Open Innovation and Coopetition

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Open Innovation and Coopetition: toward Coopetitive Open Innovation

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Abstract and Keywords

While the open innovation literature has always acknowledged the competitor as a source of innovative knowledge — i.e. to increase the breadth of open innovation practices — competitors have been relatively neglected relative to other sources such as universities, suppliers, customers, and employees. Growing research in open innovation includes more and more of this counter-intuitive partner and acknowledges that the drivers and management of the open innovation practice with competitors are specific relative to the one with a non-competitive partner. In parallel and independently from the open innovation literature, the research on coopetition and coopetitive innovation has grown and explored when, why, and how a competitor is a relevant partner for innovation. These frameworks develop by the coopetition literature brought into the open innovation research generate new insights and a whole research agenda. The main one is: coopetitive open innovation defined as open innovation with competitors embracing a "coopetitive mindset" and specific managerial principles (i.e. cooperation and competition should be simultaneously pursued and the competition dimension should not be reduced).

Keywords: open innovation; coopetition; competitors; co-creation; coopetition mindset.

Introduction[1]

While open innovation and coopetition are two research streams that grow simultaneously and separately, they both have a sub-stream exploring the same phenomenon: companies involving their competitors for innovation. While they explore the same phenomenon, what can coopetition literature bring to the open innovation literature? What is different in their approach to innovation with competitors? These are the two questions that this book chapter intends to answer.

State of the art on open innovation with competitors

The research on open innovation started with the seminal book of Henry Chesbrough (2003). It takes its roots in challenging the relevance of the internal vertical integrated innovation process and calling for a more open, more distributed process of innovation. The specificity of this

distributed process is that purposive knowledge flow can be created and managed across an organization's boundaries (Chesbrough, 2023). This flow of knowledge can be implemented with a wide range of external stakeholders ranging from suppliers to customers, as well as universities, research centers, and competitors. Typical external sources of innovative knowledge include universities, suppliers, and customers (Faems et al., 2005; West, et al., 2014). In addition to this list, competitors represent a counterintuitive source of innovative knowledge (Bogers, 2011; Laursen & Salter, 2006).

The research on coopetition grew separately from the open innovation literature, arguing from its start the promises and even superiority of being simultaneously engaged in a cooperative and competitive relationship with competitors (Bengtsson & Kock, 2000; Brandenburger & Nalebuff, 1996; Lado et al., 1997)

Regarding the state-of the-art on open innovation with competitors, this literature can be divided into three sub-groups relative to their position toward this assumption that characterized coopetition: a first one, called “Unwanted Open Innovation with Competitors”, that neglected competitors or consider open innovation with competitors as not a specific relationship; a second one, the “Transactional Open Innovation with Competitors”, that explored transactional open innovation with competitors without collaboration; and a third one, named “Coopetitive Open Innovation” that considering open innovation with competitors involving collaboration.

1. Unwanted Open Innovation with Competitors

Although competitors have always been acknowledged in the open innovation literature, as one of the external stakeholders to increase a company’s openness “breadth” (Chesbrough, 2003; Laursen and Salter, 2006; West et al., 2014), they traditionally have been relatively at least neglected and mainly unwanted compared to other external stakeholders. Three reasons explain

it.

First, in several empirical perspectives on open innovation practices, competitors are ranked by practitioners as the least preferred sources, due to the risk of loss of competitive advantage in interacting with competitors (Brunswicker & Chesbrough, 2018).

Second, past research in open innovation has been undertaken to compare the relevance of openness to competitors relative to other stakeholders and mainly identified negative or no outcome. Belderbos et al. (2014) argued that co-patenting with competitors had no financial benefit and Mention (2011) that information coming from competitors seems to have a negative influence on the degree of novelty of innovation.

Third, in its practices, the fear of not complying with anti-trust laws or revealing unintended information leads organizations to deliberately exclude competitors. One interesting example is that the Berkeley Innovation Forum (BIF), an industry forum led by Henry Chesbrough where open innovation experts met and exchanged best practices of open innovation, had this informal rule of excluding competitors.

2. Transactional Open Innovation with Competitors

Open innovation does not always include collaboration. In its pure original form, open innovation is a transactional flow of knowledge that goes outside-in (i.e. sourcing and acquiring) or inside-out (revealing and selling) and without any collaboration (Chesbrough, 2003; Dahlander and Gann, 2010). These transactional flows with competitors were the main focus of the second group of open innovation research.

One of the first articles testing the relevance of open innovation breadth (Laursen & Salter, 2006) and thus the relevance of engaging in open innovation with competitors belongs to this second group. Indeed, they focused only on sourcing ideas from external actors including

competitors (i.e. outside-in open innovation). Later, Lim and colleagues (2010) demonstrated that in the microprocessor industry, companies such as Intel or AMD compete with IBM in the product market while sourcing knowledge and technology from IBM. Bajpa (2015) showed that smartphone maker Samsung continued to supply key components for Apple's smartphones. Being competitors did not hinder sourcing or acquiring ideas and technology from competitors.

Past research in open innovation has also identified examples of when a competitor can be a relevant partner for inside-out open innovation. The pharmaceutical company Eli Lilly licensed one of its antibiotic drugs to another competing pharmaceutical company Cubist. It allowed Eli Lilly to generate a new revenue sources and have a more distributed model of commercializing new drugs (Chesbrough and Chen, 2015). In the Cornish mining district, during the industrial revolution, firms decide to reveal their internal technology findings to their competitors (Nuvolari, 2004).

Thus for this second group, the competitive dimension did not lead to excluding competitors from their outside-in or inside-out practice. This proposition takes a view opposite of closed innovation, in which a company must protect its knowledge to exclude rivals from this knowledge. In this traditional view it seems fully counter-intuitive to sell or license its knowledge to its competitors; tools as patents, secrecy, lead time, etc. are usually seen as a way to obtain competitive advantage.

Inside-out or outside-in process with competitors increases the "openness paradox" with a risk of expropriation (Laursen & Salter, 2014). Indeed, a major problem associated with accessing external sources of knowledge from competitors — or licensing out internal sources of knowledge to competitors — is that organizations have to reveal some parts of their knowledge to competitors, making them vulnerable to imitation (Laursen et al., 2023). Laursen and Salter

(2014)[2] even consider open innovation with competitors as a particular case of "high-risk" openness. Thus, appropriating the benefits deriving from outside-in or inside-out open innovation with competitors requires considerable managerial attention and effort, such as applying for patents, establishing a market lead time, keeping key technologies secret from competitors, and gaining access to complementary assets (Laursen et al., Chapter 56; Teece, 1986).

3. Coopetitive Open Innovation

Beyond transactional knowledge flows going out the organizational boundaries (i.e. outbound open innovation) or in (i.e. inbound open innovation), the concept of open innovation was broadened when it included collaboration and co-creation (Le Roy & Chesbrough, 2018; Piller & West, 2014). When "open innovation between competitors including collaboration" it is called since Le Roy and Chesbrough (2018) "open coopetition." Other names has also been given such as "Coopetition OI" (Lee et al., 2019), or even "horizontal open innovation alliances" (Cano-Kollmann et al., 2018). Here we name this phenomenon "Coopetitive Open Innovation".

This concept of "Coopetitive Open Innovation" extended the earlier identification of the coupled mode of open innovation (Enkel et al., 2009)[3]. It is clearly stated in papers such as West and Bogers (2014:824) in which they explain that "while many studies explore bidirectional flows or cocreation more generally, others focus on spillovers that occur through collaboration."

In exploring coopetitive open innovation, the open innovation research started by exploring R&D collaboration (Bogers, 2011; Cano-Kollmann et al., 2018). The form taken later could also be R&D consortia (Olk & West, 2020; Rouyre & Fernandez, 2019) or a pooled R&D (West & Gallagher, 2006), open standards (Dittrich & Duysters, 2007; Simcoe & Rotman, 2006) and industry's exploration of best practice in technology risk management (Bez & Chesbrough,

2020).

Moreover, this research goes further than just stating the existence of open innovation between competitors involving collaboration. What makes this third group of research distinct from the second one — which also has both collaboration and transactions — is that the authors argue that open innovation with competitors and non-competitors are different. They are not just a more "high-risk" openness but are driven by different factors, generate different outcomes, and require different management. To give three examples:

- Bacon and colleagues (2020) tailor the knowledge transfer practices in an open ecosystem depending on if the partners are coopetitive or non-competitive ecosystem partners.
- Cano-Kollmann and colleagues (2018) explore open innovation with collaboration between a pool of laggards lagging in a potentially dominant technology (oligopoly) identify specific drivers of the collaboration in addition to the co-development of technology that they call the "learning about the road not taken."
- Aalbers and Whelan (2021) explore the specific knowledge-sharing processes in the context of collaborative open innovation between competitors that they consider specific enough to justify research per se. They find that collaborative open innovation between competitors based on digitally-enabled collaborative ideation requires additional mechanisms to work. These additional mechanisms are related to the competitive nature of their relationship and consist in for example stronger offline interactions

The origin of these specificities of open innovation between competitors relative to none competitors is strongly related to the knowledge sharing and protection tension that characterized the collaboration between competitors (Bogers, 2011).

Coopetitive innovation

Coopetition is a paradoxical relationship combining simultaneously cooperation and competition (Bengtsson & Kock, 2000; Fernandez et al., 2019). The research on coopetition started with the seminal book *Co-Opetition* (Brandenburger & Nalebuff, 1996), taking its roots in challenging the role of competitors. Competitors are not limited to competitive relationships. Their relationship is much more complex and involves multiple cooperative activities and competitive activities (Hamel et al., 1989). A firm's survival and competitive advantage are more and more interdependent on its ability to integrate external resources including the knowledge and assets belonging to its competitors (Brandenburger and Nalebuff, 1996; Dyer et al., 2008).

Going one step further, the literature on coopetition has two main insights that the open innovation literature can use. First, competitors can be the most relevant partner, especially for innovation. Indeed, the coopetition literature unlocked several contingency variables that explain why competitors are the most relevant partner for innovation. Second, the promises of coopetition require collaboration with a competitor and a specific coopetitive management that leverage both dimensions.

It is important to note that coopetition literature explored alliance between competitors in a much broader context than innovation going from marketing, supply chain, IT, HR, sales and sustainability (Gernsheimer et al., 2021; Luo, 2007; Ritala et al., 2008). In this chapter, we focus on one sub-stream of it called "coopetitive innovation" or "coopetition for innovation" as it is the field of interest to the open innovation community (Bouncken et al., 2020; Corbo et al., 2022; Estrada et al., 2016; Gast et al., 2018; Le Roy et al., 2022; Ritala et al., 2016)

Moreover, by definition, the concept of coopetition refers to simultaneous cooperation and competitive dimension in an integrated way. Both dimensions are two distinct but interrelated

paths of a unified whole and suggest that having both is the source of the win-win relationship (Gnyawali & Charleton, 2017). Thus, we exclude from this book chapter any research that emphasizes either competition or cooperation and introduce the other element as a contextual or explanatory variable or sometimes referred to as the interplay of competition and cooperation.

Insight 1: Competitors can be the most relevant partner, especially for innovation

Since the beginning, coopetition research was based on the assumption that coopetition can lead to better performance and thus competitors can be the most relevant partner (Fernandez, et al., 2019). The normative idea behind the coopetition literature is that if firms implement coopetition strategies, their performance should be higher than if they implement a pure cooperative strategy or a pure competitive strategy (Lado et al., 1997). Thus, the competitor should be the preferred partner relative to non-competing partner.

The rationale behind it takes its roots in RBV (resource-based view) and CBV (capabilities-based view). Competitors have market and resource commonalities (Chen, 1996). Competitors face the same challenges and possess similar language, processes, and resources making each other resources and capabilities directly relevant to each other and improving their capacity to successfully combine and leverage each other's knowledge (Bouncken and Fredrich, 2016). As innovation capabilities emerge from the recombination of complementary knowledge (Kogut & Zander, 1992), coopetition scholars argue that competitors are the most relevant partner to allow the recombination of complementary knowledge. And this is for not only the development of a new product but also its commercialization (Lado et al., 1997).

In coopetition literature, competitors are not just a complementary and relevant source of knowledge and resource. The competitive dimension that characterizes their relationship with the company is essential in avoiding complacency and maintaining creative tension both within and

between organizations (Bengtsson & Sölvell, 2004; Quintana-García & Benavides-Velasco, 2004). The recombination of complementary and similar knowledge that competitors combine with the stimulating dynamic generated by the competitive relationship generates a win-win outcome that none of the competitors could reach alone or with a non-competitive partner (Lado, et al., 1997). Said differently, a competitor is the best partner to challenge and complement a company's innovation process but also the best partner to use and stimulate the use. Some empirical studies confirm this view and show that coopetition has a positive impact on innovation (Bouncken et al., 2020; Estrada et al., 2016; Gnyawali & Park, 2011; Ritala & Hurmelinna-Laukkanen, 2009).

While initially, the coopetition literature focuses on a dyadic relationship, the research has expanded to network and the insight is the same. Competitors collaborate not only at the dyad level but also between several competitors (Le Roy et al., 2021; Rouyre & Fernandez, 2019) and at the industry level (Czakon & Czernek, 2016; Mariani, 2007; Mathias et al., 2018). Collaborating at the industry level gives them access to complementary resources and capabilities necessary to solve industry challenges (Gnyawali, He, & Madhavan, 2006; Gnyawali & Madhavan, 2001). Collaborating allow them to divide the risks of innovation (Rijamampianina & Carmichael, 2005; Tether, 2002), supports the creation of standards, and reinforces the firms' power within the industry (Gnyawali et al., 2008).

The key insight is that in terms of knowledge and resources, competitors are promising partners, but not only. The competitive nature that characterizes the competitor is intended and needs to be leveraged to benefit from the promises of coopetition.

The research on coopetition went further than just stating normatively that the competitor and the competitive relationship are beneficial. They identified contingency variables that explain when competitors are relevant partners for innovation. Coopetition studies show that companies

should benefit from coopetition according to external and internal factors (Gernsheimer et al., 2021).

Insight 2 : Coopetition requires a specific coopetitive management

Coopetition is not only intended, but it is also feared because it increases the opportunities of the competitor to internalize the focal firm's strategic knowledge (Park & Russo, 1996). It can end in a win-lose outcome in which the overall competitive advantage of a company is eroded and thus negatively impacted by the collaboration. This fear could lead to the failure of the project. For instance, in the coopetition that occurred between Airbus and Thalès, the experts involved initially preferred to jeopardize the success of the project by not sharing their knowledge rather than risking the competitor learning it and reusing it in other competing projects (Fernandez et al., 2014). In line with this view, some empirical studies show that coopetition has no impact, or even a negative impact, on innovation (Mention, 2011; Nieto & Santamaría, 2007; Park & Russo, 1996).

This double-edged sword that represents coopetition is the starting point of a managerial sub-stream in coopetition research. It explores the specific tensions (Fernandez et al., 2014; Tidström, 2014) and implementing the specific managerial principle and organizational design: one that collaboration with competitors is preferred relative to other types of partners. These principles are 1) separation at the firm level, 2) co-management at the project level, and 3) integration at the individual level (Le Roy & Fernandez, 2015).

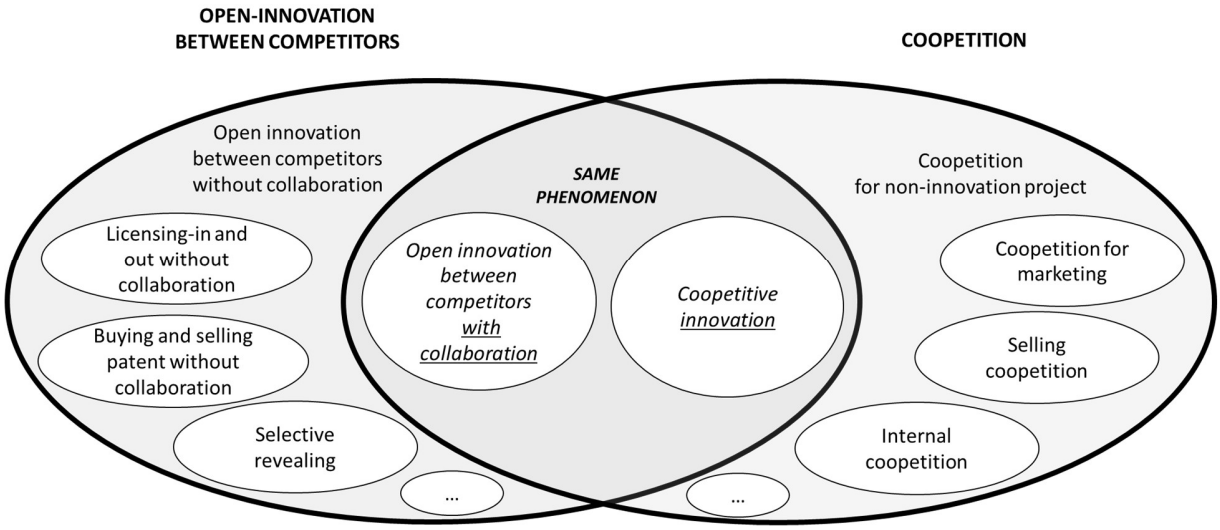
One insight of coopetition literature is that it argues that the success of coopetition relies on a "coopetition mindset" (Brandenburger & Nalebuff, 1996; Rai et al., 2022); managers must perceive the contradictory dynamics of being both in a cooperative and competitive relationship, and then adopt, balance, and integrate this double thinking. The managerial goal at the firm level

is thus not to reduce the competition between competitors. Reducing the competition perception through trust for example can be dangerous as trust is the source of 'too much of a good thing' and may undermine conflicts, hamper critical thinking, and become a cause for complacency, driving down coopetition performance (Chai et al. 2019). Other coopetition literature explored the development of these capabilities (Bengtsson, Raza-Ullah, & Vanyushyn, 2016b; Lundgren-Henriksson & Kock, 2016; Raza-Ullah, Bengtsson, & Vanyushyn, 2019).

What Open Innovation can learn from coopetition

At the intersection of open innovation and coopetition, it appears that both literatures explore one similar phenomenon, but this phenomenon is one sub-stream of each (Figure 15.1). It is thus a misinterpretation to argue that any open innovation practice between competitors is always a coopetitive relationship.

Figure 15.1: The overlap between open innovation between competitors and coopetition literature



Careful attention needs to be taken before applying insights from coopetition. Such insight can be used only in open innovation literature between competitors that involves (1) a

collaborative and knowledge co-creation relationship, and (2) a mindset embracing in its management both cooperation and competition. It is only in this very specific context that the potential of using coopetition in open innovation should be fertile. Said differently, the coopetition insight can be used only for the group 3 called “Coopetitive Open Innovation”.

Therefore research in which open innovation consists of knowledge transaction (“Transactional OI with competitors”) would not benefit from the coopetition literature. Similarly research in which open innovation consists of reducing the competition as a means to manage open innovation between competitor would not benefit from the coopetition literature.

Research opportunity 1: the role of competitive dimension in open-innovation

As we showed, competitors were initially relatively neglected or rejected by the open innovation literature compared to others (“Unwanted OI with competitors”). Based on the coopetition literature, the competitor can be a promising partner, and maybe the best one, for open innovation. This is a call to rethink the open innovation practices toward this question: Can competitive relationships shape positively the open innovation practices? Indeed, Henry Chesbrough's last book (2020) stresses how difficult it is to get results from open innovation practice, moving from open innovation only for idea generation to idea absorption and diffusion. The coopetition literature stresses the following question: could the competitive dimension motivate adoption and diffusion of innovation?

This research question is promising because it goes one step further that Lim et al (2010) and more recently Vasudeva et al. (2020). They showed that cooperation can exist despite conflict and competition, and sometimes conflict and competition can even leverage cooperation. And now the coopetition literature highlights that competition can be a tool for adoption and optimization of open innovation. Open innovation includes broader forms of cooperation such as

R&D consortium, Open Source, start-up venturing, crowdsourcing, etc. (Chesbrough, Chapter 1). Therefore the impact of the competitive dimension of open innovation should be explored in these different forms of open innovation.

Research opportunity 2: contingency variables for the success of coopetitive open innovation

Exploring when the competitor is the best partner for open innovation raises the question of under which condition would coopetition generate a positive outcome. In other words, what are the contingency variables in favor of a positive effect of including competitors and a coopetitive mindset in open innovation practices? This question has already been investigated by coopetition scholars. They identify a list of external factors such as network externalities, market uncertainty (Ritala, 2012), appropriability regimes (Ritala & Hurmelinna-Laukkanen, 2013), or technological uncertainty increase the positive impact of coopetition on innovation. Some internal factors such as knowledge sharing (Bouncken & Kraus, 2013), absorptive learning capacity (Fredrich, et al., 2019), formal knowledge protection mechanisms (Estrada et al., 2016), governance (Bouncken et al., 2016), coopetition management (Le Roy & Fernandez, 2015), and coopetitive capabilities (Bengtsson et al., 2016) also increase this positive impact.

Research opportunity 3: the multilateral dimension of coopetitive open innovation

OI implies not a purely coopetitive relationship, as the open innovation practices most often include multilateral relationships including both competitors and non-competitors. The coopetition literature mainly focused on the dyadic relationship as they considered it has the most relevant context to explore the coopetitive tensions (Fernandez et al., 2014). Recent research extended the coopetition topic to multilateral relationships (Le Roy et al., 2021; Rouyre & Fernandez, 2019). The question is to know how the coopetition view should enrich the knowledge on multilateral OI including competitors and non-competitors. The questions are the

following ones:

- (1) how the inclusion of the coopetitive mindset and practices impact the relationships in these different forms of multilateral open innovation?
- (2) are the contingency variables identified in coopetition research are relevant for the different multilateral forms of open innovation?
- (3) does the presence of non-competitors impact the coopetitive relationships in the multilateral forms of open innovation ?

Research opportunity 4: Management of coopetitive open innovation

One of the main insights generated by coopetition is about how to manage the simultaneous cooperative and competitive dimensions that characterize any open innovation initiative based on collaboration with competitors. The open innovation literature taking its roots in collaborative innovation literature argues that it requires trust and reduction of the competitive dimension (Bloomqvist et al, Chapter 13; Salampasis & Mention, 2014). However, these ways of managing open innovation are in opposition to what the coopetition literature argues. Coopetition includes both trust and distrust (Raza-Ullah & Kostis, 2020). The roots of coopetition rely on leveraging both cooperation and competition, and thus reducing the competition would destroy the "raison d'être" of the coopetitive relationship. Coopetition insights thus calls for rethinking the management of open innovation. Our argument is in line with Bacon et al. (2019), who recommend different management of knowledge sharing based on whether the partner is a competitor or not.

The coopetition literature has highlighted several tensions specific to the coopetitive relationship (Fernandez et al., 2014) and managerial principles to deal with these tensions (Le Roy & Fernandez, 2015). Thus, one additional insight that coopetition brings to open innovation

is how collaboration between the competitors can leverage these tensions, and managerial principles of separation, co-management, and integration. However, these managerial insights have mainly been identified in dyadic R&D collaboration, and we saw that open innovation takes multiple forms from R&D consortia to open standards (Olk & West, 2020; Simcoe, 2006). This question becomes what are the coopetitive managerial principle used in other open innovation practices?

Some past research such as Rouyre and Fernandez (2019) is the first to test the coopetition principle in open innovation settings. Additional research is needed to highlight the relevant managerial principles according to the different forms of open innovation between competitors.

Research opportunity 5: the coopetitive inside-in open innovation

It is also important to note that there is an additional way how open innovation can learn from the literature on managing coopetition. Some research with an open innovation lens such as Seran and Bez (2021) shows that internal competition between business units were jeopardizing open initiatives, and — of particular concern to this paper — cooperative start-up engagements. The competition between one corporate's business units was restricting the inside-in flow of knowledge needed for leveraging external start-up knowledge. Getting results from this corporate-start-up initiative required to implement specific management embracing the internal coopetition relationship. There is a growing research on internal coopetition (Chiambaretto et al., 2019; Tsai, 2002) that was not developed in this chapter, but on which open innovation research on inside-in open innovation could leverage (Gutmann, 2019; Pundziene, Nikou, & Bouwman, 2021).

Conclusions

The two literatures dedicated to open innovation and coopetition grew separately in past

research. Open innovation refers to knowledge flow across the boundary of the firm including practices such as licensing, revealing, selling, acquiring, cooperating, etc. (West & Bogers, 2014). Coopetition is the nature of the relationship between companies including simultaneously cooperation and competition (Fernandez et al., 2019). The overlap between these two literatures is at the intersection of "open innovation between competitor with collaboration" for OI literature and "coopetitive innovation" for coopetition literature. We name this specific type of OI and coopetition "Coopetitive Open Innovation" as open innovation with competitors embracing a "coopetitive mindset" and specific managerial principles (i.e. cooperation and competition should be simultaneously pursued and the competition dimension should not be reduced).

For this specific type of open innovation, this chapter pushes the idea that coopetition literature can provide important insights for open innovation research. Indeed, coopetition inverts the traditional view of competitors in open innovation from the least preferred to the most preferred. This view opens research avenues for understanding the value of coopetitive relationships in open innovation. It seems relevant 1) to study the role of the competitive dimension in open innovation (especially in open innovation adoption and diffusion) 2) to test the value of the long list of contingency variables identified in coopetition literature on open innovation, 3) to explore the multilateral coopetitive open innovation, 4) the management of coopetitive open innovation and 5) the coopetitive inside-in open innovation.

Notes

1 We thank Joel West for very constructive, valuable, and detailed comments on this chapter.

2 Laursen and Salter (2014) both reference open innovation without collaboration, which consists of drawing ideas from competitors (i.e. our group 2 of research) and open innovation with collaboration that they call "competitor collaboration" (i.e. our group 3).

3 It is important to notice that some research limit the definition of “coupled Open Innovation” to simultaneously buying and selling of knowledge without co-creation and collaboration. But in this chapter the concept of coupled mode of open innovation involve co-creation as it is defined in Enkel, Gassmann, & Chesbrough, (2009: 313) : “The coupled process refers to co-creation with (mainly) complementary partners through alliances, cooperation, and joint ventures during which give and take are crucial for success”..

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