

## **Circularity and Global Value Chains: An Integrative Framework**

### **Objective**

The circular economy (CE) concept is gaining momentum among scholars and practitioners given the necessity to maintain economic growth while reducing the pressure on the environment, the consumption of natural resources and the production of waste.

Increased consumer awareness, government initiatives and environmental campaigns ask for a revision of the linear take-make-use-dispose model and various fields of study, each with a specific focus and disciplinary framings, are approaching the topic offering different perspectives (Reike et al., 2018).

CE is an umbrella term (Blomsma and Brennan, 2017) that is not clearly conceptualized and has been linked to several models in the area of green economy, clean production, or industrial ecology (Arruda et al., 2021). Academic literature, practitioners and policymakers proposed more than 100 definitions of CE (Kirchherr et al., 2017) and this lack of consensus on the concept hampers the dissemination of the CE model and its industrial applications (Kalmykova et al., 2018) and slows down the transition of the economy towards a more circular approach.

Also, the literature considers CE as a system solution aimed at improving economic development, but a perspective that considers the actual structure of the economic system (i.e. the international dispersion of production activities) is missing in the debate. Even when the discussion on CE reaches a macro level (city, region, nation and beyond) (Kirchherr et al., 2017), it does not take into account that the world economy is structured around global value chains (GVCs) in which all the activities that go from the design of a product to end use (i.e. design, production, marketing, distribution and support to the final consumer) are fragmented and spread across several different countries.

At the same time, it is not only the CE stream of research that has not included the GVCs in its debate, but also the international business community has not yet participated at all in the dialogue on CE (Hofstetter et al., 2021). It seems to consider that CE implementation is appropriate only at the local level, and continues to focus all its research attention to the linear production model.

The aim of this study is to fill this research gap and identify possible linkages between the two research fields. We believe that a real understanding of the disruptive potential of CE asks for a new outlook in which issues raised by the debate on this topic are tackled from the local development standpoint as well from an international business and GVCs perspective. Thus, our main objective is to investigate if and how the adoption of a circularity paradigm may influence GVCs configuration and development.

## **Methodology**

In this paper, we address the issue from a conceptual point of view. To reach our research objective, we develop a framework in which GVCs and CE dimensions are crossed and analytically investigated.

In order to construct our matrix, we consider the six dimensions of GVC proposed by Fernandez-Stark and Gereffi (2019) in their framework for GVCs analysis, and the four main pillars of CE identified by Kirchherr, Reike, and Hekkert (2017) in their definition of CE.

More explicitly, Fernandez-Stark and Gereffi (2019) split the GVCs concept into six dimensions that consider both the global structure of the chain (first three pillars) and the point of view of the single country participating in the GVC (last three pillars). These dimensions are:

1. Input/out structure, that considers the main activities in a GVC and the dynamic and structure of companies involved in each segment
2. Geographic scope, which indicates the geographic distribution of the GVC.
3. Governance, which describes how a chain is controlled and coordinated.
4. Upgrading, which examines the process through which firms, countries, or regions move to higher-value-added activities in the GVCs.
5. Local institutional context, which illustrates conditions and policies (local, national and international) that influence a country's participation in di GVC.
6. Stakeholders analysis, which examines stakeholders involved in the GVC.

Kirchherr, Reike, and Hekkert (2017) defines CE concept indicating four main dimensions:

1. CE is “an economic system that replaces the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes”.
2. CE “operates at the micro-level (products, companies, consumers), meso-level (eco-industrial parks) and macro-level (city, region, nation and beyond)”.
3. It “aims to accomplish sustainable development, thus simultaneously creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations”.
4. “It is enabled by novel business models and responsible consumers.”

## **Expected Findings**

Implementing the methodology presented before, we aim at defining a general conceptual framework that may represent the basis for future analyses in which it can be tested in specific value chains or adapted to different contexts. Future studies may also concentrate on the development of this

framework analyzing more in depth single drivers, barriers, or factors enabling the adoption of the CE approach in GVCs.

### **Relevance and Contribution**

The present study is a first attempt to recognize possible interconnections between two separate fields of research (CE and GVCs) that, to the best of our knowledge, had never met before.

Applying a CE perspective on the different dimensions of GVCs, this work contributes to the ongoing debate on the evolution of GVCs and adds a new point of view to the CE discussion.

In terms of future research, it paves the way to further theoretical and empirical analysis investigating the linkages between the two topics.

The proposed framework may also provide relevant insights for the main actors involved in GVC and the CE transition. It may induce a rethinking of each company and country's position in the GVC, and may serve as a guide for policymakers in developing effective political agenda on CE. The transition to a new circular paradigm requires a supranational perspective in which policy goals of different countries and regions are aligned. The framework we introduce in this work, offering a GVC perspective, can be a useful tool for policymakers; it may support the development of comprehensive and integrated strategies and common international standards to holistically address the issue avoiding fragmentation of solutions.

### **References**

- Arruda, E.H., Melatto, R.A.P.B., Levy, W. and Conti, D. de M. (2021), "Circular economy: A brief literature review (2015–2020)", *Sustainable Operations and Computers*, Elsevier B.V., Vol. 2, pp. 79–86.
- Blomsma, F. and Brennan, G. (2017), "The Emergence of Circular Economy: A New Framing Around Prolonging Resource Productivity", *Journal of Industrial Ecology*, Vol. 21 No. 3, pp. 603–614.
- Fernandez-Stark, K. and Gereffi, G. (2019), "Global value chain analysis: a primer", in Ponte, S., Gereffi, G. and Raj-Reichert, G. (Eds.), *Handbook on Global Value Chains (2nd Ed.)*, Edward Elgar Publishing, Cheltenham, UK, pp. 54–76.
- Hofstetter, J.S., De Marchi, V., Sarkis, J., Govindan, K., Klassen, R., Ometto, A.R., Spraul, K.S., et al. (2021), "From Sustainable Global Value Chains to Circular Economy—Different Silos, Different Perspectives, but Many Opportunities to Build Bridges", *Circular Economy and Sustainability*, Circular Economy and Sustainability, Vol. 1 No. 1, pp. 21–47.
- Kalmykova, Y., Sadagopan, M. and Rosado, L. (2018), "Circular economy - From review of theories and practices to development of implementation tools", *Resources, Conservation and Recycling*, Elsevier, Vol. 135, pp. 190–201.
- Kirchherr, J., Reike, D. and Hekkert, M. (2017), "Conceptualizing the circular economy: An analysis of 114 definitions", *Resources, Conservation and Recycling*, Vol. 127, pp. 221–232.

Reike, D., Vermeulen, W.J.V. and Witjes, S. (2018), “The circular economy: New or Refurbished as CE 3.0? — Exploring Controversies in the Conceptualization of the Circular Economy through a Focus on History and Resource Value Retention Options”, *Resources, Conservation and Recycling*, Elsevier, Vol. 135, pp. 246–264.