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Emergent Coopetition from a Sensemaking Perspective: A Multi-Level Analysis

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Emergent Coopetition from a Sensemaking Perspective: A Multi-Level Analysis

Highlights

- This study explores the emergence of coopetition in a complex innovation network context
- The findings offer a rare empirical exposition of the impact of history on coopetitive exploitation
- With a multi-level approach, the case study exposes the navigation of coopetitive tensions stemming from the historic development of the coopetitive norms
- Companies that possess a coopetitive mindset from their conception are distinct from those that only develop a coopetitive mindset after their conception
- Adopting a narrative and visual process mapping approach, we also reveal the impact of time on coopetitive interactions

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1. INTRODUCTION

This article presents a conceptualization of multi-level emergent coopetition from a sensemaking perspective. In recent years, coopetition has become the subject of very significant discussion. For example, three special issues of *Industrial Marketing Management* focus on this subject (Bengtsson & Kock, 2014; Bengtsson et al., 2016; Le Roy & Czakon, 2016) and a double special issue in *International Studies in Management and Organization* under the guest editorship of Le Roy et al. (2016). A dominant perspective is dyadic and simultaneous (Bengtsson & Kock, 1999), often favoured particularly in studies of high-technology sectors (Gnyawali & Park, 2011). A somewhat more neglected perspective is contextual (Bengtsson et al., 2010) and grounded in Brandenburger and Nalebuff's (1996) value net and the interdependencies among different groups of networked actors. It is to this later perspective that a contribution is furthered in this article.

Lundgren-Henriksson and Kock (2016b, p. 98) recently comment that “coopetition can be approached as a strategic change that consequently triggers sensemaking processes in order to reach a shared understanding that enables actions and interactions.” Studies of how cooperative arrangements function rarely explore how they came into being (Tidström & Hagberg-Andersson, 2012; Tidström & Rajala, 2016). Dahl (2014, p. 272) pointedly notes to the lack of “research going beyond the motives behind [simultaneous] inter-competitor cooperation and explaining cooperative interactions from a process perspective as the relationship unfolds over time.” Dahl also emphasizes the importance of the past for understanding coopetition, because “competitors mutually store and learn from experiences created while cooperating and competing with each other.” A key contribution in this article is to take an individual level focus, but to further consider how sensemaking and sensegiving plays out at different levels of analysis, and therefore how a cooperative mindset (Gnyawali & Park, 2009) emerges from the sensemaking of individuals in a multi-layered context (Lundgren-Henriksson & Kock, 2016b). To explore the emergence of cooperative sensemaking, we explore five cases of science-based small and medium-sized enterprises (SMEs) that share a complex innovation network, or innovative ecosystem.

We undertake a processual analysis to expose the motion flow of emergent sensemaking in a cooperative situation (Andersen & Medlin, 2016). Rather than adopting the rather narrow, linear assumptions of lifecycle model analysis (after Khan & Nicholson, 2014), we proceede

under teleological assumptions underpinned by the principle of equifinality (Von Bertalanffy, 1968)—that several paths may be taken between any two points in time. Accordingly, we consider the impact of time ‘on’ coopetition rather than the coopetitive interaction ‘over’ time.

To establish the conceptual framing, we first outline the two main bodies of thought on competition before briefly reviewing how sensemaking can be a useful perspective when trying to understand the emergent properties of coopetition. We then show how emergence and sensemaking can play out at different levels of analysis. Next, we outline our methodology and explain how we study coopetition from an emergent, process perspective. The presentation of the findings features both narrative and visual process mapping approaches to the processual data. Finally, we highlight the main contributions of this study, its limitations, and some potential areas for further study.

2. CONCEPTUAL BACKGROUND

2.1. Approaches to the Study of Coopetition

Coopetition has been argued to represent a new paradigm that encapsulates the strategic management of tensions among simultaneous, interfirm forms of collaboration and competition. The related strategies therefore contain “contradictory logics of interaction” (Raza-Ullah et al., 2014, p. 190) and involve the strategic management of opposing (competition and collaboration) forces between multiple companies (Fernandez et al., 2014). According to one extant perspective, coopetition entails simultaneous collaboration between two companies (Bengtsson & Kock, 1999) such that it occurs at a dyadic level, for example, when two competitors cooperate within a strategic alliance for new product development whilst competing against each other in the marketing of that product (Kylänen & Rusko, 2011). Most articles adopt this perspective, especially when they study high-technology sectors (Gnyawali & Park, 2011). Studies in this tradition prioritize the process by which cooperation and competition shift in relative strength and influence at different points in time (Bengtsson et al., 2010).

A second perspective instead defines coopetition contextually, with studies that:

“...tend to describe the competitive and cooperative part of the relationship as divided between actors; that is, a firm in a certain context can have some cooperative and some competitive relationships with other firms in this context, which, when combined, give rise to a “coopetitive situation, not a coopetitive interaction” (Bengtsson et al., 2010, p. 199).

This contextual definition of coopetition is broader than the simultaneous perspective; it also encompasses a value net of multiple actors (Brandenburger & Nalebuff, 1996). Interactions in these value nets involve customers, suppliers, complementors, and competitors, which implies the potential for dyadic, triadic and network interactions (Gnyawali et al., 2006; Pathak et al., 2014; Yami & Nemeh, 2014). The value net contains multiple, direct and indirect, horizontal and vertical interactions. Because this contextual perspective considers environmental interactions, it predicts that specific sets of competitive and cooperative relationships and interdependences influence the perceptions of individuals, groups, or organizations. Therefore, these entities engage in coopetition (Bengtsson et al., 2010).

2.2. Emergent Coopetition and Sensemaking

Emergent coopetition has been considered as unplanned competition in a cooperative settings (Czakon, 2010). In most conceptualizations, ‘emergence’ marks a simple contraposition to ‘deliberate’ coopetition. Most research focuses on deliberate cooperative strategies, designating the emergent strategies as the first stage of a cooperative process (Mariani, 2007). Tidström and Rajala (2016) for instance note a series of stages and identify a pre-coopetition phase and later stages, such as silent, active, and forced coopetition phases. However, lifecycle models have been identified as rather linear, unidirectional, and predictable (Bengtsson et al., 2010). Such exposition has, in our view, focussed on the “continuously evolving in strength and balance” (Dahl, 2014, p. 273) between competition and collaboration, but less so on the cognition and actions taken by actors engaged in strategizing in these cooperative arrangements. We propose that this distinction pertains to the difference between expositions of a coopetition ‘over’ time and expositions of the impact of time ‘on’ a cooperative context, and on those involved in it. Put another way, existing insight is limited in not allowing for an understanding of how actors make sense of an emerging process of change.

A sensemaking approach has been argued to make the link between cognition, action, and outcome (Abrahamsen et al.; 2012; Medlin & Törnroos, 2014). A key element of studying emergence is to look for features that could not have been anticipated by individuals with reference to preceding events (Garud et al., 2015). We therefore seek to understand how agents collectively and individually make sense of a cooperative interaction as it emerges (after Lundgren-Henriksson & Kock, 2016 a, b) and this marks a more nuanced approach to emergence as can be gleaned when considering emergence as a simple contraposition to

deliberateness. Lundgren-Henriksson and Kock (2016 a) also speak of the iterative cycle of sensemaking and sensegiving, where a cognitive orientation towards coopetition is derived and transmitted. We posit that there is much left to learn about this iterative process and, in particular, how it plays out at different levels of analysis. We draw on two specific aspects of sensemaking in our study, the principle of separation in managing coopetitive paradoxes and the identification of benefits in coopetitive arrangements.

First, the principle of separation (Fernandez et al., 2014; Yang et al., 2014) notes that any given person may find it difficult to internalize and manage the simultaneous experiencing of competition and cooperation, whereas different individuals in the same organizations may do so more successfully if the facets of competition and collaboration are separated. The ability to internalize and manage such tensions may be a basic principle of ambidexterity (Yang et al., 2014), and we suggest such ambidexterity is an important facet of individual sensemaking. Therefore, because coopetitive paradoxes materialize at various levels—individual, industrial, network, relational, and company-specific (Raza-Ullah et al., 2014)—we seek to understand how coopetition emerges at different levels.

The second aspect of sensemaking in coopetition is the retrospective and projective assessment of benefits accrued. In addition to mutual benefits accrued through collaboration, Rai (2013) notes privately accrued value creation in interfirm alliances. Two discreet sources of value fall outside the boundaries of a simultaneous coopetitive interaction, which Rai (2013) refers to as private competitive benefits and private collaborative benefits. More recently, Volschenk et al. (2016) call for the consideration of socio-economic (public) benefits that accrue due to coopetition. A contextual perspective demands consideration of all elements (collaborative mutual benefit, private competitive benefits, private collaborative benefits, and public coopetitive benefits). An understanding of how these different value types emerge over time represents an urgent research priority in the coopetition literature. In particular, the notion of intertemporal coopetition (Ansari et al., 2016)—the expectation of commitments made in the present in expectation of future benefits—needs further investigation. However, like Garud et al. (2015), we are compelled to consider the emergence of such value at different levels of analysis. We next turn to the subject of multi-level coopetition.

2.3. Emergence and Levels of Analysis

At the head of this section we aligned ourselves with the ‘contextual’ perspective on coopetition (Brandenburger & Nalebuff, 1996) and in the preceding section, we stated our

interest in understanding the emergence of coopetition from a sensemaking perspective. We suggest that the contextual perspective demands consideration of multiple levels of analysis. Emergence also has been argued to occur at multiple levels of analysis (Bengtsson et al., 2010). Tidström and Rajala (2016, p. 36) propose that “from a multilevel perspective, coopetition strategy can be related to individual, organizational, inter-organizational and network levels,” and they associate these ideas with micro, meso, and macro levels of analysis. A key issue when exploring emergence is that agents may not be aware of forces compelling them due to their existence in or between different levels of analysis. Bengtsson and Kock (2014, p. 184) recently suggest that:

“A multilevel approach might provide a richer and more complete understanding on coopetition by explaining how the phenomenon at one level of analysis affects the other(s).”

The overwhelming dominance in coopetition studies, quite understandably, at an inter-organizational level, is akin to a meso-level (and simultaneous) consideration (Bengtsson & Kock, 1999), often favored in studies of high-technology sectors (Gnyawali & Park, 2011). The contextual perspective on coopetition that we favour in this study instead arguably encompasses more macro-level contexts such as networks (Rusko, 2014; Velu, 2016) and the more contemporary and underexplored concept of ecosystems (Ansari et al., 2016; Ritala et al., 2014). The ecosystem concept would seem to be of increasing importance in high-tech sectors where coopetition is conducted around digital platforms where direct relationships may not exist between key complementors. Ansari et al. (2016, p. 1831) note that:

“The task of managing such cooperative relationships is all the more challenging in systemic industries with multisided platforms and complex ecosystems”.

The iterative process of sensemaking and sensegiving may flow from one network or ecosystem actor to another, but there is little help in current literature on which to build an understanding. Dahl (2014, p. 272) points to the interplay between inter-organizational and external factors in sensemaking when she states:

“How and why do cooperative interactions between competitors change as the competitors acquire new experiences from mutual cooperation, and their external environment changes?”

To understand the iterative sensemaking processes would seem to require a deeper understanding of the individual-level of analysis in coopetition, a level that is sorely underrepresented in either the simultaneous or contextual perspectives. The mindset concept

was introduced into the coopetition literature by Brandenburger and Nalebuff (1997). Lundgren-Henriksson and Kock (2016b) speak of a *coopetitive mindset*, and this would seem to be an essential starting point in undertaking micro-level analysis at the level of the individual sensemaking. Gnyawali and Park (2009, p. 323) suggest that:

“Firms led by executives with a co-opetition mindset are more likely to perceive coopetition opportunities and help other managers develop a co-opetition mindset and therefore more effectively manage the dynamics of co-opetition.”

A coopetitive mindset may influence when and how companies engage in coopetition, and this mindset appears to be a facet of individuals and organizations. We see little study of how a coopetitive mindset emerges from individual sensemaking and indeed how a coopetitive mindset permeates through organization, network or ecosystem through a process of sensegiving. Lundgren-Henriksson and Kock (2016 a, p. 184) note that investigations have not “moved downward to lower levels in the organization to investigate the day-to-day activities and challenges of middle managers in particular.” Garud et al. (2015) also emphasize the actions taken at the level of the individual may play out at more macro levels. For instance, the principle of separation and the perceptions of benefits would seem to need to be understood at a micro-level before being traced up to their meso and macro-level effects. Each individual, however, has a contextual understanding of different levels of the coopetitive context and we consider in this article, organization (and inter-organizational), network, and ecosystem levels.

We thus propose next to outline a process methodology for investigating emergent coopetition from a sensemaking perspective and we do so from multiple levels of analysis which include individual, organizational, network, and ecosystem. By focusing on individuals in our analysis, we expose how the process of sensemaking and sensegiving permeate through different levels.

3. METHODOLOGY

3.1. Process Theorizing and Conceptual Framework

We adopt the definition of *process* by Pettigrew (1997, p. 338) as a “sequence of individual and collective events, actions, and activities unfolding over time in context.” Guided by Langley (1999), we apply narrative, temporal bracketing, and visual process mapping approaches to identify stages of the process (see also Makkonen et al., 2012). With our initial research questions, we sought to investigate communities of practice, using retrospective accounts of respondents as evidence (Golden, 1992, 1997). In an initial pass, free coding

identified several themes related to coopetition; that is, coopetition emerged as a theme from the transcripts but was not a specific focus of the interview protocols. For the second pass, the interviews were recoded to identify concepts related to coopetition, which included many allusions to processes. Therefore, in the third pass, we applied a broadly defined temporal bracketing to identify phases of emergent coopetition, as depicted in Figure 1, which is thus derived both empirically and conceptually.

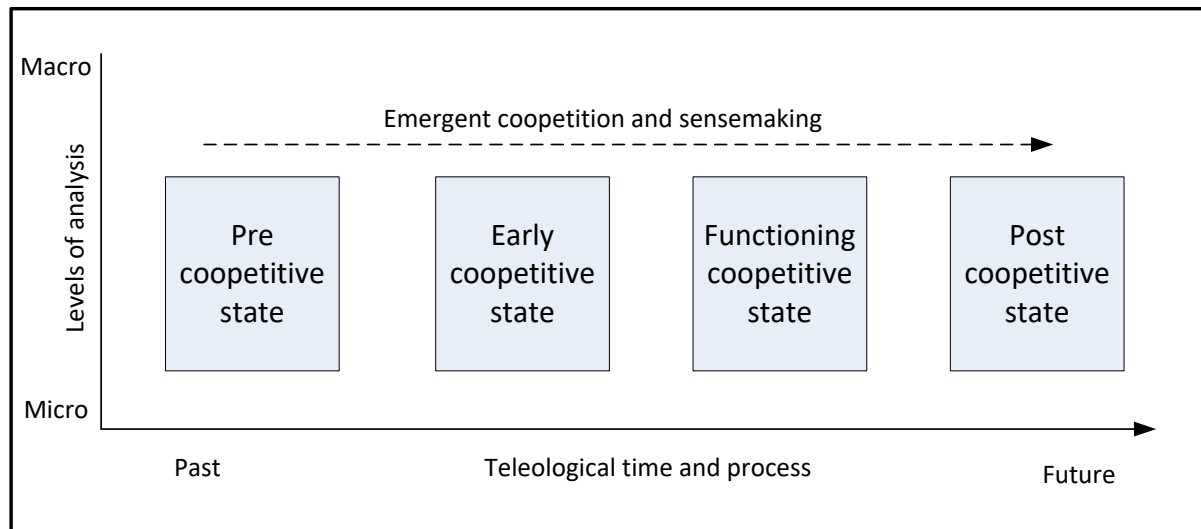


Figure 1. Conceptual framework

Using Figure 1 as a template and a narrative theorizing approach, we present actual quotes from respondents that relate to the tentative phases. We conducted additional documentary analyses of the companies, too: reviewing news articles, scientific literature, promotional material, and each company's website. Accordingly, we developed the summative process map that we present subsequently in Figure 2. Furthermore, we acknowledge criticisms of lifecycle models as too static and deterministic, such that they do not allow for teleological emergence (Khan & Nicholson, 2014). Thus, with our processual analysis, we attempt to inculcate the notion of equifinality (Von Bertalanffy, 1968) to recognize the potential for different routes to an undefined point in the future.

Our visual process map (Figure 2) accordingly is based on the teleological underlying assumptions (Van de Ven & Poole, 1995) and represents a summative account of our findings. This combination of techniques challenges some dominant assumptions in coopetition literature; it also reveals the motion and flow of coopetition (Andersen & Medlin, 2016) as an emergent phenomenon.

3.2. Methodological Procedures

The research presented in this article relies on a qualitative, multiple-case study methodology (Yin, 2013), which is appropriate because we study complex phenomena in a specific context (Baxter et al., 2008). An interpretive approach can help us understand the meanings and nuances associated with the experiences of the actors involved (Hopkinson, 2015; Stake, 2013); it reflects a social constructionist epistemology in relation to time and process (Järvensivu & Törnroos, 2010, Tidström & Hagberg-Andersson, 2012). We conceive of time as socially constructed, and we define quality “in terms of the plausibility of the story and the overall argument” (Myers, 2013, p. 78). We used a purposive sampling criterion (Palys, 2008) to recruit the 16 participants for this research (Table 1), each of whom worked for one of the five science-based SMEs (Table 2).

Table 1. Participants

Company	Participants	Gender	Years with Company	Role in the Company
MediTest	Managing Director	Male	15	Founder and medical scientist, responsible for overall strategy
	Technical Manager	Male	15	Testing and commercialization of medical diagnostics equipment
	R&D Manager	Male	7	New product development
	R&D Scientist	Female	7	Medical diagnostics testing
	R&D Technician	Male	4	Creating and testing reagent products
NanoTech	Managing Director	Male	9	Co-founder and qualified accountant responsible for strategic development
	Technical Director	Male	9	Co-founder and development scientist responsible for nano-particulate dispersions and ultra-stable emulsions
PhotoCat	Managing Director	Female	8	New business and market development
	Technical Director	Male	8	Founder and scientist responsible for developing photo-catalytic water treatments
RadCom	Chief Technical Officer	Male	10	Design and development of new radiation detection products
	New Technology Manager	Male	13	Co-founder, responsible for pre-commercial technology development
	Materials Manager	Male	8	Process development and product testing
	Technical Manager	Male	12	Overseeing quality control testing during detector manufacture
SensSol	Managing Director	Male	11	Founder, responsible for strategic development of gas sensor solutions
	Design Engineer	Male	7	Development of tools for measuring ultra-precision electrical parameters for gas analyzers and sensors
	R&D Engineer	Male	5	New product development

Table 2. Details

Company	Employees	Turnover	Sector	Company Age	Products/Services Offered
MediTest	14	£1.2 million	Biotechnology	15 years	Manufactures a range of in vitro diagnostic products to detect, prevent, and monitor several medical conditions related to haemostasis and platelet function.
NanoTech	4	Not available	Nano-technology	9 years	Produces customized nano-particulate dispersions and ultra-stable emulsions for use in a wide range of industries
PhotoCat	2	Not available	Photo-catalysis	8 years	Provides products and solutions based on photo-catalysis, a hybrid advanced oxidation process (AOP) for water and wastewater treatment
RadCom	60	£2.4 million	Semiconductor manufacture	13 years	Design and manufacture of radiation detection equipment, such as digital color x-rays and gamma ray detection and imaging
SensSol	52	£6 million	Gas sensors and analyzers	36 years	Design and manufacture of gas sensors and analyzers in various environments, such as commercial diving or offshore industry

The 16 respondents represented a wide range of managerial experience and expertise. Each interview lasted between one and two hours. The collected data were anonymized to ensure confidentiality, and each respondent received a synopsis of the research project and signed consent forms, confirming their agreement prior to the interview. The recorded interviews were transcribed; we then used immersion and crystallization to assess the data. Immersion is a reflexive technique to ensure the validity of qualitative data (Borkan, 1999); researchers immerse themselves in the data they collect by reading or examining some portion in detail. Crystallization (Richardson, 1994) instead is the process of temporarily suspending the process of examining or reading the data (immersion) to reflect on the analysis experience and identify or articulate patterns or themes noticed during immersion. These complementary processes continue until all the data have been examined and the patterns and claims that emerge from the data are meaningful and can be well articulated and substantiated. With this immersion/crystallization approach, we ensure reflexivity in both the collection and the analysis of our study data.

To ensure rigor, our qualitative research also is guided by the Gioia methodology (Gioia, Corley & Hamilton, 2013) and Gnyawali and Song's (2016) recommendations regarding

rigour in coopetition studies. In particular, we denote the boundary conditions of the coopetition we study (i.e., the network and ecosystem) and highlight that the sampled companies are all high-tech SMEs in a specific region in northern England, with global connections through their industrial company–level linkages. Therefore, the boundaries of our study occur at the network and ecosystem levels of analysis. With our rich respondent quotes, we illustrate the authenticity of our findings and derive a conceptual framework (formative and summative) to establish the potential for greater analytic generalizability (Yin, 2013), beyond our local study context.

4. FINDINGS

The structure we use to present our findings reflects the time-based conceptual framework in Figure 1. With a narrative account, we reveal the impact of time on coopetitive interactions; the visual process map in Figure 2 then indicates the motion and flow of coopetitive interactions over time. In Table 3 we identify the companies associated with different subphases of Phase 1. We use the term “phase” loosely to refer to motion, even though we do not identify definite start or end points to these phases.

Table 3. Companies associated with different subphases of Phase 1

Progress through Phase 1	A	B	C	D	E
Most closely associated with Phase 1a	*	*			*
Most closely associated with Phase 1b			*	*	

4.1. Phase 1a: Competitive Uncertainty

Lundgren-Henriksson and Kock (2016b) acknowledge the importance of individual-level sensemaking in cooperative processes. We identify a key aspect of sensemaking as triggered by a cognitive state of competitive uncertainty—a doubt as to the effectiveness of past competition based interaction. Past experience can influence future coopetitive interactions when the participants contrast “their own changed views of competition with the established mindset of the past” (Lundgren-Henriksson & Kock, 2016b, p. 102). At an individual level, such competitive uncertainty often was triggered by disruptive technological developments in their networks or ecosystems, for instance, when they fear that competitors are capable of outspending them on R&D:

“We’ve already talked about [collaboration]. Instead of them investing shed-loads of money in doing [R&D] themselves, if you like, we collaborate on it. If it really takes off, we either continue to manufacture for them or they do it themselves.”

(Technical Manager, MediTest)

We associate a key feature of sensemaking in this phase as being reactive at the micro- and meso-levels from events at a macro-level. A further motive was triggered at a meso-level, when it became apparent that having developed a product, the company lacked resources to exploit it. For example, NanoTech required the services of a competitor that understood the technology it was trying to develop and could offer testing services to help it commercialize its innovation:

“We received some money for basically proof of concept. So some of that money was used to see whether [our] machine works or not. We wanted to do that on live projects rather than just little bits of material, we wanted to get straight into the marketplace and work with people [competitors] we know who could provide us with a testing service and offer feedback.” (Managing Director, NanoTech)

Other companies, such as SensSol, also demonstrated a reactive approach in their use of outsourcing if they lacked expertise: “We want to ... capture their skills and expertise and creativity to the benefit of the company” (Managing Director, SensSol). Therefore, for these technology companies, R&D activity is the first point in the value chain at which competitive intent emerges, and occurs in what we call the competitive uncertainty phase. In this phase, the rules of competition come into question, and other interaction methods are considered, which may or may not include coopetition. The emergence of coopetitive sensemaking in this phase emerges due to macro-level stimuli triggering doubt as to the viability of pure competition as a sustainable mode of interaction at a micro or meso levels. Individuals (usually senior managers) then began to explore coopetition as an option and, as they developed a coopetitive mindset, passed their experiences to others in the company. This iterative process of sensegiving and sensemaking was greatly enhanced when other actors linked through direct network relationships possessed a coopetitive mindset, and where the norms of the broader ecosystem actors also possessed a collective coopetitive mindset. This phase merged into phase 2 when the embryonic development of a coopetitive mindset at a micro and meso-level is evident, and which subsequently leads to more proactive exploration of competition possibilities.

4.2. Phase 1b: Born Coopetitive

By considering coopetition as an emergent phenomenon, we investigated the origins of a coopetitive mindset. In some cases, a coopetitive mindset had developed having passed through the competitive uncertainty phase of sensemaking, but in others, it seemed evident from the very birth of the company. Thus, in Figure 2 we separate the early phase of emergent coopetition into two facets and highlight a notion of being *born coopetitive* in this section. In general, we identified that a coopetitive mindset increasingly was evident in the studied sectors, in response to previous ventures, peer influence, and the less relational ecosystem context of the tech sector. Hence, we feel it is possible to speak of a macro-level coopetitive mindset as an aggregation of meso and micro level mindsets.

RadCom, a manufacturer of semi-conductor materials, already had entered an innovation network organized by the U.S. government, which funded research by companies involved in chemical production. By organizing a forum to bring together competitors that could discuss pertinent research, the U.S. government acted as a complementor, through and indirectly influenced coopetitive exchanges of companies in the focal industries:

“I think the [issue of working with] competitors ... is very interesting for the ... industry because it is such a small industry. There is probably only four [companies] in the world that [produce these items], and because there is such a want for these [products] by the likes of the U.S. government, then something very unusual happened in that the U.S. government will organize a forum for people, representatives from the different companies to come together and discuss technology innovation. Which is kind of unusual, I don't know many other industries where you would invite, you know [competitors].” (Materials Manager, RadCom)

If respondents had been involved in similar interactions in previous companies, they tended to maintain a coopetitive mindset when entering or founding new ventures, such that they were born coopetitive. Lundgren-Henriksson and Kock (2016b) cite changes in a macro discourse that affects the propensity of actors to engage with coopetition.

“I'm loath to re-invent a wheel, I just want.... I will pick the best thing that I have seen or I have available in my network, or whatever, or my knowledge, or my past knowledge. I'll pick that and I'll go with that as my route [to market].” (Materials Manager, RadCom)

In this sense, the mindset can emerge from previous micro-level histories. In the previous category (Phase 1a) we define a coopetitive mindset as emerging within the phase; here (Phase 1b), we define it as evident at the start of the phase. We therefore associate the coopetitive mindset of a born coopetitive company with a desire to create new markets by developing and extending their innovations:

“You’re creating a market, you know, if you make a simpler product. I mean, [competitors] will start to do things they perhaps didn’t do before. They find other uses for the product.” (Technical Manager, RadCom)

A further aspect of the born coopetitive state comes from PhotoCat, which actively positions itself as a general complementor (Brandenburger & Nalebuff, 1996) rather than as a competitor. Adner (2017) propose the term multilaterality to define a distinction between ecosystems and networks in that an ecosystem cannot be simply decomposable to a series of dyadic relationships. Complementation in an ecosystem context may therefore be complex and indirect rather than relational as in network context.

“What I’m saying is that we don’t want to be seen as competitors. We’re complementary technology to any other ... treatment technique.” (Technical Director, PhotoCat)

In this instance, the born coopetitive company presents itself to other network agents as a general complementor. With its coopetitive mindset from its inception, a born coopetitive company recognizes the value of both collaboration and competition in its sector. In turn, it may avoid the competitive uncertainty associated with Phase 1a, enabling the company to engage directly in coopetitive exploration (Phase 2) with larger competitors. As one respondent observed:

“We deliberately set out to aim our product at large multi-national companies that might be doing similar processes worldwide. We reduce the barrier, and that’s the model we’ve adopted.” (Technical Director, PhotoCat)

With this evidence of a coopetitive mindset, our teleological assumptions suggest that the phases may overlap and coexist, rather than one appearing as the other disappears (see Figure 2). The finding of the existence of a born coopetitive company is tentative; such a phase would, however, seem significant for consideration of coopetition as an emergent property. We identify here that a born coopetitive company is new at the level of the organization (meso), but whose staff at the individual level have coopetitive histories, and which are embedded with macro-level networks and ecosystems, in which these individuals have

histories. Hence, consideration of levels of emergence seems essential to understanding a born coopetitive company. However, work remains to be done to chase an individual level coopetitive mindset to its embryonic origins, which may be linked to studies of dynamic capabilities (Teece et al., 1997).

4.3. Phase 2: Coopetitive Exploration

At the beginning of Phase 2, companies possess a coopetitive mindset at least at an individual level but also we found, at a meso level. Individuals and companies here are inclined to explore coopetition proactively as a potential strategy and a coopetitive mindset helped them to proactively make sense of coopetitive opportunities. This quality became evident to many companies initially because they shared R&D or new product development activities with larger competitors. It thus offered a means make sense of competitive asymmetries while initiating coopetition and identify the value in such arrangements. Phase 2 denotes SMEs entering a period of coopetitive exploration in which, over time, they identified important potential exchange partners and established tentative beneficial exchange relationships.

The interviews offer evidence that among those companies, which developed a coopetitive mindset during Phase 1 (rather than possessing it when entering Phase 1), they turned to their old networks first when seeking potential collaborators, which included competitors. Several respondents accordingly noted the importance of old networks, and the influence of former employee networks. This impact of former employees in old networks has been insufficiently studied (Corredoira & Rosenkopf, 2010) and, to our knowledge, escaped consideration in coopetition literature. In our sample, coopetitive mindset emerged from the personal relationships that the Technical Director of NanoTech had built and maintained with an old network of ex-colleagues. Ties with former colleagues, who often worked in competitor organizations, were considered easy to leverage because the connection already existed as “low-hanging fruit,” or an easy-to-reach source of external knowledge:

“I hate to use the word low-hanging fruit, but we had personal contacts even from previous lives with [other] companies.” (Technical Director, NanoTech)

However, an issue arises with regard to the existence of a non-coopetitive mindset, as ensconced within the prevailing norms of the old network. Existing networks with non-coopetitive traditions constrain coopetition, and limits also arise when companies in existing networks are the only option for collaborative partnerships. At the dyad level, in relationships between old colleagues, a process of sensemaking and sensegiving was evident to establish a coopetitive mindset at the level of the dyad (meso). At a more macro level, the effect of

multilateral external complementors (e.g., the U.S. government) introduced new potential cooperative exchange partners into the ecosystem and also had a disruptive influence on non-cooperative mindsets. In this respect, the ecosystem concept may be more appropriate than the more relational notion of a network. This phase accordingly was experienced differently in terms of when the actors develop a cooperative mindset (in Phase 1a or 1b). The tensions here seem different in this phase relative to the development of this a cooperative mindset.

In contrast with the reliance on old networks, participation in an ecosystem in which the U.S. government was central was recognized by those companies that had progressed through Phase 1a as a potential source of funding for their R&D activity, but also as a source of tension, because it compelled working with competitors with which there was no history at the micro or meso-levels.. With the intervention of this influential complementor, RadCom needed to protect its competitive advantage, based on intellectual property (IP) and be guarded in its cooperation within the network, which represented a very small industry:

“It’ll be the game of chess that we play often, when you’re working with these people, you’re letting sufficient out, but keeping certain, you know? It’s like telling people what you’re going to do, but not how, isn’t it? That’s the trick.”

(Materials Manager, RadCom)

Tensions between knowledge leakage and transfer similarly have received some attention, especially in terms of how they might be handled through forms of ambidexterity (Fernandez & Chiambaretto, 2016; Yang et al., 2014). Ambidexterity thus was a significant mediator of cooperative tensions at the individual actor level, particularly when the participants were not former colleagues. Supporting separation involved managing tensions within the SMEs and integrating tensions between individuals. Nevertheless, most companies in the sample were aware that they needed to be careful when building collaborative relationships with ex-colleagues who currently worked for competitors; the competition persisted, because they had to protect their intellectual property rights.

Therefore, the focus in this stage is on value creation, concomitant with attempts to protect value-capture mechanisms. Science-based companies that develop new innovations have a high degree of appropriability from their patents and tacit know-how, which they need to protect. A trigger point for the exploration of cooperative options thus occurred after the sampled companies achieved intellectual protection. In these instances, the need for skillful ambidexterity also decreased significantly.

If the collaborative benefits were not reciprocal, the SMEs in our sample reported the private competitive benefit of being able to gauge the size of the contracts and types of work their competitors could achieve. However, even when the SMEs acknowledged the importance of reciprocity, they did not always recognize its mutual public value in terms of building network strength. Therefore, this stage of coopetition is a point before a reciprocal dyadic or tangible value exchange takes place. We also note some distinctions in the exploration stage related to two born coopetitive companies: PhotoCat positioned itself as a general complementor rather than a competitor, and RadCom's external complementor (U.S. government) introduced new potential coopetitive exchange partners into the ecosystem.

4.4. Phase 3: Coopetitive Exploitation

The functioning stage of coopetitive exploitation primarily occurs when private collaborative and competitive benefits are reciprocally (rather than unilaterally) obtained and coopetition occurs simultaneously. Indeed, reciprocation of benefits as a factor for establishing coopetition previously has been studied by Czakon (2009). To analyze how this phase unfolds, relative to the emergent properties of coopetitive sensemaking, we examine how tensions emerge, as well as how actors make sense of coopetition relative to the previous subphases identified in Table 3.

4.4.1. Phase 3 for companies passing through Phase 1a

Where a coopetitive mindset developed during Phase 1a, trust occurred at the individual (micro) level, often between participants with a shared history. Therefore, trust was evident between individuals engaged in coopetitive exploitation. NanoTech, a single product company, similarly developed its initial innovation in collaboration with a larger company, one of its closest competitors:

“We basically developed the [innovation] in conjunction with [company] that would potentially become our main competitor. They are hot on developing the technology while we are really hot on the marketplace and what's out there. It's an excellent fit together. The intellectual property is going to be shared.”

(Technical Director, NanoTech)

Thus for NanoTech, sharing development costs and creating shared intellectual property with a competitor helped it compensate for its own limited resource base. Through their individual-level relationships, participants managed to achieve ambidexterity and collaborate and compete simultaneously in a situation marked by significant asymmetries:

“We are actually competing [with] the technology that they’ve developed themselves, which is directly competing with what we’re doing. But still we’ve kept that separate. And some things have replaced their other technologies in the long-term.” (Technical Director, NanoTech)

The trust developed among actors from an old network at an individual level somewhat negated the principle of separation, allowing for the effective management of tensions both within the sampled companies (meso) and across individuals (micro).

MediTest also progressed through Phase 1a and entered into a coopetitive interaction with a university that wanted to scale up the results of its R&D activity and develop a new product for a spin-out company that would produce medical products. It sought assistance from MediTest, a potential competitor in the specific medical market that manufactured similar products, to provide manufacturing expertise and help commercialize the innovation:

“We’ve built a close relationship with [University]. They came to us, they had ideas, and they came to us because they wanted us to manufacture a product for a spin-out company they’ve developed.” (R&D Manager, MediTest)

MediTest was drawn into the arrangement by the university; its coopetitive involvement thus was reactive. They provided manufacturing expertise on an *ad hoc* basis to the university, in the hope that it would become the preferred manufacturer and eventually a supplier to the university’s purported spin-out company. In effect, it hoped to be a future collaborator and future competitor in the market. This approach seems consistent with the term used by Ansari et al. (2016) of intertemporal coopetition, and we extend the term here to denote intertemporal sensemaking as a key facet of a mature coopetitive mindset. The university’s scientists called on MediTest’s expertise when they needed it:

“We’re actually helping develop some products for [University]. They had some ideas and that needed someone to follow on up through it with the projects, you know? They just call on us when they need us.” (Technical Manager, MediTest)

In this *ad hoc* arrangement, familiarity helps attenuate other, more contractual forms of governance. In this sense, intertemporal sensemaking seems to be facilitated by historical network relationships. Significantly, a proposed spin-out company would be a potential competitor for MediTest’s own range of original equipment products. The Managing Director had planned on manufacturing and selling its own branded products rather than manufacturing products on behalf of other companies. But this coopetitive exploitation arrangement emerged because MediTest sold its capabilities as a contract manufacturer,

developing products on behalf of its potential future competitor. In this sense, the manager mitigated a risk of a disruptive force in the ecosystem. The success of this approach largely can be attributed to the Managing Director, who communicated effectively and had built strong social relationships during Phase 1a. In turn, he was able to navigate coopetitive tensions successfully, overcoming the challenges of separation through the skillful use of ambidexterity mixed with intertemporal sensemaking during coopetitive exploitation. Furthermore, the spin-off was likely to be born with a coopetitive mindset, adding a new trajectory to the process map in Figure 1: A born coopetitive mindset might emerge from the culture of the companies from which the company spins off.

In some cases, advice provided the means to engage in network building with competitors. The Managing Director of MediTest, a prolific networker, regularly visited customers, sharing his expertise, among other things. As one respondent explained:

“He was willing to provide advice on the use of competitors’ products and used these visits as opportunities to build personal relationships with existing and potential customers, sharing his expertise in the area of Warfarin management.”

(Technical Manager, MediTest)

Through this unilaterally giving approach, the Managing Director delivered a private collaborative benefit to competitors, while simultaneously generating a private competitive benefit for MediTest, a phenomenon we label non-collaborative competitor benefit. With his preexisting relationships, the Managing Director felt confident that reciprocity would come later. The presence of trust, earned earlier in the process, held significant importance in these interactions.

For SensSol though, what started as an outsourcing relationship soon developed into a more coopetitive relationship, based on a reciprocal dyadic or tangible value exchange:

“The guy who works for [Company Q], he’s got a lot of good experience in product development so we try and get something back a little bit in terms of how we can develop our products, sort of innovating through ideas generation.”

(Design Engineer, SensSol)

The Managing Director, displaying network sensitivity, thus explains how SensSol pooled its existing knowledge in cooperation with Company Q to provide a solution for one customer:

“We’re doing a lot of work with [Company Q for] a company that puts space craft into space ... so they want to preserve life ... and there’s all sorts of things

can happen on a space craft ... so we used our existing knowledge to come up with a solution for them.” (Managing Director, SensSol).

SensSol initially displayed a reactive approach in this arrangement with Company Q. However, we also find a notable propensity of companies that had undertaken their first successful coopetitive interaction to look actively for more of them. As a result of the success of its early (reactive) coopetitive exchange, SensSol subsequently adopted a more proactive approach to coopetition. For example, rather than just seeking to protect its intellectual property, it formulated a more strategic approach to new product development and introduced an innovation program that would enable it to set more formal coopetitive arrangements, similar to those with Company Q:

“We’re trying to think beyond what we do currently ... our innovation program is coming in as ... we want to try and work with the competition ... to find markets where we can use our skills and expertise to ... open up new markets.” (Design Engineer, SensSol)

The innovation program involved here was perceived in a network and ecosystem context, again suggested a mature coopetitive mindset was open to collaboration with known competitors in the existing network. During the early phases, some companies (i.e., A, B, and E) found it challenging to develop a coopetitive mindset. Other companies that were born coopetitive (i.e., C and D) were able to establish and maintain a coopetitive mind-set when entering and/or founding new ventures. For example, RadCom was a spin-out from a university; it was very focused on R&D and maintained a sustained period of mutual engagement with its source university, such that the two organizations worked closely together in cooperation. Through this sustained complementary relationship, RadCom also gained a private competitive benefit, through access to the university’s network of partner organizations.

4.4.2. Phase 3 for companies passing through Phase 1b

In two companies, C and D, we recognize the characteristics of being born coopetitive. Coopetition emerges from outsourcing activities with competitors; some SMEs also participate in competitor networks. PhotoCat, which is located in an innovation center, proactively participated in networking events with competitors organized by that center, through an innovation forum that encouraged knowledge-sharing activities, idea exchanges, and informal relationships. These interactions were often informal and enabled PhotoCat to take a coopetitive stance, working with broader multilateral actors outside the networks of its

managers from its foundation. Put another way, managers in this type of company are able to make sense of an emergent ecosystem context as well as the historically familiar former networks. Key in this facility is to identify opportunities to emerge during interaction, rather than having a clear opportunity to exploit before interaction is entered into.

“It is quite informal, and I think the idea is that companies know what other companies are capable of. So, if they come across something that they cannot manage with one of their clients, they say ‘ah!’ and then [they] start talking, potentially either swapping ideas, or working together, to provide a solution, because at the end of the day, the customer doesn’t care who’s doing the work as long as it’s done.” (Technical Director, PhotoCat)

What we therefore note from these accounts is a characteristic of born coopetitive companies, namely, ecosystem sensitivity, which contrasts with the network sensitivity among those companies that developed a coopetitive mindset in Phase 1. That is, companies with ecosystem sensitivity demonstrate a more proactive approach to interaction and location decisions.

RadCom had gained their first commercial contract through the US Government forum, as the Chief Technical Officer confirmed, “We’ve got our first large research contract with the American government – to grow materials for them”. We therefore identify RadCom having a coopetitive mindset from inception through its proactive pursuit of the US government contract:

“After maybe a year, or a year and a half of knocking on the US Government’s door, because they are one of the key people who pull this type of technology, we opened up a funding contract with them and that’s been the backbone of our materials development technology in the last two and a half years.” (Chief Technical Officer, RadCom)

We further identify a coopetitive mindset in RadCom through its willingness to work cooperatively with competitors involved in the US Government forum:

“You know [competitors] are going to be working on it, you don’t necessarily know how many... but you know that “alright, I’ve got this technology that could be used for that”, let’s see if we can use this to get into the market.” (Chief Technical Officer, RadCom)

RadCom also made its location decision to link to the source university’s network of partners, which provided it access to specialist equipment, as well as sources of expertise:

“We spent the first year or so still using the [University] facilities and were very much part of their physics department. So we’d use the mechanical workshop there to get parts made up that we required and we still use the network there quite a lot to source expertise.” (Chief Technical Officer, RadCom)

In addition to this proactive effort to access partner organizations, RadCom helped commercialize the university’s basic R&D, which gave it access to those R&D results:

“[The university] had other separately funded programs to work on growth, and we obviously help them ... and I mean we have access to their information, results and things.” (New Technology Manager, RadCom)

By considering sensemaking during coopetitive exploitation phases, we have identified different mechanisms through which companies that developed a coopetitive mindset during phase 1 and those we denote as born coopetitive make sense of active coopetition. The former maintain greater network sensitivity, the latter more ecosystem sensitivity, meaning they are more willing to allow coopetitive opportunities to emerge through interaction with previously unconnected actors in the ecosystem. A further key sensemaking assets is intertemporal sensemaking, allowing smaller first to invest in coopetition relationships without the immediate expectation of reciprocation. However, this phase may eventually lead to coopetitive uncertainty and a move again to a different mechanism of collaboration and competition, which we discuss next.

4.5. Phases 4a and 4b: Coopetition versus Competition

All our companies remained in a state of coopetition during the study. However, apparent in the accounts were discussions of what we have called coopetitive uncertainty. This facet of sensemaking allowed us to consider an ‘after’ coopetition phase, although we stress these are detectable as future loaded projections at the time of the study.

Our research revealed the propensity of ecosystem sensitive companies, such as C and D, to exploit their initial coopetitive interactions in external competitor networks and actively seek to multiply their coopetitive relationships on the basis of that initial period of sensemaking. PhotoCat had not yet entered into a formal coopetitive agreement. For PhotoCat, its innovation was a complementary technology; it was becoming increasingly proactive in its approach to seeking coopetition partners:

“We’re looking for somebody that would be interested to develop joint IP, either in the actual format, the physical form of the catalyst material, or in the chemical

composition because of certain doping you might get quite radically-improved performance, so we'd be looking at all of that.” (Technical Director, PhotoCat)

For RadCom, which was a born cooperative in our view, considerations of partnering with a competitor also involved the potential for acquisitions:

“We occupy a pretty broad range in the supply chain so ... we could acquire anywhere in the supply and it would be complementary. That is different to a lot of [competitor] businesses that ... might not have a presence everywhere in the supply chain, so it might be much more difficult for them to make an acquisition ... and have it make logical sense. Whereas ... we can really make an acquisition anywhere in the supply chain if it's a sensible acquisition.” (Chief Technical Officer, RadCom)

In contrast, network-sensitive companies, such as MediTest and NanoTech, adopted a more reactive approach. NanoTech sought to share future development costs with a competitor in a formal cooperative relationship to compensate for its limited resource base: “We'll share some of the costs but either way we'll [have] helped each other save money through that joint development” (Technical Director, NanoTech). Beyond cost savings, attempts to formally collaborate with competitors were linked to necessity. NanoTech needed to acquire the services of a competitor to help it commercialize its innovation; SensSol had introduced its own innovation program, so it could establish formal collaborative arrangements with competitors. Following an initially reactive, early cooperative exchange, SensSol subsequently implemented a more proactive approach:

“We were just ticking along a little bit in terms of products we sell ... and [our] innovation program highlighted the need for us to be innovating ... building formal relationships in order to grow; otherwise we were going to sort of stagnate.” (R&D Engineer, SensSol)

Thus, with regard to the impact of cooperative functioning during the exploitation stage, an SMEs' ability to pursue formal interfirm cooperation, we find that ecosystem sensitive, born cooperative companies (companies PhotoCat and RadCom) were more proactive in their pursuit of formal cooperative relationships. Network sensitive companies (Companies MediTest, NanoTech, and SensSol) instead were more reactive. In Table 4, we summarize some key emergent properties of cooperation that we have identified with these cases, which we also link to Phases 1 and 2. By advancing these properties, we can better understand how they affect the functioning of cooperation.

Table 4. Key emergent properties of coopetition

Phase 1a			Phase 1b		
Feature	Level of effect	Identified in case	Feature	Level of effect	Identified in case
Reactive sensemaking	Macro-meso-micro	MediTest NanoTech SensSol	Proactive sensemaking	Micro-meso-macro	PhotoCat RadCom
Competitive uncertainty	Micro and/or meso	MediTest NanoTech SensSol	Born coopetitive	Meso	PhotoCat RadCom
Fear of disruptive innovation	Macro-micro	MediTest	Coopetitive mindset evident	Micro and Meso	PhotoCat RadCom
Resource constraints	Meso	NanoTech	Ecosystem and network history	Macro-micro	NanoTech
Phase 2			Phase 3		
Feature	Level of effect	Identified in case	Feature	Level of effect	Identified in case
Networked sensemaking	Macro (network)-meso-micro	NanoTech	Network sensitivity (companies passing through 1a)	Micro and meso	MediTest NanoTech SensSol
Network sensegiving	Micro-meso-macro (network)	RadCom	Ecosystem sensitivity (companies passing through 1b)	Micro and meso	PhotoCat RadCom
Former colleague dyads	Meso-meso	NanoTech	Intertemporal sensemaking	Micro	MediTest
General complementor	Meso (ecosystem)	PhotoCat	Exploitative ambidexterity	Meso	PhotoCat
Protected advantage heightens coopetitive opportunity exploration	Meso-Macro (network and ecosystem)	RadCom	Coopetitive uncertainty	Meso	PhotoCat
Development of ambidexterity to manage emerging tensions	Micro	MediTest			

Table 4 provides a key summary of the main features we identify in our narrative, the levels at which we identify that effect at play and the cases in which we identified them. Given that Phase 4 was projected, we do not provide granular details of this phase. Further, applying our initial conceptual framework (Figure 1) to our findings, we obtain a visual process map of emergent coopetition (Figure 2).

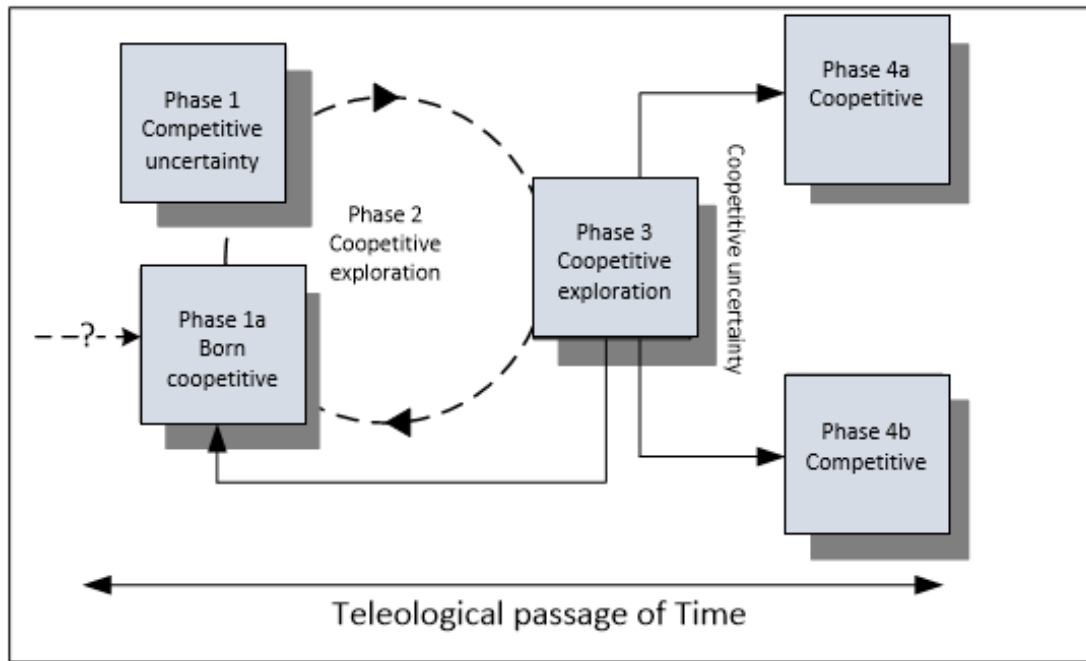


Figure 2. Visual process map of emergent coopetition

The process map (Fig. 2) challenges the assumptions of previous work suggesting that coopetition is a linear flow from emergent to deliberate coopetition. With this summative map, we attempt to inculcate the notion of equifinality (Von Bertalanffy, 1968) and recognize the different available routes to undefined points in the future. In Phase 1 we identify two subphases (competitive uncertainty and born cooperative) in relation to the development of coopetitive mindset. These phases are experienced differently, in terms of when the actors develop a coopetitive mindset (either Phase 1a or 1b). With our loose definition of phases, we visualize Phase 2 as an iterative loop that may lead back to competitive uncertainty several times, and we posit that the Phase 3 exploitation still entails ongoing exploration. We note a state of coopetitive uncertainty in Phase 3 that allows us to posit an ‘after’ coopetition phase. In the projected phase 4 companies either move from a functioning state of coopetitive exploitation toward a more formal coopetitive relationship, or return to a state of competition.

5. DISCUSSION

We conclude with a summary of our main findings and their contributions to current theory on coopetition. We also cite some practical implications, limitations, and research directions.

We have advanced understanding of how the historical legacy of interaction affects coopetitive exploitation. Our intent has been to explore the impact of time on coopetitive interaction, rather than just explore competition over time; that is, we seek to expose

emergence. With this early attempt to explore empirically the emergence of a coopetitive mindset, we identify a Phase 1 of coopetition, in which consideration of a coopetitive mindset is pertinent. It consists of two forms. In one, a coopetitive mindset emerges from a sense of doubt about whether competition is the most effective form of business development, or what we call a competitive uncertainty phase. Companies passing through this phase tend to have reactive motives, in response to competitive moves or broad network trends. The second observed state is what we call a born coopetitive; to the best of our knowledge, we are the first to use this term.

Figure 2 acknowledges some of the doubt about the emergence of a coopetitive mindset, but in at least one case, we are confident that a spin-off truly was born coopetitive. In this sense, historical factors may underpin a coopetitive mindset. However, there is even more to learn from this finding, such that we also define a stage of coopetitive exploration, during which the company iteratively explores opportunities for value co-creation and value capture. We consider it essential to present this phase as multi-directional, in that it appears reversible, interruptible, and greatly accelerated, in no particular linear order. A process model based on teleological assumptions therefore seems most appropriate. We further note that non-born coopetitive companies seem to progress more cautiously through Phase 2, whereas the born coopetitive companies make rapid progression through Phase 2 (perhaps even skipping it). The born coopetitive companies also seem highly proactive when seeking locations close to possible complementors (that initially were strangers), whereas non-born coopetitive companies rely more on old networks and former colleagues when exploring coopetitive arrangements. The norms of these networks may constrain the development of coopetitive norms.

In Phase 3 (coopetitive exploitation), companies are able to use the trust built through their historical establishment of coopetitive norms at an individual level. In contrast, the born coopetitive companies have more of a “blind-faith” approach to coopetition; having progressed rapidly through Phase 2, they have somewhat more difficulty managing tensions at an individual level, in that they have not gone through the laborious but valuable trust-building and norm-developing process. We refer to these two approaches as network sensitivity versus ecosystem sensitivity. Both signal distinct sensemaking approaches, and they offer different value in distinct phases. Ecosystem sensitivity offers the potential to make rapid progress toward coopetitive exploitation at the company level, but it suffers more tensions at the individual level due to the lack of interpersonal norms.

6. CONCLUSION AND CONTRIBUTIONS

This article offers a theoretical contribution to the contextual approach to coopetition. In presenting our findings, we make a processual contribution, which is both emergent and teleological in its underlying assumptions. We add to the small body of empirical work that explores coopetition as an emergent property (Dahl, 2014). Unlike previously available expositions of coopetition over time (Tidström & Rajala, 2016), we address the impact of a history of coopetitive exploitation. Taking a lead from Tidström and Rajala (2016), we detail how these historical legacies exert effects at different levels of interaction (i.e., individual, company, network, and ecosystem). Our findings are response to the call to apply a sensemaking approach to coopetition research (Lundgren-Henriksson & Kock, 2016b). We add considerably to an understanding how a coopetitive mindset effects the emergence of coopetition and we particularly answer calls for multi-level insights into both sensemaking and emergent perspectives on coopetition.

6.1. Managerial Implications

There are several managerial implications that derive from our findings. First, our findings allow managers to better understand the context of emergent coopetition. However, given that our findings involve the study of emergence – matters that could not be predicted before their manifestation, it is difficult to propose that the findings sensemaking can be useful to those developing a coopetitive mindset. However, the principle of sensegiving is a more useful concept in a contextual reading. Networks often have focal companies and ecosystems have lead companies and platform owners. For individuals with a coopetitive mindset in companies embedded in networks and ecosystems with actors which predominantly have a non-coopetitive mindset, the principle of sensegiving should be seen as a form of persuasion best achieved through different levels, from individual to company, through to network and ecosystem levels. Second, those with a coopetitive mindset can better communicate the benefits at different levels of analysis and advise of the way that the coopetitive tensions can be managed with their company, for instance through the principle of separation. Third, the notion of a born coopetitive company is a useful concept for companies in tech sectors. One feature of a successful spin-off is that the potential new company has a collective coopetitive mindset, and this should be used as a means of assessing their potential ‘fitness’ for survival in coopetitive networks and ecosystems. Fourth a caution we offer is the over reliance of old networks and an under sensitivity to ecosystems. A mature coopetitive mindset seems to

involve a need to be willing to allow coopetitive opportunities to emerge through interaction with actors between which there is no history. Fifth, small companies engaging in coopetition should in particular be aware of intertemporal sensemaking – giving out value without immediate expectation of reciprocity.

6.2. Limitations and Further Research

The main limitation of this research is its focus on a single network context. Examining additional cases in different spatial and cultural contexts would add depth to the assertions advanced herein. We also call for a deeper understanding of coopetitive mindsets and how they emerge, potentially as flows across different levels (e.g., individual to group, to and from networks). Such an exploration might take a dynamic capability perspective. In our framework, we project anticipated next moves, from the perspective of companies engaged in coopetitive exploitation. Further research could retrospectively examine a post-coopetitive phase and its links to earlier phases. We also anticipate additional coopetitive uncertainty between our Phases 3 and 4, but we could not establish this sub-phase with our data, because all our study cases remained in the coopetitive exploration phase. Further research could also extend the ecosystem context to platforms. Increasingly, coopetition and open innovation initiatives are clustered around platform leaders, rather than just being spatially co-located. The emergence of coopetitive mindset in platform contexts represents an urgent topic for research.

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