

You Can't Go Circular Alone – A Stakeholder Approach to Circular Innovation

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Abstract

Circular solutions in industrial companies strongly depend on an interlinked network of diverse stakeholders. Therefore, innovations in the field of a circular economy are difficult to achieve in traditional innovation processes. They rather require an open innovation approach involving internal and external stakeholders in co-creations. This perspective article gives first insights on which stakeholders to involve, how to involve them, and how to overcome barriers. Research- and practice-based experience shows that diverse stakeholders should be selected based on the needs of the specific innovation context and are best involved in a network approach, possibly combined with crowdsourcing. A three-step process is suggested to overcome organizational barriers and to successfully anchor circular innovations in the company. As most firms are not experienced in open circular innovation yet, this article aims at giving them first insights on the topic to support them on their way toward a circular economy.

Keywords: Circular Economy, Open Innovation, Stakeholder, Network

1. INTRODUCTION

A few years ago, even experienced managers were often unfamiliar with the concept of a circular economy (CE). Nowadays, everyone is talking about circularity as a means to achieve sustainability in business. Some even regard it as the greatest chance of the last 250 years to re-organize consumption and production (Lacy & Rutqvist, 2015). The recent raw material crisis and increasing stakeholder pressure served as a wake-up call for many companies which are now intensifying their efforts to introduce circular solutions. For industrial companies, circular opportunities mainly lie in the technical material cycle and aim to extend the use phase (durability, reparability) or enable multiple life cycles (refurbishing, remanufacturing, recycling) (Ellen MacArthur Foundation, 2013). Product-service systems such as leasing, pay-per-use, or sharing models can foster technical material cycles and resource efficiency (Tukker, 2015).

Circular solutions with a high circularity impact are usually embedded in a complex network of internal and external stakeholders (Aminoff & Pihlajamaa, 2020). Circular innovation is therefore difficult to achieve using traditional innovation processes (Eisenreich et al., 2021). A more suitable approach to addressing this complex stakeholder situation is the paradigm of open innovation (Chesbrough, 2003) that suggests using ideas from inside and outside the company when developing innovations. However, many companies are not accustomed to co-creation with external partners, and even less so regarding circular innovation which is mostly new to their businesses. To provide some first insights on how open circular innovation can be approached, in the following three main challenges

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will be discussed from a research-oriented (Eisenreich et al., 2021; Eisenreich et al., 2022) and practice-oriented point of view.

2. WHOM TO INVOLVE

Many circular solutions affect the whole internal and external value chain of a company and require changes in almost all value chain steps from product design to recycling. Therefore, cross-functional collaborations between R&D, marketing, strategy, procurement, after sales, and other departments are crucial for circular innovation. Additionally, the external supply chain – including suppliers, logistics providers, retailers, consumers, and recyclers – has to be involved as its contribution is usually required to enable circularity. Co-creations with further stakeholders such as universities, consulting firms, start-ups, or cross-sector companies can also be valuable to fill specific knowledge gaps or to foster creativity. From these stakeholder groups the most relevant for the respective innovation context are to be selected in a need-based approach. As one form of open circular innovation Konietzko et al. (2020) suggest circular ecosystem innovation that combines external stakeholder collaboration with principles such as experimentation and platformization.

Practical experience from industrial companies shows that it is not only important to choose the right stakeholders but even more important to select the right people for open innovation. First, these people have to be open-minded regarding a CE and should ideally want circular innovation to work. They should think in a solution-oriented way and be open to re-invent their previous understanding of engineering and business. Second, the right selection of people also depends on the innovation focus. For circular innovation at a strategic level, for example new reverse logistics concepts for a manufacturer-steered recycling of mobile phones, all people involved, including stakeholders with an engineering background such as R&D or recycling, have to be willing to approach innovation from a strategic business point of view and have to be enabled to develop such a perspective. Conversely, for circular innovations at a product level, for example design changes for a better reparability of mobile phones, a strong focus on the required technical and marketing challenges is required by all people involved, including those working in strategy. The wrong attitude of relevant stakeholders both regarding CE in general and the level of analysis can nip circular innovation in the bud.

3. WHOM TO INVOLVE HOW

Most companies currently do not engage in open circular innovation yet, and those that do mainly undertake bilateral collaborations with one single stakeholder (e.g. a supplier). In contrast, research results (Eisenreich et al., 2021) suggest that a network approach involving a variety of internal and external stakeholders is the most promising way forward for circular innovation. However, too much involvement of large stakeholder groups can lead to inefficient processes. Therefore, a rotation between larger and smaller stakeholder groups in the course of the innovation process is recommended. A small core team of internal and external key stakeholders should lead the ongoing innovation process whereas larger stakeholder groups should give impulses to foster ideation at certain points in the process. These impulses might also happen in the form of crowd sourcing, for example with expert crowds for technical topics (e.g. Industry 4.0 for fault tracking) or with consumer communities for market-related topics (e.g. behavioral changes of users).

The risk of inefficiency in innovation processes with large stakeholder groups can also be observed in industrial companies. More and more cross-industry CE initiatives have recently been started. However, discussions in these initiatives with large stakeholder groups often lead to very general results such as agreeing on the high importance of a CE. To support a time-efficient and target-oriented innovation process in a network approach, it is crucial to define a joint and specific goal for the co-creation, to enable a win-win situation for all involved stakeholders, and to define clear roles and contributions. The newer the respective field of circular innovation is to a company the more external stakeholders should be integrated to fill knowledge gaps and to accelerate and improve the ideation process. For example, developing a reverse logistics system for a printer manufacturer that has never offered take-back solutions before requires more external stakeholder involvement than incremental circular design changes that improve an existing product architecture.

4. HOW TO OVERCOME BARRIERS

For most organizations, both open innovation and CE are new concepts. Although many companies are generally interested in open innovation, the approach is not embedded in their organizational structure and they lack relevant management capabilities (Brunswicker & Chesbrough, 2018). Organizational barriers for open circular innovation include a performance measurement system which is too strongly focused on linear solutions, for example with profitability KPIs such as cumulative EBIT (eight years) that disregard the multiple life cycle perspective. Barriers also include a lack of relevant skills such as technical CE knowledge, systems thinking, or collaboration competencies for co-creating new business models that go beyond usual cross-functional product development projects. While pilot projects and bottom-up initiatives are required to build up new capabilities, top management also has to define the right strategy, ensure commitment, empower pioneering employees, and enable the necessary change.

In practice, the following approach to open circular innovation can be suggested: In a first step, the potential and applicability of open circular innovation are to be explored to evaluate if and in which form a co-creation with diverse internal and external stakeholders is viable. This includes an analysis if the company's corporate strategy and organizational setting are favorable for this purpose and a selection of suitable stakeholders for the specific innovation context. In a second step, a strategic roadmap with projects and actions would follow in order to allow capability building and systematic learning. This roadmap should start with stakeholder co-creations at a strategic level to identify feasible and attractive circular solutions from a business perspective. The identified strategic directions can then be specified in open circular innovation approaches at the product level. In a third step, the organization's business models and processes should be redesigned to enable a successful launch of circular solutions in a frictionless collaboration among the previously selected stakeholders.

Experience from research and practice shows that while circular innovation requires collaboration among various stakeholders, most companies are still not used to this approach. Open innovation principles may help to orchestrate the dialogue between different stakeholders and thus support companies on their way toward a CE.

REFERENCES

- Aminoff, A., & Pihlajamaa, M. (2020). Business experimentation for a circular economy – learning in the front end of innovation. *Journal of Cleaner Production*, 275, 124051. <https://doi.org/10.1016/j.jclepro.2020.124051>
- Brunswicker, S., & Chesbrough, H. (2018). The adoption of open innovation in large firms. *Research-Technology Management*, 61(1), 35–45. <https://doi.org/10.1080/08956308.2018.1399022>
- Chesbrough, H. W. (2003). *Open Innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.
- Eisenreich, A., Füller, J., & Stuchtey, M. (2021). Open circular innovation: How companies can develop circular innovations in collaboration with stakeholders. *Sustainability*, 13(23), 13456. <https://doi.org/10.3390/su132313456>
- Eisenreich, A., Füller, J., Stuchtey, M., & Gimenez-Jimenez, D. (2022). Toward a circular value chain: Impact of the circular economy on a company's value chain processes. *Journal of Cleaner Production*, 378, 134375. <https://doi.org/10.1016/j.jclepro.2022.134375>
- Ellen MacArthur Foundation. (2013). *Towards the circular economy: Economic and business rationale for an accelerated transition*. <http://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf>

- Konietzko, J., Bocken, N. M. P., & Hultink, E. J. (2020). Circular ecosystem innovation: An initial set of principles. *Journal of Cleaner Production*, 253, 119942. <https://doi.org/10.1016/j.jclepro.2019.119942>
- Lacy, P., & Rutqvist, J. (2015). *Waste to wealth: Creating advantage in a circular economy*. Palgrave Macmillan.
- Tukker, A. (2015). Product services for a resource-efficient and circular economy – a review. *Journal of Cleaner Production*, 97, 76–91. <https://doi.org/10.1016/j.jclepro.2013.11.049>