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Co-creation in networks of SMEs: a conceptual model of the co-creation process

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Abstract

The ability to adopt new digital technology is a very challenging endeavour, especially for small and medium-sized enterprises (SMEs), who because of resource poverty are dependent on external input and cooperation with other companies. Recent research has indicated that co-creation among SMEs is a promising way to overcome such limitations. However, there has been very limited research on the co-creation process, and we have little understanding about how SMEs would go about to establish and run a co-creation network.

We propose a conceptual model based on our review of the literature and our empirical findings from investigating co-creation in four networks. The results expand our understanding of the process of establishing co-creation networks and contributes to research on co-creation and practice in SMEs.

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1. Introduction

The rapid progress in new digital technologies and ever more complex competitive environments create a pressure on organizations to innovate and transform. To succeed in employing digital solutions and digital transformation, organizations are more and more looking for multiple partners to collectively leverage this value [1]. Most organizations struggle with comprehending the opportunities and consequences of digitalization to their organization and how they should transform [2]. This challenge is especially demanding for small and medium-sized enterprises (SMEs) due to their general lack of resources [3]. An effective way to create the capability to innovate and transform is to cooperate with others, but to establish and effectively manage a co-creation strategy are challenging [4].

It has been a rapid growth in research focusing on co-creation, and in various research areas such as service science, management and innovation science as well as marketing and information systems over the last twenty years. Co-creation therefore includes many areas and topics including co-production, customer participation, consumer communities, open business models, service exchange and service systems, new product design, users as co-designers, retailing, and digitalization (for an overview, see [5]). However, with this variation, the concept of co-creation has not yet received a clear definition [6] and agreement about its conceptualization and foundation, drivers, related processes and expected consequences [7]. Grover and Kohli [1] identified four layers of relational arrangements that impact IS business value co-creation: assets, complementary capabilities, knowledge sharing and governance. The article gives an improved understanding of the types of assets and complementarities that are required, how contracts can lower transaction costs and create incentives for co-creation, including how IS can facilitate this. The studies were, however, not able to describe how co-creation unfolds. Our review of the literature indicated that there is a general lack of research on how co-creation can be initiated, established, formalized, and managed. We have also experienced that SMEs have very little understanding about how they would go about to initiate a co-creation network. We therefore found it pertinent to conceptualize how co-creation can be established and managed among SMEs. We have therefore reviewed the literature to propose a conceptual model of the co-creation process. We first give a summary of the related literature and then propose our conceptual model.

2. Background

The management literature has recognized the significance of interdependence between organizations, resulting in social interactions and networks [8, 9]. Participants in such interactions have created opportunities for competitive advantage based on network interactions. A rapidly rising flow of research since the early 2000s has conceptually described such interactions as co-creation, and demonstrated that they present substantial contribution to innovation processes [10]. These networks enhance competitive power by creating combined forces of value creation through co-creation [11].

Such interactions are especially crucial when markets are dynamic, and when the organizations have limited resources for innovation. Organizations working together in such networks share knowledge and resources in co-creating understandings and response strategies. This has been seen in a range of shared topics such as the use of supply chains, innovations in service production and implementation of information technology [12]. However, there is still a common lack of research on the nature of co-creation in various settings, and about how it can be initiated and managed [13, 14].

Coopetition research is one pertinent stream of research to better understand co-creation (see [15] for an overview). Coopetition research has studied various antecedents for co-creation, including external regulatory bodies, network governance, how firms perceive strategy and goals, and how relative position, compatibility and trust influence the relationships between the firms [15]. Increasing levels of trust has also been found to decrease the risk of opportunistic behavior [16]. Studies of SMEs identified resource endowment, goal characteristics, firm capabilities, strategy formulation and perceived vulnerability as factors that determine coopetition [17].

The literature on coopetition has merely offered limited understanding on the effect of coopetition among multiple actors. Dorn, Schweiger [15] conclude that there is an urgent need for research on the dynamics of multi-actor networks, and how they create specific management challenges and requirements. Co-creation is described as a very important enabler for digitalization of firms [18]. It is therefore essential to comprehend co-creation in multi-actor settings, and how co-creation can be handled to prevent conflict that would reduce shared value creation. The literature

on how co-creation leads to business value from digitalization is dominated by the innovation and technology management perspective. This perspective focuses on how the use of technology to improve the interaction between enterprises and customers leads to new and innovative services [6]. Several studies have emphasized the need for research about how business value is co-created in a network of firms, rather than by a single firm [19-21].

3. Method

We have combined a review of the literature on co-creation, adopting a micro-level perspective on co-creation, and various co-creation cases from the literature. We explored the relevant literature on co-creation to identify pertinent issues regarding how to establish and manage a co-creation. We have previously investigated co-creation in four business clusters, and we have also used the findings from these studies to aid the conceptualization process. This approach to conceptualizing co-creation is based on guidelines for conceptual modeling from Hirschheim [22] and Robey and Baskerville [23] addressing logical consistency, rhetorical strategy and meaningful propositions.

Our review of the literature focused on the process of value co-creation at the micro level addressing the activities that companies do to establish and manage the co-creation process. To identify relevant literature, we adopted a semi-structured search process combining the use of literature we had identified earlier with the search for new research. Multiple techniques were used in several phases that included a combination of selected search criteria as well as forward and backward searches on identified research articles. The initial phase included a search in Google Scholar based on combinations of specific search criteria (SME, small business, co-creation, cocreation, enablers, drivers, antecedents to, success, succeeding with, establishing, initializing). The second phase involved forward and backward searches on identified research articles as well as articles that we had identified in previous work on co-creation. The result showed a scarcity on literature that addressed co-creation as a process in SMEs and that conceptual work is needed to assist SMEs in their efforts of co-creation.

4. The conceptual model

Based on our review of the literature adopting a micro-level perspective on co-creation, and the co-creation cases, we have conceptualized the process of establishing a co-creation network of SMEs as depicted in figure 1.

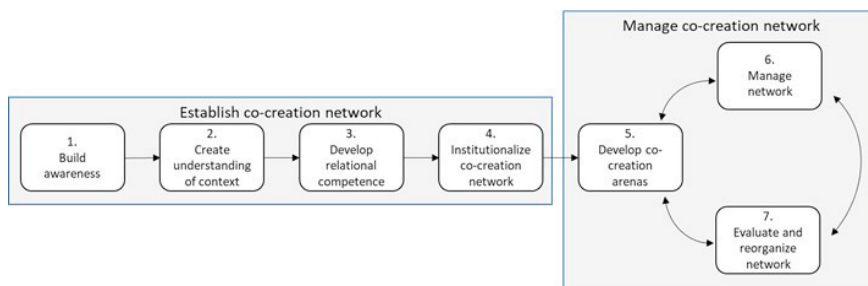


Fig. 1. The conceptual model of the co-creation process.

We argue that one should view co-creation as two separate phases, one of establishing and institutionalizing the network, and one of managing the network and further developing it to maintain its relevance. In adopting a micro-level perspective on co-creation, we discuss factors related to each of the phases in the conceptual model based on the literature on co-creation, cooperation and empirical findings. We include the literature on cooperation because it describes important explanations for both rivalry as well as cooperation in such networks (see [15] for a review).

First, we found that building the awareness about the benefits of taking part in a co-creation network, is an important issue in the literature and in co-creation cases (e.g. [24], [25]). We saw in the Blender collective [26] that the small enterprises had very limited understanding of the potential benefits of co-creating with other enterprises. The literature also highlights this challenge in many case studies, and in their integrative review of the co-creation literature,

Leclercq et al. [7] conceptualize that motives are drivers for co-creation and influenced by an understanding of the value creation potential of the participants in the network. Motives are further classified by their varying degrees of altruism, extroversion and social orientation to understand their effects on the value co-creation process.

This initial phase can be initiated by the single enterprise, but more realistically stimulated and facilitated by an external party, such as academia or an industry association. We believe that individual SMEs may lack the competences and resources to initiate a co-creation process on their own. This is also emphasized in the literature for example by Eikebrokk & Olsen (2007) who found that the sourcing competencies of SMEs influenced their ability to form alliances with other companies.

Second, we conjecture that it is important to create a more complete understanding of the context and the potential partners in the co-creation network. The literature has highlighted this in several studies. For example, Neghina et al. [27] found that actors' willingness to co-create was influenced by different motivational factors in contexts characterized by generic services compared to professional services. Czakon & Kawa [28] use the concept of network myopia to describe the ability to perceive the co-creation network in an empirical study of Polish companies. Due to their workload, managers seem to narrow down the number and diversity of relevant actors in the network and thus also the opportunities embedded in these networks. The authors argue that it is important for managers to extend their scope of attention beyond their immediate network surroundings to include their partners' partners. Another example related to the understanding of the context and opportunities for co-creation is provided by Kylänen and Rusko [29] who found that established rivalry between Finish tourism companies effectively blocked for the opportunities of cooperation. The situation was changed with the establishment of a local development project that, with the help of public and semi-public organizations, managed to direct the attention of the network away from competition to potential benefits of co-creation.

This phase focusing on the context surrounding co-creation is important for building a clearer conception of what the co-creation network would look like, potential partners and topical issues related to new technology and new business models. The literature has demonstrated that inter-firm level market conditions, including specific industry settings, degree of change and competition, as well as the existence of regulatory bodies are influencing competition and cooperation, will influence the willingness and ability to co-create value in networks (e.g. [30]). Other influential factors have been identified like the understanding of actors and their motives and intentions (e.g. [31]), and the compatibility of characteristics of firms within a network [25].

Third, the literature has consistently demonstrated that it is important to develop the relational competence among members of a network. Relational competence describes knowledge and skills related to factors that enable or hinder a mutual beneficial relationship between partners. For example, Gummesson & Mele [32] argue that relational competence is important to establish the necessary dialog for reasoning together (c.f. [33]) and transferring knowledge between partners. This focus on relational competence was an important activity when establishing the Blender collective [26] and in the three industry clusters in Olsen et al. [34]. Moreover, Polese et al. [35] describe a developed sense of relational competence where actors integrate their resources based on the idea of actively creating benefits to the other actors. This altruistic approach focuses on how actors could work for other actors and creates a wider set of perspectives on relational competence that includes competencies that can enable mutual benefits, reciprocity, multiparty contribution to value creation, as well as shared intentionality. The authors argue that competence in how to build positive and harmonic relationships in the ecosystem, is crucial for value co-creation. Czernek & Czakon [31] describe in detail such trust building mechanisms in networks and conclude that the decision to join a network calls for trust. They identify tendencies to calculative behavior regarding sharing of costs and benefits as negative for trust. Moreover, concerns related to access to information and the existence of capabilities that were difficult and time consuming to develop had negative influence on trust building along with free rider concerns and hidden agendas. Among factors with a positive influence on trust building were a positive reputation and experience from prior networks. The involvement of public actors further stimulated trust through legitimizing cooperation and increasing the credibility of the network. The positive influence from public sector participation is also confirmed in other studies (e.g. [36], [26]).

This third phase is important to understand how actions among various members influence their network and its ability to co-create value [37], and how relationship competence targets a deeper understanding of the various issues relating to achieving successful co-creation in practice, such as trust, formal and informal agreements. Dorn et al. (2016) provide an overview of relational competencies influencing co-creation in their review of the cooperation

literature. Some studies have also targeted SMEs in particular. For example, Gnyawali & Park [4] examined factors that influenced the level of co-competition specific to firms in the SME segment and found that goal congruence and technological capability were important drivers. Eikebrokk and Olsen [38] studied the success of e-business in European SMEs and found that competencies in sourcing had a positive influence on co-competition and the ability to share competencies among companies.

Fourth, institutionalizing the co-creation network is a key phase. Here, potential partners are invited to join the network and the focus and scope of co-creation are defined. The literature has emphasized the importance of establishing clear guidelines and rules regulating the behavior of the individual partners and the network bodies, such as the network board [7]. With rules in place that regulates co-competition and co-creation, cooperative performance will increase. For example, Dana et al. [24] found that the development and success of a wine cluster in New Zealand was made possible by clear rules and regulations, and by establishing an independent management role within the cluster. The manager was perceived as important in branding the wine region, something that stimulated trust and communication within the network. The establishment of a formal organization for the cluster structured interactions and helped to establish relations to regional institutions and the university. Setting up such network governance structures has been found important also in other settings (e.g. [39]). A case study of a cluster of SMEs in the cultural industry in Norway [40] found that activities in institutionalizing the network were important for the performance and satisfaction within the network. A lack of ownership, lack of resources and incentives and an unclear common vision were barriers to co-creation. On the other hand, co-creation was positively stimulated by shared beliefs regarding how the network could develop the cultural industry and improve the ability to target customers and share data and knowledge.

Fifth, when the network is well defined, one operational need is to define and develop the arenas for co-creation - that focus the co-creation process to specific activities where competencies are shared and utilized. The network management needs to facilitate establishing appropriate arenas for co-creation, such as technology labs, conferences and brainstorming events as illustrated in the cases in Olsen et al. [34], where they were imperative for establishing networking and knowledge sharing. The literature has emphasized the importance of arenas for co-creation in many case studies. For example, several cases have studied how Living Labs stimulate co-creation and innovation in different industries. Although the Living Labs concept has no clear definition, most conceptualizations describe them as instruments that allow actor involvement in innovation and experimentation in real life settings [41]. Garmann-Johnsen et al., [42] found that Living Labs were important arenas where employees were involved and stimulated service innovations and eased implementation of related changes in service production and management.

Sixth, it is essential that the network has appropriate management. It was an important driver for co-creation in all three clusters in Olsen et al. [34], as well as in the wine cluster described by Dana et al. [24]. The literature has demonstrated that managing tensions and rivalry are crucial for networks in general regardless of whether they are described as involving collaboration, co-competition or co-creation. According to Porter [43], a cluster will fail if there is no vigorous competition among rivals. On one hand rivalry can develop solutions, but on the other hand tensions can hinder communication and co-creation [44]. Managing tensions and regulating competition within the network are necessary and can be done through establishing appropriate governance mechanisms. Della Corte and Aria [45] describe co-competition within the tourism industry and point to activities that expand the market as one strategy to reduce co-competition by creating a bigger cake to share for all actors. Other activities to reduce tensions can focus on reducing costs, for example through shared R&D in the cluster, by creating economies of scale, by reducing risks or by leveraging resources together. Network management that works to create these joint benefits can motivate constructive co-competition and reduce rivalry. In a Finish case study from the tourism industry Kylänen & Rusko [29] argue that establishing public and private partnerships are instrumental in stimulating co-creation by adopting a long-term focus on joint challenges for a specific region and industry. In a similar Norwegian cluster involving SMEs in the cultural industry, the partnership with public organizations not only improved credibility and trust in the cluster, but also provided crucial startup funding [26].

Seventh, we argue that co-creation networks will be dynamic and evolving with the competitive landscape and with the advance of relevant technologies. It is important that the network itself learn from these dynamic changes, for example as the scope of the network develops, as members leave the network, and as new partners are invited to join. The literature points to the importance of learning how co-creation works in ecosystems as the basis for improvement (e.g. [44]). Tommasetti et al. [46] argue that as co-creation and ecosystems emerge together, both must

be understood to understand how innovation appears. This involves creating an awareness of how co-creation develops both planned through actors' engagement and resource integration, and unplanned through continuous emergence of unplanned co-creation. The ability to learn from co-creation in a network will stimulate the development of dynamic capabilities that can lead to improvement and growth in co-creation activities as well as in innovations. Monitoring the performance of the co-creation network is thus an important task for network management.

5. Conclusion

This paper proposes a conceptual model of the co-creation process. We have reviewed the relevant streams of literature and combined it with the insight gained from various co-creation cases. By adopting a process perspective, we conceptualize various phases that SMEs would need to go through to establish a viable co-creation network. We propose that this model can act as a normative framework to help SMEs form co-creation networks.

The conceptual model views co-creation as composed of two phases: one of creating the impetus, assembling the actors and establishing the network, and one of managing and further developing the network. This model can provide cognitive support for SMEs looking for a way to initiate co-creation, and for educators developing courses for SMEs. The model can also form the basis for further theorizing and conceptualizing about how enterprises should approach co-creation efforts. Further research should evaluate its applicability in new co-creation cases, including developing a "toolbox" for the support of co-creation efforts.

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