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FOSTERING CIRCULAR MATERIALS WITHIN THE DESIGN PRACTICE: MATERIALS AND PRODUCT LIBRARY SYSTEM

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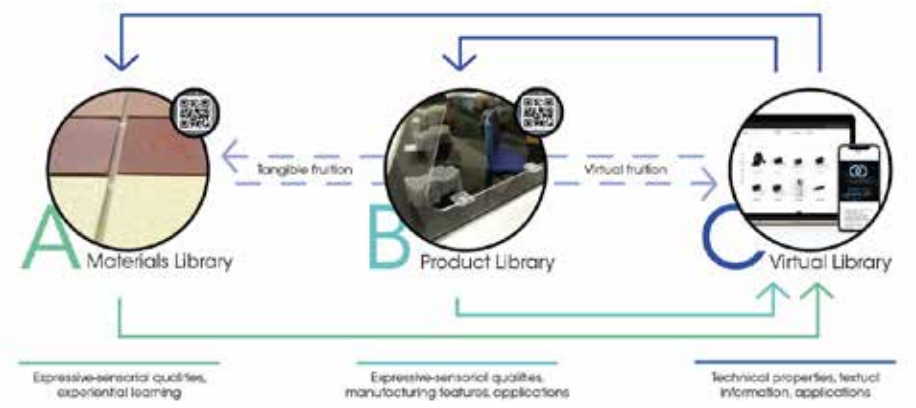

Abstract
New models of production and consumption should be investigated in the short and mid-term since the current resources' exploitation is overcoming the possibilities of our planet. Sustainable development and circular economy are assuming a crucial role, and several strategies for their implementation have been emerging in the last years. The individual contribution of new design strategies, circular materials, and digital technologies for exploiting circular economy practices is well-established. However, some issues still prevent the real implementation of those strategies. Designers are not fully aware of how to exploit them for real applications, although materials scientists and professionals are increasingly focused on the characterization of recycled and bio-based materials. This work aims to spread the use of circular materials amongst design practitioners by fostering the tacit knowledge of these materials through new experiential tools. This first design experimentation has been part of FiberEUse, a research project on exploiting new circular materials from recycled glass and carbon fibers. Starting from the concept of a "materials library," a new experiential tool has been designed to stimulate the exploitation of circular materials and reach a wider network thanks to a physical and virtual learning experience. A first demo of the "materials and product library system" was exhibited at Milan Design Week 2021, and the virtual part is visible at https://fibereuselibrary.com/.

This adaptive system is not only meant to collect materials samples since it also includes new products/applications and non-textual contents. Moreover, it can be used during the whole design process, facilitating the tacit knowledge transfer by direct experiencing physical and virtual contents, i.e., flat samples, product parts, pictures, and technical data. Materials and product library systems represent a potential way for design practitioners to discover new circular materials and speculate on possible applications for their exploitation within real contexts.

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