

PAUL CHIAMBARETTO AND HERVE DUMEZ

## **Toward a typology of coopetition: a multilevel approach**

**Abstract.** *This article studies the implications of a multilevel approach for the elaboration of a typology of coopetition. While an increasing amount of research is dedicated to the study of coopetition, a growing consensus has emerged on the nature of this phenomenon. Most articles studying coopetition focus on horizontal relationships between homogenous actors using a single level of analysis. However, several recent theoretical contributions have emphasized that coopetition is a more complex phenomenon and could imply vertical relations or heterogeneous actors. We contribute to this debate on the nature of coopetition by constructing a typology of coopetition. This typology is the result of an abductive process in which we mobilize the concept of “level.” By combining activity levels and organizational levels in the airline industry, we identify seven forms of coopetition. Finally, drawing from the multilevel typology, we discuss the implications of a multilevel analysis to gain a better understanding of coopetition.*

---

Paul Chiambaretto is Assistant Professor at Montpellier Business School, 2300 Avenue des Moulins, 34185 Montpellier Cedex 5, France, and associate researcher at Ecole Polytechnique, PREG-CRG, Bâtiment ENSTA, 828 Boulevard des Maréchaux, 91762 Palaiseau Cedex, France. Tel : +334 67102740, p.chiambaretto@montpellier-bs.com, Tel: +33 6 21 25 19 65, paul.chiambaretto@polytechnique.edu; Hervé Dumez is a Professor at Ecole Polytechnique/CNRS, PREG-CRG, Bâtiment ENSTA, 828 Boulevard des Maréchaux, 91762 Palaiseau Cedex, France, Tel. +33 1 81 87 21 64, herve.dumez@normalesup.org.

## **TOWARD A TYPOLOGY OF COOPETITION: A MULTILEVEL APPROACH**

### **Introduction**

Although scholars agree on the existence of coopetition, there is far less consensus regarding its definition. Some broad definitions have been accepted, such as the “simultaneous cooperation and competition between different individual or organizational actors” (Gnyawali et al. 2008). However, the debate on what can and cannot be labeled as coopetition remains intense. To contribute to this debate, several typologies of cooperative agreements have been developed according to the degree of cooperation (Bengtsson and Kock 2000), the level of cooperation in the value chain (Dagnino and Padula 2002; Rusko 2011), the structure of the relationship (Depeyre and Dumez 2010; Dowling et al. 1996 ; Lacoste 2012; Le Roy et al. 2010) or the number of actors (Dagnino and Padula 2002; Gnyawali et al. 2008).

Le Roy et al. (2010) identified several generally agreed-upon characteristics of coopetition. Coopetition is a simultaneous phenomenon that implies mostly horizontal relationships (because firms are competitors). Reviewing the literature, we can add that most studies consider homogenous organizations (that is, firms at the same organizational level) and essentially conduct single-level analyses. However, some articles have emphasized the complexity of coopetition by highlighting the diversity of its forms. Concerning the structure of coopetition, the possibility of a vertical dimension in cooperative agreements has been identified in several articles (Depeyre and Dumez 2010; Gnyawali et al. 2008; Lacoste 2012; Pellegrin-Boucher et al. 2013). The nature of coopetition has also been questioned by proposing the possible heterogeneity of organizations (Luo 2005; Rusko 2011; Tsai 2002). Finally, the question regarding the level of analysis has been posed by Gnyawali and Park (2009; 2011) and Wilhelm (2011).

Considering the conclusions reached by these studies, it appears that the question of levels has not yet been fully studied. First, we believe that the issue of the levels of activity should be analyzed more carefully to explore the nature of competition between partners. In addition, as most studies have remained at the firm level, we would like to extend the study of coopetition to the meta- and infra-organizational levels. These multilevel analyses have generated promising results in the study of alliances (Gnyawali and Madhavan 2001; Hagedoorn and Frankort 2008), and it would be interesting to use this framework to better understand coopetition. By combining these two approaches to the “levels” of coopetition (activities and organizational), we expect a new typology to emerge.

This article thus aims to answer the following questions: *Using a multilevel approach, can we identify new forms of competition and elaborate a new typology? What are the implications of a multilevel view of coopetition?*

In this article, we build a typology of cooperative agreements step by step, allowing us to include several levels simultaneously. This abductive process (Aliseda 2006; Elman 2005) requires us to identify (at each step) new cases that do not fit into the existing typology. Drawing from the airline industry, we identify new forms of coopetition that can be analyzed only when considering several levels simultaneously. More precisely, we distinguish seven forms of coopetition according to activity and organizational levels. After having identified these different types of coopetition, we highlight the various implications of a multilevel approach. From a theoretical perspective, we emphasize the necessity of adopting a broader view of competitors by considering cooperative tensions at levels beyond the dyad. This work also allows us to show how cooperative tensions interact throughout the different levels. From a managerial perspective, we underline the importance for managers to carefully define their competitors. Finally, from a methodological perspective, we suggest showing the different steps leading to the elaboration of typologies.

Our article is divided into five parts. First, we review the literature on coopetition and multilateral alliances. Second, we describe our methods and present our empirical setting. Third, we present our results by showing how the typology has been created. Fourth, we discuss the extent of our results and identify new implications for these multilevel cooperative agreements. Finally, we conclude the paper and suggest directions for future research.

## **Theoretical background**

### ***Typologies as tools to define coopetition***

Scholars agree that the term “coopetition” was coined by Ray Noorda, the founder of Novell, in the 1990s. However, this emerging strategy was theorized and explained by Brandenburger and Nalebuff (1996). Targeting managers, their book was met with suspicion in the academic world, and researchers decided to re-examine the concept of coopetition themselves. Lado et al. (1997) completed the first academic study of coopetition: they explained this strategy from a theoretical perspective, but paradoxically, they never used the word “coopetition” but preferred characterizing it as “*syncretic rent-seeking behavior*.” The first academic study using the word “coopetition” was conducted by Bengtsson and Kock (1999). Grounding their work in network theory and the resource-based view (RBV), these authors distinguished coopetition from other strategies, such as cooperation, competition and co-existence. One year later, Bengtsson and Kock (2000) created the first typology of cooperative agreements according to cooperation labels. By doing so, these researchers initiated a long tradition in the research on coopetition: the creation of typologies.

Typologies have indeed been extensively used in the coopetition literature to establish boundaries for the concept and to describe its main variations. Different dimensions have been considered to distinguish different forms of coopetition. Beyond the question of the intensity of cooperation (Bengtsson and Kock 2000), the number of firms at stake in

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

coopetitive agreements has been at the center of several typologies (Dagnino and Padula 2002; Gnyawali et al. 2008). Typically, these researchers have distinguished dyadic coopetition from network coopetition, in which there are more than two firms. In parallel, several authors have underscored that coopetition may affect activities in different ways (Bengtsson and Kock 2000; Bonel and Rocco 2009). This approach led to a typology based on the number of activities in the coopetitive agreement (Dagnino and Padula 2002). Finally, various studies have attempted to classify forms of coopetition according to the organizational structure of the relationship or the type of actors involved (Rusko, 2011). Beyond the classic horizontal coopetition paradigm, researchers have noted the presence of different structures within the existence of vertical coopetition (Depeyre and Dumez 2010<sup>1</sup>; Lacoste 2012; Pellegrin-Boucher et al. 2013). However, as Walley (2007) has highlighted, except for a few early contributions, there is a genuine lack of research on the typologies of coopetition.

Since Dagnino and Padula (2002) distinguished between dyadic and network coopetition, many studies have examined coopetition at the network level (Dagnino, 2009; Gnyawali et al. 2008; Gueguen 2009). Incidentally, according to Siregar et al. (2009), the word “network” is one of the top 10 words that are typically associated with coopetition. However, this network approach is incomplete because the definition of network remains fuzzy.

### ***Alliance networks and multilateral alliances***

When more than two firms cooperate in an alliance, we generally use the term “network.” However, when discussing a network of alliances, studies tend to combine different forms of alliances that should be separated.

---

<sup>1</sup> To be precise, in their contribution, Depeyre and Dumez (2010) never used the expression “vertical coopetition”; they emphasized the possibility of a vertical dimension in a coopetitive relationship.

Alliance networks were defined by Gomes-Casseres (1996) as a group of separate companies linked through collaborative agreements in which some of the companies in the group are not linked to one another. In other words, as Das and Teng (2002) explained, an alliance network is a “collection of several alliances.” Under this configuration, there are no formal terms guiding the joint action of firms and no specific rules to guide the grouping. In fact, alliance networks can be viewed as an *a posteriori* construction. This approach clearly poses several problems, the most important being the definition of the boundaries of an alliance network. Usually, in articles on alliance networks, algorithms to determine clusters are used (Lazzarini 2007), but these statistical techniques can be highly flawed. Beyond the technical question of these algorithms, one may also question whether a firm can belong to several alliance networks simultaneously.

An alternative approach can be found in multilateral alliances. Lazzarini (2008) clearly distinguished alliance networks from multilateral alliances, which can be defined as a group of firms that decide to create a formal grouping or association. Moreover, Doz and Hamel (1998) explained that a multilateral alliance is composed of overarching agreements applicable to all members of the group. In other words, a multilateral alliance is a broad multiple-firm alliance aiming for joint action. This organizational form often leads to the creation of rules and a formal entity with a dedicated brand and common resources. Multilateral alliances are particularly relevant to our analysis because the membership of firms is clearly defined and allows us to know precisely who belongs to which alliance and who competes with whom.

### ***Theoretical gap***

Following a review of the recent literature on coopetition, Le Roy et al. (2010) noted that most researchers agree on two elements. First, coopetition is a simultaneous phenomenon,

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx indicating that cooperative and competitive behaviors must occur at the same time. Second, coopetition refers primarily to horizontal relationships between actors; hence, coopeting firms typically compete in the same markets for the same customers<sup>2</sup>.

However, this definition has been challenged by several studies of coopetition. Two conceptions of the structure of coopetition are opposed. The first considers that coopetition requires horizontal relationships because it links competing firms (Bengtsson and Kock 2000; Le Roy et al. 2010). The second suggests the possibility of a vertical component in cooperative agreements (Chiambaretto and Rigaud 2013; Depeyre and Dumez 2010; Gnyawali et al., 2008; Lacoste 2012; Pellegrin-Boucher et al. 2013). Furthermore, most research on coopetition is based on single-level analysis. These studies focus on the relationship between two firms and typically neglect the context in which they evolve (such as membership in a multilateral alliance or the presence of subsidiaries). However, even when coopetition is studied within its network context, these approaches present two essential flaws. First, such methods investigate coopetition in alliance networks whose boundaries are not clearly defined, such that we never know precisely where the analysis of cooperative and competitive mechanisms should end. Second, such articles tend to study coopetition using a single-level analysis (except for the recent contributions of Gnyawali and Park (2009, 2011) or Wilhelm (2011). In other words, previous studies have not sufficiently considered the possibility that firms may belong to an alliance network.

Given these considerations, we seek to address these gaps in several ways. It appears that the question of levels has not yet been fully studied. We use different meanings of “levels” to discuss the boundaries of the concept of coopetition. We believe that the issue of the levels of activity should be analyzed more carefully. In other words, claiming that coopetition is horizontal only because it links competitors appears to be an intellectual

---

<sup>2</sup> In fact, according to Le Roy et al. (2010), coopetition is a cooperative relationship between horizontal competitors. Competition is horizontal, but cooperation can be horizontal and/or vertical.

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx shortcut. We thus aim to search for coopetitive agreements that have only a horizontal dimension, only a vertical dimension or a combination of both dimensions. However, the word “level” also refers to the levels in a multilevel analysis. Whereas most studies have remained at the firm level, we would like to extend the study of coopetition to the meta- and infra-organizational levels. We thus seek to understand whether coopetition can occur between entities with different statuses (e.g., coopetition between a meta-organization and one of its members). These multilevel analyses have generated promising results in the study of alliances (Gnyawali and Madhavan 2001; Hagedoorn and Frankort 2008), and it will be interesting to use this framework to better understand coopetition. By combining these two approaches to the “levels” (activities and organizational) of coopetition, we expect a new typology of coopetition to emerge.

## **Methods and empirical setting**

### ***Research methods, data collection and analysis***

Our objective is to use these challenging contributions as directions to pursue in our fieldwork and to search for new types of coopetition. Consequently, we first describe the new situations of coopetition highlighted by our multilevel analysis. Second, based on these new situations, we aim to draw a new typology of coopetitive configurations.

With these objectives in mind, the most relevant approach is a qualitative method. Indeed, because we aim to describe a new phenomenon and do not seek statistical validity, a qualitative method appears to be the optimal solution (Yin 2009; Dumez 2011). More precisely, we rely on a multiple-case study analysis (Yin 2009) or a small-N case study (Abbott 2001) to study coopetition. However, we do not use these cases in the classical sense with intra- and inter-analyses; rather, we use them to build a typology. To analyze these agreements, we collected data from several sources, such as newspapers, official reports, and

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx annual surveys on airline alliances. In addition, semi-structured interviews were conducted with airline managers, alliance managers from the airlines studied and industry experts.

Relying on the typological theorizing approach (George and Bennett 2005), the aim of this paper is to build a typology to improve our knowledge of coopetition. A typology is a property space that is constructed through two opposite techniques: extension and reduction (Lazarsfeld and Barton 1965; Elman 2005). The relevant question is how to extend and reduce the property space to obtain a robust typology. Our methodology is based on abduction, which is defined by Peirce (Fann 1970; Dumez 2012) as follows: “Broadly speaking, *abduction* is a reasoning process invoked to explain a puzzling observation” (Aliseda 2006: 28). This methodology involves organizing iterations between theory and cases to find cases with surprising results. Therefore, we selected a simple theoretical framework as a starting point (a *background theory* – Aliseda 2006) on coopetition, and we began with a simple case that is perfectly consistent with current theory. We then attempted to find another case in the same industry that did not fit into the current theoretical frame/typology (the “puzzling observation” or unexpected case; Dubois and Gadde 2002). The integration of this second case allowed us to elaborate a second typology that was intended to be more comprehensive than the previous typology. We repeated the process several times until we reached a saturation point (i.e., until we could no longer find surprising cases). These iterations are represented in Figure 1.

*[Insert Figure 1 around here]*

### ***The relevance of the airline industry***

To create these typologies, we decided to focus on a single industry for two reasons. First, to increase the comparative and classificatory power of our typologies, we needed to compare homogenous cases. Comparing cases of coopetition in the automotive industry and cases in the banking industry within the same typology could be misleading. The second justification

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx is practical. To find new cases of coopetition, it is necessary to consider beyond the surface level and study cases in depth. Conducting this deeper exploration in several industries would have required an extended knowledge of several industries that we do not possess.

In this research, we sought to work with an industry presenting the following characteristics: (a) strong alliance activity, (b) a large number of firms, (c) various levels of links (at the dyadic and network levels), and (d) different competing multilateral alliances and (e) various coopetitive agreements. An example of an industry meeting all these criteria is the airline industry. Simply considering IATA’s members, we found that there are more than 240 airlines throughout the world (IATA 2012) and that more than 800 alliances link these firms (Mills 2011). Typically, airlines need to manage an alliance portfolio (Wassmer and Dussauge 2012) composed of pure allies and competitors. Thus, coopetition is pervasive in the airline industry. Moreover, the airline industry is characterized by the presence of three multilateral alliances that compete with one another; these alliance groupings allow us to implement a multilevel analysis.

### ***Empirical setting: the airline industry and airline alliances***

Before studying coopetition in the airline industry, we needed to understand the key drivers of airline strategies. Our interviews indicated that the expansion of their network is central to the airlines’ strategy. Concerning revenues, a larger network improves the brand recognition of an airline throughout the world. In particular, a larger network allows an airline to access new markets and to exponentially increase its number of potential routes (Shaw 2011). Concerning costs, the cost structure of airlines is characterized by high fixed costs (Holloway 2008); thus, economies of scale and scope are crucial. Consequently, an extended network improves revenues on many routes and decreases the unit costs per passenger. However, airlines cannot have access to every city in the world, essentially because of restrictions on traffic rights

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx (Odoni 2009). To bypass these legal constraints, airlines have increasingly relied on airline alliances.

To define airline alliances, we refer to the definition of Oum et al. (2000) as “a long-term partnership of two or more firms that attempt to enhance their advantages collectively vis-à-vis their competitor by sharing scarce resources including brand assets and market access capabilities, enhancing service quality, and thereby improving profitability.” However, this broad definition combines different forms of alliances that vary greatly (Iatrou and Oretti 2007).

We first describe alliances at the dyadic level (i.e., concerning only two airlines). The lowest level of cooperation is an “interlining agreement” that allows airline X to sell the tickets of airline Y on a given route. Airline Y will then charge airline X for the tickets sold. It is a simple commercial agreement between the two airlines. As a step further, airlines can sign a “code-share agreement” in which airline X permits airline Y to place its airline code (a flight number) on some flights operated by airline X. These agreements can be reciprocal or not, and they are typically implemented on a limited number of routes. Within these agreements, we distinguish parallel code-shares implemented on the overlapping routes of the two airlines and behind-and-beyond code-shares that aim to connect non-overlapping routes. In this last case, code-share agreements virtually increase the presence of an airline by attaching its airline code to a higher number of cities. However, when two airlines code-share on overlapping routes, they are not allowed (by the regulator) to jointly fix their prices. Therefore, there is still a strong level of competition between them.

Beyond these dyadic agreements, in the late 1990s, airlines created “global airline alliances” (O’Toole 2000; Czakon and Dana 2013). There are currently three global airline alliances (GAAs): Star Alliance, Skyteam and Oneworld. These global alliances are defined by the IATA (2007) as “three or more airlines participating in a commercial relationship or

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

joint venture, where (i) a joint and commonly identifiable product is marketed under a single commercial name or brand; (ii) this commercial name or brand is promoted to the public through the airlines participating in the alliance and its agents; and (iii) the commercial name or brand is used to identify the alliance services at airports and other service delivery points.”

To date, these three global alliances comprise more than 60 airlines (*Star Alliance*: 26; *Skyteam*: 20; *Oneworld*: 15). Each global alliance aims to cover the globe with its network of members, which must meet the standards required to belong to the alliance. In exchange, when an airline becomes a member, it benefits from the network of its partners and takes advantage of shared facilities in airports around the world (e.g., common check-in or lounges, shared maintenance of aircrafts). Beyond the creation of a common brand, a formal organization is generally created to coordinate the activities of the group. These global airline alliances clearly compete with one another, especially in competition for business passengers. These competitive tensions among global alliances affect their members at the individual level. Indeed, when joining a global alliance, an airline must sign an “exclusivity agreement” in which it agrees to avoid signing agreements with members of a competing global alliance. For instance, when joining *Star Alliance*, the US carrier *Continental Airlines* replaced its code-share agreement with *Air France* (a member of *Skyteam*) with a code-share agreement with *Lufthansa* (a member of *Star Alliance*) to serve the European market.

### **Identification and classification of new forms of coopetition**

In this part, we use an abductive process to build a typology of coopetition. First, we identify new situations of coopetition that cannot be understood through the traditional theoretical lenses. Second, we provide names for these new forms of coopetition. The abductive reasoning (implemented in the first part) is particularly relevant to facilitate the emergence of new forms of cooperative situations. This approach allows us to cross the border between the

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx known and the unknown several times to find new cases to enrich the theory (until no further outliers can be identified).

### ***Drawing a typology of cooperative situations***

***Initial case: Lufthansa and Singapore Airlines.*** We initiate our typology with a classic case of coopetition: the agreement between *Singapore Airlines* and *Lufthansa*. Both airlines have a large network covering many countries across continents. With overlapping networks, these two carriers compete with one another on many routes, especially between Europe and Asia. However, in 1998, the two competitors signed a code-share agreement to foster cooperation while belonging to the same global airline alliance (*Star Alliance*). The cooperative agreement states that the airlines cooperate on certain activities (e.g., common check-in at airports, shared lounges, common frequent-flyer programs) while remaining in competition on transport activities. In this scheme, even if a flight can have two flight numbers (one for each airline), each airline prices and sells its seats independently on this given flight.

In this case, we encounter a classic situation of coopetition. We identify a common configuration of coopetition based on the activities involved (Bengtsson and Kock 1999; Fernandez and Le Roy 2010). These two airlines compete on certain activities and cooperate on others.

***Loop 1: British Airways and Virgin Atlantic.*** Our first loop back to our fieldwork leads us to an interesting case: the relationship between *British Airways* and *Virgin Atlantic*.

Created in 1984, *Virgin Atlantic* has always offered flights on the transatlantic market. Because of an aggressive and original commercial policy, in only a few years, this small airline became a real challenger to *British Airways*, such that *Virgin Atlantic* is currently the second largest long-haul airline in the UK. Nevertheless, one of the main characteristics of the

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

airline is its absence of short- and medium-haul flights. Consequently, to attract passengers on its long-haul flights, *Virgin Atlantic* had to sign partnerships with other airlines for its feeder flights. Despite being in strong competition with *British Airways* on the transatlantic market, *Virgin Atlantic* signed an interlining agreement with *British Airways*. This agreement allows *Virgin Atlantic* to sell some *British Airways* flights from London to other British or European cities as a continuation of one of its flights from the US to London.

From a coopetition perspective, we observe that the airlines compete horizontally in the transatlantic market but cooperate vertically in the feeding markets (Chiambaretto and Rigaud 2013).

***Loop 2: Air France and Air Canada.*** Returning to our fieldwork, we find a case that initially seems similar to the *British Airways/Virgin Atlantic* one but is actually quite different and requires further attention.

*Air France* and *Air Canada* intensely compete to attract passengers on their flights between Europe and North America. Despite this strong competition, these two competitors decided to sign a cooperative agreement in September 1992. The airlines signed an interlining agreement allowing *Air France* to sell some of *Air Canada*'s flights from Montreal to other Canadian cities as a continuation of one of its flights from France to Montreal. Symmetrically, *Air Canada* can sell *Air France*'s flights from Paris to other French cities. The objective was to link both networks, but the level of cooperation was intended to remain low, as no further integration (code-share or joint venture) was expected.

This case is particularly interesting because the two airlines not only are direct competitors but also belong to two competing global airline alliances (*Star Alliance* for *Air Canada* in 1997 and *Skyteam* for *Air France* in 2000). As we explained above, when joining a multilateral alliance, an airline accepts the agreement to attempt to avoid cooperation with an

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

airline belonging to a competing multilateral alliance. Consequently, in this case, although there is vertical cooperation between the two firms, we have two kinds of competitive dimensions: a first horizontal tension between the two firms on the transatlantic market and a second horizontal tension between the two groups to which they belong.

Noting the importance of membership in a global alliance, we return to our fieldwork to find other cases of coopetition in which membership in a global alliance may strengthen cooperative tensions.

***Loop 3: Air France and Austrian Airlines.*** *Air France* and *Austrian Airlines* are two airlines competing on several routes between France and Austria. However, in 1998, these airlines decided to sign a code-share agreement on several routes, particularly on the Paris-Vienna route. The idea is simple: the two airlines cooperate by coordinating their frequencies and by allowing each airline to sell a given number of seats on the other airline’s flights. However, each airline remains independent in its commercial and pricing policy, such that both airlines compete to sell seats on the same flight.

In 2000, relations between *Austrian Airlines* and *Air France* became more complex, as they decided to join different global airline alliances. Although *Air France* attempted to convince *Austrian* to join *Skyteam*, *Austrian* decided to join *Star Alliance*. As a consequence, in addition to the simultaneous cooperation and competition between the two airlines, their membership in multilateral alliances added competitive tension between the groups.

***Loop 4: Air France and Qantas.*** *Air France* and *Qantas* are two legacy carriers with hubs in very distant zones: Europe for *Air France* and Oceania for *Australia*. After a detailed analysis of their network, one can reasonably state that these airlines are not competitors. In fact, to fly from Paris to Sydney, passengers flying with *Air France* will fly on an *Air France* flight only

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx during the first half of the trip (to Hong Kong or Singapore) and then continue their trip with Qantas to reach Sydney. There are no “100% *Air France*” or “100% *Qantas*” flights, that is, flights in which the airline is the operating carrier throughout the entire trip. This cooperation was formalized in 2004 (and extended in 2007) by a code-share agreement between *Air France* and *Qantas*.

If we consider only these two firms at the dyadic level, then we could conclude that they are pure allies with a vertical supplier-retailer relationship. However, this conclusion is incomplete because we neglect their membership in different multilateral alliances: *Air France* is a member of *Skyteam*, whereas *Qantas* is associated with *Oneworld*. Because these two groups compete at the global level, we typically regard members of different global alliances as rivals simply because of their membership in different groups. In this case, even if *Air France* and *Qantas* do not effectively compete, they can be considered competitors because of the global alliances to which they belong. In other words, *Air France* and *Qantas* could be the Romeo and Juliet of the airline industry: they are in love (because they fully cooperate with no rivalry), but their families strongly believe that they should be with someone from the same clan. Consequently, this multilevel analysis allows us to highlight a new type of cooperative situation in which we identify cooperation at the dyadic level and competition at the level of global alliances.

**Loop 5: *Germanwings and Lufthansa Group*.** To extend beyond the previous cases, we study a case in which an airline and its holding company are in a cooperative situation. Observing the rapid development of low-cost carriers in Europe, in 1997, the German airline *Eurowings* created a low-cost department that became independent in 2002 under the name of *Germanwings*. At this time, *Eurowings* and *Germanwings* were serious competitors with *Lufthansa* on the domestic market and on leisure destinations. Conscious of this threat,

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

*Lufthansa* decided to buy stake in *Eurowings* in 2006 (with full ownership in 2009), thus bringing the two airlines into the *Lufthansa Group* portfolio. Since that time, *Germanwings* has been fully owned by *Lufthansa Group*.

However, despite belonging to *Lufthansa Group*, *Germanwings* remained relatively independent, essentially because it was targeting the leisure market, in which *Lufthansa* was not very competitive. Consequently, on many domestic and international routes, *Germanwings* and *Lufthansa* compete with one another. In parallel, because it is a member of *Lufthansa Group*, *Germanwings* benefits from different advantages, such as being a member of *Lufthansa*'s frequent flyer program. In this case, the structure of the cooperation is vertical because *Lufthansa Group* acts as a supplier of services in assistance to *Germanwings*.

At first glance, one could observe that this case does not differ greatly from those studied by Tsai (2002) or Luo (2005) in analyzing internal coopetition. However, in our case, the actors involved are not at the same level: *Germanwings* is an infra-organization of *Lufthansa Group*, which is a meta-organization. It is thus possible to witness some cases of coopetition between a firm and its group (i.e., between organizations of differing nature).

**Loop 6: *Lufthansa* and *Star Alliance*.** Returning to the fieldwork, we study the situation in which a multilateral alliance can be in a competitive situation with one of its own members.

To understand this case, it is important to consider that, in addition to traditional flight tickets sold to individuals by airlines, there exist “corporate travel contracts” for firms. In this case, a travel manager signs a corporate contract with an airline for a given period of time (one or two years), providing access to preferential fares. However, global alliances also offer contracts for business travelers (e.g., *Star Alliance* with its “*Corporate Plus*” contract). This contract is a type of package or bundle in which several airlines link their services to business passengers. The travel manager signs a *Star Alliance* contract with only one interlocutor

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx (rather than an interlocutor for each airline) and benefits from standardized services for all participating airlines.

Now, we focus on a specific *Star Alliance* airline: *Lufthansa*. As an airline, *Lufthansa* expends considerable energy searching for new business customers interested in signing a corporate contract. Generally, *Lufthansa* cooperates with *Star Alliance* and participates in bundles to convince firms to select the *Star Alliance* contract (as opposed to *Skyteam*, for example). In this case, a percentage of the revenue (based on the number of flights or miles accumulated by the customer on *Lufthansa*'s flights) is given to *Lufthansa*. However, when *Lufthansa* occasionally believes that it can expect higher revenues by operating independently, it may decide to enter into competition with a *Star Alliance* contract (without *Lufthansa*). If *Lufthansa* alone wins the customer, then it receives 100% of the revenues generated.

This situation can be interpreted through the coopetition perspective. For some customers, *Lufthansa* and its multilateral alliance will cooperate to convince the customer to select the bundle. However, for other customers, *Lufthansa* and *Star Alliance* will compete to win the customer because *Lufthansa* wants more revenues than those expected as part of the bundle.

This last case presents an opportunity to show that coopetition can occur not only between different actors (Rusko 2011) but also between actors at different organizational levels. However, compared with the previous case, this case clearly shows that the cooperative relationship results from the embeddedness of the firm in the multilateral alliance. In addition, we observe that when actors cooperate while playing at different levels, the tensions can take many forms. Beyond the question of “who will win the customer,” more subtle tensions remain, for example, in knowing how the bargaining power within the multilateral alliance can evolve (Huxham and Beech 2008).

In Table 1, we summarize the different cases described in our abductive loops. For each case, we show the cooperative and competitive dimensions to confirm the presence of coopetition.

*[Insert Table 1 about here]*

***A typology of cooperative situations.*** Based on our loops, we draw our typology of cooperative situations. This typology must account for the different dimensions emerging from the theoretical and empirical challenges that we highlighted. Please note that we have often used the concept of “levels” in our analysis of coopetition in the airline industry. We define the dimensions of our typology in Table 2 and then classify our cooperative agreements in Table 3.

*[Insert Table 2 around here]*

*[Insert Table 3 around here]*

The gray zones in Table 3 can be considered “compressions” (i.e., cases that cannot exist for various reasons). According to Elman (2005), there are two forms of compressions: “empirical compressions” are situations that are not observed in fieldwork, and “logical compressions” are situations that cannot be explained from a logical perspective. How can we explain the logical compressions in the typology? When two organizations (even at different levels) are in a pure vertical relationship, they are not active at the same level in the market, and they never compete. Consequently, we cannot observe cooperative tensions because there is only a cooperative dimension in their relationship. However, these logical compressions must be intended from a static perspective. In other words, organizations that are in pure vertical relationship during period  $t$  cannot be competitors simultaneously. However, from a dynamic perspective (which is not studied here), nothing prevents a supplier from entering the market of its retailer during the next period. Once this typology of cooperative situations has

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

been drawn, we must name these different forms of coopetition. Naming or labeling a situation is crucial because it is the first step in understanding such a situation in greater depth. Because our typology is the result of combining the activity and organizational levels, the names of our forms should reflect this structure. We present the names in Table 4 to show how these different forms of coopetition are related to one another.

*[Insert Table 4 around here]*

## **Discussion**

### ***Theoretical implications of a multilevel vision of coopetition***

***A new vision of competitors.*** Returning to the study by Brandenburger and Nalebuff (1996), we note that the question regarding the nature of coopetition was already raised. In their book, these authors explained that “a player is your competitor if customers value your product less when they have the other player’s product than when they have your product alone” (p. 18). This extended definition of competitors, however, was rejected several years later by Bengtsson and Kock (2000), who claimed that competitors are “actors that produce and market the same products.” To date, most studies have relied on this restricted (but efficient) definition of competitors based on either a market or production approach.

Using a multilevel approach, we suggest considering beyond the traditional vision of competition in the research on coopetition. It is important to study the competition aspect beyond the traditional multimarket approach (Bernheim and Whinston 1990). In the previous studies, coopetition exists only when the interacting organizations are direct competitors. However, to include the previous contributions aiming to extend the boundaries of coopetition, we suggest that this notion of competitors must be assessed at different levels and must also include indirect competitors. For instance, belonging to two competing multilateral alliances generates competitive tensions at sufficiently high levels to lead to coopetition.

***A multilevel approach of coopetitive tensions.*** As explained above, tensions are fundamental to understanding coopetitive relationships. Coopetition is clearly related to the management of tensions generated by the simultaneous presence of cooperation and competition (Chen 2008). By offering a multilevel vision of coopetition, we offer additional insights into coopetitive tensions.

Our cases have shown that cooperative and competitive behaviors do not necessarily occur at the same level, or they can be found at several levels simultaneously. Our analysis led us to two main conclusions. First, additional tensions can arise across the different levels. For instance, comparing the *Lufthansa/Singapore Airlines* case with the *Air France/Austrian Airlines* case, we can observe that competitive tensions are more intense in the latter case, as *Air France* and *Austrian Airlines* not only are competitors at the dyadic level but also belong to two competing multilateral alliances. Second, we can conclude that close the tension is to the dyad, the more intense the tension is. In other words, the presence of competitive behavior at the dyad level is more likely to destabilize a partnership than competitive behavior at the level of the multilateral alliance. Symmetrically, the presence of cooperative behavior at the dyad level is more likely to stabilize a partnership than cooperative behavior at the level of the multilateral alliance.

This broader view offers greater explanatory power concerning the dynamics of coopetition. In fact, as shown by Fernandez et al. (2014), there are different forms of coopetitive tensions, but existing studies have not presented an integrative framework showing how these tensions interact at different levels. Thus, a multilevel analysis of coopetitive tensions can clearly improve our understanding of coopetitive tensions.

### ***Methodological implications of this research***

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

From a methodological perspective, two types of implications emerge: the relevance of a multilevel analysis of coopetition and the originality of the abductive approach to extend the knowledge of coopetition.

To ascertain these new forms of coopetition, we conducted a multilevel analysis. This methodology was important because we knew that a multilevel approach had already led to promising results with respect to alliances. Using this approach, we were able to identify new categories of coopetition. In particular, we would like to emphasize the importance of studying coopetition beyond the dyad using a new approach. We suggest that rather than using a single lens to analyze firms at a single level, we should aim to analyze this phenomenon with a multifocal lens that allows us to clearly observe the interactions between different levels of analysis. This effort allows us to solve some paradoxes or to explain the dynamics of coopetition in greater detail. A research agenda could be established to study coopetition through a multilevel lens. Many studies could be revisited and most likely linked to an integrative framework.

The originality of this article also lies in its choice of an abductive process to extend our understanding of coopetition. To the best of our knowledge, although most typologies have actually used an abductive process, few articles have explained the construction process. As a consequence, it is not always easy for the reader to understand why the authors have chosen specific dimensions and terms. Thus, we believe that emphasizing the construction process of typologies is of great value in explaining the relevance of new typologies of coopetition.

### ***Managerial implications of a multilevel vision of coopetition***

As the network approach has changed our understanding of coopetition, we posit that adopting a multilevel vision of cooperative agreements could also enhance the analysis of

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx

coopetition conducted by managers. Based on our interviews, we clearly observed that most managers tend to focus their attention on their direct competitors, underestimating competitive threats coming from other organizations. In addition, managers frequently analyze competitive tensions at a single level – their own level – and pay little attention to other levels. Consequently, managers tend to minimize the interactions between the different levels of their environment. Addressing various organizational and activity levels in a more systematic manner thus becomes necessary for managers. Such a comprehensive approach would allow managers to obtain a more extensive vision of their environment to more precisely assess the opportunities and risks of coopetitive agreements.

## **Conclusion**

The main objective of our contribution was to study coopetition using a multilevel analysis. More precisely, we sought to identify new forms of coopetition that could be understood only through a multilevel lens. We distinguished seven forms of coopetition using different cases from the airline industry and presented the main implications. From a theoretical perspective, we emphasized the need to adopt a broader view of competitors by considering competitive tensions at levels beyond the dyad. This work also allowed us to show how cooperative tensions interact throughout the different levels. From a managerial perspective, we demonstrated how important it is for managers to carefully define their competitors. Finally, from a methodological perspective, we emphasize the importance of revealing the different steps leading to the elaboration of typologies. However, our contribution presents several limitations and can be improved in several ways.

The focus on a single industry is one of the first limitations of this study. This methodological choice was justified previously. However, the question remains as to whether our results are industry specific. In other words, could we obtain equivalent results in another

WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx industry? Indeed, it is difficult to assess the importance of the structural characteristics of the industry with respect to the strategies implemented by its actors. Without proposing a purely deterministic approach, we can reasonably ask whether the rules of the airline industry play a significant role in the emergence of such forms of coopetition.

The second limitation is clearly related to the limitation discussed above. Beyond the question of industry characteristics, we must ask whether these results are context specific. Even focusing solely on the airline industry, we note that several hypotheses or rules may be related to the current context and could change in the future. For instance, most code-share agreements are carefully scrutinized by regulatory bodies to minimize potential harm to consumers (European Commission 2007). Consequently, many forms of coopetition are second-best solutions chosen by airlines to avoid a penalty from the regulator. In addition, several tensions in our cases were the result of internal rules, such as “exclusivity agreements,” which are clearly based on context. What if these conditions were to change? What would happen without the exclusivity agreement clause? Such rival hypotheses should be tested and would likely lead to interesting results.

The third limitation concerns directions for future research. In the last section, we identified elements concerning the question regarding the stability of coopetitive agreements. We sought to extend beyond the traditional dyadic approach of instability (Das and Teng 2000), and we emphasized the importance of affiliation to stability. However, other factors should also be considered. For instance, removing a coopetitive agreement from its context does not make sense. To study the stability of coopetitive agreements, it is necessary to identify alternate partners (Greve et al. 2013) to determine whether they are more compatible than the coopetitive partner. A broader vision of dyadic coopetitive agreements is thus required. That is, such agreements must be observed through the context/environment and through a multilevel vision.

A fourth limitation is the relative lack of analysis of the managerial implications of these new forms of coopetition in our study. Some articles and presentations have already studied how teams have addressed coopetition (Fernandez et al. 2014) but have essentially considered only a dyadic configuration and/or innovation projects. Our identification of new forms of coopetition clearly calls for new ways of addressing coopetition at the managerial level. It would be interesting to conduct a more in-depth study of how firms involved in these new forms of coopetition address these tensions at different levels.

In conclusion, several avenues for future research have been identified (with the potential for many more) to illustrate the value of using a multilevel framework to study cooperative agreements.

## References

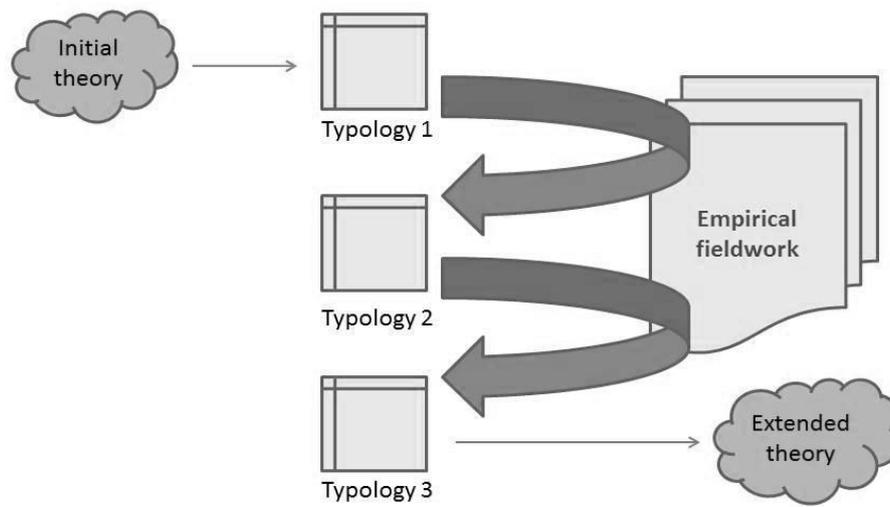
- Abbott, A.D. 2001. *Time matters: on theory and method*, University of Chicago Press: Chicago.
- Aliseda, A. 2006. *Abductive Reasoning*, Springer: New York.
- Bengtsson, M., and S. Kock. 1999. “Cooperation and competition in relationships between competitors in business networks.” *Journal of Business and Industrial Marketing* 14(3): 178–194.
- Bengtsson, M., and S. Kock 2000. ”Coopetition” in Business Networks—to Cooperate and Compete Simultaneously.” *Industrial Marketing Management*, 29(5): 411–426.
- Bernheim, B.D. and M.D. Whinston. 1990. “Multimarket Contact and Collusive Behavior.” *RAND Journal of Economics* 21(1): 1–26.
- Bonel, E. and E. Rocco. 2009. “Coopetition and business model change: a case-based framework of coopetition-driven effects.” In ed. Dagnino, G.B. and E. Rocco. *Coopetition Strategy: Theory, Experiments and Cases*, Routledge: New York; London.
- Brandenburger, A.M., and B.J. Nalebuff. 1996. “*Co-Opetition: 1. A Revolutionary Mindset That Redefines Competition and Cooperation. 2. the Game Theory Strategy That’s Changing the Game of Business.*” Doubleday. New York.
- Chen, M.-J. 2008. “Reconceptualizing the Competition— Cooperation Relationship A Transparadox Perspective.” *Journal of Management Inquiry* 17(4): 288–304.
- Chiambaretto P., and E. Rigaud. (2013). “Coopétition, hétérogénéité des consommateurs et stratégies de ciblage.” *Journal of Social Management* 2: 98-131.

- WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx
- Czakon, W., and L.P. Dana. 2013. “Coopetition at work: How firms innovate to shape the airline industry.” *Journal of Social Management* 2: 32-61
- Dagnino, G.B. (2009) ‘Coopetition strategy: a new kind of interfirm dynamics for value creation’, in Dagnino, G.B. and Rocco, E., (eds.), *Coopetition Strategy: Theory, Experiments and Cases*, Routledge: New York; London.
- Dagnino, G.B., and G. Padula. 2002. “Coopetition strategy - A new kind of interfirm dynamics for value creation.” *EURAM – The European Academy of Management*, Stockholm.
- Das, T.K., and B-S. Teng. 2000. “Instabilities of Strategic Alliances: An Internal Tensions Perspective.” *Organization Science* 11(1): 77–101.
- Das, T.K., B-S. Teng. 2002. “Alliance constellations: A social exchange perspective.” *The Academy of Management review* 27(3): 445–456.
- Depeyre, C., and H. Dumez. 2010. “The role of architectural players in coopetition: the case of the US defense industry.” In ed.Yami, S., Castaldo, S., Dagnino, G.B. and Le Roy, F. *Coopetition: Winning Strategies for the 21st Century*, Edward Elgar: Cheltenham.
- Dowling, M.J., W.D. Roering, B.A. Carlin, and J. Wisnieski. 1996. “Multifaceted Relationships Under Coopetition Description and Theory.” *Journal of Management Inquiry* 5(2): 155–167.
- Doz, Y.L., and G. Hamel. 1998. “Alliance advantage: the art of creating value through partnering.” *Harvard Business School Press*: Boston.
- Dubois, A., and L-E. Gadde. 2002. “Systematic combining: an abductive approach to case research.” *Journal of Business Research* 55(7): 553–560.
- Dumez, H. 2011. “Qu’est-ce que la recherche qualitative?”, *Le Libellio d’Aegis* 7(4) : 47–58.
- Dumez, H. (2012) “Qu’est-ce que l’abduction, et en quoi peut-elle avoir un rapport avec la recherche qualitative?”, *Le Libellio d’Aegis* 8(3): 3–9.
- European Commission. 2007. “Competition Impact of Airline Code-share Agreements”. DG COMP.
- Elman, C. 2005. “Explanatory Typologies in Qualitative Studies of International Politics.” *International Organization* 59(02): 293–326.
- Fann, K. 1970. “Pierce’s Theory of Abduction.” Martinus Nijhof: The Hague.
- Fernandez, A.-S., and F. Le Roy. 2010. “Pourquoi coopérer avec un concurrent?” *Revue française de gestion*, 204(5): 155–169.
- Fernandez, A.-S., F. Le Roy, and D. Gnyawali. 2014. “Sources and management of tension in co-opetition case evidence from telecommunications satellites manufacturing in Europe.” *International Marketing Management* 43(2): 222-235.
- George, A.L., Bennett, A. (2005) *Case studies and theory development in the social sciences*, MIT: Cambridge.
- Gnyawali, D.R., J. He, and R. Madhavan. 2008. “Co-opetition. Promises and challenges.” In ed. Wankel, C., *21st Century Management: A Reference Handbook*, Sage Publications: London, 386–398.

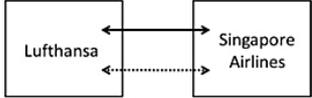
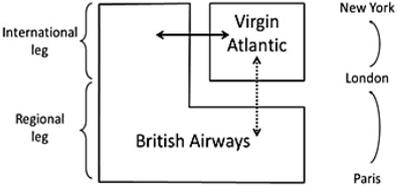
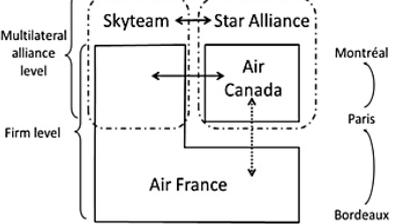
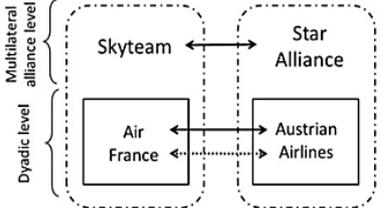
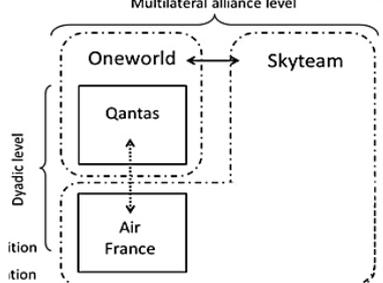
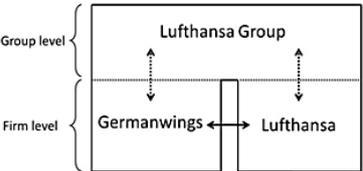
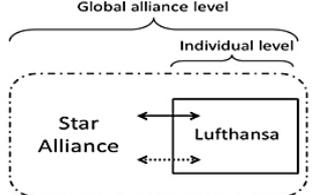
- WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx
- Gnyawali, D.R., and R. Madhavan. 2001. “Cooperative Networks and Competitive Dynamics: A Structural Embeddedness Perspective.” *Academy of Management Review* 26(3): 431–445.
- Gnyawali, D.R., and B-J. Park. 2009. “Co-opetition and Technological Innovation in Small and Medium-Sized Enterprises: A Multilevel Conceptual Model.” *Journal of Small Business Management* 47(3): 308–330.
- Gnyawali, D.R., and B-J. Park. 2011. “Co-opetition between giants: Collaboration with competitors for technological innovation.” *Research Policy* 40(5): 650–663.
- Gomes-Casseres, B. 1996. *The alliance revolution: the new shape of business rivalry*. Harvard University Press: Cambridge.
- Greve, H.R., H. Mitsuhashi, and J. Baum. 2013. “Greener Pastures: Outside Options and Strategic Alliance Withdrawal.” *Organization Science* 24(1): 79–98.
- Gueguen, G. 2009. “Coopetition and business ecosystems in the information technology sector: the example of Intelligent Mobile Terminals.” *International Journal of Entrepreneurship and Small Business* 8(1): 135–153.
- Hagedoorn, J., and H.T. Frankort. 2008. “The gloomy side of embeddedness: The effects of overembeddedness on inter-firm partnership formation.” *Advances in Strategic Management* 25: 503–530.
- Holloway, S. 2008. *Straight and Level: Practical Airline Economics*, Ashgate Publishing, Ltd.: London.
- Huxham, C., and N. Beech. 2008. “Inter-organizational Power.” In Ring, P.S., Huxham, C., Ebers, M. and Cropper, S., eds., *The Oxford Handbook of Inter-Organizational Relations*, Oxford University Press: Oxford.
- IATA. 2007. ‘Passenger Glossary of Terms’.
- Iatrou, K., and M. Oretti. 2007. *Airline choices for the future : from alliances to mergers*. Ashgate: Burlington.
- Lacoste, S. 2012. “Vertical coopetition”: The key account perspective.” *Industrial Marketing Management* 41(4): 649–658.
- Lado, A.A., N.G. Boyd, and S.C. Hanlon. 1997. “Competition, cooperation, and the search for economic rents: A syncretic model.” *The Academy of Management Review* 22(1): 110–141.
- Lazarsfeld, P., and A. Barton. 1965. “Qualitative Measurement in the Social Sciences: Classification, Typologies, and Indices.” in Lemer, D. and Lasswell, H. (eds), *The Policy Sciences*, Stanford University Press: Stanford, 155–192.
- Lazzarini, S.G. 2007. “The impact of membership in competing alliance constellations: Evidence on the operational performance of global airlines.” *Strategic Management Journal* 28(4): 345–367.
- Lazzarini, S.G. 2008. “The transition from alliance networks to multilateral alliances in the global airline industry.” *Brazilian Administration Review* 5(1): 19–36.

- WORKING PAPER VERSION – Cite as Chiambaretto P., Dumez H. (2016), “Toward a typology of coopetition: a multilevel approach”, *International Studies of Management and Organization*, 46(3), xx
- Le Roy, F., S. Yami, and G.B. Dagnino. 2010. “La coopétition: une stratégie pour le XXI<sup>e</sup> siècle.” in *Stratégies De Coopétition: Rivaliser Et Coopérer Simultanément*, De Boeck: Bruxelles.
- Luo, Y. 2005. “Toward coopetition within a multinational enterprise: a perspective from foreign subsidiaries.” *Journal of World Business* 40(1): 71–90.
- Mills, S. 2011. “Airline Alliance Survey.” *Airline Business* 27(9): 29–47.
- O’Toole, K. 2000. “The global groupings.” *Airline Business*, 17(7): 50-51
- Odoni, A. 2009. “The International Institutional and Regulatory Environment.” in ed. Belobaba, P., A.R. Odoni, and C. Barnhart, *The Global Airline Industry*. John Wiley and Sons, Ltd: Chichester, U.K., 19–46,
- Oum, T.H., A. Zhang, and J-H. Park. 2000. *Globalization and strategic alliances : the case of the airline industry*.” Pergamon: Oxford.
- Pellegrin-Boucher, E., F. Le Roy, and C. Gurău. 2013. “Coopetitive strategies in the ICT sector: typology and stability.” *Technology Analysis and Strategic Management* 25(1): 71–89.
- Rusko, R. 2011. “Exploring the concept of coopetition: A typology for the strategic moves of the Finnish forest industry.” *Industrial Marketing Management* 40(2): 311–320.
- Shaw, S. 2011. *Airline marketing and management*. Ashgate: Farnham.
- Siregar, S., G.B. Dagnino, and F. Garraffo. 2009. “Content Analysis and Social Network Analysis: A Two-Phase Methodology in Obtaining Fundamental Concepts of Coopetition.” *Business and Economics* 14(2): 1–11.
- Tsai, W. 2002. “Social Structure of “Coopetition” Within a Multiunit Organization: Coordination, Competition, and Intraorganizational Knowledge Sharing.” *Organization Science* 13(2): 179–190.
- Walley, K. 2007. “Coopetition: An Introduction to the Subject and an Agenda for Research.” *International Studies of Management and Organization* 37(2): 11–31.
- Wassmer, U., and P. Dussauge. 2012. “Network resource stocks and flows: how do alliance portfolios affect the value of new alliance formations?” *Strategic Management Journal* 33(7): 871–883.
- Wilhelm, M.M. 2011. “Managing coopetition through horizontal supply chain relations: Linking dyadic and network levels of analysis.” *Journal of Operations Management* 29(7–8): 663–676.
- Yin, R.K. 2009. *Case study research : design and methods*, Sage Publications: Los Angeles.

**Figure 1. Iterations to elaborate typologies using an abductive process**



**Table 1. Summary of the abductive loops**

AGREEMENT	COMPETITIVE DIMENSION	COOPERATIVE DIMENSION	GRAPHICAL REPRESENTATION <small>←.....→ Cooperation      ←→ Competition</small>
<b>Initial case:</b> Lufthansa and Singapore Airlines	- Compete horizontally on international routes	- Cooperate horizontally by sharing infrastructures	
<b>Loop 1:</b> British Airways and Virgin Atlantic	- Compete horizontally on international routes	- Cooperate vertically on some feeding flights	
<b>Loop 2:</b> Air France and Air Canada	- Compete horizontally on international routes - Belong to two competing multilateral alliances	- Cooperates vertically on some feeding flights	
<b>Loop 3:</b> Air France and Austrian Airlines	- Compete horizontally on international routes (on prices) - Belong to two competing multilateral alliances	- Cooperate horizontally on some international routes (on quantities)	
<b>Loop 4:</b> Air France and Qantas	- Belong to two competing multilateral alliances	- Cooperate vertically on some international routes	
<b>Loop 5:</b> Germanwings And Lufthansa Group	- Compete horizontally on domestic routes in Germany	- Belong to the same holding - Cooperate vertically by sharing processes	
<b>Loop 6:</b> Lufthansa and Star Alliance	- Compete horizontally for some customers	- Cooperate horizontally for most customers - Lufthansa is a core member of Star Alliance	

**Table 2. Definitions of the dimensions of the typology**

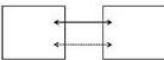
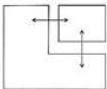
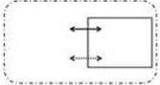
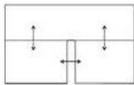
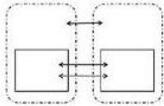
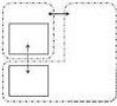
<b>Names of the dimensions and terms</b>	<b>Details concerning the definition</b>
<b>Activity level</b>	Refers to the levels in the value chain of the firm or in the industry
<i>Purely horizontal</i>	The two focal entities are in the same market and are present in the same activities
<i>Purely vertical</i>	The two focal entities are in a supplier-retailer relationship
<i>Combining horizontal and vertical</i>	The two focal entities compete horizontally in a given market and cooperate vertically in another market
<b>Organizational level</b>	Refers to the type of organization: meta-organization/organization/infra-organization
<i>Similar</i>	The two focal entities are of the same type (e.g., two organizations or two infra-organizations)
<i>Dissimilar</i>	The two focal entities have different organizational “statuses” (e.g., a meta-organization and one of its members)
<i>Mixt</i>	The two focal entities are of the same type, but the competitive tensions co-exist at different organizational levels

**Table 3. A typology of coopetitive situations**

		ACTIVITY LEVEL		
		PURELY HORIZONTAL	PURELY VERTICAL	COMBINING HORIZONTAL AND VERTICAL
ORGANIZATIONAL LEVEL	SIMILAR	Lufthansa and Singapore Airlines		Virgin Atlantic and British Airways
	DISSIMILAR	Lufthansa and Star Alliance		Germanwings and Lufthansa Group
	MIXT	Air France and Austrian Airlines	Air France and Qantas	Air France and Air Canada

Logical compression

**Table 4. A typology of coopetition forms based on a multilevel approach**

		ACTIVITY LEVEL		
		PURELY HORIZONTAL	PURELY VERTICAL	COMBINING HORIZONTAL AND VERTICAL
ORGANIZATIONAL LEVEL	Logical compression			
	SIMILAR	<p>Homogenous horizontal coopetition</p> 		<p>Homogenous orthogonal coopetition</p> 
	DISSIMILAR	<p>Heterogenous horizontal coopetition</p> 		<p>Heterogenous orthogonal coopetition</p> 
MIXT	<p>Mixed horizontal coopetition</p> 	<p>Mixed vertical coopetition</p> 	<p>Mixed orthogonal coopetition</p> 