UPCYCLE4BIZ–UPCYCLING MATERIALS TOWARDS A CIRCULAR ECONOMY

[1]JOANA CARVALHO, [2]MARGARIDA SOARES, [3]NÁDIA VALÉRIO, [4]ANA FERREIR, [5]LUCAS NASCIMENTO, [6]ANDRÉ RIBEIRO, [7]ANDRÉ SILVA, [8]NUNO PACHECO, [9]JORGE ARAÚJO, [10]CÂNDIDA VILARINHO

[1 2 3 4 5 6 7 8 9] CVR- Centro para Valorização de Resíduos
[1,10]CT2M of University of Minho
E-mail: jcarvalho@cvresiduos.pt

Abstract - Actual society is constantly changing, which in recent decades has promoted a substantial change in living standards and socio-economic and demographic paradigms with consequent, and serious, environmental impacts. These changes, largely promoted by the increase in population, industrialization, and global consumerism, expressed not only by the number of products that exist on the market, but also by the diversification of raw materials used, have caused an exponential increase in waste in recent decades. In addition of being a waste of resources, if not properly managed, residues can also cause air, soil and surface and groundwater pollution. Therefore, adequate waste management is currently one of the great challenges facing modern societies.

In this context, project UpCycle4Biz aims to develop a digital platform – UpValue, which will act as a Marketplace where companies can trade residues/subproducts originated from several industrial sectors, and from natural-based resources. This platform intends to promote a transition to a circular economy, with a direct impact on the three pillars of sustainability: Environmental (valorisation of residues/subproducts); Economical (towards the reduction of costs related with raw materials) and Social (establishing a path towards industrial synergies, formed through new potential partnerships) sustainability.

The digital platform UpValue presents a business model that is based on both digitalization and circular economy assumptions. On one hand, it will imply the development of a digital database related with residues/by-products from different industrial sectors, thereby enabling and improving the digitalization of the residues sector in Portugal. Regarding the economical perspective, this business model will enhance the transition towards a circular economy, by keeping residues/by-products in the value chain of a company/industrial sector, while using them in a new life cycle by their incorporation in an alternative product or solution. Considering the holistic business approach of the platform, it will be possible to identify opportunities for the incorporation of residues/by-products between different industrial sectors, by performing matchmaking processes related with residues and by-products, and new materials and/or products. This matchmaking approach will result in a database which will support new potential industrial synergies, thus facilitating the contact between the company which is generating residues/by-products, and the company interested in the incorporation of these in its products. Ultimately, and within the scope of the new business model driven by the platform, as well as its effect in the current value chain, a reduction in the environmental impact associated with the current industrial products can be foreseeable. This will be validated by Life Cycle Assessment (LCA) tools.

Keywords - Digital Platform, Wastes, Circular Economy, Life Cycle Assessment (LCA)

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