

## Circular Economy Business Strategies - A mixed methods analysis of 131 case studies

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### Abstract

The concept of circular economy has gained momentum in the political, scientific and economic debate in the last years as a means to promote more sustainable production and consumption patterns in a growing economy. With the Circular Economy Package, the European Union has released an ambitious program, that aims at guiding the European economy towards a more circular economic system. However, concerns are raised that circularity in itself does not guarantee environmentally sustainable outcomes, thereby creating a need for a fact-based approach towards circularity and its consequences on the economic system as well as its environmental impacts. To better understand company behavior when approaching circularity on different levels and across sectors, in this work 131 projects from the Circular Economy Industry Platform are evaluated regarding their contribution to circular economy from both, a scientific and political perspective. Therefore, a mixed-methods approach was chosen. Content analysis was applied to derive qualitative and quantitative information from company statements on the platform. Subsequently, correspondence analysis and k-means clustering were applied to find out how previously defined enablers correlate to business application of circular economy principles. This was supplemented by qualitative, semi-structured interviews with company representatives on selected projects. Keeping this in mind, results showed a diverse approach to circularity across the sample projects, thereby partly expanding the sectoral focus of the circular economy package. Furthermore, eco-design, eco-innovation and business models acted as strong enablers for circular actions in the sample, thereby reflecting respective EU policies. At the same time sample projects heavily rely on recycling while missing out on potentially more efficient circular principles, such as reduction or reuse. In return, those principles were negatively correlated to the enabler business model, indicating that companies do not see incorporation of those principles as a business case yet. High diversity was found regarding the evaluation of overall environmental impacts, with some projects demonstrating purely qualitative assessment methods, while other projects presented elaborated quantitative environmental evaluation including significant positive impact potential. Regulatory issues were specifically found for sound circularity quotas and targets, regarding definitory ambiguities, as well as resolving issues around unknown material compositions impeding recirculation. This research indicates, that the proposed systemic transition to a more circular economy has not yet fully entered decision-making processes when companies consider circular economy projects, circular economy projects are mostly minor interventions or incremental. At the same time, a need for thorough quantification of environmental impacts of circular economy projects to ensure the desired effects and to prevent a circular economy rebound, as well as a vigorous tackling of legislative barriers are encouraged.

**Keywords:** Circular Economy, Business strategies, Environmental sustainability, Correspondence analysis, Content analysis