

Fiche descriptive Master

CDP Circular - 2019

Titre : Digital technologies in circular economy transition -

Key words. Circular Economy; Digital Technologies

Nom de l'encadrant + Labo :

Marie-Anne Le Dain (G-SCOP Lab), Iragaël Joly (Gael lab)

marie-anne.le-dain@grenoble-inp.fr iragael.joly@grenoble-inp.fr

Contexte et objectifs :

1. Objective

1. Conceptualizing the Circular Economy (CE)

The CE concept is broadly viewed as the operationalization of the sustainable production concept, besides green growth and green economy concepts. Recent literature exhibits the multiple dimensions and issues of the CE concept as a whole. From the 4R principles (Reduce, Reuse, Recycle, Recover) to the systemic views (micro, meso, macro) literature proposes CE analysis framework that can be adapted to identify specific contributions of digital oriented technologies to CE transition (Kirchherr et al., 2017).

2. Conceptualizing digital technologies relevant to support CE

Data collection, data integration and data analysis are the three main issues of the digital technologies proposed to manage integrated industrial project (Pagoropoulos et al., 2017). Nevertheless, the literature consensus about the support of digital technologies to support business cycle, must be nuanced in the CE field of application.

3. Identifying the roles of digital technologies to support CE development

Based on both conceptualizations, two main roles of digital technologies (Nambisan, 2013) to support CE development will be explored in this research:

- (1) Digital technologies as enabler: how digital technologies can facilitate the development of CE and improve the collaborations between actors of its ecosystem?
- (2) Digital technologies as trigger: how digital technologies can initiate or lead to new innovation processes or outcomes or associated organizational routines and mechanisms?

2. Method.

Literature review to define in detail the potential roles of digital technologies to support CE

Case study to illustrate the different configuration of roles and to identify the limits and needs associated to the implementation of each configuration

Conducting interview with industrial actors implied in CE and digital transformation

References

Kirchherr, Julian, Denise Reike, and Marko Hekkert. 2017. "Conceptualizing the Circular Economy: An Analysis of 114 Definitions." *Resources Conservation & Recycling* 127 (April): 221–32. doi:10.1016/j.resconrec.2017.09.005.

Nambisan, Satish. 2013. "Information Technology and Product / Service Innovation : A Brief Assessment and Some Suggestions for Future Research." *Journal of the Association for Information Systems* 14, Specia (April 2013): 215–26. doi:10.1287/orsc.1120.0771.

Pagoropoulos, Aris, Daniela C A Pigosso, and Tim C Mcaloone. (2017). "The Emergent Role of Digital Technologies in the Circular Economy: A Review." *Procedia CIRP* 64. The Author(s): 19–24. doi:10.1016/j.procir.2017.02.047.

Partenaires :

Livrable/résultats attendus :

3. Results.

- * Identifying the contributions of digital technologies to support CE
- * Identifying application field to study digital technologies leverage on CE
- * Devising a questionnaire for a future survey