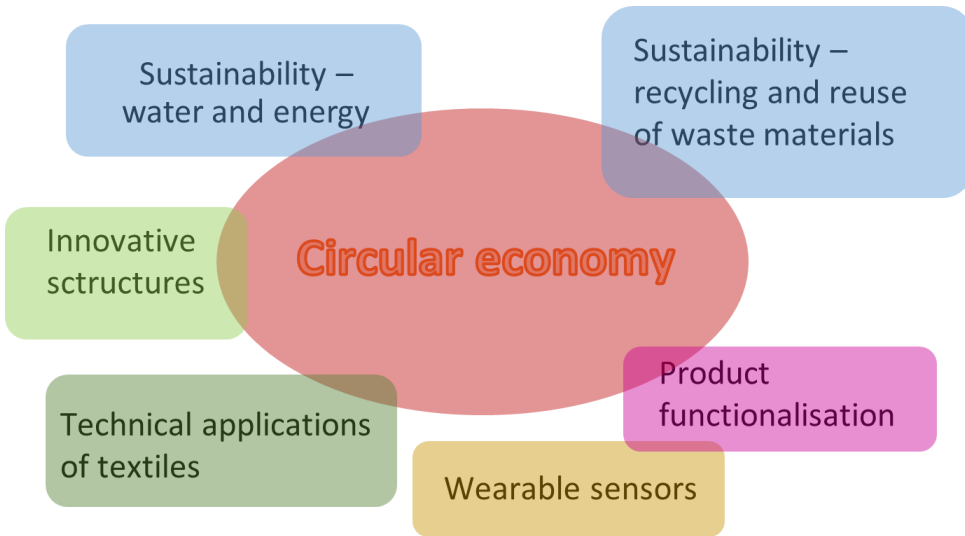




European research driver for TC sector



Circular economy will pervade textile-Clothing sector in next few years.

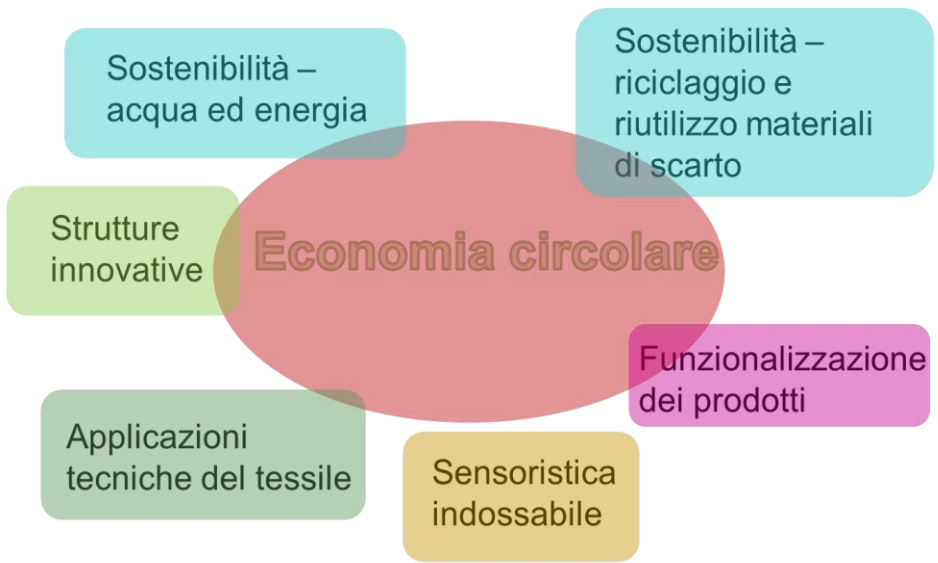
The main drivers of next years research will deal with topics related to circular economy. Main goals of what our companies will activate is shown in the diagram: as a circle that starts and ends with a brand new start, our sector is in need of regenerate and give new life to end-of-life products. Consumers are in need of a better care about how the product is processed and what will be the destination of waste generated at the end of its use. Product and process design is at the base of the new way of producing: this is a major change for a traditional manufacturing sector as textile.

L'economia circolare pervaderà il settore tessile-abbigliamento dei prossimi anni.

I principali driver della ricerca per i prossimi anni affronteranno temi legati all'economia circolare. Lo schema mostra gli obiettivi principali delle nostre aziende: come un cerchio che inizia e finisce con un nuovo inizio, il nostro settore ha bisogno di rigenerarsi e dare nuova vita a prodotti esausti. I consumatori hanno bisogno di una maggiore attenzione a come il prodotto viene realizzato e a quale sarà la destinazione dei rifiuti prodotti al termine del suo utilizzo.

La progettazione del prodotto e del processo è alla base del nuovo modo di produrre: questo è un cambiamento epocale per un settore manifatturiero tradizionale quale il tessile.

I driver europei della ricerca nel TA



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A list of textile-related calls that the European Commission will make available in 2016 under the Horizon 2020 programme is shown here. For more details, please go to: <https://ec.europa.eu/programmes/horizon2020/>

Di fianco viene riportata la lista delle call a tematica tessile che la Commissione Europea renderà disponibili durante il 2016. Per maggiori informazioni <https://ec.europa.eu/programmes/horizon2020/>

- NMP-04-2014: High-definition printing of multifunctional materials
- NMP-18-2014: Materials solutions for use in the creative industry sector
- BIOTEC-3-2014: Widening industrial application of enzymatic processes
- WATER-1a-2014: First application and market replication
- WASTE-1-2014: Moving towards a circular economy through industrial symbiosis
- EeB-02-2014: Adaptable envelopes integrated in building refurbishment projects
- ICT-03-2014: Advanced Thin, Organic and Large Area Electronics (TOLAE) technologies
- NMP-35-2014: Business models with new supply chains for sustainable customer-driven small series production
- ICT-18-2014: Support the growth of ICT innovative Creative Industries SMEs

European textile-related research in 2016

La ricerca europea nel tessile per il 2016



For every driver of European research for TC sector, short briefs about project ideas discussed at European level by main TC actors (R&D centres, companies, associations, Universities) is reported in the following boxes.

Per ogni driver della ricerca europea per il settore TA, alcune brevi note sulle idee progettuali discusse a livello europeo dai principali attori del TA (centri di ricerca, aziende, associazioni, Università) sono illustrate nei box seguenti.

**Research topics in 2016
Functional products**

- ❑ Multi-layered and multi-functional aerogel-containing non-wovens for ambient wellbeing - Aim of the project is the realization of thermal insulation non-wovens, fabricated by mixtures of natural fibres and PET textile waste, and containing Aerogel micro- to nano-particles.
- ❑ Pilot Line Manufacturing of Nanostructured Antimicrobial Surfaces using Advanced Nanosurface Functionalisation Technologies - to build a nanostructured topology; the surface will enable textile a combined functionality of superhydrophobicity and antimicrobiality - to develop mass production of antimicrobial large area textile surfaces by two methods employing micro- and nano-structuring
- ❑ Nanostructured antimicrobial and antibiofilm textile surfaces using atmospheric pressure plasma technology - nanostructured surfaces (by atmospheric pressure plasma) with antimicrobial, biocompatible and antibiofilm properties.



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Research topics in 2016
Resources efficiency



Energy saving

- ❑ *Efficient use and reuse of resources in textile and process industries* - by using sensor controlled processing and reuse of low contaminated water coming from rinsing processes.
- ❑ *Plasma technology for a better efficient use of water in textile industry* - plasma technology as a substitution of several wet textiles processes or as a pre-treatment for reduction of water consumption
- ❑ *Resource efficient water management systems* – combined processing for: 1) remove solid particles via filtration processes; 2) reducing organic compounds via tertiary treatments (i.e. photocatalytic processes); 3) removal of dissolved salts trough reverse osmosis 4) removal of heavy metals by ceramic super-adsorbents

Research topics in 2016
Waste

- ❑ *Recovery and transformation of agricultural, agro-food, and animal-derived WASTE streams* - Aim is to produce valuable bio-derived fibres, polymers, binding and finishing components, organic filling materials and additives, suitable to be easily processed or used into new (bio-)products.
- ❑ *Closed Loop Textiles Manufacture* - The aim is to construct two pilot plants; one for cellulosic and a second for polyester recycling. They will be designed to process 100 – 1000 tonnes of post-industrial off-cuts and related wastes with the aim of attracting post-consumer apparel wastes afterwards
- ❑ *Development of high-performance carbon nonwovens for structural applications* – Carbon nonwovens are a solution for recycling carbon composites. The aim of the project is to develop high-performance carbon nonwovens and guidelines for their construction
- ❑ *The bast fibres* - Creating a dynamic and competitive industrial value chain for organic flax and hemp, from agricultural fibre crops to finished products designed to fashion industry, medical or technical uses

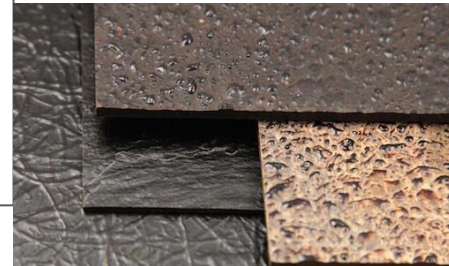




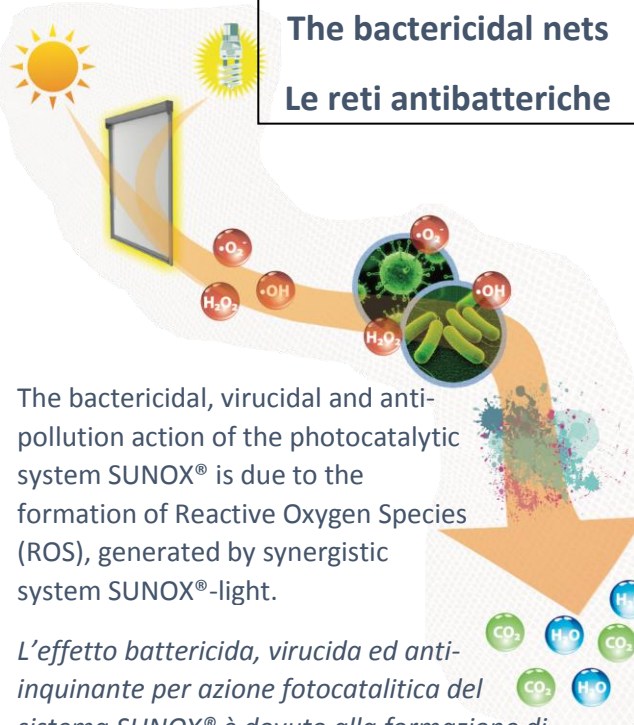
Research topics in 2016 Innovative structures

- ❑ *Bio-composites based on 3D woven structures* - An exploratory work will be carried out in the field of three phase composite in which nanoparticles will be incorporated in addition with 3D woven fabrics while preparing composites. Applicability of 2D & 3D woven biocomposites will be studied
- ❑ *Biodegradable hydrogel-textiles from porous fibers* - Non-woven and woven 2D and 3D porous hydrogel-textiles with one or two level controlled porosity will be designed to modulate biodegradability kinetic and mechanical properties. Application could be in biomedical field (wound dressing or scaffolds for tissue engineering...)
- ❑ **3D MAKING** - to exploit the 3d printing technologies for customised clothing design thanks to: design with facilitated interfaces for creative and non-CAD skilled designers, mechanical characterisation of the printed objects and innovation in the traditional supply chains.

This newsletter was realised by the leading organisation of OTIR2020 cluster:



The bactericidal nets Le reti antibatteriche



The bactericidal, virucidal and anti-pollution action of the photocatalytic system SUNOX® is due to the formation of Reactive Oxygen Species (ROS), generated by synergistic system SUNOX®-light.

L'effetto battericida, virucida ed anti-inquinante per azione fotocatalitica del sistema SUNOX® è dovuto alla formazione di Specie Reattive all'Ossigeno (ROS), generate dal sistema sinergico SUNOX®-luce.

Photocatalysis is a process that is activated by the action of light and air. SUNOX® nets trigger a strong cleansing process that leads to the decomposition and transformation of bacteria, viruses and fungi into harmless substances. The photocatalytic surfaces prevent the growth of microorganisms and do not allow the accumulation of the substances these microorganisms are fed with.

La fotocatalisi è un processo che si attiva grazie all'azione della luce e dell'aria. Le reti SUNOX® innescano un forte processo purificante che porta alla decomposizione e trasformazione dei batteri, virus e funghi in sostanze innocue. Le superfici fotocatalitiche impediscono la crescita di microrganismi e non consentono l'accumulo delle sostanze di cui tali microrganismi si alimentano.

Una proposta di:



In collaborazione con:



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