PARTNERING TO INNOVATE OR PARTNERING INNOVATION? THE BINDING EFFECT OF GENERATIVE POTENTIALS

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Abstract

It is well acknowledged that interfirms partnerships and alliances enable new strategies that create more value for the partners. However, in the case of explorative alliances, this value goes beyond what is expectable at the time of alliance formation. Building on the Resource-Based View, we propose a model of the "potential" of a collaboration, to refer to the ability of partners to continuously design new valuable strategies from the initial resources. Based on a case study, we show that the potential has been overlooked by the literature and calls for new management and governance rules of explorative alliances. The generation of new strategies require new management rules to avoid splitting alliance's cohesion and enable efficient exploitation of this potential. Actually, this sheds light on a paradoxical binding effect between partners that participate to collective innovative design activities. Lastly, the model of "potential" contributes to the resource-based view, and outlines a future research agenda based on this potential.

Introduction

It is well known that interfirms partnerships and alliances enable the construction of new strategies that create more value for the partners (Das & Teng 2000; P. Kale & H. Singh 2009). As fruitful as the literature on Resource-Based View has been to understand these alliances, there remains a strong hypothesis on the value creation and value appropriation mechanisms that have been studied. Namely, partners combine their resources to fulfill determined strategies and share expected value. In this paper, we postulate that complementary resources gathered by partners in fact create a "potential", that is a common ground that enables to continuously design new strategies that both create unexpected value locally, and increase the potential itself for all partners and for future design cycles.

Since Wernerfelt (1984) and Barney (1991), literature on Resource-Based View has shed an important light on the heterogeneity of firms and highlighted the crucial role of valuable resources in designing and implementing innovative strategies that lead to sustained competitive advantages. At its core, the RBV postulates that these resources, when properly combined and used, generate market value that firms may capture and divide up between

its stakeholders (Coff 1999). Further developments such as dynamic capabilities (Teece & Pisano 1997; Teece 2007) or the relational view (Dyer & Singh 1998) have also shown the importance of combination of resources and of exchanges in knowledge in these determined strategies to create sustained competitive advantage. They have put emphasis on the use of existing resources to identify currently missing knowledge and guide future research within the firms (Dyer et al. 2008).

However, few papers have investigated the management of the potential itself that is created by bundles of complementary resources. For instance, how to assess the still unknown value that resources could generate, benefiting to several partners but still requiring proper appropriation? Further, this generative mechanism may create various opportunities in desirable resources or innovation paths. Yet, these paths and resources may be assessed very differently by the different partners that may not agree on which has the most interest. How to choose between innovation paths created by a common potential? Does the partnership legitimate that some of the paths should be banned to protect future fruitful projects, which would otherwise be abandoned because of poor cohesion?

This work is based on a case study of partners that clearly understand their interests in supporting and maintaining fruitful relationships and joint projects. They are aware of the potential highly valuable strategies that their complementary resources would enable, and have already experienced tremendous success on some collectively designed products. However, our case study shows that without specific management rules, unexpected strategies are designed by alliances. This, in turn, may split up resources that compose the potential and challenge attainable common value for all partners. Conversely, we identify conditions and rules that help ascertaining that pursuing various strategies may revivify the common potential, that is contribute to create in turn new valuable strategies for all partners.

Finally, we aim at theorizing the notion of generative potential of resources in a partnership. We show that collective “potential” creates a *de facto* binding effect between partners. We highlight that each newly created resource might create value for all other innovation paths at the condition that exploring partners keep on sharing them, thus enriching the common potential and enabling the exploration of various paths without jeopardizing the alliance. This allows us to derive some implications on rules or mechanisms that ensure this sharing and aim to maximize the potential value that can be generated through combination of valuable resources.

Literature review – theoretical framework and model

a. The Resource-Based View: rent creation and resource sharing

i. Rent creation within firms

Since Wernerfelt (1984) and Barney (1991), the resource-based view (RBV) has become a major theoretical framework in management sciences to analyze the heterogeneous performance of firms in given contexts. Basically, this view states that firms' performance can be linked to their capacity to create a Sustained Competitive Advantage (SCA), defined as a competitive advantage created by a strategy that “current or potential competitors” are unable to duplicate (Barney 1991). In turn, this SCA depends on several attributes of the “resources” owned by the firm. Instead of using homogeneous and perfectly mobile

resources, the firm should develop valuable, rare, imperfectly imitable and imperfectly substitutable resources, which are designated under the term “VRIN resources”.

Beyond offering a new perspective on firms compared with the mainstream Transaction Costs Economics, by outlining new strategic stakes for management (Wernerfelt 1984), literature on RBV has mainly dealt with two particular issues: rent creation and rent appropriation. Since (Peteraf 1993), mechanisms that lead to the creation and sustainability of rents through competitive advantage have been much studied.

As (Kraaijenbrink et al. 2010) write, the initial work of the RBV (e.g. Barney 1991) provided a theory of path-dependency highlighting how specific characteristics of resources could enhance the firm’s efficiency. In the words of Barney, a resource was then deemed “valuable” if it could “enable the firm to conceive and implement strategies that improve its efficiency and effectiveness.” (Barney 1991). In this way, under the other “RIN” conditions, the more valuable resources a firm may own, the higher the rent it could expect. This view has faced major criticism (Kraaijenbrink et al. 2010). First, authors have shown that the VRIN characteristics of resources were not sufficient to describe how to create value from these resources. On the one hand, firms need “deployment capabilities” to extract value from these resources. On the other hand, it is the “synergistic combination or bundle of resources created by the firm” that is able to create a sustained competitive advantage. Thus, it is both the specificity and the complementarity of resources that enable the creation of rents, and some combinations of resources offer more value than others. Second, this definition seems to restrict the role of managers to the mere identification of valuable attributes of resources, and to describe value creation as a determinist process, taking place in predictable environments, by which firms achieve what their resources give them the ability to achieve.

Contrasting with this view, several authors (Helfat & Raubitschek 2000; Helfat & Peteraf 2003; Barney et al. 2001) have shown the importance of organizational learning and other capabilities to transform and update existing resources, and to generate resources that complement existing ones. These theoretical developments lead to the use of the RBV as a means to describe innovation processes, thus stressing the role organizational capabilities (Teece 1997, Teece 2007) in sustaining competitive advantages. However, this literature does not state what is really valuable in resources and how strategies that exploit this value emerge. In fact, this approach redefines managers’ role as the creation and update of resources that were missing to fulfill identified strategies that lead to a particular competitive advantage. In other words, the intended use of these resources is known or predictable and a future potential value created by strategies that are still yet to be designed is overlooked. For Kraaijenbrink et al., the RBV mainly accounts for what they call the “*ex post* sources” of sustained competitive advantage.

C1. In the RBV, resources are valuable because they support determined strategies. Still to be designed strategies that contribute to a “potential” to explore are overlooked.

ii. Resource sharing and value creation in strategic alliances

Going further, a specific framework, the relational view developed by (Dyer & Singh 1998), suggests that firms may gather the conditions to create sustained competitive

advantages through the establishment of partnerships, thus creating value by spanning the firms' boundaries and getting valuable resources from outside.

Indeed, partnerships and alliances are particularly interesting cases for the Resource-Based View. Numerous papers (Eisenhardt & Schoonhoven 1996; Tsang 1998; Mowery et al. 1998; Das & Teng 2000; Ireland et al. 2002) have investigated how this theory could shed light on the "logic of alliances". Substantially, it is the need to access new resources that are "valuable and essential to achieving competitive advantage" (Das & Teng 2000, p. 37) that guide the formation of mutually beneficial partnerships. However, these remain distinct from pure acquisition because potential partners may elsewhere mainly own unneeded resources, or exploit distinct synergies with resources in different sectors. According to these papers, alliances are only useful to create new combinations of resources, whose value is once again already assessed in the light of determined collective strategies.

This approach to "value" is mainly based upon Barney's seminal work. Indeed authors have often adopted his restricted definition of value, and seek to measure firm "performance" in financial of market terms in relation with the characteristics of their resources. Several limits have been outlined to this research strategy. (Kraaijenbrink et al. 2010) report for instance that the initial definition of "valuable resources" is much too broad and imprecise to ground empirical studies, and that authors have tried to restrict it to specific dimensions of value (perceived use to customers, various costs or prices etc.), which cannot account for the exploratory potential of some specific resources. Moreover, (Coff, 1999) demonstrated that performance may anyhow never be correctly measured, because of the internal appropriation of value by stakeholders with strong bargaining power, which prevents a definition of value as the financial outcome of owning "valuable resources".

Overall, these authors relay the assumption that the value of resources can be known because they enable identified value-creating strategies. In other terms, resources' value is assessed in relation with a particular use of these resources, as part of an already designed strategy. This strategy may either be self-evident for each resource (or bundle of resources), or left for the managers to conceive it. This allows Adegbesan & Higgins (2011) to build a model on value appropriation written as the equation $V(R_1 \cup R_2) = V(R_1) + V(R_2) + S$, where $S > 0$ is the surplus obtained through complementarity between resources. Here, "V(R)" designates the value of a bundle of resources in the light of a self-evident strategy leading to competitive advantage. The same can be told about Lavie's model (Lavie 2006).

In this way, Dyer & Singh outline various characteristics of interfirms relationships that may explain how firms create competitive advantage through the use of partnerships. Reassessing the role of complementarity in resources between partners to create a performing "bundle" of resources ("complementary resource endowments"), they add that firms may also engage in "relation-specific assets", exchange knowledge to create joint learning, and create governance safeguards to ensure alliance durability. Three points are of particular interest in this work. First, it demonstrates that beyond the interest of sharing knowledge between partners to create complementarities, the cumulative effect in the number of "transactions" within the alliance may lead to transform "special-purpose assets" (or too specific resources) in "general-purpose assets". In other terms, the more resources are shared between partners, the more potential for future value generation is created because resources gain the ability to be used in various different "bundles", and for various value spaces. On the one hand, it claims that valuable resources are often specific to some

strategies and that this create potential hazard for firms that commit in a partnership. On the other hand, this allows us to think of bundle resources as a ground for several strategies as soon as there exist enough complementarities and binds to enable them. However, in Dyer & Singh's view, strategies still precede resources, and general-purpose resources are so called because numerous strategies have already been designed that use them.

Second, it shows that the value that can be captured by partnering firms depends on a number of factors such as investment in internal search, absorptive capacity and access to timely information on potential future partners. In our view, this should advocate for a value to resources that may not be assessed independently from future projects, future potential partners, and current capabilities. Yet, Dyer & Singh overlook the fact that this being said, partners may also try to build collective research capabilities and to design future projects that would increase resources value within the alliance. Third, and lastly, outlining the specificity of investments that partners may engage in the relation, authors stress the importance of governance provisions that create safeguards for the alliance. These safeguards are meant to reassure partners that they will be able to capture the value they expect from the partnership. But no mechanism to ensure value will continue to be created through the collective design of future strategies is mentioned.

C2. Partnerships help attaining valuable strategies by combining resources in new ways. However the literature does not consider the potential that is created through the capabilities and willingness of partners to design new collectives strategies.

b. Rent appropriation and pie-splitting rights

The discussion between potential value generation and required safeguards may very well be the avatar of what (Linnarsson & Werr 2004) call the tension between the logic of innovation and the logic of alliances. Indeed, as already stressed by (Bidault & Cummings 1994; Lambe & Spekman 1997), creating strongly cohesive rules may actually prevent explorative alliances to be efficient in exploring alternate paths of innovation that every partner may not agree with. Conversely, exploring a large breadth of these paths might make the resources of some partners obsolete, stress the lack of resources potentially held by non-partners organizations, and thus jeopardize the cohesion of the alliance. A large amount of papers have been concerned with this cohesion issue, either studying governance provisions or value sharing schemes. Here again, in both cases, the generative aspect of resources, beyond the already identified intended use and value, is hardly considered.

(Kale & Singh 2009) offer an up-to-date review of the academic field of strategic alliances. They show that papers on alliances' success mainly tackle the issues of partners' selection, governance structures and post-formation coordination from a very broad perspective. Indeed, they sum up proposals on mechanisms that should ensure proper alignment between governance provisions and actual partnership functioning, conflict resolution etc. However, as stated by (Linnarsson & Werr 2004), few studies are concerned with the "practical management of alliances", and those which are "do not distinguish between alliances aimed at exploring new, innovative opportunities, and alliances aimed at exploiting existing capabilities" (p.46).

The same can be observed in the field of value appropriation and rent sharing between partners. In their paper called "The intra-alliance division of value created through collaboration", Adegbesan & Higgins (2011) review theory and hypotheses that have been formulated by academics on value sharing so far. Several hypotheses are drawn on the factors that guide or explain value sharing between partners. Some characteristics of resources themselves, as their specificity to a particular project, or their substitutability may influence the repartition of value. The variations of bargaining power between partners are also a strong factor to this repartition. All in all, it is the repartition of certain types of rights within the alliance, namely "pie-splitting control rights" that will guide future value sharing. However, by working on an observed or expected value V(R), these authors overlook the potential that is associated to future strategies to be designed with these resources.

Dyer et al. (2008), building on the intuition we found in the relational view, namely that bundles of resources enable several strategies as soon as there exist enough complementarities, open the reflection to a new type of returns that resources may create for partners. Beyond the usual value created by the combination of VRIN resources, partners may create what they call "private benefits", either by combining newly created resources within the alliance with other private resources, or by identifying (thanks to these resources) new fields of research or innovation that are worth to be explored. This approach is very interesting as it is a start to model the generative value of resources as a potential. In other words, new value spaces can be created building on the same initial set of resources, as long as newly generated strategies are continuously designed with these resources.

This "private" feature however stresses the fact that future strategies may not be designed collectively within the alliance. Instead, they might only benefit to one of the firms and either lead to very different appraisals from the partners, or even restrict the perspectives of future collective value creation. In this case, these private strategies may create conflicts that overstep mere opportunism: it is a matter of alignment between partners' long-term goals, between which complementarity is not always self-evident. Interestingly, Dyer & Singh do not consider the possibility that this value-creating mechanism (called "resource development perspective") may not be only private, but rather be internal to the alliance and benefit to all partners, thus strongly complicating the evaluation of value brought and legitimately expected by the different partners.

C3. Partnerships may create opportunities to explore unexpected strategies. However, according to the literature, these strategies are mainly private, and the risk that they threaten alliance's cohesion is not tackled.

c. From the resource development perspective to a model of generative potential

Extending the work by Dyer et alii, we draw new hypotheses to build a model to the resource-based view that takes into account the possible generative capacity of resources beyond the value that is usually assessed in the light of already identified strategies.

Compared to the definition of "valuable resources" by Barney (1991), we cannot consider that explorative alliances pursue the mere objective of improving the "efficiency" of partners. Instead, we can describe it as combining resources to

i. uncover or design a new use of these resources, that is a new strategy that is desirable for the partners, and would create value for them
ii. identify currently missing resources to support this strategy,
iii. and/or create or design new resources.

Thus, strategies may not be known at the beginning of the alliance, and one may not be able to describe the value of partners' resources (in Barney's sense): partners may not know how to use them in a "valuable" way. Therefore, we suggest a new definition to *valuable resources* that accounts for this "unknown" that characterizes explorative alliances: *valuable resources* are resources that are able to support the design of "strategies", the value of which can then be assessed by the different partners. Consequently, we propose that any bundle of resources R may have two different "values" at any point in time: a value dependent on a given strategy S, e.g. $V_k(R, S)$, that describes the assessment by partner k of an already identified (or designed) uses of resources, and on which "classical" value appropriation questions remain valid; and a partly unknown value that takes into account every new use of the resources R that can be generated, including those that partially rely on resources that haven't yet be designed. Finally, when explorative alliances are formed, strategies, uses of resources and resources to be built together may be partly unknown. All these must be designed thanks to valuable resources that are available at that time.

H1. When explorative alliances are formed, strategies, uses of resources and resources to be designed together may be partly unknown.

i. Resource sharing, new strategies and missing resources

We model a partnership through the combination of resources owned by two ore more partners. Before the formation of the alliance, partners may have a predetermined set of strategies that they have already considered as a use to their resources. According to the RBV literature, through the formation of the alliance, new strategies become accessible thanks to complementarities. This is the reason why partners decide to form an alliance.

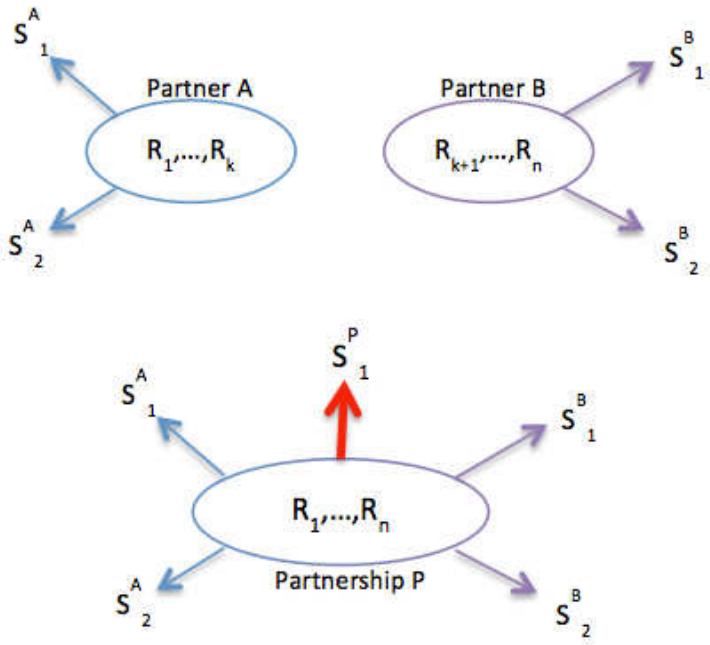


Figure 1

Each partner has its own assessment of the value they expect to derive from the common strategy S^P_1. For partner **A**, and the bundle of resources $R = \{R_1 , \dots , R_n\}$, we will write $V_A (R, S^P_1)$. As this value is specific to the context of each partner (for example dependent on private benefits they will retrieve from this strategy), there is in general no reason that $V_A (R, S^P_1) = V_B (R, S^P_1)$.

Based on the latest work on RBV, we introduce the identification of missing resources that will be required to follow already identified strategies. We will write these missing resources as **δR**. Contrasting with the classical model of RBV, we hypothesize that partners may want to pursue explorative goals, which may lead to new strategies, and new resources. These new strategies may derive from already identified ones, or not. The same is true for resources, which may merely be updated from existing ones, or generated as independent assets.

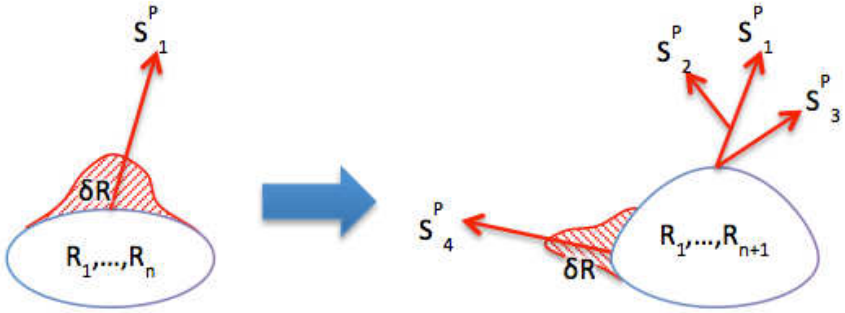


Figure 2

H2. Strategies, or uses of resources, may be progressively designed through collective exploration, leading to the identification of missing resources that partners will need to create.

ii. Generative potential vs. private benefits

Building on (Dyer et al. 2008), we model the possibility for partners to develop strategies that are based only on a fraction of all resources, but also strategies that use "private" resources, that is resources that are not shared in the common pool. Again, extending this view, we hypothesize that partners might want to reintegrate privately built resources in the common pool, in order to propagate the generation of new strategies that could be based on these resources. In so doing, we represent the capacity of newly created, or newly integrated resources to combine with other resources to generate still more valuable strategies.

H3. Newly created resources when added to the common pool of existing resources, or newly designed strategies, have the capacity to generate new exploration paths for all partners.

Lastly, we call "value space" a set of strategies that explores a particular use of resources toward a collective goal, and we call "generative potential" **P(R, VS)** the set of value spaces $VS = \{VS_1,\dots,VS_m\}$ that can be generated through the explorative use of the initial resources $R = \{R_1,\dots R_n\}$.

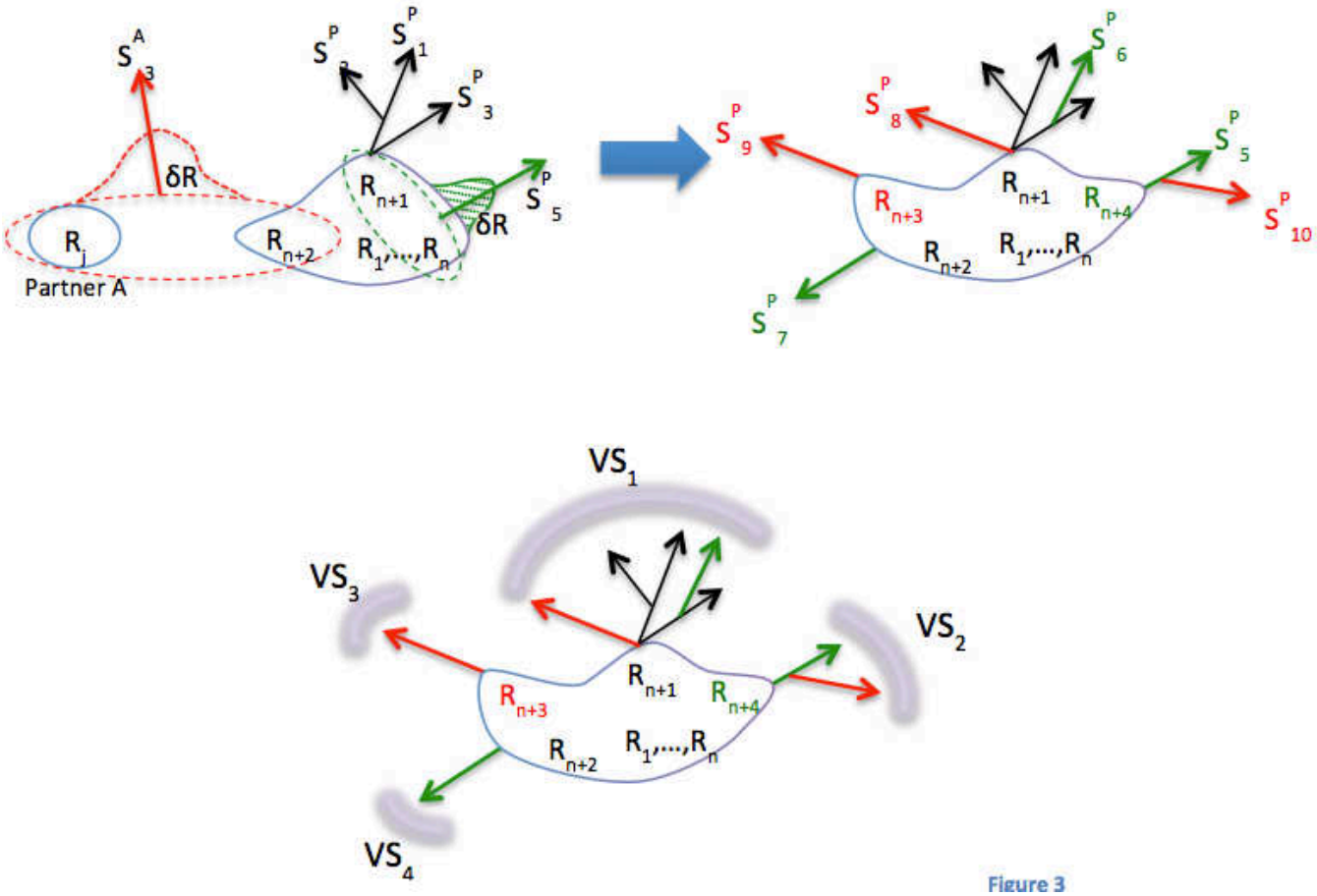


Figure 3

iii. Research questions

This hypothetical model raises several research questions. First of all, our hypotheses as regards the unpredictability of resources partners will need to develop, and the maximization of the potential value that can be extracted from initial resources need empirical confirmation. In this case, as we can see, the common potential created by the alliance depends on the capacity to explore new strategies, design new resources and propagate the impact of these resources on the common strategies. In this situation, how to assess and divide the value both of existing resources that may be used to generate new strategies, and of missing resources that benefit to several partners but still have to be appropriated? Who should develop these missing resources?

Besides, the model shows that resources support generative mechanisms that create various opportunities, either to develop desirable resources or to explore promising innovation paths. Yet, these paths and resources may not create unanimity for all partners. Some partners may even own enough of the resources to explore some of them outside the partnership, and these “private benefits” may harm future cohesion in the alliance. Or, these explorations out of the partnership may instead help partners to create new paths as soon as newly created resources are brought in the common pool to participate to the potential. How to choose which paths to explore with common resources created by the partnership? Does the partnership legitimate that some of the paths should be banned to protect future fruitful projects, which would otherwise be abandoned because of poor cohesion? How to decide whether “private benefits” should be reintegrated in the common pool of resources or not?

Methodology

Following the methodological guidelines of (Siggelkow 2007), we chose to exhibit a particular case where existing theories fall short of explanations. According to Siggelkow, this case does not require to be representative of usual strategic alliances: on the contrary, its interest is to bring new insights on an already well-studied field, thanks to specificities that allow the inference of new hypotheses to advance theoretical research. However, since this particular case doesn't own the required features to confirm a general theory, it must be used to support a "free-standing" theory (Siggelkow 2007, p.21) in two ways: pointing the shortcomings of existing theories through the use of the case as a counterexample (see for example (Gray & Cooper 2009)), and act as a illustration of a new self-explaining model that suggests a way to bridge the identified gap.

To this aim, the case study must be well documented and generate abundant and reliable data. Therefore, we began a collaborative research with a French firm specialized in therapeutic food products mid-2011, which we complemented with semi-structured interviews with some of its partners in France and in the USA. This research first led to formalizing the history of the design of several decisive products (either successes of failures) that were designed through the establishment of partnerships, and then to retrace the relationships and main events within these partnerships, whose recent blockage had motivated our research question. Finally we explored several theoretical approaches within this collaborative research setting, which is still ongoing today.

This combination of free-standing model and detailed empirical case study allows us to derive hypothetical theoretical and managerial implications that are relevant to both and complement existing literature, but still need confirmation through further research, including further empirical data collection.

Case Study - Results

a. The setting of a successful explorative alliance

The industrial field of therapeutic food to fight malnutrition is a fairly recent one. During the 1980's and 1990's, researchers' understanding of the mechanisms and specificities of malnutrition in Southern countries has begun to make clear that worldwide food donations (mainly rice or wheat) were not appropriate to help children recovering from an acute stage of the disease. Advances in analyses of the physiological state of these children revealed that severe acute malnutrition (SAM) was not mere deficiency in calories, but a deep disequilibrium in nutrients that should be treated with specific therapeutic preparations.

The need for innovation in this domain was clear, since these therapeutic preparations did not exist. But the variety of competences that were required to create a new therapeutic product, in a sector dominated by cereal biscuits, justified a partnership approach. Three main types of actors gathered around the project: ONGs (including humanitarian doctors) helping analysing needs and accessing the field, academics (especially nutritionists) that could formulate the nutritional composition of such a product, and a new-born firm (hereafter "F1") lead by a former food-processing industry manager.

This team designed first an innovative powder-based therapeutic product (X1) specifically meeting the identified deficiencies, and that required preparation with clean

water in medical centres. Although being a significant step forward (the product is still distributed today), ONGs noted that a lot of children under treatment could not make it through the night, because medical centres were closed for security reasons and the product should be administered every three hours. This led F1 and one of the nutritionists to think of a product that would not need any preparation, and would be distributed directly to families caring for malnourished children.

At this stage, the product was still to be designed, but the value criteria were already made clear. For all partners, this hypothetical product would have a significant common objective (curing many more malnourished children), which we call $\mathbf{S^P_1}$, and also several "private benefits" for each of them. Indeed, the "business model" invented for the previous powder-based product X1 ensured that:

- $\mathbf{S^{F1}_1}$ - F1 could produce and sell the designed product to ONGs with financial means
- $\mathbf{S^{ONG}_1}$ - ONGs would follow and publicize new ways of curing children in these countries
- $\mathbf{S^{Nutr}_1}$ - Academics would publish scientific papers supporting new effective treatments.

A research project was thus carried out with these three partners. All of these partners brought *valuable resources* (following our definition) to conduct this project. F1 brought technical know-how on milk-based products, knowledge on food substance ("matrix") in food-processing industry, and prototyping capabilities. A first ONG (ONG1) brought knowledge on the needs of malnourished populations, on the context of treatment, but also access to the field and specifically the ability to conduct clinical tests on the innocuousness and efficiency prototyped products. Finally the nutritionist brought competences on nutritional formulation as well as a scientific guarantee for the project. In order to simplify the analysis thereafter, we regroup these resources by "bundles" owned by the different actors: F1, ONG1 and the nutritionist respectively own R1, R2, and R3.

As foreseen regarding an explorative partnership, design and validation of the desired product required the exploration of new knowledge and the development of new competences **δR**. For example, F1 quickly chose to work on a structure of paste, which would guarantee its preservation and dispense the use of water, but represented a technical gap for F1. The integration of the nutritional formula within this given matrix also required designing a new process ensuring final quality. The prototype required to design new clinical tests, as protocols of distribution were intentionally innovative, and so on.

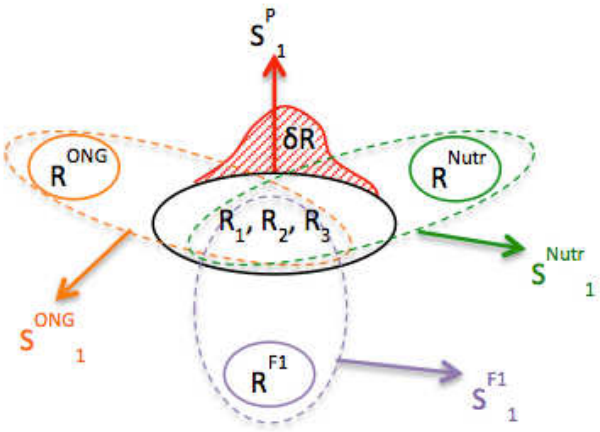


Figure 3

Although the first empirical results showed locally a significant gain in efficacy (measured in number of children cured from SAM) compared with previously existing products, proof was still to be made that the newly designed product (X2) was efficient at large scale, especially in contexts of acute crises, where logistics are an major part of the equation. This has been done with the help of another ONG, ONG2, which provided a fourth bundle of resources (R_4) that led them to design new distribution modes that could allow treatment without hospitalization, hence new dosages, training for families becoming relays of doctors at home, and monitoring methods. This large-scale distribution quickly proved to be very successful, reaching rates of recovery that were unthought-of until then.

The value of this combination of resources is easily assessed in the light of the strategies we had stated before starting designing further. A greater proportion of children have recovered from SAM ($\mathbf{V_i(S^p_1) > 0}$ for all partners), a number of publications followed the innovative product ($\mathbf{V_{Nutr}(S^{Nutr}_1) > 0}$), and F1 earned enough to scale up its production and start new innovative projects with similar objectives ($\mathbf{V_{F1}(S^{F1}_1) > 0}$). But what is interesting is that further developments enabled the design of new strategies, which included more actors. Indeed, today ONGs now use the positive image of the product X2 (linked to its impressive results) to raise money in charity campaigns, international health organisations have used the characteristics of this product to invent and recommend a new class of therapeutic products (named Ready-to-Use Therapeutic Food), and so on. This extension in resources ($\mathbf{\delta R}$) and in value spaces (around $\mathbf{S^P_1}$) shed light on the potential of initial resources (figure 5).

Regarding the governance structure, this partnership has not reached the level of sophistication that is described in the literature on strategic alliances. The partners had not formalized their commitment, nor had they considered how to split the value created through this alliance. Contingencies may explain this fact: F1 was very young and employed very few people at the beginning of the partnership, it was not considered a potential threat by its partners; F1 was the only for-profit organism engaged in the partnership and the other value criteria were not conflicting; this partnership took place in a context of informal relations between people concerned with a humanitarian issue; and lastly, innovation in malnutrition was overall considered as an emergency, what could explain that contractual issues were postponed.

A posteriori, the design of the matrix (or form of the food product) led to a patent, filed in co-property between F1 and the research organism employing the nutritionist, being the two organisms at the origin of the technical leap offered by the product. The research organism finally sold its right to exploitation to F1. F1 also keeps some trade secrets that guarantee the quality of the product. ONGs and F1 mostly have a supplier-customer relationship regarding this product.

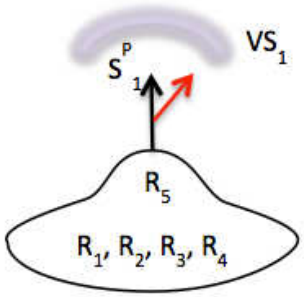


Figure 5

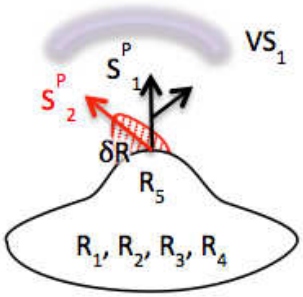


Figure 6

b. A richness in innovation paths that jeopardizes the potential

So far, this partnership would have been deemed successful. For each strategy and each partner, this project has meet and sometimes even exceeded the expectations. However, in the light of partners' long-term goals, this product does not ensure sustainability. On the one hand, as a high quality therapeutic food, it is costly to produce compared with the financial means of both malnourished populations and humanitarian ONGs. On the other hand, as a humanitarian aid food, financial margins are bound to decrease, threatening the economic viability of F1. Mostly designed as a response to malnutrition crises, X1 and X2 could in fact be seen as first steps in a large innovation field where other ways to fight malnutrition still need to be explored.

This is why new research partnerships have kept being concluded between F1 and various ONGs, universities and governments since these two products. Two of them are of interest here. The first one is a research project that is directly based on the resources that were developed for the paste-based product X2, and carried out in partnership with ONG2. In this case, instead of curing Severe Acute Malnutrition, the idea of the project was to design a food solution that would treat an upstream phase of the disease, moderate malnutrition, in order to prevent children to reach a life-threatening and after-effects generating state of health (S^P_2). Compared with X2, the research required new nutritional formulas, new clinical validation and monitoring techniques (as symptoms and effects are different than SAM), etc. This project, framed by a memorandum of understanding, led to a new paste-based product X3 for moderate malnutrition, covered by the patent owned by F1. It is also deemed both by F1 and by ONG2 as a success, as it has led to great results in a recent crisis, and is today sold in several countries for prevention of crises (figure 6).

The second one comes just in the following. Assessing the cost of different ingredients of the product, ONG2 decided to launch a research project aiming at determining what was the minimal necessary amount of the most expensive one to guarantee medical results, so that the overall cost could be reduced and more children be cured. However in this case, collaboration never went beyond the setting phase, where F1 and ONG2 could not agree on a satisfying contractual framework. Analysing this project with the usual research-based view, this blockage is inexplicable. Complementary resources are brought by partners that successfully worked together, some of them being already common resources created by successful earlier projects, the value of the expected outcome is clear and predictable for each partner, and several sharing schemes are considered during negotiations: free prototyped products for clinical tests, no mention of F1 name on the product to avoid customer identification, different level of royalties for ONGs etc. None of the usual

explanations for alliance failure (poor partner selection (Emden et al. 2006), inequitable returns, poor governance mechanisms, etc.) qualifies here.

A second hypothesis can be formulated based on the previous history between F1 and ONG2: it is not the splitting of value on this particular project but on the previous ones that raises conflicts. However, interviews conducted with ONG2 are not consistent with this explanation. Prices on products X2 and X3 are considered fair, and profit margins, which are shared between F1 and ONG2, are even deemed lower than comparable cases elsewhere. The patent, on which the communication of ONG2 is rather aggressive, is not a real obstacle since competitors of F1 that circumvent or infringe it do not succeed in reaching the quality on cost ratio provided by F1. This, in fact, remains the first explanation to F1's monopoly and to its key participation in a research project precisely based on cost vs. effect assessment.

c. An explanation based on our model

Interviews with ONG2 in fact show a deep disagreement with F1 on the objectives of innovation in the field of malnutrition. F1 has launched several projects with various partners to guarantee what they call "nutritional autonomy" to Southern countries, and which can be defined as *"the ability of a state, a community or an individual to identify nutritional needs and to procure the nutrients needed by young children or other at-risk population groups through sustainable systems"* (Troubé 2010). This includes partnerships with southern producers to manufacture products locally and raise purchasing power and justifies the strategy of patenting as a way to prevent big agribusiness conglomerates to take the market over and maintain a state of dependence between southern and northern countries. On the contrary, ONGs, including ONG2, aim at curing as many children as possible, as quickly as possible, no matter who produces the goods. This entails a strong pressure on prices, following the well-known low-cost model negotiated with pharmaceutical industries, even if they know that costs are structurally different in food-processing industries.

Following our model, these objectives are not pre-constructs that antedate the design of the preceding products. They are in fact "by-products" of the design activity. In other words, these are new desirable strategies, requiring different resources and **δR** and leading to different valuations according to the different partners. More precisely, we have identified two main strategies that have emerged during the research projects for products X2 and X3 that we have described:

- For ONGs, the new bundle of resources R_1 to R_5 has the potential to explore a strategy of low-cost therapeutic food, which we will call S^P_3. It is necessarily a common strategy, as ONGs do not own all the resources that are required by this strategy, because of the patent on X2 but also of the know-how owned by F1 and guaranteeing the best cost vs. efficiency ratio of the market.

- For F1, a private strategy emerges from the X3 project on moderate malnutrition. Indeed, this project has opened new possibilities as regards the prevention of malnutrition instead of the use of curative products when acute stages of the disease declare. In this case, F1 would have benefited from a continuing partnership with ONG2. But, both the fact that a conflict has emerged between them, and that F1 owns enough

resources to at least start exploring the field with external partners, lead to the design of a "private" strategy S^{F1}_2.

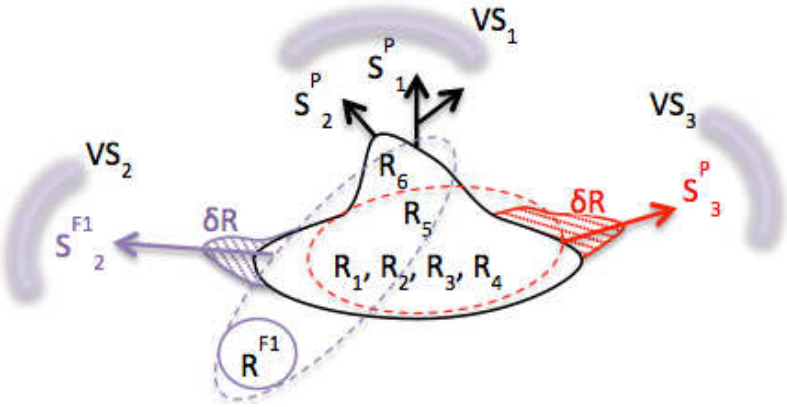


Figure 7

The different contexts of F1 and ONG2 lead to very different valuations of these two main strategies by respective partners: a low-cost X2 doesn't seem to be a valuable strategy for F1, which is already facing decreasing margins on X2, and we have **$V_{F1}(R, S^P_3)$ low**, whereas **$V_{ONG}(R, S^P_3)$ is high**. Conversely, a product for prevention seems to be a waste of money for ONGs that are lacking funds to face currently declared severe crises. Moreover, the path that F1 is opening is clearly bypassing the ONGs' resources, since they are trying to directly address the consumers' market, thus circumventing ONG distribution circuits. Then, **$V_{F1}(R, S^{F1}_2)$ is high**, whereas **$V_{ONG}(R, S^{F1}_2)$ is low**.

d. Possible resolution thanks to the notion of generative potential

Finally this case shows that conflicts may emerge because of the simultaneous design of strategies that partners do not assess to the same value. However, these partners are well aware that most of the potential of X2 and X3 could still remain to be explored, and that this exploration may require common strategies and combinations of shared resources. At this stage, our model allows us to draw some general hypotheses based on the potential, which suggest some possible resolutions. These suggestions could be tested during further collaborative research, which would confirm or invalidate our hypotheses.

The first possible approach to overcome the problems stems from the very logic of generative resources. Indeed, as we have shown for products X2 and X3, the update of existing resources, or the design of new ones is able to generate new potential strategies, to which partners may all grant high value. This would require sharing with partners the **δR** that is privately generated in the strategy **S^{F1}_2**. In other words, F1 could acknowledge that this strategy is a private one, and that it leads to private benefits, but commit to add a part of the resources it generates to the common potential (figure 8). In turn, this may participate to the creation of new commonly valuable paths and to the integration of the previously private value space **VS_2** in the common potential. This is consistent with a strategy of maximization of common potential. A more specific version of this strategy would be the commitment of F1 to participate (at least financially) to the future exploration of the common strategy **S^P_3**, for instance thanks to the profit that its private strategy **S^{F1}_2** would generate. This would acknowledge that the conservation of common potential requires fair returns from partners that use common resources to develop private projects.

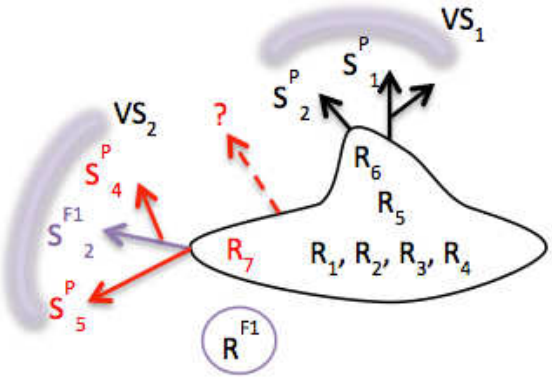


Figure 8

Another way to resolve the conflict would be to abandon private paths that have a high probability of dividing the alliance. To keep an efficient explorative alliance and avoid blocking several paths that would create value because of ambiguity, this may require the *ex ante* definition of mechanisms to organize debate or decision-making about common paths to be explored. F1 is precisely part of a research consortium that includes a research committee evaluating future potential of the commonly created resources. In doing so, the partnership both ensures that value management will continue beyond the common agreement, and that chosen valuable paths will minimize the future risk of conflicts.

Discussion: theoretical and managerial implications

a. Collective innovative design creates a binding effect between partners

Using the dominant analysis in RBV literature about alliances, this case exhibits an a priori inexplicable blockage: on the research project where conflict emerged, partners had already a strong and successful past, various governance mechanisms were considered, and value was self-explicit for all organizations. Indeed, the question of expected value appropriation V(R) is only partial: explaining this blockage requires making long-term strategies divergence explicit. Compared with a simple partner selection problem, this divergence emerges from previous collective explorative projects and is therefore not predictable *ex ante*. And compared with classical value appropriation issues, this blockage emerges even though projects are very likely to satisfy all partners.

In reality, we witness the emergence of a paradoxical binding effect between partners, which raises contradictory issues compared with the classical alliances difficulties. Indeed, the logic of innovation usually conflicts with the logic of alliances because the latter requires more safeguards whereas the former prefers flexibility and generates instability in cohesion. Here, this is the collective innovative design that creates binds between partners because of a *de facto* sharing in the potential of resources: partners recreate their strategies according to collectively generated resources, which require the conservation of the partnerships. However, this requirement paradoxically threatens alliance's cohesion, because of the lack of management tools that help organizing a mutually beneficial set of strategies.

b. The generative potential requires specific management rules

Therefore, thanks to this case we highlight that exploiting efficiently the value that can be generated from a combination of shared resources requires the management of a

common potential. This management differs from the simple repartition of expected value. At any point in time, the value of shared resources may be impossible to assess: it depends on future exploration, future research projects, future creation of resources, and all these activities may occur within or outside the alliance.

Rather than creating ownership governance rules, whose objective is to control *ex ante* the repartition of "pie-splitting" control rights, so that predictable value may be divided step-by-step with possible unfair results, we advocate for the creation of rules that seek to preserve at any time the overall potential of the shared resources. Practically, instead of thinking about appropriation rules (such as intellectual property returns), it might be more fruitful to design mechanisms that ensure that all possible future explorations will not jeopardize the common ability to design new collectively valuable strategies. More specifically, these mechanisms could help "private" explorations to create positive returns for the common potential, or help partners to frame future explorations so that they only engage in paths that every partners deem highly valuable.

In the first case, the simplest mechanism we can imagine would consist in commitments to a financial return, for example a royalties-like scheme, ensuring that all partners will get a part of future profits generated by private explorations. Beyond a mere legitimacy reason, which would remain disputable, this ensures that even private explorations participate to the development of a common potential that will in turn benefit to all partners, including the solitary explorer.

c. An extension of the Resource-Based View to generative resources

Theoretically speaking, we had proposed some hypothesis to extend the literature about the Resource-Based view. The case study highlights helped us to confirm our hypotheses. Regarding H1, most of the valuable strategies partners today consider were effectively unthought-of at the beginning of the alliance. The value of the first products to have been collectively designed largely exceeded expected outcomes and is still explored today. Regarding H2, we outline the importance of collective design to identify missing resources to reach objectives that are continuously redefined and that progressively organize the exploration of an innovation field. Finally, H3 is confirmed as regards the generative aspect of some resources that propagate the creation of new valuable strategies for all partners when they are reintegrated in the common pool.

Thus, we add a new dimension to the model of resources, which we call "generative potential". This designates the possibility of using some resource combinations to continuously generate new valuable strategies beyond what is actually expectable at each point in time. In doing so, we highlight the need of new class of rules to deal with partnership issues that are parallel to the expected value appropriation problem.

However, this potential still requires further research and in particular further empirical confirmation. Indeed, consistently with our methodology, we propose a free-standing model, which seems to have the ability to bridge some gaps in existing literature, but which also outline a future research agenda in the field of explorative alliances.

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