenges for fashion companies in the context of industry 4.0.

INTEGRATION OF THE DESIRED PRODUCT CUSTOMIZATION
A new consumer paradigm.

RECONCILIATION BETWEEN THE MARKET AND PRODUCTION
Industrial relocation to make it possible to offer clothing that is more respectful of the environment and people.
• On-demand production
• Mass production
• Mass customization
• Tailor-made production
• Agile and adaptive production

ADAPT TO THE EMERGENCE OF NEW PROFESSIONS
Agile management of this 4th industrial revolution.

CO-CREATION AND ACCELERATION OF PRODUCT DEVELOPMENT INTEGRATING THE CONCEPT AND COLLABORATIVE DESIGN
• Appropriation of 3D to enhance the value of its collections.
• Improved communication between teams and with customers to facilitate exchanges between employees.
• Increase in the number of prototypes with the validation of virtual collections.
• Traceability of collections.

IMPACT OF MASS CUSTOMIZATION ON THE SHORT CIRCUIT
• Carry out mass production of unique products (mass-personalization).
• Re-imagine the production process (focus on the cutting platform and digital printing).
• Automate to produce better.
• Create new industrial integration solutions (design - knitting - digital printing).
• Integrate fashion paradigms (eco-responsible and MADE IN...
INNOVATE AND TAKE A NEW APPROACH TO SUSTAINABLE DEVELOPMENT

CETI - CENTRE EUROPÉEN DES TEXTILES INNOVANTS

INNOVATE & TAKE A NEW APPROACH TO SUSTAINABLE DEVELOPMENT
Agenda 2030, consisting of 17 Sustainable Development Goals, adopted in September 2015 by the 193 UN Member States, provides a framework of universal and binding goals for organizations.

As described in ODD 12, an organization’s social responsibility is strongly expressed through its contribution to production and consumption patterns that:
- Encourage the efficient use of material, water and energy flows and the development of sustainable production infrastructure and processes (environmental pillar).
- Strengthen its economic competitiveness (economic pillar).
- Favour sustainable supply chain management (social and societal pillar).
- Integrate a circular economy scheme.

In addition, ODD 9 «Innovative industry and infrastructure» requires that each new development of products, services, processes and infrastructures be the subject of a reflection on its overall effectiveness, i.e. its social / societal / environmental contribution.

Since 2014, CETI has been distinguished by the development of new bio-based materials such as PLA, a corn and beet-based POLYESTER, POLYAMIDE (often combined with nylon) spun on a castor oil basis. It also favours the lightening of textile structures, thus making it possible to consume less energy while preserving the same mechanical properties.

Today, our research is focused on recyclability, in order to reuse waste from the textile clothing or leather industry as well as used textiles. Our ambition is to develop this deposit, locally, to design new high value-added markets that perpetuate this circular economy model. By reinventing end-of-life processing of materials, CETI is supplying the textile industry with a new secondary raw material.

In this concern to preserve resources, CETI is positioning itself as a precursor in the improvement of industrial processes and also contributes to the influence of its territory, a historical and resolutely resilient textile land.
A POSITIONING/CIRCULAR ECONOMY AND SUSTAINABLE DEVELOPMENT

CETI is available to accompany Fashion/Sport/Luxury/Furnishings/PPE/Work clothing brands, textile manufacturers, sorter-collectors as they begin to integrate environmental requirements to reduce their ecological footprint and promote the emergence of a circular economy. By using sustainable design principles as an opportunity and taking into account consumer needs, brands will make it a lever for growth and differentiation.

ECO-CONCEPTION

KNOWLEDGE OF THE PRODUCT
• Identifying the raw material most adapted to its use
• Analyzing its life cycle
• Doing a multi-criteria evaluation

ENVIRONMENTAL GAIN
• Preventing environmental risks.
• Optimizing processes/materials/products.
• Taking into account the end of life of each product.

RECYCLABILITY

IDENTIFYING MATERIAL “DEPOSITS” THAT COULD BE USED
• “Post-consumer” textile items (clothes, household linens, professional outfits).
• “Leftovers”: unsold stocks or end-of-series items.
• Waste from the clothing/textile and food industries (production and cutting scraps, defective pieces).

RECYCLABILITY TESTS
• Sorting by composition and color.
• Automatically identifying and eliminating any hard bits in materials.
• Transforming cloth into fibers by using the fraying process.

UPCYCLING & DOWNCycling

PRODUCT DEVELOPMENT
• Designing a product using recycled fibers.
• Increasing the percentage of recycled fibers in a finished product.

PROTOTYPING
• Adjusting the recycled fibers.
• Making a nonwoven web.
• Maximizing performance.
• Testing on Consumer preference.

ACCOMPANYING PRODUCTION
• Transferring knowledge.
• Training and accompanying teams.

CSR & TRACEABILITY

SUPPORT IN THE IMPLEMENTATION AND DEPLOYMENT OF THE CSR POLICY
SUPPORT IN THE IMPLEMENTATION AND DEPLOYMENT ON THE EFFICIENT DESIGN OF FUNCTIONS

TRACEABILITY
• In the heart of the fibre.
• Design of traceability on 3 lines (Labels/NGOs/Data Management)
• Harmful substances Tests.

A COLLECTIVE INTELLIGENCE

CONTACT/INNOVATION@CETI.COM
A SHORT FIBRES *RECYCLING* PLATFORM
UNIQUE IN EUROPE

FROM THE CLOTH TO FIBRE STATE

- Preparation of recoverable materials
- Fraying fibres

SHREDDING  |  SIZING  |  FRAYING

MULTIPLE MARKET OPPORTUNITIES

- Textiles for technical use
- Fashion and luxury
- Professional clothing and PPE

AN ADDED VALUE

PRODUCT/PROCESS

- Environmental performance improved
- Second life of the product
- Delete the step of dyeing
- Short circuit production
- Maximization of fibre content recycled in the final product

FROM FIBRE TO YARN - *UPCYCLING*

FIBRES  |  YARNS

BLENDING & OPENING  |  CARDING  |  SPINNING ON OPEN-END LOOMS

FROM FIBRE TO NONWOVEN - *DOWNCYCLING*

FIBRES  |  NONWOVEN

OPENING AND CARDING  |  THERMAL & MECHANICAL BONDING  |  AIRLAYING

Recycled fibre blends
Cotton, wool, polyester, polycotton, acrylic, ...

INNOVATE AND TAKE A NEW APPROACH TO SUSTAINABLE DEVELOPMENT
**PROJECT FINANCED BY ADEME – AAP**
Operation realized with the support of Investissements d’Avenir – Circular economy, recycling and validation of waste and co-financing by Métropole Européenne de Lille.

**Total budget:** 6 078 155 €  
**Project launched:** September 1st, 2017  
**Length:** 3 years  
**Competitiveness challenge:** Optimize technical-economic efficiency and reduce the environmental impact of raw materials.  
**Targeted Markets:** clothing, fashion, home textiles.

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**WHY CHOOSE COTTON?**
Cotton has a bad environmental footprint since growing it requires the use of pesticides and a large amount of water. However it remains the favorite raw material of clothing manufacturers because of its softness and easy-care qualities. Circular recycling helps bring a true added value to cotton.

The clothing collected in France is a source of raw material by-products.

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**Construction of a semi-industrial line for validating used textile products:**
A platform conceived to treat short fibers as well as blends such as polyester-cotton.

**SORTING – UNWEAVING – FRAYING**  
**CARDING – OPEN-END SPINNING**  
**WEAVING / KNITTING**

REWIND project is inscribed in the ethical circle of a circular economy and plans to deploy industrial installations that can collect, sort, break-down and recycle post-consumer textile articles.

After demonstration models have been produced, they will be validated by user-client panels at DECATHLON.

These tests can then lead to the progressive inclusion of recycled cotton fibers in all the DECATHLON group’s industrial production for woven and knit garments. By reinventing the end-of-life of a product, we supply the textile industry with a raw material by-product.

Brands and manufacturers will be able to use recycled materials that will, over time, considerably help reduce the volume of virgin materials and production costs while optimizing the cotton fibers’ environmental footprint.

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**PROJECT**

**IN COMPLEMENT TO THIS PROJECT, WE ARE STUDYING THE REALIZATION OF SHORT-FIBER BLENDS IN RECYCLED POLYESTER/COTTON**

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**OBJECTIVE**
Identify and develop innovative recyclable materials that will allow easily customizable sport products to be produced.

Every gram of a soccer OR sport shoe’s material can be reused and re-fashioned in a 3-D shape.

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**Adidas**, sponsor of the “Sport Infinity” research project carried out in the context of the European Commission H2020 initiatives, asked CETI and other industrial partners, including BASF, to research and develop the creation of a new generation of entirely recycled sport products.
This approach will ultimately reduce the environmental impact of cotton product manufacturing: by reducing the quantity of cotton grown, it reduces soil pollution and water consumption, by eliminating or simplifying the dyeing and finishing stage, by reducing their chemical impact and by creating a source of local raw materials.

Okaïdi, member of the ÏDKIDS brand community and CETI share the same ambition: to create a circular economic circuit around cotton in order to reduce the environmental impact of this raw material known to be one of the most polluting and water-consuming. It is in 2017 that they launch together a textile innovation project...

ANANAS AMAN WORKED ALONGSIDE CETI, TO OPTIMIZE ITS NONWOVEN PROCESS FOR A BETTER PRODUCT QUALITY.

Piñatex® by Ananas Aman is a coated nonwoven material made from Pineapple leaf fibres. Piñatex® material can be used as an alternative to leather and petroleum-based materials in the fashion, apparel, interior and car industry, and has been the start of the Piñatex Collection. Piñatex takes into account social, ecological and economic responsibilities throughout its full life cycle and follows Circular Economy ethos.
INNOVATE AND TAKE A NEW APPROACH TO SUSTAINABLE DEVELOPMENT

By joining forces TDV Industries and CETI, have created the REPS consortium in 2018.

REPS OFFERS A GLOBAL SOLUTION FOR THE PRODUCTION OF A NEW RANGE OF ECO-DESIGNED PRODUCTS.

Let’s imagine and reinvent the end of life of your collections.

Combining industrial strength and R&D strength, thanks to the automation of processes allowing speed, efficiency, technical depth, and thanks to an equipment designed and created with the aim of processing short fibre, REPS provides an answer to all its customers’ needs to become a brand responsible and committed.

DEVELOPMENT OF TALENTS

As a training organization dedicated to textile innovation, CETI accompanies European companies in the extended industries of Textiles, Fashion/Luxury and Retail in their evolution and transformation towards a responsible environmental approach.

CETI’s instructors’ strength of conviction invites each trainee to surpass themselves and better approach the transformation of industry trades today.

CETI TRAINING CAMP

BECOMING A BRAND RESPONSIBLE AND COMMITTED

As a training organization dedicated to textile innovation, CETI accompanies European companies in the extended industries of Textiles, Fashion/Luxury and Retail in their evolution and transformation towards a responsible environmental approach.

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Date: 14-15 November 2019
Duration: 2 days
Price: 2000 €HT/Participants
Public: Buyer - Stylist/Designer
Marketing Manager – Supply chain Manager
Innovation Manager – Market Manager
Collection Manager – CSR Manager
Place: CETI – 41 rue des métissages 59200 Tourcoing
Trainers: Isabelle Cornu – Fabienne Hindre – Mara Foglio – Thierry Le Blan
Registration: Tel: +33 (0)6 40 05 05 47
Email: training@ceti.com

Define the axis of a responsible commitment for a textile sector company
- Identify the challenges of Sustainable Development.
- Integrate a quality, environmental and social issues management system into the company’s strategy - ISO 26000.
- Dialogue with its stakeholders to better satisfy them and make CSR a lever for growth.
- Prioritize commitments and translate them into action plans (Materiality Matrix).
- Appropriate the tools to support change (Innovation Design).

Workshop: Build a benchmark of CSR initiatives of fashion/sport/luxury brands
- Functionality saving initiatives.
- Recycling techniques (chemical and mechanical).
- Functionality saving initiatives.

Workshop: Eco-designing your products
- Meaning: challenges and opportunities at the product and process level.
- Materials and their environmental footprints.
- 3D design processes, zero waste.
- Life Cycle Assessment.

Workshop: Product case studies (clothing / shoes / accessories)

The originality of these trainings comes from a more concrete approach that shares client experiences and illustrates methods by using CETI’s pilot prototyping lines. Thus each trainee will be able to interact with technicians and engineers in a context that encourages the sharing of know-how.

IMPLEMENT EFFICIENT TRACEABILITY

Workshop: Traceability in one swot.
- Ensure the sincere engagement of all stakeholders.
- Nourish the company’s intangible capital through product/process/customer data management.
- Remarkable initiatives (traceability to the heart of fibre, labels, partnerships with NGOs, etc.).
CUSTOMERS BLUEPRINT

TRAINING
BECOMING A BRAND RESPONSIBLE AND COMMITTED
14.11>15.11.2019
FUNDAMENTAL
VALUES
AMBITION
PROXIMITY
EXCELLENCE

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