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SMART VALORIFICATION OF RECICLABLE TEXTILE WASTE

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Abstract: *Clothing belongs to the category of short-term textiles. In the field of clothing, the cycles that shape the moral wear and tear of the garment are followed at shorter and shorter intervals. If in the Middle Ages and even later clothes were bequeathed from one generation to the next, today, fashion cycles are followed from one season to the next. More and more questions are asked whether clothes are worth maintaining to reuse them next season. Can there be "ageless" clothes? Here we refer to clothing items that have a value through materiality, cut line, chromatic etc. For such "worthy" items, maintenance is a necessary process for adequate preservation, also extending the life, both physically-functionally and aesthetically. It is important not to forget that physical wear always leads to loss of both the function and the appearance for which the product was created. This is where the process of recycling both used clothing and waste left over from the manufacture of new products comes into play. Recycling brings many useful benefits both to the environment and to us as beneficiaries. This must be seen as a collective responsibility to ensure a sustainable future. Recycling is fundamental in promoting a prosperous economy, which is the new paradigm of sustainability, capable of reducing environmental implications and helping to create new opportunities, jobs in the textile industry.*

Key words*: recycling, textile waste, reuse, blazer, design*

1. INTRODUCTION

One of the most necessary industries in the world is the textile industry. The textile products for the fashion industry are a big problem for the environment, because of the production process and consumption of resources. One of the methods of fighting pollution and textile waste is that of recycling and reuse [1].

In this paper we want to show that when we recycle, used materials can be transformed into new products, reducing the need to consume the natural resources of their production. By recycling some waste from production or by extracting pieces of other used items, we have been able to preserve both materials that have an important value for us and to use waste, which, in the manufacturing process, would implicitly increase production costs through energy consumption, water, etc.

2. FROM TEXTILE WASTE TO A FASHION PRODUCT

Nowadays we need to transform our economic model from a "pattern" of growth such as "obtaining, manufacturing, using, eliminating" (a linear model that assumes that resources are abundant, available and cheap to eliminate) to a "pattern" that favours the reuse, repair, reconditioning and recycling of existing materials and products, by preserving the value of products and materials for as long as possible [2]. This generates less waste, and, at the same time, decreases the pressure on precious resources and the environment

The circular economy model has recently gained a lot of attention worldwide from scientists, business people and authorities. The importance of the transition towards a more circular economy has also been noted in the European Union. The new regulations provide the enabling framework for the circular economy to flourish [3]. Implementing a circular textile industry model is a challenge that requires time and openness to new approaches. This new model requires the development of new initiatives, and even collaborations, on the use of raw materials, as well as the development of new technologies for the recycling of textile materials and their use in new clothing products [4].

Using a computer graphics program, the sketch was made, (fig.4.) of what we were going to design. The chosen product (fig.6) is a women's blazer, intended for the spring-summer season, which follows the body line, having a special structure and elegance by carefully assembling these fabric waste [5]. As raw material was used, also waste from tailoring(fig.1), pieces recovered from non-compliant products (defects) and defective fabric coupons that had to be disposed of in the shaming operation. Non-compliant products have defects that can't be corrected, thus being products that can't be marketed. In order to recover from the value of their losses, pieces or even entire parts are recovered, for re-using them.

Fig.1. *Waste from tailoring*

Fig.2. *Non-compliant products*

Fig.3. *Preparation of waste for manufacture*

Fig.4. *Sketch of the product*

In fig.3 are presented the pieces of fabric to be processed for the parts of the product to be made (fig.5). For this action, the pieces were treated umido-thermal, arranged in such a way as to take into account the warp direction of the fabric.

The next step was to cut out some rectangles. A very important step is to match the pieces so that the aesthetic appearance is a pleasant one, from a design point of view.

Fig. 5. *Product's elements*

Fig. 6. *Finished product*

Because it was intended to achieve a disordered effect, geometrical, there were pieces that were assembled on a diagonal line. This requires increased attention so as not to bring deformations of the textile surface.

The opportunity to recycle materials opens up new business horizons for small and medium-sized workshops as well as companies already established in the labour market, enriching their production. The use of industrial waste is difficult for large-series producers, who have an advanced degree of uniformity of production, they have specialized production lines, regular staff, delivery times and a high concentration of efforts to produce as much clothing as possible with as little labour costs as possible [6]. This causes a number of materials to be disposed of in the bin, increasing the amount of waste in landfills.

5. CONCLUSIONS

Since the recovery of industrial waste is difficult for large-series producers, collaborations must be established between them and the small business environment, covered by small workshops, various non-profit organisations or school organisations, which have the capacity to reuse them. Following the study carried out in this work, we applied methods of recovery of textile waste, such as the use of defective material coupons, textile waste from the tailoring process or even the reuse of pieces of an existing article.

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