

# **CIRCULAR ECONOMY IN THE TEXTILE AND FOOTWEAR INDUSTRY: SKILLS AND COMPETENCES FOR A SECTOR RENEWAL**

## **ENDORSEMENT OF THE DEFINED NEEDS AND GAPS**

**Design 4 Circle - June 2019**



Co-funded by the  
Erasmus+ Programme  
of the European Union



circular economy  
design training  
in the textile and  
footwear industries

Grant Agreement No: 2018-1-LV01-KA202-046977

Innovative design practices for achieving  
a new textile circular sector



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This project has been funded with support from the European Commission

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For more information: [www.design4circle.eu](http://www.design4circle.eu)

## 1. Introduction

The Design4Circle project objective is to create an innovative learning curriculum in line with the needs of designers of the textile and fashion industry towards a circular business model. The main target groups are current and future fashion designers of the textile industry.

In that respect, Design4Circle aims to assess the skills gap in implementing circular economy practices in the textile and footwear industry and to support European designers from the textile and fashion sector.

Through companies interviews and HEI feedback, Design4Circle aims to get a better understanding of the skillset that need to be developed in order to design an integrative training curriculum aimed at equipping designer in the industry with circular skills.

Consequently, Design4Circle conducted a desk research on best practices, and identified needs for eco-design in the textile sector, with the aim to analyze the specific skills, competences and knowledge that should be included in future trainings to respond to this knowledge gap.

The initial findings of the research were compiled in a report with preliminary results and was further presented in national workshops organized by the project partners to validate the results with industry representatives (companies, federations, business centers etc.). This approach facilitates further the endorsement of the new curriculum by future target users.



## 2. Description of workshops

The workshops were organized during the period 15th till 30th of June in Latvia, Romania, Portugal, Spain and North Macedonia. An overview of each workshop is described below.

### Latvia

The workshop in Latvia was organized by Riga Technical University and took place at the premises of the Institute of Design Technologies of Riga Technical University. In the workshop, 12 representatives of companies, manufacturers, consultancy, designers and HEI participated. Areas of expertise of participants included manufacturing of work wear, leisure clothing, upholstered furniture, designing and manufacturing of specialized sportswear, design for environment as well as HEI and consultancy for timber industry federation.



### Romania

The workshop in Romania was organized by TUIASI - Technical University of Iasi. 14 industry representatives (designers, managers and engineers) of clothing companies participated in the event. The

companies are producing fashion clothes, personal protective garments, automotive covers and specialized sportswear (cycling).



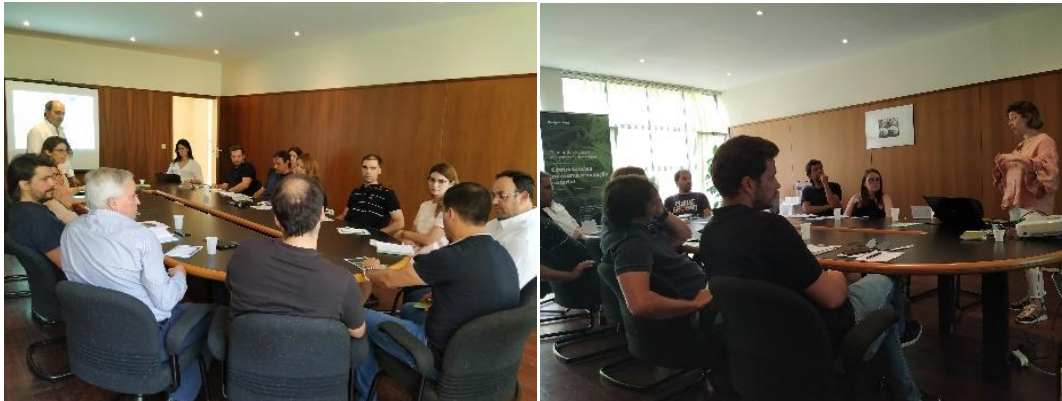
## Spain

The workshop in Spain was organized by Amuebla and took place at the premises of the Technological Centre of Furniture and Wood's facilities in Yecla. The workshop was attended by 6 designers, 4 consultants and 2 VET teachers, all of them from the furniture sector and its related industries.



## Portugal

The workshop in Portugal was organized by Centro Tecnológico de Calçado de Portugal and it took place at the premises of CTCP in Felgueiras, one of the most relevant location of the footwear industry in the country. The 16 participants of the workshop, among which entrepreneurs and other representatives of footwear companies, manufacturers, consultants, designers and VET entities, covered all the footwear value chain, namely footwear production, soles and insoles production, design, marketing and sales, and one representative from textile sector.



## North Macedonia

The workshop in North Macedonia was organized by Textile Trade Association - Textile Cluster and took place at premises of Economic Chamber of Commerce where TTA-TC is situated. The workshop was attended by 13 participants: companies, consultants, VET teachers, HEI teachers, agency for employment and Center for adult education.

In total, 67 participants attended the 4 workshops.

### 3. Summary of discussions

Each workshop followed a similar structure, including a presentation on the project Design4Circle, focusing on the objectives, expected results and achievements to date, followed by discussions on environmental impact of the sector, importance of eco-design, proposed training pathways and envisaged modules and content. A summary of the main points of discussion is presented below.

#### *3.1 Environmental impact of the textile industry*

All events addressed the environmental impact of the textile industry and its relation to the textile, apparel, furniture and footwear sectors. Attendees expressed the relevance of the project, as there is a growing demand from the customers wanting products that are eco-friendlier, and there's a lack of training on eco-design and circular skills in the sector.

At the same time, attendees agreed that raising awareness on the importance of eco-design and environmentally friendly products developed by the textile and furniture sector must also be a task carried out by the companies themselves, by adopting new manufacturing processes and by informing customers on how their products are being produced and the environmental impact they have.

#### *3.2 Presentation of the skills and competences report*

During each workshop, the results contained in the report '*Circular Economy in the Textile and Footwear Industry: Skills and Competences for a Sector Renewal*' were presented. As Circular Economy is still a rather recent concept, some of the attendees were not familiar with how the transition to a circular model can benefit both companies and the environment and how it can be successfully implemented in the textile sector.

Attendees agreed that companies need to know, not only how to implement new production processes and methods, but also how to include new materials in their products that comply with environmentally-friendly strategy. Representatives are aware that there are companies from the



textile and furniture sector that have implemented strategies related to circular economy, but agreed the change of pace needs to be more profound and include smaller companies which may believe that they lack the resources or skills to change from a linear to a circular model. This change of production model will also allow companies to access new markets, something that can be amplified through social media and the internet. The attendees also expressed their interest in understanding how the change to a circular economy can also benefit workers' health and working conditions.

### *3.3 Sustainability issues*

The workshops also covered the importance of the sustainability issue. Circular Economy (CE) is currently a hot topic and once engaging in sustainability practices, it's for good, there's no coming back. Sustainability is an imperative for business, not conquered overnight, but a step-by-step procedure instead, reachable through cooperation and networking between different segments and stakeholders.

During the workshops, the sustainability issue raised different discussions from the participants. Companies discussed from their individual point of view on production challenges. For instance, a discussion about rubber waste led to the proposal that innovative processes should be scaled up and be organized among a set of companies interested in processing this kind of waste. Another discussion from a manufacturer which produces customized sportswear in sublimation printing for cycling, triathlon, running, team and winter sports highlighted the preoccupation related to upcycling and material re-use. The importance of working towards a reduction of water and energy consumption was stressed, while trying to educate the company employees in the spirit of environment protection. Another discussion from a company producing protective clothes (military uniforms, bullet protective vests, belts and accessories), pointed out that successful business nowadays should focus on materials with added value, eco-friendly, aligned with customer's needs and the environment, using technologies with fewer emissions of toxic substances, and moderate use of energy and water. A company leader in automotive seating and e-systems pointed that design focused on

delivering products that both meet the increasing expectations of the end consumer and environment protection are the most important issues for successful innovation.

A footwear manufacturing company raised several technical questions regarding their processes – for instance to bound with water-based adhesives. They suggested the creation of a platform for footwear where each company would be able to share the nature of their waste in order for other companies from other sectors to use it in a perspective of valorization.

### *3.4 Design issues*

From a design prospective, a company focusing on fashion garments pointed out that in a new business model (circular one) design process must be approached without affecting garment comfort, quality and price. The design thinking approach is essential for business success, but all these processes must be correlated with technology and materials, too. It is essential to educate all the persons (consumers, employees, producers, managers, politicians, etc.) regarding production and purchasing, consumption and use, collection and processing and to invest in infrastructure and technology for optimizing the product lifecycle and markets for recycled materials. The designers are pointing that it is clear that the collection and recycling of textile waste is necessary and highly important. Creating new materials according to academic researchers can bring remarkable achievements. Green Thinking – Ecodesign should be more closely linked to a user-centered approach to design creation, in the sense that it can only be built on and function as a basis for society's shared values – society being understood as the user.

### *3.5 Education issues*

Education in this area plays the most important role and should be promoted at all levels, starting from primary education to higher education and across all sectors. Thus, reducing the chance that one industry is promoting environmental protection while other keeps undermining it. Representatives from VET and HEI discussed about the

importance of developing skills and competences for sector renewal. They pointed the importance of introducing the design-driven model of education in order to achieve a circular economy. Replacing theoretical modules with more practical modules for design and pattern making technologies is important for developing products that can be produced on the principles of a circular economy.

### *3.6 On the training curriculum*

General comments on the proposed training curriculum were very positive. It was stressed that there is a proportionate emphasis on comprehensive skills; balanced with technical, theoretical, practical and virtual skills.

Both Agency of employment and Adult Education Center representatives showed a positive attitude regarding the project and the training curriculum. Both institutions are involved in retraining staff for the needs of the industry. The Adult education center can do verification of new developed programs for informal education toward circular economy in order to cover the gap between formal and informal education.

#### 4. Conclusion and recommendations

Generally speaking, the workshops allowed to highlight shared practices, pointed out worries about circular economy and provided insights on how to implement circular practices.

Overall participants were aware of the issues discussed, and focused on solutions and contributions to improve the relevance of the curriculum. The training path was validated in its general format and module distinction but additional suggestions were provided. The recommendations are listed below.

##### *Target groups:*

- Strengthen the basic knowledge on sustainability and circular economy for all levels, including commercial staff
- Provide training to educate the buyers, the end users and commercial staff, and not only the designers

##### *Sustainability management:*

- Include methods of sustainability rating and indicators (such as ecological footprint and/or recycling rate calculations)
- Knowledge about different frameworks of certification

##### *Materials:*

- Include a portfolio of sustainable materials
- Strengthen the knowledge on materials and their source

##### *Manufacturing and engineering:*

- Knowledge about process of sustainable manufacturing (i.e. applying alternative materials such as adhesives and others)
- Product engineering for circular design

##### *Recycling:*

- Technology for recycling, cleaning, re-using wasted materials.
- Practices / technology of decontamination of recycling materials
- Include best practices on organized waste markets



### *Cross-sector contribution:*

One comment highlighted that the learning modules developed by the project could be used in other manufacturing sectors. There is need for awareness building both in the textile sector companies and in the consumers towards products developed under an environmentally responsible strategy. Circular economy will help companies to develop new products designed according to the client's needs.

Participants agreed that the project consortium has an important and challenging job to do because as it aims to cover complex and diverse topics, e.g.:

- the design process in the framework of environment protection;
- educate the consumer about the impact of the manufacturing process on the environment, product life-cycle (how it can be improved or high added value);
- the content of the module must also be connected with fashion, for clothes or soft goods, readable and understandable because it is addressed to persons who are involved in textile field and need new skills in the area of eco-design, and circular economy.
- the influence of all manufacturing process of apparel textile goods on environment and society;
- consumer perception regarding the end life of the product. It is about designing products that can be reused, refurbished, and repaired, and making the waste of one product, the raw material for another.

### **Concluding remarks**

The curriculum should not be perceived as a separate program or an individual module in the study program for designers but should ideally become a central approach to design as it can impact already the early stages of research and idea development. Such a program should be scaled up (in a broader context), and address the entire

design industry, with specialized modules related to the specific industry (i.e. clothing / fashion). Accordingly, one recommendation was that the training could also provide insights on how to train textile designers from the furniture sector to incorporate new eco-friendly and recycled materials. Replacing existing theoretical modules with more practical modules for design and pattern making technology could also be considered. Finally, verification processes of new developed programs for informal education toward circular economy should be developed in order to cover the gap between formal and informal education.