

## **Circular Families and Logistics Issues: a Typology of Coordination Modes in the Agri-food Circular Economy**

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As part of the special session of the ERSA conference on the spatial, regional and urban dimension of the circular economy, this article questions current representations of the deployment of circular economy. It emphasises the diversity of circular practices and therefore of the ways in which they are deployed. Its originality lies in explaining the adoption of a circular practice primarily through the prism of its specific logistical organisation. The article analyses the determinants of the organisation of these practices and the conventions that underpin them.

### **Abstract**

The transition to a circular economy (henceforth CE) in the food sector is attracting increasing attention, but the difficulties in their deployment are leading us to question the logistical challenges posed by this change in production practices. Analysis of linear food production systems has shown that there is no such thing as an optimal form of logistics organisation, but that these systems are associated with a diversity of logistics organisations, depending on the type of coordination between actors. Research on logistics families has shown that specific coordination types correspond to specific logistic choices. The circular practices in development are heterogeneous, leading us to question their logistics stakes in all their diversity.

Through twenty-four interviews with production sites in various agrifood industry activities in Hauts-de-France region and seven with direct CE actors (actors of deposit or bulk distribution, biowaste managers, coproducts recuperation sectors), the research seeks to identify the determinants of logistics organisations deployed during the implementation of circular practices. Logistics is considered here as a coordination activity, and not only physical management of flows, and, drawing on the economics of conventions, we look into the diversity of coordination types and institutional logics underlying those implementations. This article aims to establish a typology of the logistical issues associated with circular practices by analysing them as coordination forms between actors. Five families of circular practices are identified: sorting of flows, methanisation, animal feed, coproduct valorisation and input reduction. The research illustrates that specific circular practices correspond to specific types of logistics organisation. Plants belonging to the “sorting” family have a market-based logic. Those in the “methanisation” family have an interpersonal logic, with each plant dealing differently, often directly, with a methaniser, and the arrangement are personalised. Practices are organised in close geographic proximity. Plants in the “animal feed” family adopt a contractual approach. The “valorisation” family has a market logic, the aim is to obtain the highest added value from coproducts, which are processed according to the most attractive opportunities, regardless of the distance travelled. Finally, the “input reduction” family has a territorial logic, relying on a network of close actors and industrial symbioses.

**Key-words:** Logistics organisation, circular practices, conventions, agro-food industries