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Carlsberg Circular Community: when a company and its suppliers join forces to implement eco-innovation

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Carlsberg, the fourth largest global brewer in the world, and a selection of global suppliers have created the Carlsberg Circular Community (CCC), a cooperation platform aiming at rethinking the design and production of traditional packaging material. The ambition of the CCC is to develop products that are optimized for recycling and reuse, while retaining their quality and their value. CCC will contribute to reduce the reliance on raw materials, involve consumers and customers, as well as create new types of cooperation among partners to generate resource efficient products. Both Carlsberg and its suppliers are familiar with the Life Cycle Assessment (LCA) methodology and have successfully integrated it in product development and improvement. However, being inspired by the eco-efficiency principle, LCA aims to reduce the negative environmental footprint of human activities by optimizing product system individually in relation to current background systems. It does not consider multiple future uses of resources in continuous loops and can be misleading in the assessment of recycling benefits, as the quality of the new product is not included in the analysis. Since the aim of the initiative is to generate value for the stakeholders across the value chain and provide a positive impact for the users, then a broader approach oriented towards product quality and innovation was selected, i.e. the Cradle to Cradle® (C2C) design framework. C2C aims indeed at increasing the positive footprint of products and systems maximizing the benefit to ecological and economical systems, rather than focusing on reducing the negative impacts of the existing solutions. A key aspect in the C2C design concept is the "up-cycling" approach, which consists in improving the quality of materials or systems for recycling materials, as well

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as re-designing ingredients or additives in a material so they improve the quality of recycling. From a company point of view, LCA and C2C can be seen as complementary approaches in the development of sustainable and innovative solutions for beer packaging. However, from a value chain perspective C2C-inspired initiatives are potentially more beneficial. We will illustrate the challenges and opportunities emerging from the Carlsberg Circular Community experience in developing products that are optimized for re-entry as valuable resources into biological or technical cycles.