

INSTITUTIONALISATION AND EXPLORATION: CHANGING ROLES IN EMERGING SERVICE ECOSYSTEMS

Research in Progress

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Abstract

In recent years, software platforms and their underlying ecosystems have transformed entire industries, created new ones and completely eradicated others. To remain competitive, traditional incumbents need to adapt to those changing conditions. However, there has only been sparse research on an ecosystem level about how traditional incumbents should alter their dyadic business network with a Goods-Dominant logic to transition to a Service-Dominant ecosystem. We draw on a single in-depth case study within the context of a business-to-business manufacturing company that is currently navigating a period of liminality by being betwixt and between two roles. The incumbent implemented a software platform that facilitated the transition of roles from a business network toward an ecosystem of co-creating actors. To explain this shift, we developed a preliminary process model to depict how actors in an emerging ecosystem change over a period of liminality. Although the platform owner institutionalised the software platform through new incentives, existing partners either internalised a pre-defined role followed a multi-actor narrative or self-explored new roles. Hence, they increased the generativity of the ecosystem. This study is a first step toward improving our understanding of how focal actors in an ecosystem can govern role transition via control and exploration.

Keywords: software platform, service ecosystems, value co-creation, role transformation, liminality.

1 Introduction

The rise of software platforms indicates that an increasing number of companies shift the value-creation process from internal production to value co-creation within an ecosystem of actors (Evans and Gawer, 2016, de Reuver et al., 2018). The engagement platform of LEGO, where both employees and customers can actively engage in the value-creation process by designing new construction kits (Schlagwein and Bjørn-Andersen, 2014). In this case, the software platform represents the centre of an ecosystem of actors that facilitates the co-creation of value using value-adding services (Lusch and Nambisan, 2015). Through the provision of a software platform and services, such as virtual building tools, LEGO integrated active customer participation into their value-creation process.

Although the trend of value co-creation is undisputed (Benlian et al., 2018), an increasing number of traditional firms in the business-to-business sector have been obliged to respond to this development. Traditional firms adhere to a Goods-Dominant (G-D) logic that includes dyadic relationships with partners to achieve economies of scope and scale (Vargo and Lusch, 2008). In contrast, Service-Dominant (S-D) ecosystems include a multitude of actors that co-create value, leading to broader coverage of the value chain and a higher variety of complements (Lusch and Nambisan, 2015, Vargo and Lusch, 2004, Boudreau, 2012). An example is the Internet of things (IoT) industry, where software platforms facilitate the co-creation of value between multiple actors, such as software developers, hardware manufacturers and manufacturing firms. By directly interacting with a variety of complementors, IoT platforms can provide new services and effectively enveloping into markets previously dominated by traditional manufacturing companies and small firms (Hein et al., 2019b, Tukker, 2015). To cope with this threat, manufacturing firms have begun to transition their business network from a sole G-D business toward an S-D ecosystem.

The challenges faced and methods used by incumbents who transition from a business network to a service ecosystem are little understood (de Reuver et al., 2018). IoT platform owners integrate customers and customer data into their value creation processes. They also provide boundary resources such as application programming interfaces (APIs) to enable complementors to co-create value (Hein et al., 2019b, Ghazawneh and Henfridsson, 2013). Applying this logic to the transformation to a service ecosystem, incumbents need must alter established relationships in their business networks to directly engage customers in the value-creation process. Furthermore, they must transition partners toward an active role as complementors. To notable exceptions that have focused solely on the platform owner perspective (Sebastian et al., 2017), sparse research has been done at the ecosystem level to reveal how incumbents transform toward a service platform ecosystem.

The transition of dyadic business roles have customarily centred around product development vs. the adoption of new multi-actor service roles. As an increasing number of traditional firms accept the need to change (Hein et al., 2019a), it becomes vital to understand how they should initiate and facilitate the adoption of new roles. Furthermore, the challenges arising during this transition must be reviewed and understood. Hence, this study is a first effort to shed light on the process of changing roles in an incumbents' transformation to a service ecosystem. Changing roles can be the transition of a merchant toward an intermediary or from a consumer to a complementor. Furthermore, changes of roles can either be guided by the platform owner (Ibarra and Obodaru, 2016) or by the actors within the ecosystem. The literature on role transitions and liminality (being betwixt two structures) have posited that changes of roles can be highly institutionalised, self-guided or somewhere in between (Ibarra and Obodaru, 2016, Noble and Walker, 1997). However, it is not clear how the incumbent and partners in dyadic business networks explore and eventually commit to role changes. Hence, the research purpose of this study is to examine *how the roles of a G-D business network change during the liminal period of an S-D ecosystem transition*.

We start by drawing on a single in-depth case study (Yin, 2017) within the context of a manufacturing company transforming to a service platform by integrating partners into its ecosystem. We examined the ecosystem as a level of analysis by interviewing both the platform owner—formerly a sole heating

device manufacturer—and six complementors comprising installers. By examining the tensions and role conflicts surrounding the previous and new roles, the transformation represents a significant change of life (Ibarra and Obodaru, 2016) requiring a liminal period of transition (Ladge et al., 2012, Noble and Walker, 1997). Embedded in a broader research endeavour, we developed a preliminary process model (Eisenhardt, 1989) that illustrates how the incumbent guides the role transition of partners and its business toward a service-platform ecosystem. The process model demonstrates that the platform owner institutionalises role transitions using a multi-actor narrative while providing a legitimate narrative that is flexible enough to allow partners to explore new roles in a self-guided fashion.

2 Theoretical Foundations

This study builds on the concept of liminality during the transformation of an incumbent from a G-D traditional manufacturer to an S-D platform ecosystem. Traditional manufacturers rely on economies of scope by managing within the firm–customer dyads within the confines of their company, whereas service ecosystems follow an approach of actor engagement by co-creating value within an actor-to-actor (A2A) ecosystem (Tiwana, 2015, Lusch and Nambisan, 2015). The transformation from a dyadic to a multi-level actor system (Brodie et al., 2019) reflects a shift from a familiar past of clearly defined roles toward an unfamiliar one where actors assume multiple new roles.

2.1 The transition from G-D Business Networks to S-D Ecosystems

In recent years, firms from various industries have undergone the transition from G-D business networks to S-D ecosystems to gain competitive advantage (Verma et al., 2012, Hein et al., 2019a). G-D logic refers to firms that produce tangible products using the specialisation of labour. Those firms retain their production process within the confines of a firm to increase efficiency and throughput as a primary paradigm. One example is the supply chain, where the focal firm uses its business network of suppliers to obtain production material. Firms adhering to this logic typically engage in dyadic relationships based on mutual commitments within the context of business networks (Anderson et al., 1994, Holm et al., 1999). To foster economies of scope and scale, firms optimise production processes by separating the control of actors (Vargo and Lusch, 2008, Vargo and Lusch, 2004). To foster customer engagement, a firm must establish opportunities through clearly defined tasks while strengthening customers' abilities and their motivation to do the work (Bowen and Jones, 1986, Steers and Porter, 1974, Vroom, 1964).

In contrast, firms having an S-D logic rely on an A2A network, where actors apply specialised competencies to benefit other actors. Those A2A networks can be seen as an ecosystem-as-a-structure comprising an *'alignment structure [a] multilateral set of partners that need to interact in order for a focal-value proposition to materialize.'* (Adner, 2017). The dominant means of interaction are software-based service platforms that represent *an extensible codebase that provides core functionality to enable co-creation of value in an ecosystem* (Tiwana et al., 2010, de Reuver et al., 2018). By providing technical means upon which actors in the A2A network can co-create value, software platforms unleash generativity via increased resource liquefaction and resource density (Lusch and Nambisan, 2015, Vargo and Lusch, 2008). Additionally, the generativity of a service ecosystem results from the variety of complementors, each contributing to spillover effects that, in turn, increase the adoption of new users (Boudreau, 2012, Parker et al., 2017). Consequently, the S-D logic does not view actors as dyadic relationships but as a system of multiple actors that co-create value (Lusch and Nambisan, 2015). Depending on the relationships in the A2A ecosystem, actors can perform multiple roles when engaging in value co-creation (Moeller et al., 2013). Consequently, theoretical concepts shifted from customer engagement toward actor engagement (Brodie et al., 2019). Actor engagement emerges within dynamic and iterative relationships in the ecosystem, where connectedness is an essential property and influenced by shared practices (Brodie et al., 2019).

The transition from business networks having dyadic customer engagements and tightly controlled supplier integration toward A2A ecosystems having dynamic multi-actor engagement underpins the

importance of changing roles. However, little is known about how roles should change during the transition from a G-D to an S-D logic. The literature on S-D logic stresses the importance of shared practices, such as augmenting, co-developing, influencing and mobilising behaviours, which foster value co-creation in existing service ecosystems (Jaakkola and Alexander, 2014). Furthermore, information technology, such as software platforms lead to co-creation activities. Platforms strengthen the perceived enjoyment, empowerment, trust and lead-user characteristics, which in turn increases the willingness to co-create value (Füller et al., 2009). By comparison, non-receptivity can be the cause of apathy, ambivalence and annoyance, which hinders value co-creation. Strategies for overcoming non-receptivity are intrinsic initiatives, including complexity absorption, inspiration and implementation, value alignment, credibility building and objective centralisation (Malshe and Friend, 2018).

2.2 Liminality

The notion of liminality was developed in the field of anthropology to delimitate the stages of rituals between separation and reincorporation (Van Gennep, 2013). It addresses the experiences of individuals or institutions that are *'betwixt and between'* or at the limits of existing structures (Turner, 1969, Henfridsson and Yoo, 2013). Liminality is characterised by heightened states of reflexivity, wherein institutions or individuals *'are allowed to think about how they think'* (Turner, 1987). An example of a liminal transition in an institutional context is the move of companies from one technological trajectory to another (Henfridsson and Yoo, 2013). For individuals, scholars predominantly have used the concept of liminality to describe the transition of roles via a *'process of disengaging from a central, behaviorally anchored identity while exploring new possible selves, and eventually, integrating an alternative identity.'* (Ibarra, 1992). Furthermore, research on liminal transitions has shown that liminality is associated with heightened creativity (Sturdy et al., 2009), because extant constraints, rules and boundaries are suspended (Gioia et al., 2010). However, liminality is also associated with adverse effects stemming from weakened power or a lack of affiliation (Tempest and Starkey, 2004).

Liminal transitions can be structured into three phases: separation, transition and reincorporation (Conroy and O'Leary-Kelly, 2014, Van Gennep, 2013). The separation phase can be initiated by triggers such as events (Ashforth, 2000), traumata (Maitlis, 2009) and work changes (Pratt et al., 2006). Entities disassociate from their former selves to construct new identities (Ashforth, 2000, Maitlis, 2009). The transition phase is guided by the process of making sense of identity, during which entities create a narrative that needs to be tested and validated (Ashforth, 2000, Ashforth et al., 2008). A key challenge is to create an *'ex-role'* (Ashforth, 2000), a former role in which one does no longer wants to reside with a feasible narrative about the self (Ibarra and Barbulescu, 2010). After finding a suitable narrative, the reincorporation phase conceptualises a desirable end state where entities comply with their new identities (Ibarra and Barbulescu, 2010, Conroy and O'Leary-Kelly, 2014). Liminal periods can be either temporal, as in the case of changing roles (Ashforth, 2000), or permanent, as in the case of consultants who always operate at the boundaries of different firms and identify with neither (Czarniawska and Mazza, 2003).

Liminal transitions can be guided by external parties through institutionalisation, such as elders in a tribe, or they can be self-guided through exploration and commitment (Ibarra and Obodaru, 2016, Turner, 1969). The degree of institutionalisation is continuous and is defined according to the bracketed time or duration of the period, the social guidance or support from communities, the legitimate narrative or culturally extant guidance, the predetermined progressive outcome or whether the new role has been pre-defined (Ibarra and Obodaru, 2016). Depending on the degree of institutionalisation provided, institutions or individuals can have more or less freedom to explore new roles. Apart from the degree of institutionalisation, liminal periods can be sequential, as in the case of role changes within the confines of a firm (Ibarra and Barbulescu, 2010), or cross-domain, such as with expectant mothers, where pregnancy changes work and non-work roles (Ladge et al., 2012).

We argue that the liminal period of transition from a dyadic G-D manufacturer to a multi-actor S-D service platform represents a unique context that can inform the theory of role changes (Ibarra and

Obodaru, 2016) in service ecosystems (Lusch and Nambisan, 2015). First, actors must transition from tightly controlled dyadic partnerships toward a multi-domain role of highly connected actors. In this ecosystem, actors co-create value with a multitude of others. Second, the newly emerging owner of the software platform maintains actors in a state of high creativity and innovation—pointing toward a period of permanent liminality—to foster the generativity of the ecosystem. In this regard, more institutionalised mechanisms might lead to a faster transition of roles while reducing the time for actors to explore new roles. This, in turn, reduces the generativity and innovative capacity of the ecosystem.

3 Methodology

This article follows a single case study (Yin, 2017, Siggelkow, 2007, Eisenhardt and Graebner, 2007) based on a phenomenon suitable for illustrating the contemporary challenge of how incumbents transition to service-platform ecosystems (Sebastian et al., 2017, de Reuver et al., 2018). Shaped by role conflicts and internal challenges during a liminal period, this case offers unusual access to this significant phenomenon (Eisenhardt and Graebner, 2007). The liminal period includes the transformation of Alpha, an incumbent in the European heating-systems industry, toward a service platform ecosystem to cope with new competition. During the transformation process, Alpha introduced a software platform that changed the interaction between long-lasting and well-established relationships with installers toward a more scalable and loosely coupled structure. This shift from dyadic relationships toward cross-domain connectedness also incorporated customers as a new data source. In turn, the changes reorganised social ties while offering new opportunities and motivations, requiring new abilities in order to foster value co-creation in a newly emerging ecosystem. This phenomenon provides an extreme context for theory building, because the interactions and role transitions are only visible during the liminal period (Eisenhardt, 1989, Pratt et al., 2006).

The explorative case study was conducted from mid-2017 to the end of 2018 and was structured along the liminal period of a transitional phase to observe the ambiguity of roles and former relationships at the genesis of a service ecosystem. The two main actors in the heating–manufacturing ecosystem were the heating-system provider, Alpha, which transformed into a software-platform owner, and the complementor comprised of installers. The period of liminality was evident, because both actors went endured social alienation and withdrawal from extant business structures (Shomaker, 1989). Additionally, both actors transitioned from an ex-role to take on a new identity via the process of sensemaking. The liminal period started with the separation phase in early 2018 when Alpha recognised the entrance of new competition. Reacting to the new threat, Alpha implemented measures to transition to a service-platform ecosystem by changing long-established social structures and underlying value propositions. However, the new software platform directly integrated end-customers to mine data, which were then used to provide value-adding services to complementors. Hence, this case provides us with the unique opportunity to derive initial insights on how incumbents both institutionalise the transition of roles and grant complementors freedom to explore new roles. During this period of liminality, the data are grounded in a context-dependent environment (Siggelkow, 2007, Benbasat et al., 1987).

3.1 Data Sampling and Data Collection

During this explorative study, we conducted 13 semi-structured interviews ranging 25–60 min within the context of a heating–manufacturing ecosystem (*Table 1*). We recorded, transcribed, anonymised and sent back transcripts to the interviewees to verify the data and to get additional information. During the on-site interviews, we followed the guidelines of flexibility, specificity and non-directionality to increase data quality (Flick, 2018). Because this study was part of an ongoing research endeavour, we gathered more data to understand how roles changed over time.

The interviews were grouped into ecosystem actors, represented by the incumbent Alpha, and complementors, represented by independent institutions that sell, install and maintain heating systems from Alpha and others. We used semi-structured interviews, because they presented the opportunity to discover new concepts within the data: those that more-rigid collection methods would miss (Gioia et al.,

2013). Regarding the sampling strategy, we located a representative group (Marshall, 1996) within Alpha that was intimately involved in the process of transformation to a software platform and who had contact with complementors before the transformation started. For the sampling of the complementors, we saw that they had maintained a long-established dyadic customer–vendor relationship with Alpha. Thus, we noted the effects of structural changes. All complementors were independent firms having 2–20 employees.

Table 1. Description of data sources

Actor	Company	Interviewee	Actor	Company	Interviewee
Platform Owner	Alpha	Customer Support I	Complementor	Beta	Managing Director
		Customer Support II		Gamma	Managing Director
		Head of Sales		Delta	Managing Director
		Head of Strategy and Marketing		Epsilon	Managing Director
		Managing Director		Zeta	Managing Director
		Project Manager Digitalisation		Eta	Managing Director
		Senior Project Manager IT			
		Archival data, reports and observations: 21 sources, such as technical and marketing reports, websites and on-site observations. We also visited a heating-engineering trade show to observe the reactions of installers to the Alpha exhibition booth.			

The 16-question interview guideline was divided into three main sections. The first section was designed to provide insight into the interactions between Alpha and its complementors. We paid particular attention to the different perspectives of the interviewees regarding their new roles and their ex-roles and to how those roles manifested in transactions with other actors (Alpha and complementor) or end-users/customers using the heating system. With this approach, we derived process data (Langley, 1999) about the ex-roles, the liminal period and the transition toward the new roles. The second section dealt with value creation before and during the transformation to a service ecosystem. Hence, the first two sections described the perceived process of transitioning from an ex-role and the value-creation during this period to a new role in a service ecosystem. The third section included design aspects of Alpha and the measures they undertook to institutionalise their transformation. For the complementors, this section dealt with the perception of those actions. Additionally, we updated the questionnaire after interviews, revealing new insights.

Apart from semi-structured interviews as the primary data source, we triangulated the data (Klein and Myers, 1999) using direct observations and archival data retrieved from interviewees and internet-based research. During the survey, we conducted interviews at the Alpha worksite several times. We reflected upon preliminary results with employees of Alpha to gain assurance that the information about actions and roles was accurate. To triangulate the data, we reviewed technical reports on the digital-platform designs, marketing reports and company websites of Alpha and their complementors.

3.2 Data Analysis

We used the software MAXQDA (release 18) to centrally manage our data. While collecting data, we engaged in constant comparison (Siggelkow, 2007) between prior and new case-study data, and we compared data from the literature. We accomplished this using an iterative approach of moving back and forth between coded data and existing theory. Furthermore, we applied the coding process of grounded theory (Glaser and Strauss, 1967) and started with the open coding of first-order constructs, followed by axial coding to establish relationships to the aggregation of themes in the process of selective coding. Last, we documented emergent topics and observations via the process of memoing.

Starting with open coding (Gioia et al., 2013, Glaser and Strauss, 1967), we used the language of interviewees to establish first-order codes. During this phase, we went back and forth between the data and literature on service ecosystems and liminality to triangulate between codes and theory (Gioia et al., 2013). Next, we explored relationships among the 147 first-order codes to categorise them into 18 second-order themes. Conceptual themes clarified as changing opportunities, motivation and abilities from introducing a software platform. Aggregated themes highlighted the process of role changes in

service ecosystems based on institutionalising mechanisms that trigger the exploration and internalisation of new roles.

4 Preliminary Results and Discussion

In early 2018, Alpha designed and implemented a software platform. The Head of Strategy and Marketing and the Senior IT Project Manager responsible for this transformation decided that the first step would entail the creation of an operational backbone, where all relevant data could be accessed from one platform. This technological platform was the basis for creating new business models and was referred to as the most important strategic decision in decades. In sum, the introduction of a platform was the *'flagship project that needed to convince Alpha and its partner network.'* (Alpha Head of Strategy and Marketing).

After launching the software platform, Alpha was challenged to alter its role, including its interface with customers and installers. The reason for these changing relationships was likely related to the new value proposition of being also a service provider rather than a sole manufacturer. The Alpha Managing Director emphasised: *'it is [Alpha's] main goal to create value by collecting and managing data with this platform.'* As a consequence of this new value proposition, Alpha needed to change well-established relationships with installers. In particular, it had to transition from interacting with installers as a vendor selling its products to customers to a partnership that provides value-added services. By introducing their platform, Alpha changed their buyer-seller dyadic interaction to a multiple-actor relationship that co-creates value based on new services. To motivate this adoption, Alpha further introduced incentives, such as monetary benefits, via bonus points and a loyalty programme that rewards customers with an extended warranty period. During this time, the role of Alpha shifted from being a vendor of heating systems to also being an orchestrator that facilitated interactions between end customers and installers in the ecosystem. The Head of Sales explained that *'through the new services such as remote maintenance and the smart scan application, we were able to connect installers and consumers in new ways.'* To trigger the internalisation of new roles, Alpha incorporated different perspectives of ecosystem partners where services can be exchanged between all parties to create a compelling narrative that fits all actors. One way to enable installers to use the application was the use of sales representatives that helped, trained and motivated installers to adopt the new services. During this time, Alpha explored new ways of how the software platform could be used that they did not think about before, such as introducing matchmaking between installers and customers.

In turn, installers faced the challenge of altering their roles, including those of their relationship to Alpha and end-customers. Installers were no longer strictly independent institutions; they became more connected with Alpha. Installers used to sell and maintain heating devices from Alpha per end-customer wishes. With the software platform, the installer and end customer could access additional services such as remote maintenance and temperature control that increased the connectedness among the three parties. The Managing Director of Beta emphasises that, *'with the [software] platform, we can offer an "all-round-carefree package" for our customers. [We] are now able to closely interact with our customers.'* Consequently, the internal role of complementors shifted from physical installers to hybrids that also provided services.

The initial results indicate how software platforms can create new opportunities that trigger the transformation of dyadic relationships in business networks toward a service ecosystem by enabling value-creating interactions in a period of liminality (see Figure 2).

The preliminary data shows that the incumbent institutionalised the adoption of new roles through incentives, new services, training and guidance, boundary spanning and by developing a multi-actor narrative. Each of those practices triggered the process of external role negotiation, as shown in the example of new services such as remote maintenance, that allowed installers to offer a care-free package for customers, effectively adding the role of a service provider. Besides, the case illustrates that institutionalisation could trigger the process of external self-exploration, where installers needed to make sense of new services based on their capabilities to explore new roles. Depending on the practices, the

outcome can be increased motivation to trigger the role negotiation through incentives, new opportunities to self-explore and internalize a new role via new services, develop new capabilities by training and guidance, increase connectedness via boundary-spanning activities through sales representatives and to control the process of self-exploration and role negotiation by providing a multi-actor narrative.

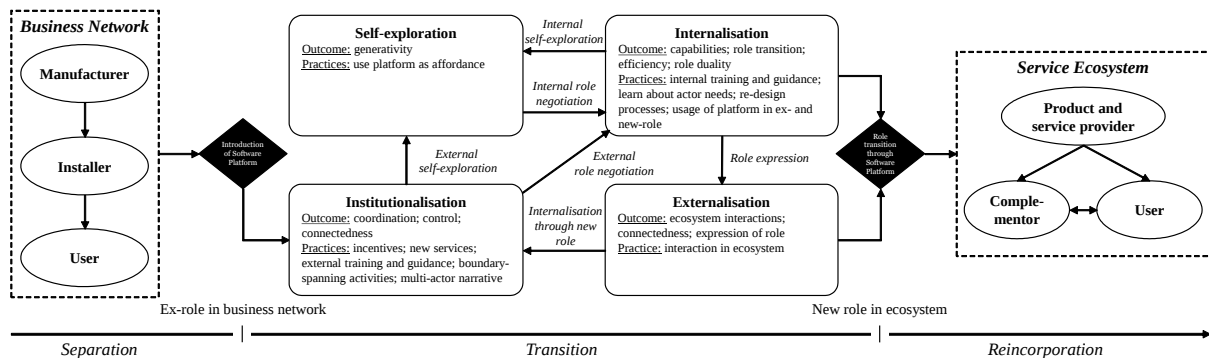


Figure 1. The process model of changing roles from business network toward service ecosystem

Both the incumbent and the installers went through the process of self-exploration by actualizing affordances of the software platform dependent on internal capabilities. After identifying new opportunities, the actors negotiated the new role in the process of internalisation. An example is Alpha that used the possibility to orchestrate demand between customers that needed to find installers and installers that could use the platform to find customers by introducing matchmaking services.

The process of internalisation includes practices such as internal training and guidance, the re-design of internal processes and the usage of the platform during liminality in their ex- and new role. Depending on the practices, internalisation can either trigger internal self-exploration or role expression. An example of internal self-exploration are installers that internalised the use of the software platform to not only transition to a service provider but also found creative new ways of using the platform to provide customers with an all-round care-free package. An example of role expression is the shift toward a dual role, where Alpha developed new capabilities through training for their new role as a service provider. In addition, Alpha increased the efficiency of its former role as a manufacturer by optimizing internal sales and production processes. By doing so, Alpha expressed their new role and fostered interactions that increased the connectedness in the ecosystem. In turn, the new role triggered new institutionalising practices, where installers could use the platform to interact with customers.

The concept of liminality provides valuable insights on the duration, legitimation, guidance and outcome (Ibarra and Obodaru, 2016) of role changes from G-D business networks to S-D ecosystems. The preliminary results indicate that the duration is—for now—permanent due to the duality of roles taken by actors. The legitimation is a multi-actor narrative, where the software-platform acts as means of interaction to motivate actors through incentives and by training through the provision of new capabilities. Guidance is either institutionalisation or self-exploration based on the affordances and interpretative flexibility of the software platform. Last, the outcome of the liminal period is generativity that results from more diverse ecosystem roles and the degree of self-exploration, connectedness as a result of the multi-actor narrative and the software platform as new means of interaction and role duality as both the incumbent and installers adopted an additional permanent role as a service provider.

In sum, this study provides first insights into role changes from a G-D business network to an S-D service ecosystem. As this study is part of an ongoing research effort, we will continue the longitudinal study in the context of Alpha to refine existing concepts and to see how Alpha can keep actors in the self-exploration phase to increase the variety of roles adopted and consequently the generativity of the ecosystem. Additionally, we plan to explore the role of capabilities during the period of liminality to see their influence on the process of negotiation and self-exploration to acquire new roles. More sophisticated results can provide insights on how a focal actor can institutionalise role changes by governing control and flexibility to increase the generativity in existing and emerging service ecosystems.

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