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Navigating collaborative open innovation projects: Staging negotiations of actors' concerns

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Open innovation has attracted significant attention as companies respond to increasing innovative complexities by opening their organizational boundaries to interact with stakeholders along the innovation funnel. However, knowledge from customers and users is not always easily translated into solutions that can be commercialized. Micro-level challenges of open innovation projects that might be impeding commercialization remain under-explored in the literature. To address this research gap, we use a collaborative staging approach inspired by actor-network theory to focus on micro-level negotiations of actors' concerns at the project level. Analysing data collected via ethnographic research and participant observation in a longitudinal qualitative case study, we investigate how managers and designers navigated value creation and capture when conceptualizing an app for hospitalized stroke patients. Our findings reveal an action-oriented staging approach to collaborative open innovation efforts and selective enactment of business models depending on whether the focus is value capture or value creation. Furthermore, we point to a repertoire of staging moves that managers and designers can use to facilitate productive negotiations and network alignment as value creation opportunities co-evolve and to conceptualize value offers in collaborative open innovation processes.

KEYWORDS

business models, collaborative design, concerns, project level, staging, value capture, value creation

1 | INTRODUCTION

Open innovation has attracted significant attention as companies respond to increasing complexities by opening up their organizational boundaries to interact with stakeholders along the innovation funnel (Chesbrough & Bogers, 2014; Huizingh, 2011; West et al., 2014). In a comprehensive review of the open innovation literature, Randhawa et al. (2016) noted that open innovation studies had been occupied primarily with the roles of knowledge, technology and R&D from a firm-centric perspective. At the same time, the complexity of

managing collaborative efforts across organizational boundaries has become more apparent. For example, Bogers and West (2012) suggested that open innovation increasingly involves a firm broadening its focus to consider collaborative endeavours. Such activities often involve co-creating knowledge and ideas with external partners such as users and customers and combining the outside-in process of conceptualizing new solutions with the inside-out process of bringing them to market (Enkel et al., 2009; Piller & West, 2014). Because collaborative activities are typically performed at the project level of analysis, a better understanding of collaborative efforts in open

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innovation contexts requires focusing specifically on activities at that level (Bagherzadeh et al., 2021; Du et al., 2014). Indeed, scholars have recently called for a more detailed level of analysis (Bogers et al., 2017; Dahlander et al., 2021; Stanko et al., 2017).

We respond to these calls by zooming in on specific micro-level attributes at stake in the value creation and capture processes central to the current conceptualization of open innovation (Chesbrough & Bogers, 2014). In particular, we attend to negotiations involved in identifying value creation opportunities and conceptualizing value offers in collaborative open innovation processes. A detailed investigation of these negotiations may reveal tensions between value creation and value capture and point to a repertoire of actions that may influence the success or failure of open innovation (Chesbrough et al., 2018; Lauritzen & Karafyllia, 2019). For example, value creation opportunities emerging from interactions with customers and users often cannot be translated into monetary value capture opportunities. We thus investigate how designers, researchers and managers attempt to navigate between actors' concerns and their understandings and interpretations of value, and how business models are enacted differently based on these concerns. This endeavour implies that value is not something 'out there' to be created and captured but instead is constructed and negotiated over the lifetime of a development project. Thus, we seek to answer the following research question: How can managers and designers navigate diverse concerns related to value creation and value capture during the conceptualization process in open innovation projects?

We suggest that the link between value creation and value capture can be usefully explored via an in-depth analysis of a specific case in which researchers, designers, patients and hospital staff conceptualized new solutions in a large multinational company with an open innovation strategy. Data collected via ethnographic research and participant observation for a longitudinal field study covers an open innovation project between 2014 and 2016. By drawing upon and further developing the staging negotiation spaces (SNS) framework (Pedersen, 2020) rooted in collaborative design and actor-network theory (ANT), we investigate how external and internal actors' concerns inform the co-evolution of problems and solutions influenced by both value creation and value capture strategies. Furthermore, the framework is developed to offer a repertoire of strategic staging moves which may inspire innovators, designers, researchers and project managers in their navigational efforts when engaging in collaborative open innovation processes.

2 | BACKGROUND

For approximately two decades, open innovation scholars have advocated and investigated the potential organizational benefits of companies opening themselves up to external sources of knowledge and collaboration through exchanges with users, customers, research institutions and partners from other industries. Open innovation involves purposefully and strategically managing inflows and outflows of knowledge and ideas to accelerate innovation and expand markets

(Chesbrough, 2006). In this way, companies can use external ideas and technologies that align with their business models and create value from R&D spillovers by, for example, licensing unused technology or creating spin-off companies (Chesbrough & Bogers, 2014).

Whereas most open innovation literature focuses on the organizational level of analysis, Bogers et al. (2017) drew attention to the growing importance of considering other levels of analysis to obtain a more detailed understanding of underlying processes and contingencies in open innovation contexts. To that end, the project level is particularly interesting because it deals with micro-dynamics and can shed light on how organizations can manage, integrate and utilize external knowledge (Bagherzadeh et al., 2021). For instance, Dahlander and Gann (2010) highlighted a limited understanding of the process of sourcing external knowledge, particularly in firms with many relationships. Moreover, based on an extensive literature review, West and Bogers (2014) highlighted a lack of research concerned with how external knowledge is integrated and ultimately commercialized: 'it remains unclear how external innovations travel from the outside to a commercial product through the firm's business model and to what extent it requires distinct innovation strategies' (West & Bogers, 2014, p. 828). Such inflows of knowledge in open innovation have typically been discussed in terms of the absorptive capacity of individuals and organizations (Bogers & Lhuillery, 2011).

2.1 | Microfoundational perspective

From a microfoundational perspective, Lewin et al. (2011) pointed at the role of routines such as rules, procedures, norms or habits to develop internal and external absorptive capacity (Cohen & Levinthal, 1990). Zynga et al. (2018) further stressed the need to combine factors such as individuals dedicated to establishing links between an organization and its external environment, a formalized innovation methodology built on the stage-gate process and organizational structures to support open innovation. Within the open innovation literature, other examples of more microfoundation-oriented research include studies by Salter et al. (2015) who focused on individual-level openness and idea generation in R&D, Dahlander et al. (2016) who focused on elite boundary spanners, Rangus and Černe (2019) who focused on the relationship between leadership, openness and innovation performance, and Badir et al. (2020) who focused on the innovative work outputs of individual employees as well as the moderating role of their supervising manager's characteristics.

In general, researchers who adopt a microfoundational perspective seek to identify lower-level factors explaining differences in the emergence and existence of organizational routines and capabilities (Felin et al., 2012; Lewin et al., 2011; Teece, 2007). In studies on open innovation, scholars who have adopted a microfoundational perspective have been concerned primarily with individuals' generalized roles and how their attitudes and motivation to share knowledge (Aleksić et al., 2021) may influence open innovation. Whereas Burcharth

et al. (2014) reported employees' attitudes as barriers to implementing open innovation, Bogers et al. (2018) found that employees' knowledge and educational diversity are positively associated with their ability to identify and absorb external knowledge. Other studies have focused on the role of managers and how the processing of external knowledge depends on their open-mindedness and technological expertise (da Mota Pedrosa et al., 2013). Nevertheless, little is known about how these individuals pursue value creation and capture and how open innovation capabilities and conceptualization processes are shaped through the actions of these individuals.

2.2 | Co-creation as a means to generate an inflow of knowledge

Scholars and practitioners are interested in investigating and facilitating the value creation-focused efforts of developing new knowledge with external stakeholders. Co-creation with users and customers is one way to generate an inflow of knowledge by actively engaging these and other external actors in the design and development of value offers. Many studies have shown that users can contribute to identifying new opportunities and to designing new value offers (Hienerth et al., 2011). Organizations may perceive users as sources of ideas and knowledge that can be tapped into and directly commercialized (Pralhad & Ramaswamy, 2004; von Hippel, 2005), or on a more collaborative note, as co-designers of new solutions (Bogers et al., 2010; Randhawa et al., 2016).

Design Thinking has been identified as one way to facilitate co-creation endeavours where multiple actors engage in fluid and messy collaborative innovation efforts (Ollila & Yström, 2016). However, the literature describing the benefits of co-creation and user involvement primarily focuses on the initial creation of knowledge and solutions. As such, there is less attention to how this external knowledge is successfully integrated and translated into commercialized solutions, as mentioned above (West & Bogers, 2014). Recent literature points to existing business models as potential barriers to achieving such translations.

2.3 | Business models for value creation and capture

In the business model literature, there is consensus that the business model construct refers to the architecture of the firm's value creation, delivery and capture mechanisms (Foss & Saebi, 2018; Teece, 2010), thereby describing the logic with which an organization creates and captures value (Afuah, 2014; Massa et al., 2017; Zott et al., 2011). But despite the apparent consensus regarding what a business model represents, research reveals a diverse understanding of the roles it can play (Massa et al., 2017), depending on its use either as a material object in the form of a formal, conceptual model or functional recipe (Baden-Fuller & Morgan, 2010), a narrative (Massa et al., 2017) or a sociomaterial network (Doganova & Eyquem-Renault, 2009).

As Chesbrough and Bogers (2014) pointed out, open innovation projects often challenge current business models and thus depend on the development of new ones. Tensions potentially arise when open innovation projects attempt to create value in new ways by establishing relationships with external stakeholders and struggle to capture part of this new value based on current business models (Chesbrough et al., 2018). To overcome such tensions and enhance innovativeness in established companies, Hienerth et al. (2011) advocated that such new business models could be designed to be more user-centric, meaning that they are 'designed to allow, and even to trigger, involvement from users in activities at all stages of the value chain' (Hienerth et al., 2011, p. 347).

The idea that business models can trigger, for instance, user involvement, if enacted in a certain way, points to the active role as something that has effects, meaning that it may perform something. The concept of performativity (Boedker, 2010; Felin et al., 2012) implies that business models are not simply taken at face value, as they may be enacted in various ways by different actors. Thus, when inflows of external knowledge (e.g. through co-creation) suggest new ways of creating value, formats or structures such as business models may become subject to selective enactment and partial engagement (Chesbrough et al., 2018). This points to the need for a better understanding of how business models are actively applied in open innovation practices and their role in fostering or hindering inflows of external knowledge.

2.4 | How to manage inflows of external knowledge?

Although the central aim of research on open innovation has been to develop knowledge and frameworks to support strategic decision making, a limited but growing body of research has focused on how to manage and navigate the open innovation process (Giannopoulou et al., 2011; Ollila & Elmquist, 2011; Wikhamn & Styhre, 2020). Open innovation activities affect not only company business models but also crucial internal processes, rendering them subject to change (Hienerth et al., 2011; von Hippel & Katz, 2002). For instance, Dahlander and Gann (2010) argued that innovation and project management models associated with vertically integrated and closed innovation paradigms such as stage-gate systems and process models come under pressure during transitions to open innovation. Moreover, Alexy and Dahlander (2013) pointed out that open innovation disrupts established innovative routines, challenges conventional wisdom and creates tremendous challenges for people involved in R&D. Therefore, strategic and well-organized project management is necessary to foster the success of open innovation processes (Du et al., 2014; Keinz et al., 2021).

A key concern in the project management literature regarding open innovation has been how companies can build dynamic capabilities to implement corporate innovation strategies. This greatly affects the success of open innovation processes (Du et al., 2014; Keinz et al., 2021). These capabilities include the strategies, heuristics and

competencies to search for potential business partners, identify whom to target and develop relations with (Bengtsson et al., 2015) and frame problems in the search for solutions (Lopez-Vega et al., 2016). However, it seems as if the general assumption in this literature is that not only potential business partners but also new solutions or technologies are things that can be ‘searched for’, ‘identified’ or ‘selected’ rather than co-created. In comparison, those who adopt a design research perspective approach problems and solutions as interlinked pairs that co-evolve during the design process (Dorst & Cross, 2001). Taking this perspective a step further, researchers from the participatory design tradition frame problems and solutions as constructed and as resulting from *negotiations* of concerns during the design process (Pedersen & Brodersen, 2020).

2.5 | Negotiations in open innovation

However, in the open innovation literature, negotiation is typically investigated at a much more general level. In a comprehensive literature review on negotiation in open innovation, Barchi and Greco (2018) pointed to a body of research showing how negotiations at both the inter-organizational and intra-organizational levels are critical to obtaining expected outcomes, given the complexity of open innovation: ‘Poorly managed negotiations with regard to co-developed processes or organizational innovations will most likely return disappointing results’ (p. 344).

At the inter-organizational level, a key question raised in the negotiation literature on open innovation is how to provide value for all involved entities to increase the likelihood of integration and create a win-win scenario (Wuggetzer et al., 2010). Yet studies show that this may prove difficult due to asymmetries and imbalances between partners in terms of bargaining power (Gambardella & Panico, 2014), for instance, in negotiations of intellectual property rights (Stefan et al., 2021).

Fewer studies have explored negotiations at the intra-organizational level even though they also play an essential role, for example, when managers try to convince their employees to accept externally developed ideas to boost absorptive capacity (Barchi & Greco, 2018). New ideas generally are not passively accepted, and Buur and Matthews (2008) highlighted the integral role of negotiations in knowledge transformation and co-creation of ideas and concepts. Accordingly, Bogers and West (2012) pointed at the need to adopt a decentred approach and focus on collaborative efforts, considering the multitude of diverse actors involved and the increasingly distributed nature of innovation.

Thus, although the open innovation literature on negotiations offers insights regarding bargaining at the partner level, it does not provide insights into the *preparation* of micro-level negotiations, despite Thompson and Leonardelli’s (2004) suggestion that 80% of negotiation efforts should be dedicated to the preparation phase and only 20% to the bargaining phase. Therefore, we see a need to investigate the staging of micro-level negotiations as a means to navigate open innovation projects involving collaborative value creation and

capture efforts during the conceptualization of value offers in the form of products, services and systems.

3 | RESEARCH DESIGN AND METHODOLOGY

We analyse data from a longitudinal qualitative case study to develop a strategic, actionable approach to navigating multiple concerns and interpretations of value at the project level. To do so, we draw upon design research and approaches inspired by ANT to offer a strategic view on co-creation as a series of negotiations involving both value capture and value creation as part of open innovation activities.

3.1 | Aligning networks through the continuous staging of collaborative negotiations

Whereas Design Thinking offers a valuable toolbox, it is not concerned with the strategic navigation of negotiations in co-creation activities. The participatory design community has recently responded to this challenge by promoting an actionable, inclusive design approach theoretically inspired by ANT (Pedersen et al., 2020). The fundamental idea is that everybody can be creative, and users or customers should directly influence new value offers (Bjerknes et al., 1987; Bratteteig & Gregory, 2001; Simonsen & Robertson, 2012). In this view, designers and researchers are perceived as stagers and facilitators of negotiations who co-develop new solutions through the active and strategic involvement of diverse actors in the problem identification and conceptualization process: ‘We should consider system design processes less as designers specifying needs and assessing outcomes, and more as shaping and staging encounters between multiple stakeholders or people’ (Grönvall et al., 2016, p. 41). When multiple actors are invited to participate and articulate matters of concern (Latour, 2004), design becomes a socio-technical and political activity that helps shape society (Björgvinsson et al., 2012; Pedersen et al., 2020; Pedersen & Clausen, 2017; Storni, 2015). Because matters of concern are complex, diverse and contested (Björgvinsson et al., 2012; Latour, 2008), negotiations become central to aligning these concerns.

According to ANT, which is a constructivist approach, negotiation is seen as a network alignment process, and its effectiveness thus depends on the extent to which interests and concerns are aligned (Law & Lodge, 1984). In this view, successful innovation implies the creation of stable network relations around a particular innovation through the alignment of concerns. Equal attention is paid to humans and non-humans in innovation processes, implying that both participate in and influence negotiations. To investigate the nature of such negotiations, ANT offers a vocabulary to understand and analyse the roles of and relationships between, for example, designers, users, project managers, design objects, project management tools, business models, company portfolios/existing products and strategies in open innovation processes. The SNS framework proposed by Pedersen

et al. (2020) sits at the intersection between co-design and ANT and thus uses this vocabulary to investigate collaborative processes where concerns related to both value creation and value capture are negotiated in 'discursive spaces' (Clausen & Yoshinaka, 2007) amongst internal actors, business models, open innovation strategies, patients, doctors, nurses, relatives and so on.

3.2 | Staging negotiation spaces as a central framework

The SNS co-design framework (Pedersen, 2020) may be seen as a response to the complexity and uncertainty inherent in collaborative design and innovation processes. Rather than perceiving co-creation as a process that can be meticulously planned in advance and executed later, the staging perspective instead offers navigational and strategic considerations for designers and project managers. The concept of staging is in line with Thompson and Leonardelli's (2004) suggestion to dedicate the majority of attention to preparatory aspects of negotiations. Although they discussed negotiation as 'bargaining', the SNS framework draws on ANT to view negotiations as central for investigating interests and concerns of diverse actors.

According to the SNS framework (Pedersen, 2020) staging entails configuring the negotiation space by (a) inviting relevant actors to participate and express salient concerns (e.g. users and customers); (b) selecting and instructing appropriate facilitators (e.g. designers, researchers or managers); (c) developing props in the form of different objects; and (d) ensuring alignment of those props with the material arrangement (e.g. a hospital ward or an office). As Figure 1 illustrates, the framework highlights the iterative nature of staging negotiations, meaning that negotiations are reinterpreted and reframed in subsequent staging rounds.

By viewing different interactions during the conceptualization process as spaces for negotiating concerns, the framework directs attention towards the content of an innovation process and the

continuous construction of value. It also illuminates how this construction process includes and excludes actors from diverse disciplines, departments and organizations as it moves across and within organizational boundaries and levels. We use this framework to investigate how spaces for negotiation and alignment may actively and intentionally be staged by various actors who are attempting to configure which negotiations are allowed to take place in open innovation processes. Furthermore, in the discussion, we use the framework to inspire action by presenting a repertoire of strategies that can be used to stage and navigate negotiations and reframing processes during concept development in open innovation.

3.3 | Method

Between 2014 and 2016, the first author of this paper engaged in several short-term periods of ethnographic research and participant observation (Pink & Morgan, 2013) of a large electronics company as it explored stroke care as a new business opportunity. The company had made a solid commitment to open innovation and actively promoted its engagement and ability to co-create solutions with customers and users worldwide. We adopted an exploratory approach of tracing and analysing the involvement of patients, doctors and other hospital staff in co-creation activities across different sites, including the company's headquarters in the Netherlands and two different hospitals in Denmark. The first author actively engaged in participant observation (Goffman & Lofland, 1989) in the form introduced by DeWalt et al. (1998) at specific moments of the design project. We engaged in multi-site ethnography (Marcus, 1995) through interviews and design interactions with eight hospital staff members (e.g. doctors and physiotherapists), seven patients, and two relatives at two different hospitals in Denmark. One interview with a stroke patient and relative was conducted in their private home.

This initial phase of the project resulted in many pages of handwritten notes, hand drawings and photos from interactions at the hospitals. Both before and after these engagements with stroke patients, staff and loved ones, the first author participated in more than 10 planning meetings, workshops and informal discussions with different members of the project team: the project manager, a researcher, UX and UI designers, programmers and 'people researchers' at the company headquarters. Through informal conversations with project team members, the author developed insights regarding activities and decisions made when the author was not present, as well as the organizational structure and project management tools being used.

In subsequent years, the first author was involved in testing an app developed as part of a spin-off project and conducted follow-up interviews at the company premises and on Skype. The third author also participated in some of the interviews and visited the company headquarters, thereby facilitating several reflection loops and providing another perspective on the empirical data. Discussions among all authors allowed for even more reflection. The SNS framework also emerged from these interactions and thus is built on both an empirical and a theoretical foundation.

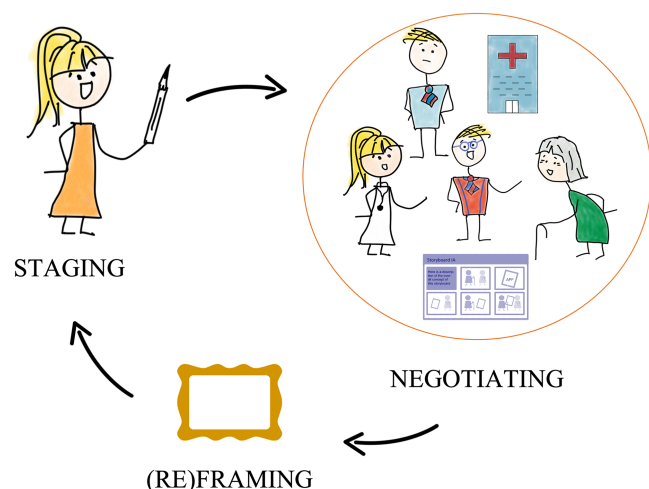


FIGURE 1 Iterative loops of staging, negotiating and (re)framing [Colour figure can be viewed at wileyonlinelibrary.com]

4 | CASE: FOCUS ON STROKE CARE AS A NEW BUSINESS AREA

In this section, we use the SNS co-design framework to analyse some of the central negotiations during the development of an app for stroke patients at a large international electronics company (Figure 2). The head of the company's healthcare section initiated and framed these activities as a new R&D project and encouraged project team members to 'focus on neurology wards at hospitals and identify opportunities within the stroke area to help patients recover at the hospital after having suffered a stroke'. This initial framing aligned with the company's overall strategy, which was to be involved in the entire health continuum by designing and delivering products and services to hospitals around the world.

The project team not only consisted mainly of researchers but also involved designers who were brought in to help transform the research findings into concrete products and services. Generally, the R&D activities of this particular company were handled by a research department and a design department, both of which served multiple divisions. Typically, the design department was responsible for re-designing current offerings such as scanners and lighting concepts. Their design process was similar to established new product design processes in other large organizations. The research department was responsible for conducting trials to verify the success of the current product portfolio and to gather new knowledge in strategic areas. However, sometimes a small project team of researchers and designers was tasked with identifying new co-creation opportunities with their customers, as was the case in this project. Such projects resembled front end of innovation activities focused on ideation and conceptualization into a broader solution space more than traditional new product development processes. This set-up provided more flexibility for exploratory endeavours and the co-creation of new opportunities with external actors. The initial step was to stage negotiations

around the problem framing, which involved identifying opportunities associated with stroke care.

4.1 | Engaging with experts: Business as usual

The researchers, who in this case were project leads, typically engaged with experts from the hospital system when conducting tests and trials at the hospitals. Rather than immediately engaging with stroke patients, the researchers did what they usually would have done and turned to their preferred lead users (i.e. neurologists from nearby hospitals) for their opinions on the subject. The researchers had good relationships with the neurologists. They often collaborated on quantitative projects to produce new knowledge about specific clinical topics or validate the impacts of new solutions. Thus, their usual way of working framed their interpretation of the given challenge and decisions regarding whom to invite to the negotiations. Hence, the negotiations were rather loosely framed to enable neurologists to identify challenges that could serve as future co-creation opportunities. The neurologists' main concern was to ensure that their patients recovered quickly, which typically required getting a lot of rest and limiting visits from loved ones and friends. According to the neurologists, the dilemma for patients was that they enjoyed visits from family and friends but quickly grew tired as a result. The researchers identified a co-creation opportunity in this dilemma, thereby aligning their network with that of the neurologists.

4.2 | Initial brainstorming

The researchers were excited that they had already gained valuable new knowledge from external actors and identified an opportunity for value creation as a result of negotiations with the neurologists. This

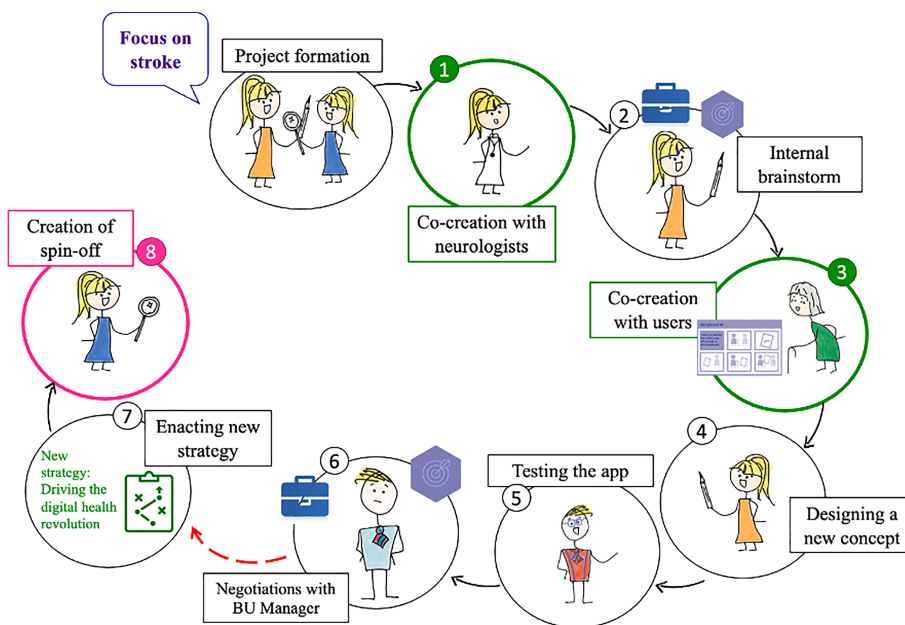


FIGURE 2 Illustration of the negotiations staged during the innovation project period [Colour figure can be viewed at wileyonlinelibrary.com]

knowledge was then translated into potential business offerings during an internal brainstorming session at the company's headquarters. Between their engagements with the neurologists and this workshop, the researchers had interpreted and reframed the neurologists' concerns into an opportunity for value creation labelled 'shortening visits from loved ones and friends at the hospital'. This reframing was used to structure the brainstorming session as well as the solution space, as designers and researchers were explicitly invited to generate ideas on how to shorten visits from loved ones. This brainstorming session yielded eight novel ideas of nudging visitors to leave after a certain amount of time or encouraging them to create a calmer environment in the hospital ward (e.g. by lowering their voices).

Interestingly, most of these ideas involved apps, screens and coloured lights—products that were already part of the company's portfolio. Although this initial brainstorming session was staged to clearly focus on customer value creation, the actors present were quite oriented towards value capture, which influenced the ideas brought forward. In this way, the company's overall business model, together with the company's portfolio, designers and researchers 'participated' in and framed the brainstorming session, thereby narrowing the solution space primarily to products from the current portfolio. In these ideas, there seemed to be a perfect alignment between the neurologists' concerns and the company's structure in terms of its business model, company portfolio and competencies.

After the workshop, the eight ideas were translated into tangible objects in the form of storyboards that (a) documented outcomes of the brainstorming session and captured the generated ideas and (b) could be used to engage staff and patients at the hospitals in new negotiations where these ideas would be tested.

4.3 | Challenging business-as-usual through exploratory engagement with patients and staff in neurology wards

At this point, the designers assigned to the project team took the lead and engaged with patients, loved ones and staff in the Netherlands, Belgium and Denmark in a co-creative manner to obtain a more profound sense of the concerns at stake for these actors. By staging negotiations with stroke patients, the designers hoped to identify their concerns and thus understand what would provide value for them during their time in the hospital ward. Knowledge about concerns, particularly those of stroke patients, was of particular value to the designers. These actors were perceived to play a central role as co-creators of new opportunities. Moreover, because care for stroke patients was an area of great concern for the lead of the healthcare division, any knowledge of stroke patients would be valuable in future projects as well. The negotiations with the stroke patients were staged to help the designers learn (a) whether tiring from numerous extended visits from family and friends was also a matter of concern for the patients and (b) whether patients felt that some of the eight ideas presented on the storyboards would support a speedy recovery.

First, the designer engaged with the neurologists and other staff to listen to their views and feedback and describe what she wanted to discuss with the patients. This helped the staff select patients who were well enough to participate in a dialogue about the storyboards. Generally, the staff shared the concern expressed by the neurologists that more rest would benefit the patients. However, having seen the storyboards representing the eight ideas, some staff members questioned whether it was appropriate for actors other than patients to limit visits, as they would not feel comfortable going against patients' wishes to visit with loved ones.

Next, the designer directly engaged with the patients and listened to their concerns. Stroke patients are in a very delicate state; some suffer from limb weakness, cognitive dysfunction, and language and spatial perception impairment, so engaging with these actors was not a straightforward task. To ease communication, the eight storyboards with the inscribed framing were circulated between the designer and the patients in the hopes that they would serve as intermediary objects (Vinck, 2012). To fulfil this role, the storyboards had to *represent* the ideas and the current problem framing, *mediate* between the designer and patients, and *translate* knowledge about the concerns and values of the involved actors. Due to the complexity of these storyboards (most of which included at least five illustrations) and the delicate state of the patients, they did not always fulfil the mediating role.

Nevertheless, during conversations with patients, the designer learned that the patients cherished visits from close relatives but preferred not to be visited by distant friends and acquaintances, as such interactions were more tiring for them. For example, one of the patients was grateful for a visit from her ex-mother-in-law; however, she told the designer that she found the experience extremely tiresome and would have preferred to be able to say no. In fact, many patients expressed frustration over their inability to control who came to visit and when.

Although a speedy recovery was a concern for both staff and patients, the designer learned that hospital staff were uncomfortable asking close relatives to leave and that patients were more concerned about controlling *who* came to visit and when, rather than shortening the length of visits. Thus, the eight ideas presented on the storyboards did not create much experienced value for either staff or patients. Tensions between value capture and value creation emerged, as solutions that promoted increased value capture for the company were not perceived as creating value for customers and users.

4.4 | Reframing the value creation opportunity

Having acquired this new valuable knowledge, the designer returned to the company's headquarters to interpret her findings and share her insights with the rest of the project team. She framed the space around the project's future direction with pictures and quotes from the field visits. She inscribed the concerns of the patients and hospital staff into these material objects and used them to represent and communicate her findings and users' stories. During these negotiations,

team members referred to several project management tools. For instance, one user experience designer said: ‘We should definitely update the user requirements specification and technical requirements specification to accommodate these new findings’. Updating (translating) these documents enabled them to represent the new insights and mediate between the project team and the programmers. Conversations about the empirical material led to a reframing of the overall problem or concern. It was no longer a matter of *shortening* visits from family members and loved ones but rather *giving patients control over who visits and when*. Addressing this concern would indeed create value for the patients by giving them more control and also would create value for the neurologists because their patients would not tire from unwanted visits. Thus, the network of patients and staff at the hospital became aligned with that of the project, building a larger network-in-the-making of allies in pursuing a new opportunity for value creation.

4.5 | Designing a new concept

With the support from the project team, the designers initiated a new brainstorming session with a starting point in the newly negotiated concern/opportunity. During this process, an idea began to take shape around an app that would allow patients to have more control over who would visit and when they would arrive. The designers illustrated and visualized this idea on a poster circulated and negotiated amongst the other project team members at a subsequent meeting. The poster represented the new idea, mediated between the designers and the rest of the project team, and was itself translated and shaped by inputs and insights from the rest of the design team. Through this process, the individual perspectives of design team members were translated into a common perspective on the value that this new solution would provide for staff and patients at the hospital. In this way, the aligned network around the new solution continued to grow. A nearly functional prototype of the app was developed based on the user requirements specifications (URS), thereby inscribing it not only with the value captured by the project team (i.e. knowledge about stroke patients) but also with value creation aspects (i.e. accelerating the recovery of stroke patients). The project team intended to use this prototype as a central element in new negotiations with patients and hospital staff and with internal actors in the organization such as business unit (BU) managers. The team first tested the prototype with hospital staff in the Netherlands and received very positive feedback.

4.6 | Value capture for the company

The company's stage gate-type model stipulated that new products or services must be pitched to the appropriate BU manager. Following up on encouraging results from interactions with potential future users of the app, the project manager staged a space for negotiating with the BU manager responsible for ensuring that new solutions meshed with the company's existing product portfolio, thereby

addressing the value capture element of the business model. The BU manager was very concerned about how this new app would fit into the established system represented by the product portfolio. Viewing the solution from a monetary value capture mindset, he was unable to see how the business model of this app would generate revenue, because an app is often an extra service provided for free or at a meagre cost relative to imaging products such as CT and MR scanners. The project team had enacted the value co-creation aspect of the company strategy and prevailing business model, whereas the BU manager had enacted the value capture aspect. Thus, this negotiation surfaced tensions between value *co-creation* and monetary value *capture* activities.

4.7 | Navigating the organization and creating a new business model

The design team felt discouraged; they had failed to align the networks because they had not translated the concerns of the BU manager and the value capture elements of the business model into their own network. Nevertheless, the team had obtained essential knowledge during the negotiations with neurologists and stroke patients which was highly valued, particularly by the researchers and designers involved. Time passed, but the project team members retained this valuable knowledge, which was represented physically by storyboards, the URS, a poster illustrating the new app, and the nearly functional prototype. All of these objects documented and represented the work that had been done and the knowledge gained, which enabled the app concept to remain fluid whereas the project team engaged in other R&D activities. Soon, a new project was initiated that again involved some of the preferred lead-users (i.e. neurologists), this time focusing on the diagnostics side of the stroke-health continuum.

Structural changes in the company followed, and new strategies and business opportunities were introduced. The CEO continued to advocate for involvement in the entire health continuum and ultimately introduced a new strategy of ‘driving the digital health revolution’. Through continuous interaction with neurologists, researchers discovered an opportunity to digitalize the cognitive tests conducted with stroke patients to determine their level of impairment. They were extremely eager to pursue this opportunity, as they recognized that they could address their own concern of contributing to research in the field by extracting and analysing enormous amounts of readily available data from cognitive tests. Thus, tapping into the potential offered by the new strategy, the researchers seized the opportunity to engage in further negotiations. This time, they involved the monetary value creation side of the company and highlighted an opportunity to develop a digital diagnostics tool for neurologists. Importantly, they also enacted their knowledge about neurologists' and stroke patients' concerns and designed the new diagnostics tool to allow stroke patients to manage their visits, thereby complementing their imaging products and the diagnostics tool.

The BU managers and other company members were very pleased with this new idea, as they saw how the ability to match and

analyse digital cognitive test results with CT and MRI scans would boost their imaging systems portfolio. Because a precise monetary value capture mechanism was associated with the new concept, the company was interested in pursuing it. Furthermore, the solution captured data that the company valued almost as much as revenue. So, while covering apparent value capture aspects, this opportunity also covered value creation aspects by addressing neurologists' concerns. The app would make it easier for them to analyse data and develop more effective recovery programs. Beyond these health benefits, the patients also would derive value from the capacity to manage their visits.

4.8 | Epilogue

Interestingly, this new solution resolved the tensions between value capture and value creation. However, to give the project more autonomy (and a more flexible business model), the company applied its open innovation logic to the situation and established a spin-off company focused on further developing, testing and promoting this solution.

5 | ANALYSIS

Our investigation of open innovation efforts involving many actors with multiple perspectives at the project level reveals several interesting insights. Applying and extending the SNS framework enables micro-level analysis which generates insights into the process of translating external knowledge into something that can be commercialized (West & Bogers, 2014). This translation process can be understood as a series of negotiations about the interlinked nature of problem framing and solution development, which are influenced by the value creation and value capture aspects of the business model. Furthermore, it enables reflection upon the navigational staging moves that allow managers and designers to navigate diverse concerns in an attempt to achieve network alignment, and eventually, commercialization.

5.1 | The staging negotiation spaces framework in an open innovation setting

The SNS framework helps to reveal the strategic preparatory staging efforts often neglected in open innovation literature on negotiation (Barchi & Greco, 2018). Until now, the SNS framework (Pedersen, 2020) has mainly focused on the efforts of the professional designer, which may be perceived as iterative steps of staging, facilitating and reframing negotiations with end-users and other actors in collaborative design projects. However, in response to the complexities and uncertainties entailed in managing open innovation projects (Bagherzadeh et al., 2021), the framework has been further developed to pay more attention to the strategic staging moves used to navigate

open innovation projects. Thus, whereas the framework contributes to the analysis of open innovation by providing a vocabulary to describe micro-level interaction processes (Felin et al., 2012), open innovation also extends and further develops the framework (see Figure 3).

The four staging moves labelled (a) to (d) in Figure 3 crystalize once the framework is applied in an open innovation setting:

- a. *interpreting* the problem/situation/value creation opportunity (matter of concern);
- b. *(re)framing* negotiations to motivate specific discussions (e.g. understanding actors' concerns about the problem);
- c. *producing objects* by inscribing this framing into different 'props', for example, design objects such as storyboards or design specifications intended to represent the investigated problem; and
- d. *inviting* other relevant actors to the negotiations, such as users, customers, project managers and so on.

Negotiation may entail circulation of the developed props and their potential enactment to facilitate the exchange of concerns (e.g. business models may frame negotiations as illustrated along the periphery of the negotiation space depicted in Figure 3).

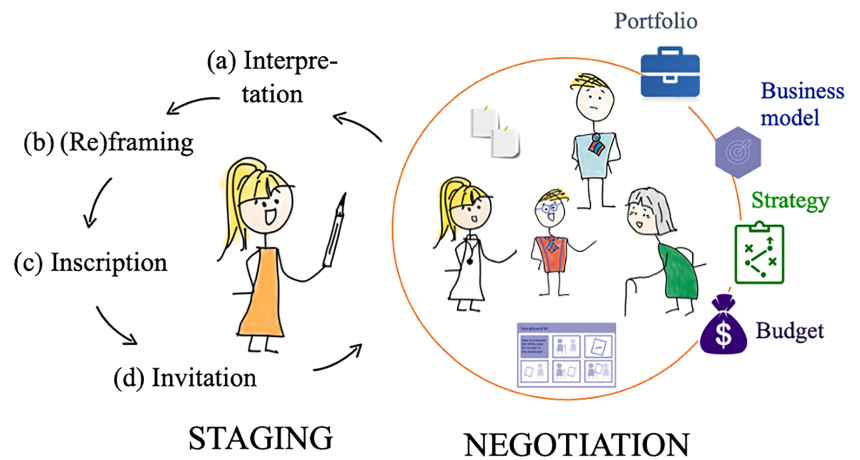
On another note, the analysis of the open innovation case study in question further develops and thus further expands the framework to focus on a designer's strategic staging efforts and includes an analysis of how stable networks (i.e. company structures) influence and frame staging activities. In this case, the company's product portfolio and business model were objects that framed the negotiations in line with the findings of Cacciatori (2012). But the case further illustrates that not every staging effort succeeds, as actors may try to counter-stage or counter-frame (intentionally or unintentionally) what can be negotiated, and new, unexpected opportunities may arise. The new company strategy created a negotiation space, and the project manager seized the opportunity to use the space to find a path forward for the new app. Thus, the case illustrates that staging moves (a) to (d) provide an actionable approach to strategically staging spaces for negotiation, and that project managers, designers and researchers should always be ready to (re)interpret new strategies or other opportunities that may occur by (re)framing the agenda or strategy, (re)circulating objects such as prototypes inscribed with captured knowledge and (re)enacting the new strategy accordingly.

To demonstrate the analytical and actionable usefulness of the framework, the rest of the discussion in this section is informed by steps (a) to (d) in Figure 3, together with reflections on negotiation and network alignment.

5.2 | Interpretation of concerns drives the co-evolution of problem framing and solution development

In the open innovation literature, scholars often portray problems as things that project teams can articulate and solve. 'In open innovation

FIGURE 3 Iterative loops of staging and negotiation [Colour figure can be viewed at wileyonlinelibrary.com]



projects, problem-framing refers to articulating a knowledge-seeker's problem into a technology need before revealing it to external scientific and technological communities, that is, solution-providers' (Lopez-Vega et al., 2016, p. 129). However, the case study reveals how diverse and sometimes conflicting concerns between actors are investigated to identify value creation opportunities (problem framings) and develop new value offers (solutions). Throughout the case, researchers and designers from the project team staged negotiations not only with patients, doctors and managers but also amongst themselves to align networks by encouraging important actors to voice their concerns. Moreover, as not all concerns were aligned, the designer, researcher and project manager navigated these concerns by using the knowledge gained from previous negotiations to iteratively develop and shape value creation opportunities and related value offers. Thus, rather than being a matter of merely articulating and analysing a problem and then searching for a solution (Guertler & Sick, 2021), value creation opportunities and potential value offers continuously co-evolve and are co-shaped by the concerns of multiple actors.

Using the vocabulary of the SNS framework, we may say that developing new value offers requires continuous interpretation and (re)framing of voiced and indirect concerns. Thus, in line with the first two 'steps' in the staging approach, managers and designers may (a) investigate and articulate their own and other actors' interpretations of the problem framing, and (b) frame negotiations based on this investigation while remaining attuned to 'invisible' framings that may also influence the negotiations and unintentionally support adherence to path-dependent practices (e.g. from the current company product portfolio) rather than deviation from them (Brønnum & Clausen, 2020; Garud & Karnøe, 2001) (see Figure 3).

5.3 | Inscribing appropriate materiality to circulate during negotiations

Interpretations of situated problems and solutions (in their different forms during the evolving conceptualization process) may be inscribed

in various types of materiality and circulated during negotiations to invite actors to voice their concerns and aspirations.

In general, the storyboards facilitated interesting negotiations. They enabled the designer to identify multiple concerns, such as patients' desires to manage their visits, which eventually helped the project team recognize the need to reframe the problem. Thus, successful intermediary objects (Blanco & Boujut, 2003; Vinck, 2012) captured and inscribed external knowledge and insights and materially represented them during the project period. In addition, URS, a central element in the innovation process related to handling external knowledge (Zynga et al., 2018), was actively used to frame the negotiations and the solution space while accumulating user insights. Together with the storyboards and a nearly functional prototype, these objects facilitated project-to-project learning (Keinz et al., 2021) by inscribing the captured knowledge and experiences and maintaining the capacity to harness them once a new opportunity emerged with the introduction of the new company strategy.

The case further illustrates how, if appropriately designed, prototypes and storyboards function as low-cost probes (Eisenhardt & Brown, 1998) with the potential to reduce uncertainty about the concerns and needs of users and customers by playing an active role in facilitating negotiations in which such concerns are expressed (den Ouden, 2012). Importantly, these objects must fit with other configuring elements in the negotiation space (Pedersen, 2020). For instance, the eight storyboards produced as a result of the brainstorming session were used at the hospitals to encourage and help patients, loved ones and hospital staff voice their concerns. But whereas the storyboards were generally understood by hospital staff and helped them voice their concerns, they failed to serve as intermediary objects (Blanco & Boujut, 2003) between the designer and some of the patients who did not have the cognitive capacity to decode them due to their fragile state. The complexity of the storyboards may have been due to their dual purpose, as they were also used to document the project. Using design objects for documentation purposes surfaced a dilemma, as the same objects were not appropriate for both documentation and engagement with fragile users. Therefore, another central staging move (step (c) in Figure 3) is to produce appropriate

objects such as storyboards and prototypes to engage actors in the negotiations and help them voice their concerns.

5.4 | Business models (counter)frame negotiations and may be enacted selectively

In this case, as in open innovation projects more generally, an important role was played by business models, which are enacted purposefully and in various ways by different actors. It is generally assumed that a business model should organize management's understanding of a firm's value creation and value capture activities (Zott & Amit, 2010) or function as a recipe (Baden-Fuller & Haefliger, 2013) in the hands of higher-level managers (Foss & Saebi, 2017; Teece, 2010) to link the various elements and dimensions of organizational activities such as value creation and value capture. Yet, by tracing the actions of the project-level actors, our analysis shows how elements of the business model were enacted selectively (Brønnum & Clausen, 2020; Law, 2002) and thereby interpreted and framed in different ways by different actors across the organization. The researchers, designer and project manager enacted the business model primarily in terms of value creation by engaging neurologists and patients in exploring opportunity spaces. In contrast, the BU manager enacted the business model primarily in terms of value capture by linking it directly to the company's current product portfolio. This is in line with Massa et al. (2017), who found that several different interpretations of a business model can co-exist in an organization.

Our case extends this understanding by showing that interpretational schemes are not only cognitive but also social and relational (Pedersen, 2020), as they not only exist in the heads of specific project team members (e.g. designers and managers) but also are influenced by members' positions in the network and by the staging efforts of other actors. Thus, as part of their staging efforts, managers and designers must consider the central role of business models and their multiple enactments in (counter)framing this continuous negotiation during the conceptualization process. A central aspect here is to involve and engage actors at the right time in the project.

5.5 | Inviting actors across levels in due course

The traditional management literature and studies on project management in open innovation contexts stress the importance of considering various actors and their perspectives in stakeholder mapping or stakeholder analysis exercises (Bryson, 2004; Guertler & Sick, 2021). The staging approach, however, not only involves mapping and analysing different actors but also actively engaging them in problem framing and conceptualization. This applies to inter- and intra-organizational actors, as emphasized by other scholars (Barchi & Greco, 2018; Guertler & Sick, 2021).

For instance, framing the aim of the open innovation project as developing solutions for stroke patients gave neurologists a specific direction that was later reframed during several negotiations. The case

also reveals the importance of involving higher-level actors in conceptualization activities in due course. For instance, it might have been beneficial to involve the BU manager earlier to understand his criteria for supporting a new value offer. The project team only enrolled management-level actors in the network of the new value offer when they enacted the new digital strategy. This points to a need for managers and designers to simultaneously navigate between actors and concerns from the field and the firm level where the new strategy is enacted. This is often challenging, because many divergent concerns are at play simultaneously.

Thus, an essential lesson for project managers is that open innovation typically entails staging negotiations with actors from different levels and organizations at the right moments to allow concerns to be voiced and thus influence the problem framing and solution space. In the language of the SNS framework, another central part of staging is to identify important actors and involve them in due course (step (d) in Figure 3).

Having discussed each of the four staging moves suggested by the SNS framework (steps (a) to (d) in Figure 3), we discuss our contribution to strategic network alignment at the micro-level in the next section.

6 | DISCUSSION

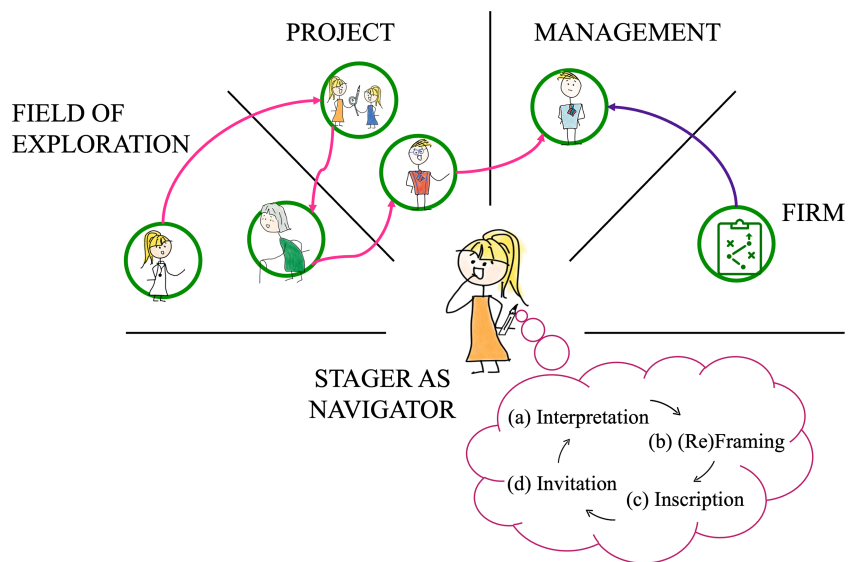
6.1 | Understanding the strategic staging of negotiations as a new open innovation capability

To sum up, the micro-level negotiations analysed in the case have information gathering and network alignment at their core (Law & Lodge, 1984). Although researchers who study intra-organizational negotiations in open innovation typically discuss the acceptance of external ideas as part of absorptive capacity (Barchi & Greco, 2018), the SNS framework instead reveals the strategic efforts of *stagers*, for example, project managers, designers and researchers, as they attempt to navigate the design process, including the multiple concerns of actors (see Figure 4). As the case illustrates, strategic navigation entails staging efforts that involve actors and objects across different levels. When actors and objects from all levels are engaged in strategically staged co-creation activities, they typically see value in the new solutions and thus become part of an aligned network. On this basis, we may understand the ability to strategically stage negotiations as a capability that increases the organization's absorptive capacity (Cohen & Levinthal, 1990).

6.2 | Contributions to the microfoundational perspective

The microfoundational perspective emphasizes the study of micro-level activities as an explanation of variations in macro-level phenomena such as open innovation capabilities and absorptive capacity (Bogers et al., 2018; Felin et al., 2012; Felin & Foss, 2019; Lewin

FIGURE 4 Strategic navigation involves iterative staging moves (a–d) at and across levels, as observed in the project [Colour figure can be viewed at wileyonlinelibrary.com]



et al., 2011; Zynga et al., 2018). Our findings contribute to micro-level research in open innovation by shedding new light on and extending our understanding of the role of interactions as a key micro-foundational component (Felin et al., 2012). As we have shown, interactive micro-level processes involve multiple actors, the enactment of business models, and design objects in the negotiation of value creation and capture.

Zynga et al. (2018) emphasized the combined role of dedicated individuals, a formalized innovation process, and organizational structures to build open innovation capabilities. Thus, we suggest adding ‘stagers’ to the list of individuals involved in open innovation, which includes gatekeepers and scouts (Zynga et al., 2018), and facilitators, tacticians and sensegivers (Ollila & Yström, 2017). Although we agree on the role of individuals in driving development, we emphasize organizational actors’ abilities to make staging moves and shape network alignment processes, including interactions with external and internal actors and knowledge objects, as playing critical roles in the development of open innovation capabilities. The SNS framework may offer guidance and act as a reflexive tool to support organizational learning processes.

The microfoundational perspective has been used primarily to examine effects of micro-level elements at the macro-level (Felin et al., 2012). Rather than measuring effects in the form of open innovation capabilities or absorptive capabilities at the macro level, we have unpacked the process of aggregation and trickle-down effects across levels using our qualitative approach to investigate staging moves, negotiations and associated outcomes. In this way, our findings build on and contribute to the microfoundations literature to inform open innovation at the project level.

7 | CONCLUSION

We set out to investigate how managers and designers may navigate diverse concerns during the conceptualization process in open

innovation projects. Based on qualitative data analysed using the SNS framework, our research reveals the effects of micro-level interactions at the project level in terms of attempts to align networks to support the conceptualization of new value offers. We have expanded the framework by identifying several staging moves explaining the translation of multiple concerns and knowledge of internal and external actors into a stable network that aligns conflicting value capture and value creation perspectives. These staging moves are

- interpreting concerns, thereby driving the co-evolution of problem framing and solution development;
- (re)framing negotiations based on these interpretations;
- inscribing appropriate materiality to circulate during negotiations and paying attention to how key objects like business models are selectively enacted; and
- inviting actors across levels and networks in due course.

We have unpacked the process of conceptualizing value offers in open innovation and contributed new insights regarding micro-level staging moves and negotiations for translating knowledge into new solutions as they evolve in an open innovation project.

7.1 | Implication for practitioners

The SNS framework offers project managers, researchers and designers a tool for reflecting upon existing practices and strategically staging future innovation projects. The framework does not offer a specific recipe, but a strategic and actionable approach for engaging multiple actors in innovation processes. It suggests that managers and designers stage negotiations of concerns during the conceptualization process using an iterative repertoire of interpretation, framing, inscription and invitation. From this perspective, the ability to strategically stage negotiations can be understood as a capability that increases an organization’s absorptive capacity.

7.2 | Implications for scholars

The expanded SNS framework provides insight into the preparatory aspects of negotiations. It would be interesting to follow up on this qualitative perspective and trace whether learning may travel from one project to another and eventually spread across organizational levels. Similarly, it would be valuable to explicate and validate the role of ‘stagers’ in similar/other settings. The role and enactment of objects and concepts such as sustainability and aspects of the circular economy could also be investigated further to understand how a staging perspective and associated negotiations may enable sustainable transitions.

7.3 | Limitations

Like any study, ours has some limitations. For example, our paper draws on a single case study of a project in a large multinational company with an explicit open innovation commitment. Thus, the generalizability of our findings may be limited. Also, this study is done in a particular context and sector that may affect the dynamics of the collaborative innovation processes. Finally, it would ultimately be useful to better understand the contingencies and boundary conditions under which the identified processes hold, which could be studied by future research with a broader focus.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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