

# European Technology Platform *for the future of* textiles *and* clothing



## Industry Innovation Potential and Societal Benefits from White Biotechnology Applications in the European Textile and Clothing Industry

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**EU 2020 and beyond: Biotech's contribution to Europe's responsible innovation, 9  
December 2010, Brussels**

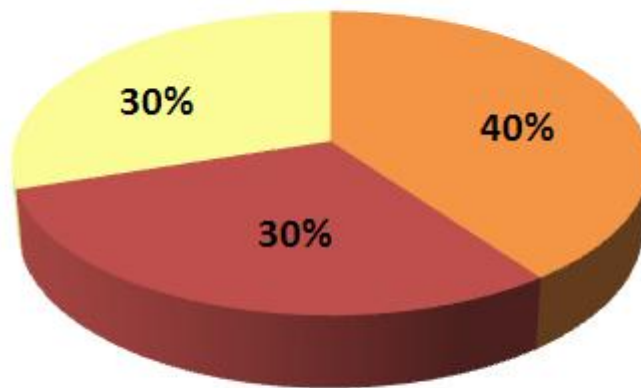


# EU Textiles today

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clothing



Share of textile application  
by fibre



- Clothing & Fashion
- Home & Interior Textiles
- Industrial & technical textiles

## Industry key figures:

€190 billion annual turnover

2.1 million employees

150,000 companies (99% SMEs)

EU industry competing on the  
basis of:

- high value added/high quality products
- niche market strategies
- rapid market reaction
- sustainability in operations

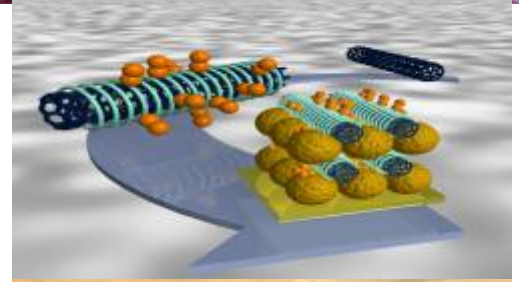
# Future Vision

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## Major Long-Term Industry Trends

- Move from commodities towards specialty products from high-tech processes.
- Increased use of textiles as material of choice in many sectors and application fields.
- Move towards customisation, personalisation, as well as on-demand production.
- Innovation in resource efficiency, low environmental-impact technologies and promotion of consumer health and safety in products.



# 1. Applications of white biotech

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## Use of enzymes to replace harsh chemistry in textile (wet) processing



- **Advantages of enzymes use:**
  - Low energy: up to 120 kg CO<sub>2</sub> savings / tonne of textile produced
  - Reduction of water usage up to 19.000 liters / tonne of textile bleached
  - Less aggressive chemicals
  - Fully bio-degradable
- **Industry uses:**
  - Material preparation
  - Dyeing/finishing
  - Washing

## 2. Applications of white biotech

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### Biopolymers for fibres to replace fossil-based or difficult to degrade/recycle textile materials



- **Advantages of biopolymer:**
  - Use of renewable biomass (waste)
  - Biodegradability
  - Better material characteristics
  - Reduced land use - more material produced (e.g. PLA from corn) per ha than cotton
- **Industry uses:**
  - Cellulose fibres for clothing, interior & hygiene markets
  - PLA fibres for non-woven/hygiene markets
  - Further biopolymer fibres for special niches

# 3. Applications of white biotech

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## Upgrading natural fibre for industrial uses to satisfy growing demand and replace less sustainable options



- **Advantages of bio-based materials:**
  - Use of renewable EU fibre sources
  - Biodegradability
  - Better material characteristics
  - Production of useful side-products
- **Industry uses:**
  - Linen for fashion & interior markets
  - Flax/hemp for technical applications
  - Other fibres explored for niche application

# Conclusion

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## White biotech in the European textile & clothing industry brings:

- **For EU SMEs:** opportunities to improve their products and processes for better competitiveness e.g., enzymatic processes, new biomaterials, biological dyes, effluents/water treatment technologies, etc
  - **For consumers:** a wider range of creative & sustainable textile products made in Europe
  - **For society:** sustainability production and use of textile
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