eurecat

Innovating with companies to create next-generation textile solutions







Innovative technologies and materials for smart, efficient and sustainable textile companies.

www.eurecat.org

We innovate alongside companies, throughout their value chain.

R&D&I projects

Under contract

Leveraged in competitive public funds

Stable collaborations in R&D&I

Our activity focuses on textile technology transfer.

Product development

Creation of new materials

Creation of functionalized components (hydrochromic, power generators, multifunctional embroidery, etc.)

We design and develop new products:
Fibres
Fabrics
Garments
Wearables

Laboratory services

Testing

Certifications

We follow strict procedures for the validation of materials and finishes in dyeing, printing, functionalization, encapsulation and coating.

Advanced technological services

Prototypes

Production of small series

Adaptation of machinery

We have specialized machinery and laboratories in Mataró and Canet de Mar.

eurecat

Eurecat is the main Technology Centre of Catalonia and the second largest private research organization in southern Europe.
We have extensive experience in 20 different technology sectors, including robotics and stand-alone systems, functional printing, functional textiles, IT Security, e-health, plastics and composites, simulation, sustainability, Big Data and Data Analytics and Smart Management Systems.
All of these are classified into three main areas of knowledge: digital, industrial and biotechnology.

From the idea to the creation of the product.

Consultancy in technological innovation and Industry 4.0

Technology watch

Innovation management

R&D&I financing

Diagnosis and R&D&I strategic plans

We contribute our knowledge and experience towards achieving a smart, efficient and sustainable textile industry.

Specialized technology training

In-company Courses

Training offered within the framework of the Reimagine Textile programme

Organization of courses and workshops for the textile industry.

Valuation

Patents, licenses for use

Elaboration and improvement of technical specifications

Valuation of products and technology.

Marketing

Promotion and dissemination

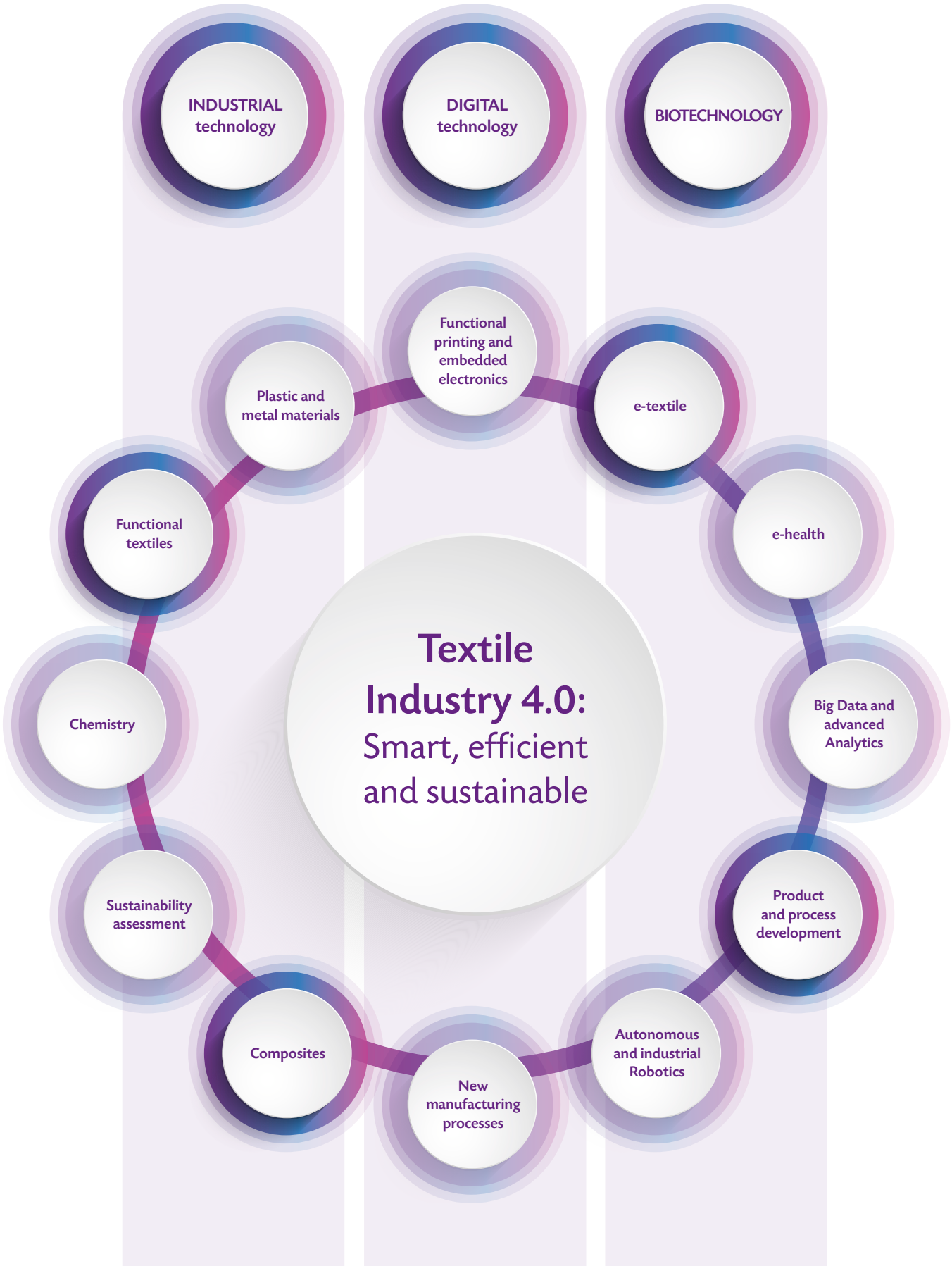
Retail

B2B

Organization of promotional events. Identification of new opportunities for the company.



Our multi-technology offer for the textile sector



Eurecat services
for the textile sector



1. New textile developments

- We accompany the company in the design and development of new textile structures, functional fabrics and new materials with unique properties.
- We identify new materials and evaluate their potential to generate new applications in line with the company's objectives.
- We design the final product and validate its properties until reaching the standard required by the company, with a focus on the end user.
- We examine the production parameters to ensure improvements in productivity and the viability of industrialization.

Eurecat services for the textile sector

2. Conceptualization and design

- Design and conceptualization of functional fabrics, adapted to target consumers.
- Search for new fibres.
- Identification of new composites based on natural or synthetic raw materials.
- Hybridization. Combination of fibres.



Multifunctional embroidery

In collaboration with companies in the textile sector, we create new products with functionalities that contribute to consumer satisfaction.



Heatable fabrics

- Ergonomic products with a comprehensive approach.
- Fabrics to monitor biosignals.
- Heatable fabrics.
- Fabrics with shape memory.
- IoT STRUCTURES.
- 3D Fabrics
- Technology and production feasibility studies.
- Proof of concept.

We have extensive experience in functional materials in complex textile structures.

3. Prototyping and product improvement

- Combination of materials to obtain specific functionalities.
- Development of complex textile structures.
- Functional requirements (anatomical and standard).
- Usability requirements (appearance, interface).
- Dimensional and mechanical specifications (weight, thickness, flexibility, elasticity...).
- Development of functional prototypes.
- Pre-series, zero series.
- Accompaniment in industrialization.





Eurecat services
for the textile sector

4. e-Textile and wearables

Also known as electronic textiles or smart textiles, an increasing number of textile products incorporate integrated electronic components and control devices that allow monitoring and/or stimulation, adapting to current technologies and user preferences.

- Design and validation of wearables.
- Technology applied to clothing.
- Technology and production feasibility studies.
- Monitoring of variables for different areas of application (sports, health, household, transportation, architecture, fashion...).
- Integration of sensors (temperature, breathing, pulse, movement, posture...) and actuators (heating, lighting, acoustic...).
- Development of customized electronics and integration of printed electronics.
- Filtering and signal characterization of electronic devices.
- Hybridization. Combination of fibres.



WBM Wearable Biosignal Monitor

Smart sensorized t-shirt that measures the physical condition of the person. Medical applications and great potential in the study of behaviours and emotions. Developed within the European TEMIS project.



Wearlumb

A smart elastic shirt to prevent lumbar fatigue. Developed by Worldline, SGSTecnos and Eurecat.

We develop textile solutions with new properties for the medical, sports and automotive sectors.

5. Trials and laboratory tests

- **Textile innovation:** process optimization, conditioning of fibres, threads and fabrics, photomicrography, microphotography of fibre sections and cleaning of weaving elements.
- **Textile fibres:** qualitative identification of fibres and fibre blends, quantitative identification of fibres and fibre blends, length of fibres, degree of maturity of cotton, measurement of fibre diameter.
- **Threads:** thread composition and characteristics, thread count, fabric thread count, twisting and re-twisting, regularity of linear mass, friction coefficient, measurement of moisture content, evaluation of appearance, shrinkage potential of textured threads, analysis of multifilament threads, breaking and elongation strength and elasticity.
- **Fabrics:** composition labelling, conservation labelling, density, thickness of fabric, mass per unit area (grammage), determination of dimensional variations of fabrics, tear resistance, resistance to tearing by sharp elements, elasticity, snagging resistance, coverage factor, determination of stiffness, adhesion of coating (resistance to detachment), test methods for evaluating upholstery fabrics, determination of gauge, etc.
- **Ennobling:** creation of dye charts, development of preparation and dyeing processes, colorimetry coordinates La * b * and LC * h * colour differences, default reproduction. Preparation: washing/scouring and bleaching, dyeing and detection of the presence of iron in washing, dry cleaning, aqueous agents and bleaching agents, dry and wet rub fastness, chlorine fastness and sweat fastness.
- **Industrial Manufacturing:** cbehaviour of knitted fabrics during sewing, behaviour of knitted fabrics during ironing, pattern design studies and optimization of fabric, studies of shaped garments, seam resistance and resistance to seam thread slippage.

We have state-of-the-art laboratories and infrastructures.

Eurecat collaborates with the Centre for Research and Transfer of Textile Technology of Canet to carry out quality control tests, among others, in accordance with current standards.



Eurecat services for the textile sector

6. Management 4.0

We incorporate technology into textile processes.

- Testing and machinery preparation services.
- Knowledge transfer for production start-up.
- Electronics and sensor systems applicable to industrial environments.
- Networked production equipment for automatic data collection.
- Integration of middleware and advanced data analytics.
- Artificial intelligence and machine learning applied to production management.
- Adaptation and conversion to interoperable environments.
- Development of expert systems for predictive maintenance.
- Development of functional prototypes.
- Pre-series, zero series.
- Accompaniment in industrialization.



We improve the efficiency of the textile company in the industrial process in a sustainable, digital and smart way.

7. Circular economy and sustainability

Industrial ecology and environmental impact.

- Minimization of waste.
- Management of complex waste.
- Assessment of by-products, reuse systems and reduction of raw material consumption.
- Analysis of life cycle, cost cycle and water footprint.
- Industrial symbiosi.s
- Analysis of the application of renewable technologies in waste treatment.

Integrated Water Cycle.

- Optimization and validation of technologies, chemical and physical treatments, biological water treatments.
- Wastewater regeneration and reuse systems. Advanced filtration, membranes.
- Sustainable water management and reduction of consumption.

Energy efficiency.

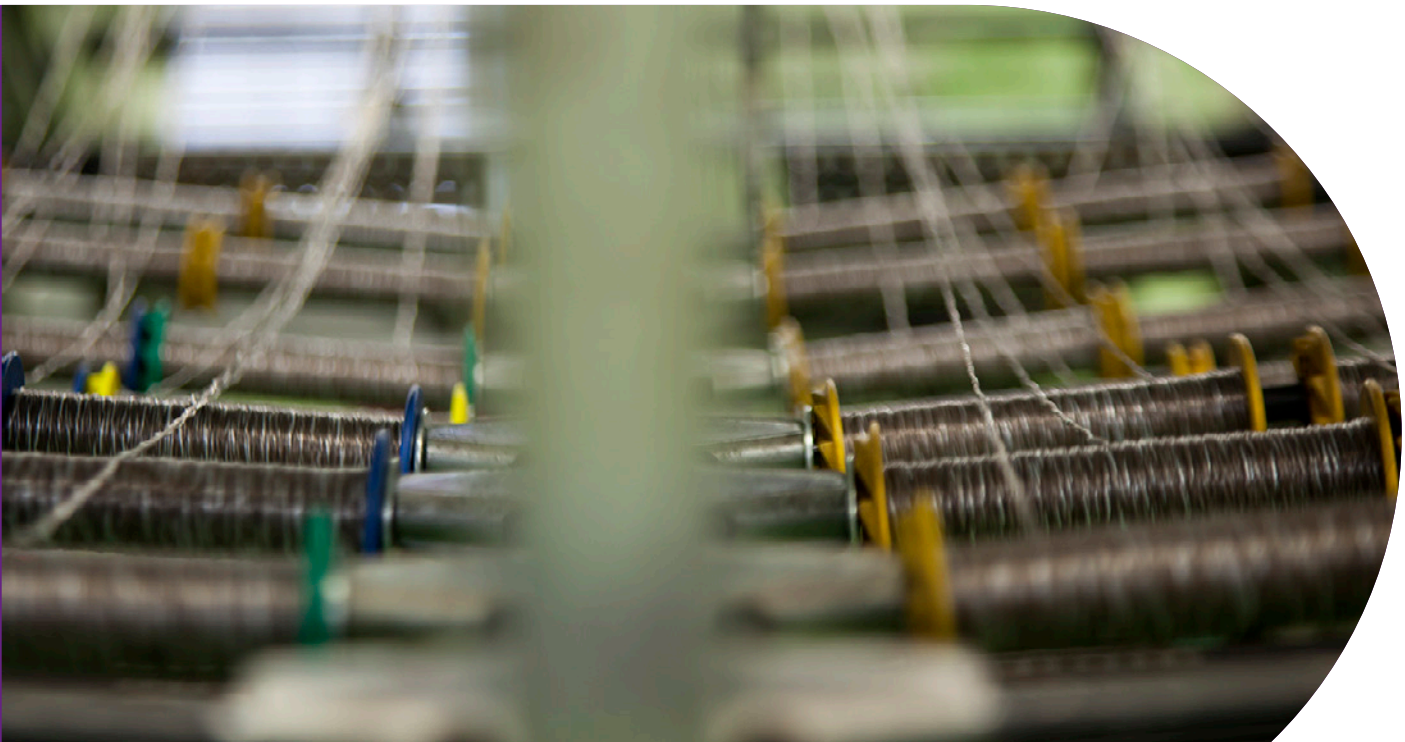
- Analysis of the energy efficiency of equipment and energy recovery
- Analysis of the application of renewable technologies in the industrial energy mix.
- Monitored micro-network with management system, capacity studies for the integration of electricity generation technologies (photovoltaic and micro wind), bacteria bank and programmable loads.



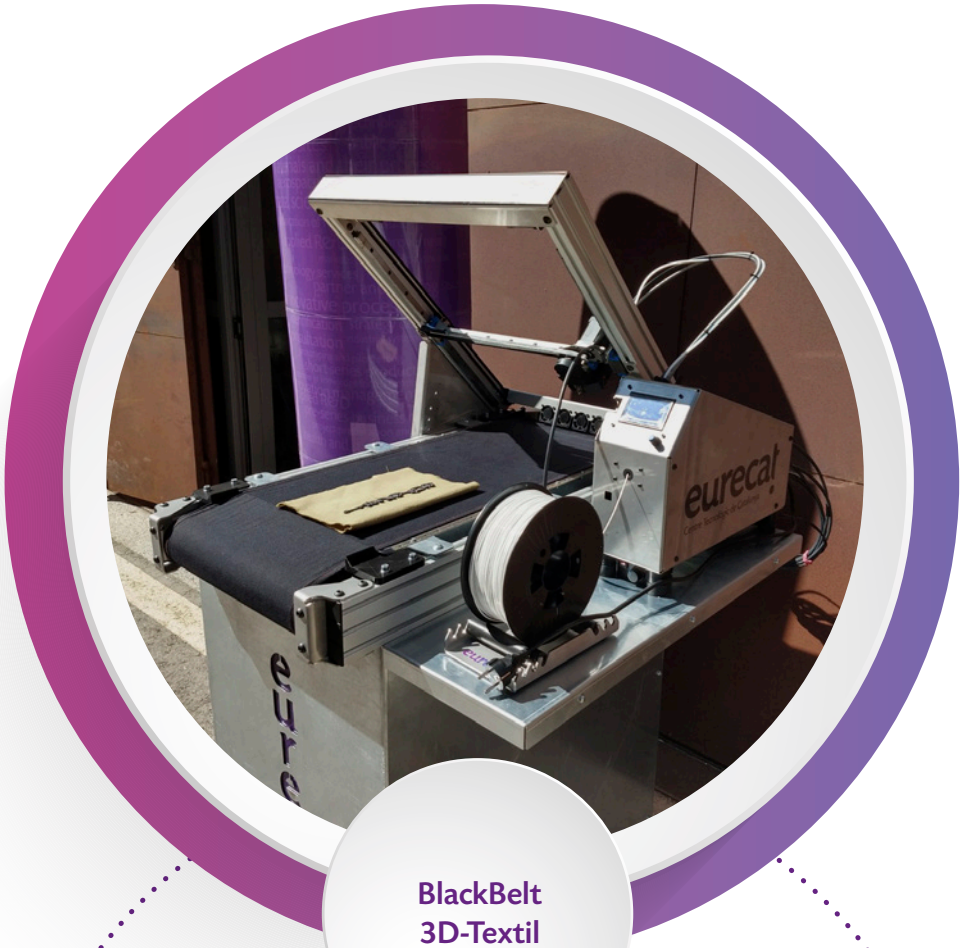
Eurecat services
for the textile sector

8. Textile Industry 4.0

- Smart management systems, connected and efficient industry, digitalization of production.
- Management platforms, monitoring and control, sensor systems.
- Solutions for the digital security (cybersecurity) of equipment, installations and devices.
- Quality control of production processes: artificial vision, laser scanner, thermography, physical-chemical and microbiological analysis, image control.
- Virtual reality, augmented reality.
- Advanced solutions for task automation: autonomous robotics (air and land vehicles, navigation) and industrial robotics (robotic cells, tool design, collaborative robotics, modelling and simulation).
- Modelling and simulation of products and processes.



We offer advanced solutions for the automation and optimization of tasks in the textile sector.



BlackBelt 3D-Textil

Additive manufacturing system on fabric that allows the integration of 3D printing technology in the textile world.

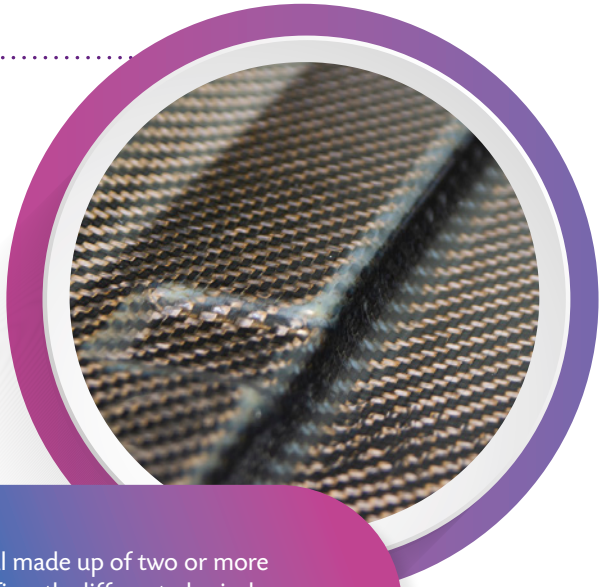
The BlackBelt-Textile, adapted with a fabric suction system developed by Eurecat (patent pending), allows continuous printing on fabric. In this way, three-dimensional prints and reliefs are obtained on fabric rolls for subsequent manufacturing.

Distributor in Spain of the BlackBelt machine from BlackBelt company 3D B.V.
Uniqo Custom Engineering.

Eurecat services for the textile sector

9. Composite Materials

- Reinforced fabrics which acquire new properties through the orientation of the fibres.
- Design of pre-formed textile structures.
- Design and characterization of spacers and 3D textile structures.
- Weaving, braiding and embroidery to prevent fibre breakage.



A composite material is a material made up of two or more constituent materials with significantly different physical or chemical properties which, when combined, produce a material with characteristics different from the individual components.

We apply Eurecat's different fields of knowledge to improve or optimize the properties of composites.



- Combination with other materials, fabrics and hybrid fibres.
- Hybridization to improve behaviours such as elasticity and impact resistance.
- Complex knitted fabrics that minimize fibre bending.

Eurecat has developed new composites that integrate fabrics specially designed to provide new properties.

10. Valuation and commercialization of products and technology

- Collaboration in the obtaining of patents, licenses for use.
- Scouting and identification of textile products and technologies.
- Writing of scientific texts to be disseminated in reference platforms and journals.
- Elaboration and improvement of technical specifications.





PIP, a new foot protector that prevents the appearance of pressure ulcers.

PIP (Integral Foot Protection) is an innovative medical product developed by Eurecat and the Mataró Hospital that offers integral foot protection thanks to the use of 3D fabric.

- New protective fabric, greater comfort and pressure absorption.
- Adjusts to movements.
- Reduces repositioning work thanks to its ease of use.
- Maintains stable pressure levels in the foot, within the range of no heel sore formation for a period of 14 days, for the same protector.
- Washable and reusable.

reimagine
TEXTILE

Reimagine Textile is a business innovation programme aimed at the Maresme textile sector. It is coordinated by the Mataró City Council, with the active participation of the Tecnocampus Mataró-Maresme Foundation, Eurecat and the Calella City Council. It also has the support of the Maresme Regional Council, the Association of Knitwear Entrepreneurs of Mataró and Comarca (ASEGEMA) and 15 municipalities of the region. It is part of the Specialization and Territorial Competitiveness Project (PECT) of Mataró Maresme, co-financed by the ERDF OP 2014-2020 of Catalonia.

It is addressed to companies and professionals in the textile sector, as well as universities, technology centres, other players and the general public, and its objectives are:

- To boost the productive capacity and competitiveness of the Maresme textile cluster.
- To attract demand for the manufacturing of value-added products in terms of design, and to create new jobs with technical specialization.
- To incorporate technology and innovation in the business management of SMEs.
- To promote the internationalization of innovative textile SMEs.





Reimagine Textile publishes monthly **newsletters on technology watch and innovative strategic foresight.**

Reimagine Textile organizes different types of free training workshops for companies and entrepreneurs to share visions and knowledge in the field of textile innovation. We have reference collaborators in the fields of the workshops. In the "Circular and sustainable textile design" workshop were **Back to Eco**, **Ecoalf** o **Piñatex**.

Check out the upcoming workshops at: **www.reimaginetextile.com**

A few of the participants in the workshop "Circular and Sustainable Textile Design"







An initiative of:

Ajuntament de Mataró

eurecat

TecnoCampus

Ajuntament de Calella

Collaborators:

ASOCIACIÓN ESPAÑOLA DE QUÍMICOS Y COLORISTAS TEXTILES
Miembro de la IFATCC
AEQCT

pimec
Micro, petita i mitjana empresa de Catalunya

Texfor
CONFEDERACIÓN INDUSTRIA TEXTIL

FABRICADEMY
textile and technology academy

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Diputació Barcelona
#DibaOberta

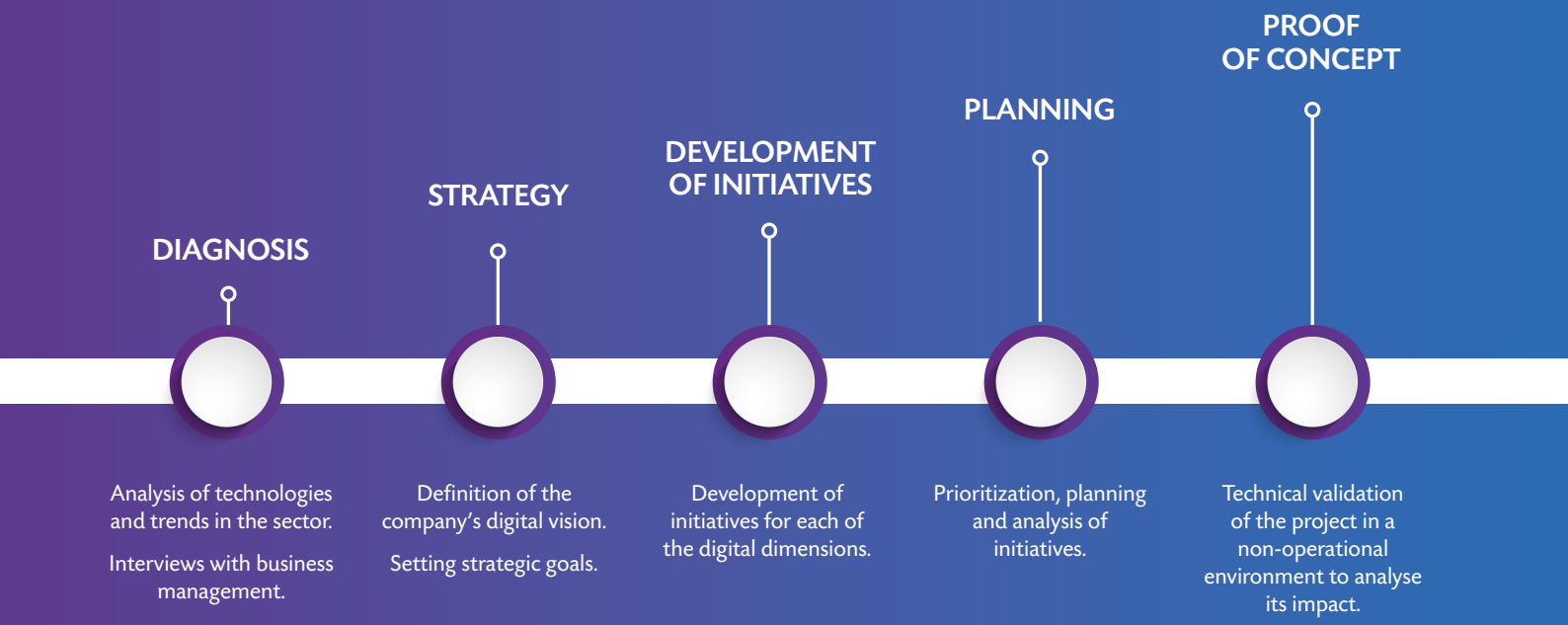
We assist businesses with our

Guide to Industrial Digitalization.

Road map for Industry 4.0

Predictive Analytics with Big Data

Automatic learning



Analysis of technologies and trends in the sector.

Interviews with business management.

Definition of the company's digital vision.

Setting strategic goals.

Development of initiatives for each of the digital dimensions.

Prioritization, planning and analysis of initiatives.

Technical validation of the project in a non-operational environment to analyse its impact.

Digital twins

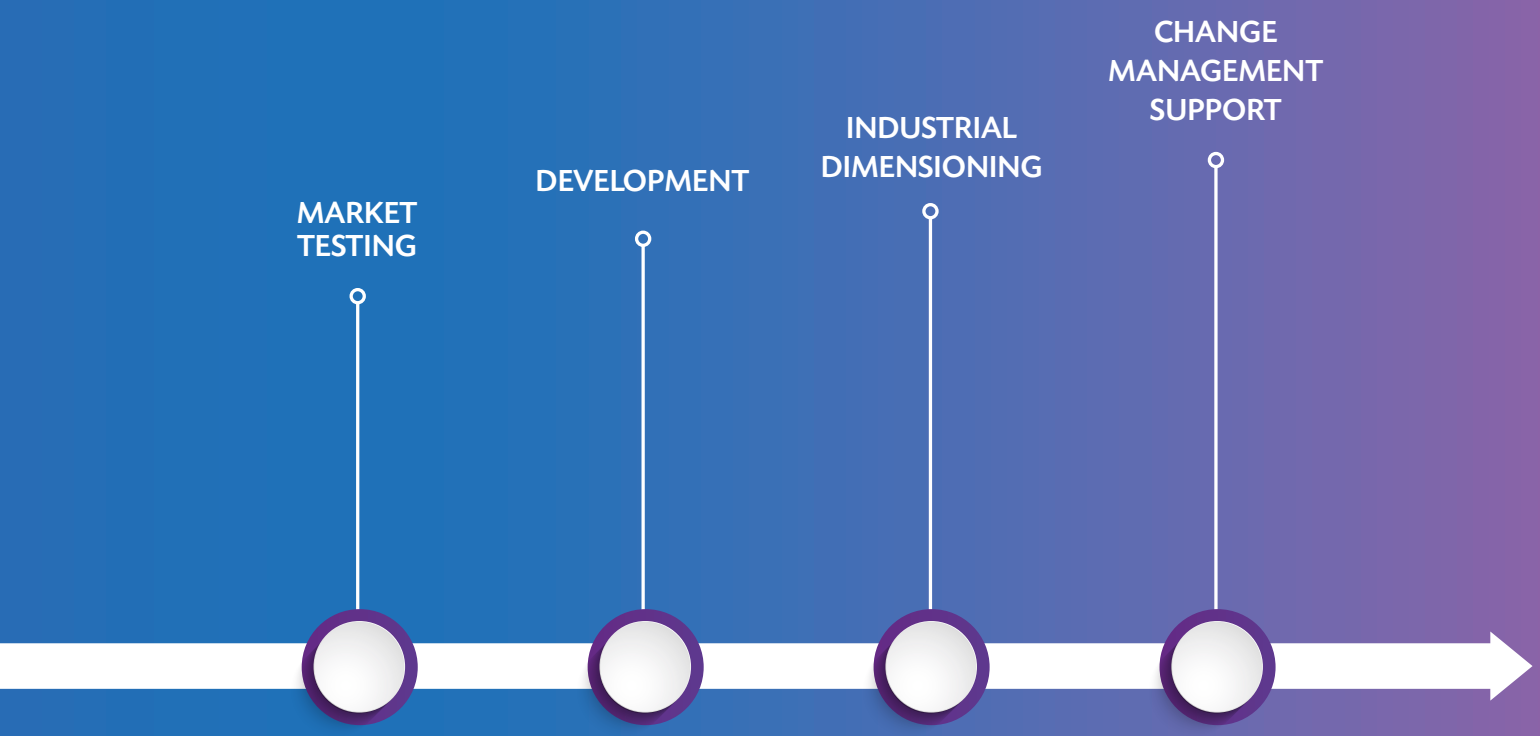
Predictive maintenance

Optimized production planning

We improve the competitiveness of companies by developing a transformation plan that helps them incorporate digitalization into their structure, optimizing processes and costs and generating new business models.

From concept to factory

Industrial / Collaborative Robotics **Cybersecurity** **AR and VR assisted systems**



Conducting a pilot with pre-selected customers in order to validate the real acceptance of the concept, assessment of ROI.

Design and development of the concept to implement it in an operative or real market environment.

Marketing or implementation of the solution.

Accompanying the company during the process with work sessions, workshops and team dynamics in order to promote technological transformation.

Customized manufacturing and zero defects **Systems integration**

eurecat





Training

Eurecat offers specialized technical training for companies in the textile sector.

www.formacion.eurecat.org

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