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Mapping the path of an inclusive transition towards a circular economy: Local accelerator hubs as enablers of circular business model innovation?

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Abstract The global economy remains predominantly linear, with only 7% circularity, making regions crucial players in promoting circular business model innovation. Local accelerator hubs (LAHs) have the potential to establish collaborative environments that bring together diverse stakeholders to facilitate an inclusive transition to a circular economy. Effective cross-organizational and cross-sectoral collaboration, supported by robust circular economy partnerships, is vital for identifying and scaling innovative solutions. This paper examines the role of regional LAHs in fostering responsible and circular business innovation by presenting a comparative case study of four European LAHs. Employing experimental action research, this paper delves into the intricacies of circular business model innovation processes to provide valuable insights.

Keywords: circular business model innovation, circular economy, local accelerator hubs, cross-sector collaboration, inclusive transition

1. Introduction

While the goal of the circular agenda is clear (CEAP, 2020), the path to circularity is anything but mapped out. The implementation of sustainable and circular business models remains relatively low (Bocken et al., 2018), with the global economy being only 7% circular (The Circularity Gap Report, 2023). Cross-organizational and cross-sector collaboration are essential drivers for discovering and scaling innovative circular business model approaches for the circular economy. Although regions increasingly accept the circular economy as a model to strengthen and improve their communities, they encounter obstacles when attempting to accelerate circular business innovations. One significant challenge is that circular solutions are not 'one size fits all': the most successful strategies are tailored and context-specific. Hence, if regions are genuinely committed to transitioning towards a circular economy, they must actively foster encounters between stakeholders, including local businesses, citizens, and municipalities, and create collaborative spaces where an inclusive circular transition can be negotiated and implemented. On regional levels, Local Accelerator Hubs (LAHs) can provide such collaborative spaces and lead the regional circular transition by connecting the central players to prioritize local linear risks or circular opportunities. As circular business model innovation allows for a systemic shift in the core logic of businesses and the alignment of incentives of multiple stakeholders, organizations must focus on circular innovation when trying to increase circularity within their businesses and sectors (Rashid et al., 2013; Schulte, 2013). Albeit the increase in research about circular business model innovation in the past eight years (Diaz Lopez et al., 2019), deeper empirical insights into the process of circular business model innovation are needed (Bocken et al.,2019). More action-oriented research approaches, which allow collaboration between practitioners and researchers, are crucial to advance the understanding of the complexities inherent in transforming organizational business models toward circularity (Bocken et al.,2019). This paper follows the quest of addressing this research gap by applying an action-oriented experimental research approach with four regional experiment partners to analyse how innovative circular solutions can best be adapted to local contexts. By accompanying and supporting four LAHs during their implementation of circular solutions within their local communities and conducting a comparative analysis of their outcomes, this experiment provides valuable learnings on good practices for responsible and circular business model innovation and sheds light on the complex implementation process of circular business model innovation.

This manuscript is structured in five sections: After this introduction, section 2 shortly reviews the theoretical background underlying this research. Section 3 explains the research methodology, section 4 presents the expected outcomes of the ongoing experiment, and section 5 closes with concluding comments.

2. Theoretical Background

CE supports sustainable development by aiming to secure the resources to sustain our current and future generations (Brundtland, 1987). This is achieved by minimizing resource inputs and waste, emission, and energy leakage of products over time, using four distinct strategies: narrowing, closing, slowing, and regenerating resource loops (Stahel, 2010; Bocken et al., 2016; Konietzko et al., 2020). In a CE stakeholders collaborate to maximize the value of products and materials, minimize the depletion of natural resources, and create positive societal and environmental impacts. CE has gained widespread popularity among businesses and governments (Kraaijenhagen et al., 2016). While the benefits of a CE and its potential to achieve a radically more sustainable society and economic growth (Blomsma and Brennan, 2017) are well understood, capturing sustainability and circularity remains a challenge. A circular business model defines the rationale of how an organization creates, delivers, and captures value to close, narrow, slow, and generate material loops (Antikainen and Valkokari, 2016; Bocken et al., 2016) supported by new technologies (Konietzko et al., 2020). In the CE, business model innovation plays a vital role in fundamentally changing the way of doing business to go beyond general sustainability approaches that focus on efficiency, productivity, and 'greening' the supply chain (Bakker et al., 2014). Moreover, the interplay between CE and new technologies provides a fertile ground for innovation and value creation. It paves the way to explore novel ways in which this interaction can drastically change the nature of products, services, business models, and ecosystems. Circular economy business models and new technologies can unlock synergies to generate direct value for customers/end-users and increase resource productivity across economies by forming new ecosystems that eliminate negative externalities and the need for considerable resources. Knowledge and methods on transitioning to a circular economy from a business perspective are only emerging (Blomsma et al., 2019; Bocken et al., 2018). The circular economy concept needs action and validation. Also, the adoption of circular economy practices faces challenges related to citizen involvement (participation, inclusion, engagement) and policy harmonization (legislation, regulation) (Vayona and Demetriou, 2020). The challenges stem from the CE model being a relatively new concept for businesses, citizens, and local/central governments. Therefore, experimentation is needed to trial the viability of options in a business context and initiate transitions within existing companies. Circular business model experimentation is an iterative approach to developing and testing circular value propositions, starting with a shared goal (Bocken and Short, 2021). Experimenting in the early stages might prevent flawed idea-generation processes that may influence the ability of organizations to break the status quo (Bocken et al. 2018). Hence, organizations must develop skills and capabilities that ensure experiments produce learning outcomes (McKee, 1992; Kogut and Zander, 1992). Experimentation can kick-start transitions in business by demonstrating the potential of circular business models in practice and starting internal change processes (Bocken et al., 2018).

3. Method

3.1. Research Design

To answer the research question How can regional LAHs foster responsible and circular business innovations?, an action research method in form of a social experiment was selected. Using diverse participatory approaches to underpin action research when working with citizens and professionals participating in the experiments, allows to support their role in co-production. Action research is centred on actively creating change during the research process, it's design thus needs to be dynamic, adaptable and prioritize inclusion and diversity (Cinderby et al., 2015). With a strong emphasis on processes as much as on outcomes (Reason and Bradbury, 2008), all experiment partners collaborate and produce knowledge that is both practically and scientifically relevant, and trigger transformative actions and behavioural changes towards sustainability and circularity in interactive, plural, and locally-sensitive ways (Caniglia et al, 2020). Crucially, action research methodologies create spaces and opportunities for change to emerge. Here, the LAHs serve as participatory tools to facilitate action research among key citizen groups including SMEs, disability charities, or local authorities. Action research firmly places researchers and research facilitators at the heart of the change processes they seek to observe. Research-informed and collaboratively-designed interventions promote stronger social and experiential learning (Lucas et al., 2017), as compared to 'information deficit' models of learning, which rely on information provision and are now well-known to have limited impact on changing behaviours. Evidence (Pelt et al., 2020) suggests that action- oriented interventions are more successful at inducing social and behavioural change regarding environmental challenges as they are directly embedded in participants' practices and experiences. Additionally, experimentation – the process of learning by doing (Brown et al., 2003) – is the first phase in a journey from 'niche innovations' to transitions on a wider scale (Seyfang and Haxeltine, 2012). Applying a systemic and context-sensitive approach to comparison is vital when applying experiment-based methods for green transitions (Kiyimaa et al., 2017) and is thus suitable for co-designing and testing business innovation to support circular economic business models for resource-intensive sectors on the meso-level. The setup of the experiment is characterized by five stages based on the meso level cycle from van Wijk et al. (van Wijk et al., 2018), where the first stage includes the creation of interactive spaces for inclusive participation to take place. The second, third and fourth stages encompass iterative cycles of negotiation and co-creation in form of multiple workshops including design thinking. Finally, the objective of the fifth stage is the embedding of the circular innovation in form of business model, product or practice and the formalization of learnings. By formulating good practice examples which can be shared and disseminated as results for knowledge uptake on circular business model innovations, further impact beyond the four LAHs is generated.

3.2. Research Process

The call for local experiment partners addressed local authorities and not-for-profit organizations. The role and

obligations of local experiment partners as participants in the funded social experiment were disclosed before the application process. One of the main commitments of each local experiment partner is the setup of a LAH as an online platform. As LAH leaders the local experiment partners are responsible to collect knowledge and link relevant stakeholders (LAH members). In total 46 applications were received, out of which four applicants were selected as local experiment partners. With experiment partners from Cyprus, Slovenia, France and Portugal the inclusion of geographical diversification was met. The minimum selection criteria for local experiment partners included the following characteristics:

- Experienced in engaging stakeholders and running participatory workshops
- Established network of and ongoing collaboration with local businesses
- Excellent English communication skills
- Knowledge on circular economy and business innovation.

The applied action research process entails close collaboration between researchers and the four experiment partners, which is grounded in monthly feedback calls and a series of workshops to allow for knowledge exchange between researchers, LAHs leaders and LAH members to take place throughout the duration of the 12-months experiment. To kick-start the experiment, a two days' workshop including research leads and all four local experiment partners is organized to align expectations and discuss overall experiment setup. During this in-person meeting responsible research innovation principles, ethical standards, knowledge on experiment relevant topics, and research tools are provided to local experiment partners by research leads. To collect data and evaluate the performance of the four LAHs, key indicators before and after the experiment are compared across the four different geographical regions. Such pre-and post-experiment comparison evaluation provides practical lessons to inform the effective delivery of experimental outcomes. For example, this social experiment assesses indicators of circular transition and circular business innovation among the LAH members before and after implementation of circular business innovation knowledge-sharing initiatives. Furthermore, comparing the four sites enables investigation of how geographic, social, cultural, political and economic contexts affect experiments' outcomes. Understanding the specific contexts of each region is crucial to avoid inappropriate comparisons and inferences (van Dijk, 2006). Here, the LAH leaders that are co-designing the experiments enable context-sensitive regional comparison, while our evaluation also includes regional participation indicators. Additionally, the 40 interviews conducted by the LAH leaders in their local languages among the LAH members provide valuable learnings on opportunities' and obstacles for regional circularity uptake through circular business model innovation.

4. Expected Outcomes

As an ongoing social experiment, data collection has not yet been completed, and final findings have yet to be derived. However, it is possible to make assumptions about expected findings on a global scale. Conducting a comparative analysis among the four local accelerator hubs and the quantity and quality of circular innovations and practices resulting from them can provide insights into the best ways to support regional circular transitions. Moreover, assessing the degree of collaboration and circular economy partnerships among the hub members can provide valuable insights into good practices for accelerating the complex challenge of circular business model innovation. The participatory approach of the experiment and the close collaboration among researchers and local partners will produce original data on effective behavioral change transformation in an inclusive manner, which includes groups with specific needs. The data collected from interviews, field notes, and monthly reporting rounds will provide valuable learning experiences for all participants and can influence future business endeavors and research studies. This experiment aims to equip companies with the necessary tools to successfully implement circular-by-design products and circular business models, thereby supporting consumer decision-making and promoting the development of LAHs, which can ultimately evolve into sustainable ecosystems.

5. Concluding Comments

This paper examines the critical function of partnerships and collaboration within local accelerator hubs as necessary conditions for establishing a circular economy in Europe. The transition from linear to circular business models requires businesses to extend their horizons beyond their organizations and adopt novel, cooperative strategies. Achieving society-wide acceptance of this impending systemic transformation necessitates collaboration among various stakeholders to advance toward circularity collectively. While there is a general consensus on altering the current paradigm, the roadmap to a successful, sustainable, and environmentally responsible economy is subject to negotiation. The anticipated outcomes of this research suggest a viable solution: Local accelerator hubs serving as facilitators of collaboration and partnership for circular business innovation and regional catalysts for inclusive transitions.

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