

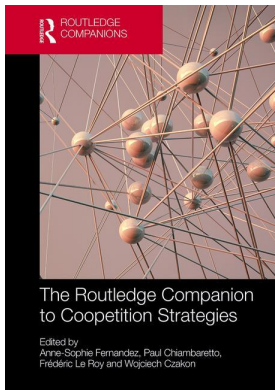
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Are competitors the best partners in innovation networks?

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Are competitors the best partners in innovation networks?

Frédéric Le Roy, Frank Lasch, and Marc Robert

Introduction

The literature highlights the relevance of cooperation in the development of innovative products (Belderbos et al., 2004; Fey & Birkinshaw, 2005; Cassiman & Veugelers, 2006; Chesbrough, 2006; Fey & Neyens et al., 2010; Nieto & Santamaria, 2007; Santamaria & Surroca, 2011; Tomlinson, 2010; Yami et al., 2010). Reaching such an objective, firm-level innovation strategy relies more and more on inter-organizational cooperation (Fey & Birkinshaw, 2005). Currently, we observe that product innovations result frequently from inter-firm cooperation, rather than being developed in “isolation” from single firms.

Here, cooperation partners range from public universities to customers, suppliers, competitors, and so on. The literature identifies three main partners in inter-organizational cooperation contexts (Yami et al., 2010): research institutions (public, such as universities, or private); partners that are not considered to be in competition for similar products, services, or markets, such as suppliers or clients (henceforth termed “non-competitors”); and, finally, firms in direct competition (henceforth termed “competitors”). But firms that seek to develop innovation face complexity and struggle to identify the best type of cooperation partner (and in consequence the best cooperation strategy). Entrepreneurs, managers, and other stakeholders consider cooperation with competitors much riskier than engaging with non-competitors. Several reasons lead to this perception, one of which is trust. Trust is often presented as a central dimension of interaction between partners and as essential for cooperation, but more difficult to establish and to maintain with a competitor as cooperation partner (Ritala & Hurmelinna-Laukkanen, 2009). In such a context of simultaneous cooperation and competition, cooperation—the sharing of information, knowledge, and resources—is particularly complex to organize, and trust an important moderator for effective cooperation management.

In consequence, when firms pursuing an innovation strategy engage in cooperation, negative effects of such a complex relationship and inherent difficulties in managing interactions or resource sharing should result in cooperation being less effective as compared to cooperation with non-competitors or more “neutral” partners, such as research institutions. But we see in the literature that most research conducted on inter-organizational cooperation (including cooperation specifically) has difficulty determining the better option in terms of cooperation partner choice.

Some find negative (or, at best, some) effects of cooperation on innovation; others find clearly positive effects of cooperation with non-competitors, including research institutions (Nieto & Santamaria, 2007; Santamaria and Surroca, 2011; Tomlinson, 2010). This leads to the general conclusion that inter-organizational cooperation with non-competitors is the better strategy for firms that seek to develop innovation. However, more and more evidence emerges to challenge this assumption and points to comparable (and positive) effects of both cooperation with non-competitors and cooperation (Belderbos et al., 2004; Neyens et al., 2010). Who is now the better innovation partner: a competitor, a non-competitor, a research institution? In the following we draw on recent empirical studies (Le Roy, Robert, & Lasch, 2016) to provide a more detailed understanding of the opportunities, risks, and challenges in the choice of a cooperation partner.

Inter-firm cooperation and innovation

Literature stresses the importance of inter-firm cooperation for economic performance of organizations in general and technological innovation in particular (Cassiman & Veugelers, 2006). Aside from tangible complementary assets, intangible resources such as knowledge or information exchange about new customer needs and novel techniques for the development of products and services are part of interactions between cooperating firms. In consequence, inter-firm cooperation is part of today's innovative firm strategy as it increases organizational flexibility, knowledge absorption, and learning capacity. Another advantage of inter-firm cooperation is the alleviation of complex coordination often observed in firms with high levels of hierarchy (Belderbos et al., 2004).

For innovative firms, innovation networks are a particularly interesting form of inter-firm cooperation (Belderbos et al., 2004; Brandenburger & Nalebuff, 1996; Neyens et al., 2010; Nieto & Santamaria, 2007; Tomlinson, 2010; Yami et al., 2010). In particular, network relations with heterogeneous partners increase the capacity of organizations to develop new, innovative products or services.

Further advantages of cooperation are a better management of uncertainty in today's rapidly changing economies and markets thanks to a higher (and thus more current and relevant) knowledge exchange between cooperating firms (Belderbos et al., 2004; Cassiman & Veugelers, 2006; Fey and Birkinshaw, 2005). Shared knowledge is central in innovation-driven and entrepreneurial economies to reach economies of scale. Such exchange of knowledge and resources creates synergy, facilitates organizational learning, and leads ultimately to new, complementary, assets. In the following, we will review the advantages and risks of cooperation by distinguishing between different cooperation partners in general (Section 1.1), and by including the dimension of competition in inter-firm relations, in particular (Section 1.2).

The absence of competition in inter-firm cooperation

We distinguish two completely different situations in inter-firm cooperation. In the first, on which we focus in this section, the firms engaged in cooperation are non-competitors or public/private research institutions, meaning they do not compete in the same markets. Here, the purpose of cooperation is to overcome resource scarcity and inability to independently create an innovative product or service by combining firm-specific competencies and resources. From a theoretical viewpoint, the literature describes the absence of competition as the central element for the necessary development of trust between cooperation partners. Trust helps engagement in cooperation, is necessary to sustain cooperation, and ultimately leads to intensified cooperation (Whitley, 2002). Inter-firm cooperation under such conditions is regarded as particularly effective in achieving common innovation projects because the firms involved share knowledge,

information, competencies, skills, and other sets of resources in a spirit of trusting interaction with the objective to reach a common goal.

In the present section we define the absence of competition as an inter-organizational cooperation with a non-competing firm or a public/private research institution. Hereby, the cooperating firms also draw resources from their respective innovation networks, which bring additional technology-combining value to the cooperation. Two network types can be considered here. The first one is termed “upstream,” as it covers value chain sections of the production phase. Typically, here, network partners are suppliers. Other upstream relations can be of commercial nature (transactional types) that can ultimately evolve into formalized inter-firm cooperation. An example for such a relation is the sharing of technology resources with universities. The second network type is termed “downstream” as it refers to the market (customer needs, product/service innovation opportunities, etc.). Both cooperation types, in the absence of competition, both upstream and downstream, are considered facilitators to step across the boundaries set between a firm and its environment (Chesbrough, 2006). Here mutual innovation flows are important and in consequence, whether aware of it or not, firms “outsource” innovation. At this point, cooperation also means managing innovation in an open innovation system.

In the following we highlight some differences between cooperating with upstream (suppliers, customers) and downstream cooperation partners. For further illustration, we summarize results from an empirical study (Le Roy et al., 2016).

Cooperation with suppliers and customers

The first “upstream” (or “vertical”) cooperation partners of a firm are suppliers and customers. Reviewing the literature, at first glance the effects of upstream cooperation are relatively consistent across studies and conclude overall a positive impact on product innovation. Upstream cooperation positively influences: (i) the intention of a firm to introduce new products (Miotti & Sachwald, 2003); (ii) the likelihood of introducing new products (Arranz & Arroyabe, 2008); (iii) the ability to achieve high levels of novelty (Nieto and Santamaria, 2007); (iv) the general innovation performance of a firm (Neyens et al., 2010; Tomlinson, 2010); and (v) the frequency of product innovation (Santamaria & Surroca, 2011).

Overall, most studies conclude that cooperation with suppliers has higher effects as compared to cooperation with customers. Only, when we analyze suppliers and customers separately, the results are much more mixed. In the literature, we observe that the effects of cooperation with suppliers are much less straightforward than for cooperation with customers (Belderbos et al., 2004; Neyens et al., 2010; Nieto & Santamaria, 2007; Santamaria & Surroca, 2011; Tomlinson, 2010). Some conclude in positive effects, some in negative ones, others do not find any effects at all. In particular, negative or null effects are explained by asymmetric consequences of inter-firm cooperation: suppliers benefit more from cooperation as their products encounter higher levels of improvement as compared to those of the partner firm. However, improving the products of the supplier is potentially a good strategy for the partner firm to improve its own products—but the impact is not linear. Only if a firm has sufficient financial resources to fund both the innovation of its supplier and its own, upstream cooperation becomes relevant and results in positive effects. If financial resources are limited, allocating resources to improve the product of the supplier could lead to asymmetric benefits, as described above.

Cooperation with research institutions

The second type of cooperation, which we label “downstream” (or “vertical”), is often conducted with research institutions. In part, as a result of government actions, cooperation with research institutions has been growing very strongly in recent years. Such cooperation can take various

forms, ranging from a simple attempt to capture knowledge informally to highly formalized cooperation (Monjon & Waelbroeck, 2003). The informal way is relevant for firms that focus on imitation of technology strategy to develop incremental innovations. In contrast, the formalization of cooperation seems a necessity for firms aiming to develop more radical innovation.

If we look at the outcomes of cooperation with research institutions, literature concludes generally on positive effects such as: (i) a higher ability to conduct innovation product research and development at technological frontiers (Miotti & Sachwald, 2003); (ii) a higher propensity for the development of patents (Miotti & Sachwald, 2003); (iii) a higher level of novelty in product innovation (Nieto & Santamaria, 2007); (iv) a positive effect on the growth of innovative sales per employee (Belderbos et al., 2004); and (v) performance of radical innovation (Neyens et al., 2010).

Similar to the “upstream”-type cooperation examples discussed above, while at first sight the literature finds overall consistent (and positive) effects of cooperation with research institutions, some evidence points to a more complex picture and reports negative effects on product innovation performance (Caloghirou et al., 2004; Monjon & Waelbroeck, 2003). This is explained by the fact that cooperation strategies with universities do not impact all involved actors in the same way (Mohen & Hoareau, 2003). In particular, firm size effects are to be considered in assessing the effects (or the value) of cooperating with research institutions. Large firms take often greater benefit from such cooperation than small ones. Having a more powerful economic imprint and legitimacy, they possess more resources to allocate to the formalization of contracts, the search for public funding and support, etc. Large firms obtain comparatively higher government support for patent development. In contrast, cooperation between small and medium-sized enterprises (SMEs) and public research institutions such as universities is less frequent, and in consequence benefits less from public support. This is one explanation why the effect on SME product innovation when cooperating with research institutions is lower as compared to large firms in cooperation (Mohen & Hoareau, 2003).

Main empirical findings for cooperation with non-competitors

We present here a summary of the main empirical findings of the literature on inter-organizational cooperation under absence of competition between partners. Focusing on innovation as one of the most important motives to engage in inter-firm cooperation, our review of the literature found, taken together, mostly positive effects when firms join to develop new innovative products or services (Table 8.1). We found evidence for both “upstream” (vertical) and “downstream” (horizontal) types of cooperation. Upstream cooperation was found to increase, for example, firm innovation performance (Tomlinson, 2010), frequency of product innovation (Santamaria & Surroca, 2011), novelty in innovation (Nieto & Santamaria (2007), and labor productivity (Belderbos et al., 2004). With respect to cooperation intensity over time, Neyens et al. (2010) found that occasional cooperation increases incremental innovation performance, while regular cooperation favors radical innovation performance. Similar results for downstream cooperation (with research institutions) were found (Kang & Kang, 2010) for product innovation in general, and in particular for labor productivity (Belderbos et al., 2004) and novelty (Nieto & Santamaria, 2007).

The presence of competition in inter-firm cooperation: Cooperation with competitors

The second situation of cooperation we consider is when firms cooperate but also compete, meaning they compete simultaneously in the same markets. Here, the firms engaged in cooperation are competitors. Termed co-competition, such a relationship involves firms that offer a similar

Table 8.1 Main findings of selected literature

<i>Author(s)</i>	<i>Topic</i>	<i>Sample</i>	<i>Results</i>
Miotti & Sachwald (2003)	Drivers and impact of cooperative R&D	CIS France (1994–1996)	Positive effect of vertical coop. on propensity to introduce new products; coop. with public institutions increase capability of high-end technological research, patents; no effect of coop. with rivals.
Belderbos, Carree, & Lokshin (2004)	R&D cooperation and performance	CIS Dutch (1996, 1998)	Positive effect of coop. with suppliers and competitors on labour productivity; positive effect of coop. with competitors and research institutes on innovative sales per employee
Arranz & Arroyabee (2007)	Partner choice in R&D cooperation	CIS Spain 1997–1998	Positive effect of vertical coop. with clients and suppliers on the probability of sharing innovative products in turnover
Nieto & Santamaria (2007)	Coop. networks and innovation	Spanish firms	Positive effect of coop. with suppliers, customers, research institutions on novel innovation; positive effect of coop. with competitors
Tomlinson (2010)	Coop. ties and innovation performance	436 firms (UK)	Pos. effect of vertical cooperation on innovation performance; Some positive effects of coop. horizontal relationships
Neyens, Faems, & Sels (2010)	Continuous/dis-continuous coop. on innovation performance	217 Finnish start-up firms	Pos. effect of discontinuous coop. with suppliers, customers and competitors on incr. innovation perf.; Pos. effect of continuous coop. with suppliers, customers, competitors, research institutes on radical innovation perf.
Kang & Kang (2010)	R&D coop. and product innovation	Korean Innovation Survey	Positive effect of R&D coop. with customers and universities on product innovation; inverted-U-shape relationship of R&D coop. with suppliers and customers on product innovation
Un, Cuervo-Cazurra, & Asakawa (2010)	R&D cooperation and product innovation	Manufacturing firms	Highest effect of R&D coop. with suppliers on product innovation, followed by coop. with universities; no effect of coop. with consumers; negative effect of coop. with competitors
Santamaria & Surroca (2011)	Impact of R&D cooperation on innovation	1300 Spanish firms	Vertical coop. increases frequency of product/process innovation, horizontal does not; horizontal coop. has no or negative effect on innovation outcomes

(Source: adapted and completed from Le Roy et al., 2016.)

product for the same type of customer or a similar market (Le Roy & Fernandez, 2015). It describes a paradoxical situation in the sense that (i) cooperation partners also compete; (ii) such organizational behavior, which oscillates between two contradictory elements (cooperation and competition), does not lead to lower levels of competition between the firms involved; and (iii) desired outcomes are beneficial to both partners (albeit in competition).

For these reasons, from a theoretical and practical perspective, coopetition challenges common-sense and habitual business practice. In the past, the protection of resources, knowledge, competencies, and skills kept within organizational boundaries has been considered a necessary condition for successful competition with rival firms. But in the current economy, we observe that cooperation between competitors is more and more common practice, in particular in innovation- and knowledge-intensive industries. Paradoxically, in such contexts, the “best” cooperation partner is the one who develops similar or complementary products (often for the same market). In consequence, the “best” cooperation partner is the “worst” opponent and the most dangerous competitor, but in the end also the most attractive partner (Hamel et al., 1989; Hamel, 1991).

Compared to cooperation in the absence of competition, asymmetric risks are multiplied in coopetition, because such relationships can lead to strengthening a competitor and weakening a firm’s own position (information, knowledge, resource leakages, etc.). This risk is omnipresent in coopetition and hard to avoid, as too-high protection barriers would affect collaborative work, endanger a common innovation project, and result in the failure of the cooperation with the competitor. In contrast, a firm that intends to speed up the common innovation process will be forced to increase the risk of “openness” *viz.* the transfer of resources and competencies (Pellegrin-Boucher et al., 2013).

If the risk of transferring resources and knowledge is of hypothetical order (and easy to control) in inter-firm cooperation in the absence of competition, it is real (and hard to control) in a context of coopetition. Naturally, competing with a rival firm tends to use the common knowledge created to improve a firm’s own competitiveness. We normally expect that this difference between cooperation in situations of absence and of presence of competition should make coopetition less effective.

In a coopetition context, required elements that create the value of cooperation, such as trust and knowledge-sharing, are much more difficult to establish (Fernandez et al., 2014). Finding the right balance (Park et al., 2014) of knowledge exchange versus protection and trust versus caution appears to be more complex, risky, and could render cooperation less efficient. Therefore, common sense would expect that coopetition (as compared to inter-firm cooperation with non-competitors) should lead to lower innovation performance.

But surprisingly, we find little support for this assumption in literature. On the contrary, empirical studies investigating the effects of coopetition on outcomes of inter-organizational cooperation reveal a quite mixed picture. The first group argues that coopetition has negative (or at best, any) effects on cooperation (Nieto & Santamaria, 2007; Santamaria & Surroca, 2011). On the opposite, a second stream finds that coopetition has a much less negative effect on outcomes of cooperation such as innovation or firm growth than depicted by the first stream. Authors belonging to this line of thinking often find clearly measurable positive effects. Kang & Kang (2010), for example, observe inverted U-shaped effects when competing firms join together in R&D projects to develop new innovative products or services. Others find that coopetition is positive for the innovation performance in general of the involved partners (Tomlinson, 2010), the labor productivity of employees involved in coopetition-based projects (Belderbos et al., 2004), and Neyens et al. (2010) conclude that a link exists between coopetition intensity over time and the nature of innovation. Here, ongoing coopetition is found to be beneficial for radical innovation performance and occasional or disruptive coopetition leading to incremental innovations.

The contradictory nature of evidence on the effects of coopetition has resulted in a lively discussion about which measure to use to assess coopetition outcomes. In this debate, more and more of a distinction is made between incremental and radical innovation in order to

better shape out the effects of coopetition on innovation. Using this lens, empirical evidence draws a fairly nuanced picture. Overall, literature points to the idea that coopetition is rather positive when the aim of the cooperation is incremental innovation. Or in other words, coopetition might be a cooperation strategy that is easier to manage when desired innovation levels are moderate (incremental). This is the argument of Nieto & Santamaria (2007); they conclude that cooperating with a competitor is incompatible when radical innovation is at the heart of the relationship. In line with this, Ritala & Sainio (2014) find a negative effect on technological radicalness, but a positive effect on business-model radicalness. While this stream of literature describes coopetition as a good strategy for incremental innovation, another stream claims the opposite. Again, distinguishing between different levels of innovation intensity (or quality), Bouncken & Kraus (2013) argue that coopetition is useful to achieve radical innovation (but dangerous for highly novel revolutionary innovation). Looking at time-related dimensions and the evolution of cooperative relationships, Bouncken et al. (2017) observe positive effects on incremental innovation in the early stages of cooperation (pre-launch and launch phases), and some positive effects on radical innovation (but only in later stages, such as the launch phase).

Who is the best coopetition partner? A contingency approach

Cooperation partner type and location

In sum, the literature presents contradictory evidence of coopetition on (i) the outcomes of such a relationship (positive versus negative); and (ii) the nature of innovation as the most frequent aim of such a relationship (incremental versus radical innovation). While our understanding of coopetition as a good or a bad strategy (depending on specific contexts) is increasing, the question of who is the best partner in a competitive relationship remains to be further addressed.

To move in this direction and to shed more light on the crucial question of the best coopetition partner choice, we draw upon the literatures about cooperation in situations under the absence of competition (Section 1.1) and recent empirical work we conducted on the crossroad of the type of coopetition partner and the type of innovation. In the latter, we adopted a contingency approach by introducing new, contextual variables (geographical scope of cooperation/coopetition, type of partners, firm size).

The first study investigates effects of coopetition on innovation outcomes (radical versus incremental) by controlling for different types of cooperation partners. The second study refines the results by introducing firm size as a new dimension to advance our understanding of the coopetition process, the involved firms (partner choice), and innovation as an outcome of coopetition strategy. Taken together, we formulate recommendations for practitioners and policy.

In the following section, we summarize the main results of our analysis of coopetition strategies and their effects on innovation, by discriminating between the types of partner with whom such cooperation is established.

First, we look at inter-firm cooperation in situations of competition (coopetition) and the effects of simultaneous cooperation and competition on innovation (incremental versus radical). Here the primary focus was on the geographical scope of the partnership (location of the competitor). Overall, we find the following pattern (Table 8.2):

- (i) Coopetition, independent of the location of the competing firm, does not show any effect on incremental innovation;

Table 8.2 Cooperation depending on location and type of partner

	Radical Innovation	Incremental Innovation
<i>Cooperation with competitors (location)</i>		
<i>In the same region</i>	-	ns
<i>In other regions of France</i>	ns	ns
<i>In Europe</i>	+++	ns
<i>In North America</i>	+++	ns
<i>In Asia</i>	ns	ns
<i>Cooperation with non-competitors (types)</i>		
<i>Firms of a company group network</i>	ns	ns
<i>Suppliers</i>	-	ns
<i>Customers</i>	+++	+++
<i>Private R&D</i>	ns	ns
<i>Public universities</i>	+++	+++
<i>Public R&D institutions</i>	+	ns
<i>Control variables</i>		
<i>Number of employees</i>	+++	+++
<i>Network membership</i>	-	--
<i>Company group membership</i>	+	+++
<i>Absorptive capacity</i>	ns	ns
<i>External technology/knowledge</i>	ns	ns

(-/+) $p < 0.05$, (--/++) $p < 0.01$, (---/+++) $p < 0.001$.

(Source: adapted from Le Roy et al., 2016.)

(ii) We find some effects of coopetition on radical innovation, but only for international cooperation (North America and Europe).

Second, we look at inter-firm cooperation in the absence of competition and the effects on innovation (incremental versus radical). Here the primary focus was on the type of cooperation partner (networked firms, suppliers, customers, and research institutions). Overall, we find the following pattern (Table 8.2):

- (i) Cooperation with customers has comparatively the greatest effect on both incremental and radical innovation;
- (ii) Cooperation with public universities proves generally positive for both incremental and radical innovation;
- (iii) Cooperation with research institutions (public and private) has no or little effect on both incremental and radical innovation;
- (iv) Surprisingly, cooperation with suppliers reveals to be negative for radical innovation and has no effect on incremental innovation.

As a conclusion, the best choice of cooperation partner we identified in our sample is the following: if the objective of the cooperation is to achieve incremental innovation, the best partner choices are customers or public universities. If radical innovation is the aim, customers and universities also stand out as excellent cooperation partners. If cooperation is engaged with a competitor, only international partners in innovation-driven economies are relevant choices (North America and Europe, in our case).

Inter-firm cooperation and the effects of firm size

The findings of the first study underline the relevance of using a contingency approach by introducing new variables in the debate about value, opportunities, and risks of inter-firm cooperation (in presence of competition or not). We continue to advance our understanding of cooperation by using another, currently little-explored, context variable: firm size. Does firm size influence the relationship between cooperation/cooperation and innovation (Le Roy et al., 2015)? Current knowledge argues that competition could be a “double-edged sword,” in particular for small firms (Bouncken & Fredrich, 2012). The reason for this view is the resource scarcity typical for small firms (Miller et al., 2007; van Gils & Zwart, 2009). Such firms try to overcome size-related constraints through cooperation to increase competitiveness, to create synergies and to obtain complementary resources (Eikebrokk & Olsen, 2007; Lechner & Leyronas, 2009). One risk of cooperating with a larger counter-partner is power asymmetry (Dussauge et al., 2000). According to this line of thinking, we suggest that effects of cooperation/cooperation are different across firm size (small versus large firms). Using a similar approach and the identical database as for our previous study, our main results are the following:

- (i) Cooperation with customers has a positive effect on innovation both for small and large firms (the positive effect being stronger for small firms);
- (ii) Cooperation with public research institutions and universities has a positive effect on innovation for large firms, but we find no measurable effects for small firms;
- (iii) Cooperation with suppliers has no effect for large firms and a negative effect for small firms;
- (iv) Competition has a positive effect on innovation for small firms, but we find no effects for large firms.

Taken together, our findings suggest that small firms benefit from cooperation when the cooperation partner is close to the market (customers, competitors). In contrast, we observe that public universities and suppliers are not a good choice for small firms. Large firms benefit from cooperation when the small firm is distant from the market. Overall, we present evidence for the assumption that effects of different types of partners on firm-level innovation differs across firm size.

Conclusion

We provide some new insights for the crucial question of who could be the most relevant innovation partner for inter-firm cooperation. But this question remains to be addressed further, and is still more or less “open.” Reviewing the evidence of our latest empirical work, cooperation with non-competitors and/or research institutions appears to be the less risky and potentially the most fruitful. But again, our findings were not fully conclusive to definitively answer this question. For example, the literature stresses the importance of cooperating with customers; we could confirm this. But we found mixed argument for cooperating with universities, and more-than-controversial results for suppliers. Depending on the empirical design, the effects of cooperating with a competitor seem very risky at the least, damaging at the worst, but sometimes we find positive effects and sometimes we do not find any support at all for benefits or risks of competition.

However, introducing contingency variables improves our understanding of competition. The first one we used was the location of the competitor. In the French sample, cooperating with national competitors showed a negative effect, but international cooperation led to positive

effects (in particular North American and European firms). The effects of coopetition also depended on firm size. Here, we identified that coopetition is a good strategy for small firms, but not for large ones.

Overall, from a methodological viewpoint, we recommend further use of the contingency approach to help firms identify the best cooperation partner. In particular, geographical location and firm size proved their usefulness. But other contingency variables measuring external factors should also have an effect (technological intensity, industry convergence, product type, market size, etc.). Some internal factors could also be important to study, such as internal R&D funding, openness to the cooperation partner, market power of firms engaged in cooperation/coopetition, etc. More research is needed to move into this direction and to replicate our work.

New research could investigate, for example, how partner choice impacts processes and outcomes of innovation. Intuitively, cooperation and competition are considered paradoxical situations, difficult to combine in order to create value. Therefore, two firms should engage in cooperation only if they are not competing in the same markets or for the same products. Considered the best cooperation partner choices are non-competitors (customers, suppliers, research institutions). But this view—dictated by common sense—does not match with examples of successful coopetition, such as the Samsung–Sony case (Gnyawali and Park, 2011). In consequence, we need to advance our understanding to be able to explain why cooperation with competitors can be so fruitful. In return, we also need to improve our knowledge to understand why cooperation in the absence of competition does not result in mutual benefits (and, in consequence, forces firms to seek cooperation with competitors).

According to conventional views, cooperation with non-competitors appears to be the less-risky strategy. Here, cooperation partners do not compete in the same markets, and should in consequence face no barriers for full cooperation. But as we have shown, this view does not resist empirical scrutiny. First, vertical cooperation partners possess different knowledge and skills that might not combine into sufficient opportunities to reach economies of scale (which are in general the result of the combination of similar or complementary assets). Second, different knowledge and skills limit the potential to exploit the opportunity of cross-fertilization. For successful cross-fertilization, combined knowledge and skills should be different, but not *too* different. If the differences are not significant, there is little chance that value-added creativity can be reached. If they are too strong, the combination of skills might prove difficult to obtain. This could explain the poor effects of cooperation with vertical partners (and little opportunity to take the full potential of cross-fertilization). This is also true for cooperation with public universities.

In contrast, coopetition as a specific type of inter-firm cooperation can lead to immense opportunities. The competing firms involved target the same market and possess similar knowledge, skills, “language” (organizational culture), technologies, etc. to fully exploit such opportunities. Theoretically, they can relatively easily cooperate to create scale effects. For example, if they have the same purchases in nature and processes, they can better obtain the most competitive prices in placing shared orders. In the same vein, R&D or production costs can be lowered through cooperation. Similar knowledge of competing firms also facilitates working together on an operational, everyday basis. They can combine their close (but not fully identical) knowledge to create new products or services and take full potential of cross-fertilization.

As a conclusion, if coopetition opportunities are high, coopetition risks are also high. Coopetition for innovation could result in spectacular success, as the Samsung–Sony case suggests (Gnyawali and Park, 2011), but creates at the same time an immense risk of knowledge and resource leakage (to be potentially exploited or not by the cooperating firm). This explains why in literature and in practice coopetition leads to sometimes positive and sometimes negative

outcomes. The questions to be further addressed are the following: under which conditions does coopetition lead to powerful alliances and highly fruitful outcomes, and under which conditions is it dangerous for the involved firms? Under which conditions is cooperation a better strategy than coopetition (with non-competitors, research institutions, etc.)? For a deeper understanding of coopetition as a potentially powerful strategy, future research is called to address these questions.

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