

How to design business models for a circular economy?

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Circular economy is a recent economic model that aims to reconcile economic growth with the preservation of the environment. It is based on the insight that our natural resources (energy, water, raw material) are limited and that with a population estimated to reach 9 billion people in 2050, the current linear ‘take-make-dispose’ model is no longer sustainable. Central to circular economy is the closed loop idea, aiming at enhancing the continuous flow of technical and biological materials in the value circle while keeping products, components and materials at their highest utility and value at all times and reducing waste to a minimum (EMF, 2013).

The concept of circular economy has received increasing attention among policy makers in the past years. In China, circular economy is part of the national political strategy (top down approach), and its implementation is following both a horizontal and a vertical approach (Feng and Yan, 2007). The European Commission has adopted a new Circular Economy Package in 2014 to support businesses and consumers in their transition to a more circular economy where resources are used in a more sustainable way.

In the academic literature, there is not yet a common theoretical framework or definition of what circular economy exactly is. This may be due to the fact that circular economy has emerged from policies and legislation rather than from a group of academics (Murray *et al*, 2015). Another reason is that the concept has issued from different schools of thought and has diverse theoretical and disciplinary backgrounds such as ecological economics, environmental economics, industrial ecology, performance economy etc. (Ghisellini *et al*, 2015). The Ellen MacArthur Foundation defines circular economy as “*an industrial system that is restorative or regenerative by intention and design*” (EMF, 2015).

The major challenge of implementing a circular economy is that it requires a change at a system level, not only demanding for adequate policies, but involving all actors within the value chains (suppliers, manufacturers, retailers, consumers) of diverse economic sectors. At a firm level, new business models are needed that replace existing ones or offer new market opportunities (EMF, 2013).

The structure of a business model is usually based on the largely recognised Business Model Canvas (BMC) by Osterwalder and Pigneur (2010). The BMC is a practical tool which can be used as analytical framework for existing or future business models. It consists of nine building blocks where the value proposition - i.e. the value proposed by an enterprise to solve customers’ problems and satisfy their needs - is central: (1) the key activities, partners and resources as strategic components, (2) the customer relationships, the customer segments and channels as market components, and (3) the cost structure vs. revenue streams as financial components.

Lewandowski (2016) has adapted and extended the BMC to the circular economy principles, adding two more building blocks. First, a ‘*take-back system*’, including the idea of material loops where products, components or materials can be reused if collected back from the consumer; and second, the ‘*adoption factors*’, assuming that

a transition towards circular business models must be supported by various internal organisational capabilities and external (technological, political, sociocultural, economic) factors. Mentink (2014, p.35) defines a circular business model as “*the rationale of how an organization creates, delivers and captures value with and within closed material loops*”.

Here, we present the structure of such a novel circular business model from the agri-food sector, the kind of value proposed and the success factors by analysing the case of the enterprise Grap’Sud in the South of France, which valorises waste and by-products from the wine industry.

Results show that the structure and persistence of the circular business model depend on internal as well as external factors. From a strategic point of view, adopting innovative technologies for highly value-added products and a sufficient quantity and provision of agro-waste and by-products are crucial. This calls for a strong cooperation with research partners and suppliers as well as for a centralised governance structure and shows that business models within a circular economy should be designed according to territorial capacities to produce and process agro-waste. On the other hand, continuous product innovation combined with a targeted marketing are needed in order to be profitable and competitive on the markets. Finally, public financial support and the legal framework are important external determinants. Hence, translating technology into business while fulfilling environmental and economic goals remains a real challenge for achieving a transition to a circular economy in the agri-food sector.

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