

# Mapping technological trajectories in the circular economy using a patent citation network

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In recent years, significant efforts have been made to contrast climate change and to move from the still prevalent “linear” economic model to the “circular” one. Although several researchers have dealt with this topic, little is still known about the technological, economic and historical evolution of the circular economy worldwide. In this study, we attempt to fill this gap and recover the technological trajectories of this promising field. To this end, using EPO-PATSTAT patent data for the years 1920-2021, we first build a patent citation network, and then apply the tools of the main path analysis to uncover the foremost technologies, the most influential applicants and the countries involved. To provide a compact but exhaustive picture, and to account for within-field heterogeneity, we also separately explore each of the three sub-classes of the circular economy (as identified by the six-digit tags of the CPC code Y02W) and examine both the “top” and the “second best” major knowledge flows. This comprehensive but mostly descriptive analysis is supposed to represent the starting point of a more quantitative phase aimed to further investigate the knowledge position of the patents (and, possibly, their applicants) lying on the technological frontier.