

# Newsletter #2

July 2019

## Are textile industries in Italy ready to switch to green?

**In Italy, more than 60% of fabrics are currently made of polyester and other petroleum-derived fibres. Often, synthetic material is used by manufacturers in place of natural fibres for reasons related to fast-fashion and cost. It shouldn't be a luxury to be environmentally conscious and consumers are now starting to demand more sustainable textile production and consumption. Businesses are looking for economically viable bio-based alternatives to fossil-based fabric. What are the challenges and opportunities to re-design the textile industry based on the innovations stemming from the circular bioeconomy?**

To answer these questions BIOVOICES organized on the 9th of April 2019 a workshop, in Biella (Piedmont, Italy), to understand how the bioeconomy could add value to the textile industry. The workshop involved 76 participants, out of which 7 from the public sector, 37 from the

private sector, 7 consumers and 25 researchers.

### **The Biella textile district**

Biella is known worldwide for making yarns, having deep roots of a long wool tradition with 200 years of history. The specialised products of the district, include yarns and fabrics of the highest quality, made from mainly Australian superfine wools and other special materials and precious fibres (such as cashmere, camel hair, alpaca, vicuña and mohair. The district also specialized in cotton, polyester, acrylic and nylon (source <http://www.uknitlab.com/blog/biella-textile-district/>).

### **Opportunities and barriers to the introduction of a more sustainable textile value chain, integrating bio-based products.**

There are a wide range of concrete possibilities created by the circular bioeconomy for the textile industry, as an example through the valorisation of agro-

food waste and processing residues, like fibres made from pineapple, tomato, coffee, grapes, hemp, hazelnut and rice scraps. The potential exploitation of bio-based products and processes in Biella textile sector seems to be more likely applicable to changing processes than using alternative feedstock to produce innovative yarns and fabrics. Today in Italy we have the possibility (still in a few shops) to buy sustainable textiles of renewable and natural origin such as hemp and bamboo. We have also excellences in the Italian textile bioeconomy, famous worldwide, as “Orange Fibers” that have patented and manufactured the first sustainable fabric from citrus juice by-products or “Due di Latte” which created two series of milk, to create a series of soft T-shirts and clothing lines. New processes can be yarn and fabric dyeing and finishing, as well as better waste waters treatment to create a better life cycle.

A main reason for resistance to change is linked to high-end market positioning of

the main industrial players in Biella. This position requires high standards in terms of quality and durability, which should be carefully evaluated and tested when suppliers are proposing new solutions, including the bio-based. The traditional safe products and supply chain already guarantee these high standards and therefore the industries participating to the workshop were not completely open to novelties.

### **The role of consumers in driving the change.**

Consumers are interested in companies' green strategies as claimed by the workshop's participants. They foresee a market demand for bio-based products and sustainable textile processes. According to them, consumers have become more aware of where their clothing comes from and how they are made. Therefore, they prefer more often companies caring for their workers, the consumer's health and the environment.



Nevertheless, only few consumers are informed about the impact of fossil-based fabric on humans and the environment. The use of a terminology that everyone can understand is crucial. The participants foresee a need to identify and to set-up correct and clear communication messages for the consumer to verify the sustainability of what they are buying. Labelling should be more explicative, clear and reliable. As an example, some participants claimed for “digital” labels, providing much more information on processes, value chains, related Life Cycle Assessment (LCA) and impacts on society and environment, compared to the actual information that is not sufficient to drive an informed choice. Despite the interest of consumers in companies' green strategies, fashion remains the main purchase motivation, rather than quality or sustainability.

## **Collaboration along the value chain players**

The current challenges along the value chain involve all actors, from feedstock producers, to bio-based industries, from retailers and brands to consumers. The workshop emphasised the need to facilitate and support the collaboration among the players along the textile value chain to jointly address challenges.



BIOVOICES aims to contribute to the market uptake of bio-based applications with established upper TRLs, with reference to three development phases:

- 1. Development** - business cases with products that are 95% mature,
- 2. Take-off** - with mature products for niche groups, and
- 3. Acceleration** - to mainstream groups.

Based on a literature search (Overbeek & Hoes, 2018) and interviews (Diogo & Urze, 2018) BIOVOICES has identified five clusters (identified below) and twelve individual challenges that need to be addressed to enhance market uptake (Albertini et al., 2018):

- 1.** Market development to produce BBPs for niche markets and broader markets.
- 2.** Building awareness and trust with interested business and consumers.
- 3.** Supporting European and national strategies (incentives), regulatory frameworks, legislation and standards to stimulate the production and use of BBP.
- 4.** Developing a supporting environment to improve second generation (2G) feedstock
- 5.** and more intermediaries to stimulate the production and use of BBP.

- 6.** Regional/local action plans and activities to stimulate the production and use of BBP.

Solving these challenges requires cooperation between stakeholders from government, business, research and civil society, or the so-called “quadruple helix” stakeholders.

Establishing a quadruple helix is not an easy task, because it requires agreement surrounding shared objectives and the development of a common language amongst and between stakeholders. Usually, in the bio-based economy, research and business, supported by the government, (the triple helix) cooperate to realise technological development (TRL1-6). To create social innovation and increase adoption for applications with TRL 7-9, a change is

required from triple helix to the quadruple helix (including civil society), and consideration of the different perspectives of all these stakeholder groups. BIOVOICES will animate collaboration between these stakeholder groups through Mobilization and Mutual Learning events to be held in 2019 and 2020 (MMLs, Hoes et al., 2018).

Besides contributing to technological development, the research community conduct feasibility studies, and contribute to conferences, workshops and knowledge exchange events. Besides undertaking research, universities and schools also have an important task in educating students as potential developers of new BBP and in informing citizens about new circular biobased perspectives.

scale and can count on increasing demand. This phase ends with market saturation. Based on the clusters and the development phases, BIOVOICES has framed a 'menu' of twelve challenges for market uptake. (See Table 1 below). Stakeholders will select one or two challenges that they consider most appropriate for collaboration.

## Challenges

To identify shared challenges across the quadruple helix, it is important to distinguish the phases in innovation systems in which all helix actors are interested and in which they can contribute effectively (Hekkert et al., 2011). During the Development phase resulting in accepted business cases, the policy and socio-economic landscape for the establishment and operation of the bio-based economy are created. The phase of Take-off shows substantial growth: the first competitive bio-based products are sold in the market to niche groups, new companies join the value chain, and the infrastructure is established with both public and private funding. This phase ends with a fast market growth. In the phase of Acceleration, competitive bio-based products are produced at an extensive