

Collaboration practices in emerging ecosystems - a case study in the mechanical engineering industry

Rost, Martin¹; Christian A. Mahringer¹, Nico Walleiser² & Renzl, Birgit¹

¹University of Stuttgart, Germany

²Graduate School of Excellence advanced Manufacturing Engineering GSaME, University of Stuttgart, Germany

Contact: martin.rost@bwi.uni-stuttgart.de

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Introduction

As a result of increasing dynamics due to globalization and digitalization, companies, especially those in the manufacturing sector, are facing increasing price competition. For this reason, many production companies, component manufacturers and system providers are trying to generate added value and are transforming their products into cyber-physical products and services. However, companies usually lack all the necessary competences, nor can they develop them efficiently. Thus, they have to collaborate with partner firms (Hannah & Eisenhardt, 2018; Stonig, Schmid & Müller-Stewens, 2022). These companies increasingly rely on value co-creation with partner firms (Jacobides, 2022). This form of collaboration is often organized in ecosystems. An ecosystem is defined as an “alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize” (Adner, 2017, p. 42).

Ecosystem management and orchestration are extensively researched in the literature (Adner, 2017; Gomes, Flechas, Facin & Borini, 2021; Jacobides, Cennamo & Gawer, 2018; Lingers, Böger & Gassmann, 2021). Prior research on ecosystems, however, has tended to overlook two important aspects. First, it usually focuses on the organizational level and/or on larger organizational configurations. The everyday actions of the people involved in those ecosystems, by contrast, have received less attention. Coordination across domains and organizations, for instance, is a big challenge for employees involved and appropriate practices can help to cope with these challenges (Bruns, 2013; Deken, Berends, Gemser & Lauche, 2018). In this study we analyse practices of coordination across boundaries in ecosystems. Second, there is few

research that focuses on the emergence of ecosystems. This aspect, however, is important as it allows us to understand how larger configurations are created in the first place. Our study applies a practice perspective to shed light on these aspects (Feldman & Orlikowski, 2011; Nicolini, 2012; Whittington, 2011). A practice perspective is helpful because it enables us to study how “action is consequential in producing the structural contours of everyday life” (Feldman & Worline, 2016, p. 313), which also includes the structure of the ecosystem. In short, we study the question “which practices do actors use to allow an ecosystem to emerge?”.

Method

In this paper we use a single case study design (Yin, 2018) at a European mechanical engineering company with more than 14 000 employees worldwide. In the following we name the company HardComp. The core business consists of the production and sale of machines using a wide range of manufacturing technologies. However, the manufacturing company faces strong price competition particularly from machine manufacturers in Southeast Asia. For this reason, the company strives to transform from a classic product supplier to a solution provider. In order to complete the transformation to a solution provider, they initiated a project to build an open software ecosystem. Based on microservices and open interfaces, the goal was to easily integrate third-party providers into the existing software architecture. During the emergence of this ecosystem, some challenges arose while collaborating across the organizations and departments involved providing highly interesting aspects for further analysis.

For data collection we draw on ethnographical observations (Emerson, Fretz & Shaw, 1995) from different meetings and workshops (19 meetings during a 5 months observation period, 100 pages field notes), ten semi-structured as well as fourteen informal interviews and a document analysis based on internal and publicly available documents (546 pages e.g., presentations, annual reports).

Initial results – collaboration practices in emerging ecosystems

Collaboration in emerging ecosystems is characterized by actors interacting across departmental and organizational boundaries (Stonig et al., 2022). In order to materialize a focal value proposition for customers, objectives from different departments and organizations need to be aligned (Adner, 2017). The collected data reveal the different goals across departments and organizations and the practices used to align these goals.

Initial situation: The company HardComp would like to develop a new modular software architecture together with the company SoftComp. Domain-specific software solutions already developed by HardComp are to be integrated into the software architecture. In order to develop

a joint value proposition and plan the development of the product, project teams from both companies met for five months in weekly meetings and other workshops. During this time, members of the project teams from both companies experienced considerable tension. On the one hand, they had to align themselves closely with the diverse stakeholders (e.g. sales department, strategy department, Top management) within their own company and, on the other hand, they teamed up with the project members of the other company in the course of the partnership, i.e. an inter-organisational team was formed. Thus, they had to find a balance between pursuing the goals and expectations of their own company and a tight trustful dialogue in the inter-organizational team.

The following example shows the different approaches between SoftComp and HardComp:

Mike (HardComp): “Here it is important to have a common understanding for a special solution. There is the possibility of supplementing SoftComp's standard programs with special add-ons. SoftComp may see this as a special solution, while we see it more as a standard solution.”

But even when the project team communicated with the different departments in their own company, there were discussions and considerable tensions. Thus, the company SoftComp had different objectives in different departments. For example, the Sales department of SoftComp would like to sell a standard ERP solution to HardComp, the domain-specific software solutions should be supplemented by implementation partners in the form of add-ons to the standard ERP solution. SoftComp's strategy department, on the other hand, would be prepared to develop a solution together with HardComp and, if necessary, to integrate HardComp's domain-specific software solutions.

The following example illustrates the different approaches across departments at SoftComp:

Max (SoftComp, Sales department): [...] “It was always communicated that an ERP system should be made available to the customer and small adjustments should be made, if necessary. But it was never communicated that external systems should take over a lot from HardComp. But yes, let's have another exchange.”

Practices to cope with diverse objectives

There are several practices that are important for the collaboration among actors in the emerging ecosystem, such as “highlighting imperfections”, “prioritizing problems”, “joint definition of goals” and “sharing expectations”. Although the managers of the two companies came along very well, there was a risk of failing on many an occasion. Below we present a statement to illustrate how HardComp managers prevent the cancellation of the discussion by applying the practice “prioritizing problems” and “highlighting imperfections”.

Practice - Prioritizing problems: In the statement below, a manager of HardComp relates to the fact that certain issues were raised again and again by different participants in the meetings without elaborating the essence of the problem. He therefore tries to prioritize a critical aspect of the problem.

Peter (HardComp): “Now it also goes a bit into [product name of a cloud solution] and what should be provided there. [...] I think that will be the most difficult thing in this respect and I think we also see it that way, that it should be open and actually software independent. I think that will be the real sticking point.”

Preliminary discussion

With this study, we would like to contribute to the practice-based research on collaboration across domains (Bruns, 2013; Deken et al., 2018) and specify this research for the specific context of emerging ecosystems, e.g., developing a joint value proposition in emerging ecosystems requires a high degree of “prioritizing problems” and “highlighting imperfections”. Our first results show that a comprehensive understanding of adequate practice can help to collaborate more successfully in ecosystems and thus to cope with problems like different goals and tensions (Ghiringhelli & Virili, 2021).

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