

Introduction: the key role of territories in designing and implementing the circular economy

Sébastien Bourdin, André Torre and Eveline van Leeuwen

PREAMBLE

In today's world, which faces unparalleled environmental challenges, the urgency of sustainability is more evident than ever. Climate change, ecosystem degradation, loss of biodiversity, and the depletion of natural resources necessitate a critical reassessment of our current economic models. These models, founded on a linear approach of "extraction–manufacturing–consumption–disposal", are exacerbating the strain on our planet, as evidenced by the surpassing of several planetary boundaries (Desing et al., 2020). Adoption of sustainable and regenerative economic approaches has therefore become an imperative.

Although the concept of circular economy (CE) offers a vision that is more operational and much more economic in nature than approaches to sustainable development (Brundtland, 1987), CE finds its origins among the same observations and critics (see also Chapter 2 by Raasens and van Leeuwen and Chapter 3 by Bourdin and Torre in this book). This is exemplified in the 1972 report by the Club of Rome, who drew attention to the limits of economic growth in a world of finite resources (Meadows et al., 1972). Boulding's influential research also suggests that Earth is a "spaceship" with limited resources, and therefore requires a holistic and cyclical approach to its management (Boulding, 1966).

During the second half of the 20th century, various ecological theories and movements laid the foundations of the CE, due to a concern about the future of the planet and the overconsumption of natural resources. Examples include the ecological economy or bioeconomy (Georgescu-Roegen, 1971), industrial ecology (Allenby, 1992), and the "cradle-to-cradle" design that emphasizes the importance of designing infinitely recyclable or upcyclable products and

systems (McDonough & Braungart, 2002). Moreover, the idea of circularity was strongly inspired by the functioning of natural ecosystems, where the waste of one species becomes the resources of another, creating a closed and autonomous system (Frosch & Gallopoulos, 1989). Finally, in a directly operational way, some authors have developed a theory to explain the relationships between the economy and the environment based on material balance sheets, which contributed to the notion of industrial metabolism (Spash, 2013).

The fundamental principles of CE were defined from this convergence of ecological and economic perspectives. Many researchers contributed to the development of the concept, such as Pearce and Turner (1989), who proposed a CE model that introduced the concepts of positive or negative amenity, depending on the impact of economic activity on resource stocks and more generally on the environment. At the institutional level, the creation of the Ellen MacArthur Foundation in 2010, with the aim of accelerating the transition to a CE, marked an important milestone, as it recognized the reality and interest of the CE's practices, by helping it to be recognized by major industrial players and supranational institutions, which adopted and promoted it as a core strategy (MacArthur, 2013). After that, public authorities, such as the European Union (European Commission, 2014) and various states, integrated CE into their agendas.

Today, in the face of the ongoing environmental crisis, the CE concept emerges as an innovative solution that challenges traditional production and consumption practices (MacArthur & Heading, 2019). As with many new concepts, there is a variety of images of what exactly it entails (Kirchherr, Urbinati et al., 2023), ranging from an economic system focused on efficient recycling, to systems that avoid overconsumption and the related waste. Increasingly, CE scholars embrace the principle that economic systems should emulate natural ecosystems, wherein there is no waste, only resources that facilitate a renewed life cycle (Morseletto, 2020a; Stahel, 2016): first, through reducing demand, by sharing and repairing products; second, by reusing materials for similar or different purposes. For instance, rather than perceiving packaging as disposable, the CE acknowledges its value as a resource that can be recovered and reused. Consequently, every product is designed with the intention that, once its initial purpose is fulfilled, it can be easily disassembled, with its components either reused or recycled, thus creating a perpetual cycle that mirrors the resilience and regenerative processes observed in nature (Morseletto, 2020b).

This transformative economic system posits a novel perspective on production and consumption, wherein each stage of a product's life cycle is optimized to mitigate environmental impact and conserve resources (Kirchherr, Yang et al., 2023). It fosters a revolution in product design, encourages innovation in business models, and necessitates strategic resource management (Figge et al., 2023). It also encourages the lengthening of the life of finished products, by

allowing their repair and by setting standards of solidity and extended useful lifetime of products (den Hollander et al., 2017). Ideally, the CE paves the way towards a new form of prosperity that not only respects the ecological boundaries of our planet but also views them as avenues for progress and economic resilience.

The transition to a CE is not solely occurring at the individual or business level; rather, is also prominently evident within regions, cities, and places (Bourdin et al., 2022; Silvestri et al., 2020). As drivers of innovation and incubators of business opportunities, regions, cities, and dynamic territories are well positioned to facilitate the shift towards more circular processes. The concentration of resources, skills, and infrastructure within cities and regions makes them fertile ground for the CE (Niang et al., 2023). Local and regional scales provide a concentrated proximity among economic stakeholders, which is crucial for establishing efficient feedback loops in resource management (Veysi ere et al., 2022). By fostering collaborations between businesses, academic institutions, and civic organizations, local governments can create ecosystems wherein waste from one entity becomes an input for another, innovation is encouraged, and value chains are designed to be regenerative (Bolger & Doyon, 2019; Chembessi et al., 2024). However, ultimately, a circular economic system can only take off if the whole society contributes, not the least through national and international rules and legislations (see Chapter 2 by Raasens and van Leeuwen).

Decisions and rules taken by states or even at supra level like the European Union are important because they impose new ways of producing, are more respectful of the environment, and define good practices in CE processes (e.g., the European Green Deal: European Commission, 2019; see also European Commission, 2020; MacArthur & Heading, 2019). But, regions and cities play a pivotal role in adopting policies and regulations that support the CE (Gura et al., 2023). They can establish incentive frameworks for sustainable practices, redirect investments towards appropriate infrastructure, and cultivate a culture of circularity. Integrating circular strategies into urban and regional planning can transform local production and consumption systems, thereby reducing the ecological footprint and enhancing citizens' quality of life (Petit-Boix & Leipold, 2018). Requirements for higher recycling rates, the use of recycled materials in new products, and bans on certain types of plastic waste are examples of such regulations.

However, despite the immense potential of the CE to reshape society into a more sustainable reality, implementing it remains complex. It necessitates a fundamental shift in mindsets, a revamp of industrial and commercial practices, and, most importantly, an endeavor to coordinate among various levels of governance, economic sectors, and population (Arsova et al., 2021). The success of this transition hinges on the ability of local and regional actors to

engage in cross-sector partnerships, exchange knowledge, and foster innovation together. In this regard, local authorities must assume a leadership role.

Currently, cities and regions that embrace the CE are emerging as pioneers in environmentally sustainable and socially inclusive economic development (Prendeville et al., 2018). They are setting the stage for more resilient societies capable of prospering in a resource-constrained world (Kennedy & Linnenluecke, 2022). In the ensuing chapters, we will delve into the exploration of how various regions, cities or territories worldwide are embracing this promising trajectory, implementing context-specific circular strategies, and forging the economies of tomorrow.

RATIONALE OF THE BOOK: TERRITORIES MATTER!

The primary objective of this book is to examine and clarify the significant role that cities, regions, and territories play in driving, implementing, and accelerating the CE. Through analysis of socio-economic dynamics and proximity to citizens, this book aims to demonstrate how these territorial entities can serve as catalysts for a resilient and environmentally friendly economic model. By drawing on a range of case studies and theoretical analyses, it seeks to illustrate how local and regional initiatives can exert influence, shape, and expedite the transition to a CE.

The territorial dimension assumes a pivotal role in the adoption and success of the CE (Tapia et al., 2021). This significance arises from the diversity and complexity inherent in territories. Each city and region possess distinct characteristics that shape their capacities and limitations in promoting a more circular economy. At the core of this territorial dimension lies the recognition that effective CE solutions must be deeply rooted in local realities (Kębłowski et al., 2020), be they in terms of physical flows, economic networks, or human relations and governance. Consequently, comprehending and valuing available resources, whether material, such as raw materials and infrastructure, or immaterial, such as local expertise and innovation (Lekan et al., 2021), become imperative. For instance, a city with a thriving manufacturing heritage will have differing needs and opportunities in comparison to a region primarily focused on services or agriculture. As a result, circular strategies should be tailored to align with these specificities, leveraging regional strengths while mitigating specific challenges. Multiple chapters within this book emphasize the necessity for place-based policies to implement the CE.

Furthermore, the geographical proximity of cities and regions presents a significant advantage for the CE. It engenders close interaction among businesses, consumers, researchers, and decision-makers. These close connections provide fertile ground for collaborative innovation, facilitating the establishment of integrated production and consumption chains with shorter distances

(Baldassarre et al., 2019). To illustrate, organic waste generated by the urban food industry can be swiftly converted into compost for peri-urban agriculture, thereby reducing transport costs and emissions while enriching local soils (Wensing et al., 2023). On the other hand, it allows the limited consumption and the recycling of local resources and prevents the environmental impact of long-distance transport of resources and products. Finally, this local anchoring takes into account the opinions and sometimes the oppositions of local populations, and thus develops a more inclusive approach to the CE.

Simultaneously, the concentration of diverse stakeholders within a confined area facilitates cross-sector partnerships and the co-creation of circular solutions (Poconi et al., 2021). Local authorities, enterprises, universities, and non-governmental organizations can collaborate to develop reuse and recycling systems that cater to local demands while advancing global sustainability objectives. Taking various forms, these systems range from eco-designing products to enhance recyclability, to establishing exchange and repair platforms that extend the lifespan of objects.

This book aims to contribute to the academic understanding of the CE by emphasizing the importance of the territorial dimension in implementing circular solutions. It highlights the need for technical feasibility, social acceptance, and economic viability within specific contexts, requiring the active participation of local stakeholders. By placing the territorial dimension at the core of the CE, this book seeks to demonstrate how adaptability, local innovation, clever governance, and strategic cooperation can turn constraints into opportunities. This approach fosters greater territorial resilience and sustainable economic development while respecting planetary limits.

Additionally, the book addresses the crucial role of regions and cities as catalysts for the CE. It recognizes that local and regional authorities can drive significant progress by introducing regulatory frameworks and/or adapting more global rules and incentives at the local level. These frameworks may include strict environmental standards that encourage businesses to reconsider their resource production and consumption. Furthermore, tax incentives can serve as powerful tools, with tax breaks offered to companies adopting circular practices or investing in clean technologies. Similarly, subsidies or tax credits for consumers choosing recycled or repaired products stimulate demand for circular products. Specific funding programs, such as start-up funds for green start-ups or grants for sustainability research projects, can also spur innovation in the CE. These programs can support the development of new circular business models or help to commercialize innovations that facilitate product reuse, repair, or recycling.

Ultimately, the book asserts that establishing public-private partnerships is crucial for fostering a collaborative environment in which the public and private sectors work together to achieve shared sustainability goals. Such

collaborations contribute to the development of local infrastructure, such as composting facilities or shared repair centers, that supports CE initiatives.

CONTRIBUTION OF THE BOOK

Overall, the book's contribution lies in its comprehensive examination of the territorial dimension and the role of cities and regions in advancing the CE. It provides insights into how local stakeholders, regulatory frameworks, financial incentives, funding programs, local governance processes, and public–private partnerships can drive the transition towards a more sustainable economic system. By assuming this catalytic role, local and regional territories not only foster circularity; they also establish a facilitating environment in which the principles of the CE can be integrated into everyday culture and practice. The process involves the formulation of policies that align economic interests with environmental objectives, enabling regions and cities to instigate and facilitate a profound transition towards circular, resilient, and mutually beneficial economic systems. Accordingly, the objective of this publication is to explore the perception, planning, and implementation of the CE across diverse territorial contexts, highlighting its transformative potential for urban areas and regions. By synthesizing cutting-edge research, the various contributions push the boundaries of understanding the CE by incorporating a reflection on its local and regional dimensions. Moreover, by compiling strategic reflections and success stories, they endeavor to provide a practical guide and a source of inspiration for decision-makers, urban planners, entrepreneurs, and citizens who are committed to reshaping our economic systems toward a circular model that benefits all.

This book represents a unique contribution to the expanding body of literature on the CE in its holistic approach that connects theory and practice, macroeconomics, and local and regional dynamics. Instead of exclusively focusing on environmental or economic aspects, this book adopts a perspective that examines how the CE is transforming urban and regional structures. By showcasing concrete initiatives and a range of case studies, readers gain insights into the challenges and opportunities associated with implementing the CE in diverse contexts.

STRUCTURE OF THE BOOK

Part I: Theoretical and Conceptual Foundations

In the first part of the book, we establish the groundwork for the CE, delving into its theoretical and conceptual foundations. This part aims to provide readers with a solid understanding of the fundamental principles and scope of

the CE, laying a solid foundation for more thorough discussions in subsequent parts of the book. The objective is to emphasize the spatial, regional, and multiscalar dimensions of the CE.

Chapter 1, authored by Patrizia Ghisellini and Sergio Ulgiati, proposes a theoretical framework for the CE. Beginning with a critical analysis of linear economic models, it explores how the CE emerges as a viable and necessary alternative. Readers are introduced to key principles such as waste minimization, resource value maximization, and the regeneration of natural systems.

In Chapter 2, Jette Raasens and Eveline van Leeuwen take a societal approach to the CE, emphasizing the pivotal role of individuals and communities in transitioning towards more circular practices. This chapter examines how circular economic thinking initially included society as well, but also how it slowly narrowed down to only the economy. By deepening the concept of circular society, the authors argue how changes in individual and collective behavior, supported by local initiatives, can contribute to a broader societal transformation towards sustainability.

In Chapter 3, Sébastien Bourdin and André Torre tackle the significance of territorial scales in the application of circular concepts. They discuss how regional and local specificities can be evaluated to determine the most relevant scales for the effective implementation of circular strategies, policies, and programs.

Finally, Chapter 4, authored by Tanya Tsui, delves into the spatial dimension of the CE. The chapter provides a comprehensive examination of the ways in which geography influences resource flows, production networks, and consumption chains. Additionally, it highlights the role of spatial planning in facilitating the establishment of circular systems at various scales, ranging from urban neighborhoods to entire regions.

Part II: Strategies for Implementation and Territorial Development

The second part of this book aims to decipher the strategic and operational approaches that facilitate the implementation of the CE within different territorial contexts. It underscores the significance of industrial ecology and sustainable territorial development, shedding light on how CE principles can be effectively integrated into urban and regional development policies.

Chapter 5, authored by Fedoua Kasmi, Sonia Veyssière and Blandine Laperche, explores the synergies between industrial ecology and territorial development. In doing so, it highlights specific practices that enable the creation of territorial commons. By examining collaborations between businesses and institutions, this chapter unveils strategies for optimizing the utilization of local resources and establishing supportive infrastructures that facilitate the CE at a regional level.

Chapter 6, authored by Josep-Maria Arauzo-Carod, Eva Coll-Martínez and Elisenda Jové-Llopis, focuses on the factors that either motivate or hinder the adoption of the CE within different regions of the European Union. Moreover, the authors discuss successful regional initiatives, elucidate the necessary supportive policies, and identify the structural barriers that must be overcome in order to foster a successful transition.

Presenting a case study on the city of Hull in the UK, and its encompassing region, Humberside, Chapter 7, co-authored by Aodhan Newsholme, Pauline Deutz, Rupert J. Baumgartner and Julia Affolderbach, illustrates how specific localities can implement circular strategies as part of their sustainable development efforts. An examination of local policies, public–private partnerships, and community initiatives deployed to achieve circular objectives is conducted in this chapter.

In Chapter 8, Valérie Lacombe and Juste Rajaonson undertake a critical analysis of the strategic challenges faced by cities in the process of transitioning to a CE. By offering insights into potential pitfalls to avoid, as well as recommendations for effectively navigating the complex landscape of urban transformation, the authors provide valuable guidance.

In Chapter 9, Xin Tong, Tao Wang and Yanguang Chen tackle the crucial issue of inclusion within the CE, specifically focusing on the informal e-waste recycling sector. The authors examine the spatial flows of waste and propose that more efficient management can lead to more inclusive and equitable economic systems.

Part III: Case Studies and Practical Perspectives

The third and final part of this book presents a collection of real-world examples that demonstrate the application of CE principles. These examples highlight the successes, challenges, and important lessons learned from various territorial contexts. Each case study offers a detailed account of how specific cities and regions have approached the transition to circular economic models. These case studies showcase innovative strategies that have been tailored to suit the unique environments in which they were implemented.

Chapter 10 examines the case of the Caux-Seine agglomeration community in France, focusing on the integration of industrial and territorial ecology. Fabien Nadou and Camille Brou highlight the policies and projects that have facilitated the creation of a symbiotic industrial ecosystem, where waste from one company is transformed into resources for another.

In Chapter 11, Alona Perebynos, Dalila Sepúlveda, Isabel Loureiro and Carlos A. Ribeiro discuss the initiatives taken by the Portuguese city of Guimarães to integrate the CE into its urban structure. The chapter explores

how this historic city has successfully combined heritage and innovation to become a model for sustainability.

Chapter 12 explores the CE initiatives in Glasgow, UK. Alison McRae, Sophie Nardi-Bart and Cheryl McCulloch discuss the specific programs that have been implemented, the strategic partnerships that have been formed, and how Glasgow is positioning itself as a pioneer city in circularity.

Chapter 13 focuses on the adoption of the CE in Victoriaville, a mid-sized city in Quebec, Canada. Juste Rajaonson, Nicholas Fecteau and Simon Barnabé explore the initiatives undertaken by the city to reduce waste, stimulate the local economy, and engage the community in circular processes.

Chapter 14 examines how Dutch regions are striving to achieve circular food systems. Eveline van Leeuwen and Bob Meinardi study the innovative policies and collaborations between regional governments and entrepreneurs that contribute to more resilient and sustainable food systems.

Finally, Chapter 15, written by Angéline Chartier and Vincent Augiseau, outlines France's Rennes Métropole's approach to integrating CE principles in its building sector, leveraging data and tools to reduce environmental impact, yet faces challenges in application due to governance, technical complexity, and the need for clearer circularity definitions and collaborative efforts.

AVENUES FOR FUTURE RESEARCH

In terms of future research, the CE is an emerging field that has already reached a level of maturity. The book argues for further exploration of this field beyond its traditional boundaries. It suggests that greater attention should be given to the spatial, local, and regional dimensions of the CE. Regional science, with its diverse theories and concepts, is well-suited to enriching and expanding our understanding of the CE. Its focus on spatial analysis, regional innovation systems, economic geography, and urban and regional planning provides a relevant multidimensional analytical framework for studying the complex dynamics of the CE. The field of regional science provides analytical frameworks, such as geographical and organizational proximity, that are crucial for analyzing resource flows and business networks within the CE. This framework helps in understanding how the concentration of firms and institutions in specific geographic areas can promote synergies and collaborations that are essential for implementing CE practices. Additionally, research on regional innovation systems is relevant for comprehending how knowledge transfer in CE projects supports collaborative research and development, fostering an environment conducive to sustainable innovation. The theory of innovative environments can also be applied to analyze the ecosystem of players and how they are territorially organized within the CE. By employing

this theory, researchers can explore how the cultural, institutional, and social characteristics of a region influence circular strategies.

REFERENCES

- Allenby, B.R. (1992). *Design for environment: Implementing industrial ecology* [PhD dissertation, State University of New Jersey].
- Arsova, S., Genovese, A., Ketikidis, P. H., Alberich, J. P., & Solomon, A. (2021). Implementing regional circular economy policies: A proposed living constellation of stakeholders. *Sustainability*, 13(9), 4916.
- Baldassarre, B., Schepers, M., Bocken, N., Cuppen, E., Korevaar, G., & Calabretta, G. (2019). Industrial symbiosis: Towards a design process for eco-industrial clusters by integrating Circular Economy and Industrial Ecology perspectives. *Journal of Cleaner Production*, 216, 446–460.
- Bolger, K., & Doyon, A. (2019). Circular cities: Exploring local government strategies to facilitate a circular economy. *European Planning Studies*, 27(11), 2184–2205.
- Boulding, K. E. (1966). The economics of the coming spaceship earth. In H. Jarrett (Ed.), *Environmental quality in a growing economy* (pp. 3–14). Johns Hopkins University Press.
- Bourdin, S., Galliano, D., & Gonçalves, A. (2022). Circularities in territories: Opportunities & challenges. *European Planning Studies*, 30(7), 1183–1191.
- Brundtland, G. H. (1987). *Our common future: Report of the World Commission on Environment and Development*. United Nations.
- Chembessi, C., Bourdin, S., & Torre, A. (2024). Towards a territorialisation of the circular economy: The proximity of stakeholders and resources matters. *Cambridge Journal of Regions Economy and Society*. <http://doi.org/10.1093/cjres/rsae007>.
- den Hollander, M. C., Bakker, C. A., & Hultink, E. J. (2017). Product design in a circular economy: Development of a typology of key concepts and terms. *Journal of Industrial Ecology*, 21(3), 517–521.
- Desing, H., Brunner, D., Takacs, F., Nahrath, S., Frankenberger, K., & Hischier, R. (2020). A circular economy within the planetary boundaries: Towards a resource-based, systemic approach. *Resources, Conservation and Recycling*, 155, 104673.
- European Commission. (2014). *Towards a circular economy: A zero waste programme for Europe*. COM(2014) 398 final. Retrieved from https://eur-lex.europa.eu/resource.html?uri=cellar:50edd1fd-01ec-11e4-831f-01aa75ed71a1.0001.01/DOC_1&format=PDF
- European Commission. (2019). *The European Green Deal*. COM(2019) 640 final. Retrieved from https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF.
- European Commission. (2020). *A new circular economy action plan*. COM(2020) 98 final. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A98%3AFIN>.
- Figge, F., Thorpe, A., & Gutberlet, M. (2023). Definitions of the circular economy: Circularity matters. *Ecological Economics*, 208.
- Frosch, R. A., & Gallopoulos, N. E. (1989). Strategies for manufacturing. *Scientific American*, 261(3), 94–102.
- Georgescu-Roegen, N. (1971). *The entropy law and the economic process*. Harvard University Press.

- Gura, K. S., Nica, E., Klietstik, T., & Puime-Guillén, F. (2023). Circular economy in territorial planning strategy: Incorporation in cluster activities and economic zones. *Environmental Technology & Innovation*, 32, 103357.
- Kębłowski, W., Lambert, D., & Bassens, D. (2020). Circular economy and the city: An urban political economy agenda. *Culture and Organization*, 26(2), 142–158.
- Kennedy, S., & Linnenluecke, M. K. (2022). Circular economy and resilience: A research agenda. *Business Strategy and the Environment*, 31(6), 2754–2765.
- Kirchherr, J., Urbinati, A., & Hartley, K. (2023). Circular economy: A new research field? *Journal of Industrial Ecology*, 27(5), 1239–1251.
- Kirchherr, J., Yang, N. H. N., Schulze-Spüntrup, F., Heerink, M. J., & Hartley, K. (2023). Conceptualizing the circular economy (revisited): An analysis of 221 definitions. *Resources, Conservation and Recycling*, 194, 107001.
- Lekan, M., Jonas, A. E., & Deutz, P. (2021). Circularity as alterity? Untangling circuits of value in the social enterprise-led local development of the circular economy. *Economic Geography*, 97(3), 257–283.
- MacArthur, E. (2013). Towards the circular economy. *Journal of Industrial Ecology*, 2(1), 23–44.
- MacArthur, E., & Heading, H. (2019). *How the circular economy tackles climate change*. Ellen MacArthur Foundation.
- McDonough, W., & Braungart, M. (2002). *Cradle to cradle: Remaking the way we make things*. North Point Press.
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W. (1972). *The limits to growth*. Universe Books.
- Morseletto, P. (2020a). Targets for a circular economy. *Resources, Conservation and Recycling*, 153, 104553.
- Morseletto, P. (2020b). Restorative and regenerative: Exploring the concepts in the circular economy. *Journal of Industrial Ecology*, 24(4), 763–773.
- Niang, A., Bourdin, S., & Torre, A. (2023). The geography of circular economy: Job creation, territorial embeddedness and local public policies. *Journal of Environmental Planning and Management*, 67(12).
- Pearce, D. W., & Turner, R. K. (1989). *Economics of natural resources and the environment*. Johns Hopkins University Press.
- Petit-Boix, A., & Leipold, S. (2018). Circular economy in cities: Reviewing how environmental research aligns with local practices. *Journal of Cleaner Production*, 195, 1270–1281.
- Poponi, S., Arcese, G., Mosconi, E. M., Pacchera, F., Martucci, O., & Elmo, G. C. (2021). Multi-actor governance for a circular economy in the agri-food sector: Bio-districts. *Sustainability*, 13(9), 4718.
- Prendeville, S., Cherim, E., & Bocken, N. (2018). Circular cities: Mapping six cities in transition. *Environmental Innovation and Societal Transitions*, 26, 171–194.
- Silvestri, F., Spigarelli, F., & Tassinari, M. (2020). Regional development of circular economy in the European Union: A multidimensional analysis. *Journal of Cleaner Production*, 255, 120218.
- Spash, C. L. (2013). *The ecological economics of Boulding's Spaceship Earth* (SRE Discussion Paper 2013-02). WU Vienna University of Economics and Business.
- Stahel, W. R. (2016). The circular economy. *Nature*, 531(7595), 435–438.
- Tapia, C., Bianchi, M., Pallaske, G., & Bassi, A. M. (2021). Towards a territorial definition of a circular economy: Exploring the role of territorial factors in closed-loop systems. *European Planning Studies*, 29(8), 1438–1457.

- Veysière, S., Laperche, B., & Blanquart, C. (2022). Territorial development process based on the circular economy: A systematic literature review. *European Planning Studies*, 30(7), 1192–1211.
- Wensing, J., Cremades, R., & Van Leeuwen, E. (2023). Cities can steer circular food systems at scale. *Nature Food*, 4(1).