Orchestrating firms' competitiveness:

A case study on the strategic role of managers in knotting action nets

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Résumé :

This proposal considers one of the key challenges of complex organizational settings and environments for strategy-making. When strategic decisions must be made, the question of how to orchestrate multiple, intertwined, and often conflicting logics of pooling and exploiting resources together, or action nets Czarniawka (2004, 2006, 2010), underlying firms' competitiveness remains crucial. In this research, we argue that the ability of complex firms to develop a concrete way to effectively "muddle through" such situations, instead of working against conflicting logics, denying them or submitting to choice, is vital for their success. An in-depth case study of a European Global Biotech Firm in the vaccine industry – characterized by a number of sensitive strategic implications – provides the empirical grounding to explore the micro-foundations of this orchestration capability enhanced defined as the ability to enact coherence between multiple logics.

The findings of this ethnographic study suggest that the orchestration capability is a process allowing a situated construction of strategy. In particular, we were able to identify three types of work that characterize its breadth dimension (Sirmon et al., 2011): the repairing, innovating and maintaining of meta-connections between action nets. These connections that we call strategic knots are the locus in which different action nets are constantly synchronized for greater competitiveness. Yet, strategic knots are never stabilized once and for all. They are the site of an on-going flow of knowledge enacted for some, being enacted and de-enacted for others.

Mots-clés : Action nets, Complexity, Resource, Orchestration, Strategizing

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Introduction

This research considers one of the key challenges of complex organizational settings and environments for strategy-making. From a process perspective, the question of how to orchestrate multiple and often conflicting logics of synchronizing scarce resources (Barney et al., 2011; Sirmon et al., 2011) remains crucial when strategic decisions must be made and implemented in such contexts (Hutzschenreuter & Kleindienst, 2006). Pursuing this, and building on the action nets perspective of firms (Czarniawska, 2004, 2006, 2010), we shall strive to address the challenge posed in practice by such settings. Particularly, we ask which means can organizational actors develop in order to enact coherence among different and conflicting pools of resources that underline firms' competitiveness. For that, we further explore the role of orchestration in the strategy-making of firms operating in complex environments, and attempt to uncover the micro-foundations of this core competence that have been advance to be the practicability side of dynamic capability (Teece, 2007; Helfat et al., 2007).

Mediation has been recently developed as a concrete way to effectively "muddle through" (Lindblom, 1959) complex situations, instead of working against them, denying them or submitting to choice (Pérezts, Bouilloud and Gaulejac. 2011). Drawing on an in-depth case study in the vaccine industry – characterized by a number of sensitive strategic implications –we build on these findings to develop in this emergent approach a framework of orchestration as a strategic enabler.

In music, orchestration represents « the activity or result of arranging music for orchestra». Following the musical metaphor, the common sense defines orchestration as the result of managing different kinds of actions in harmony. The notion has been already used in the literature to highlight the process allowing a firm to renew the resources underlying its competitive advantage (Teece, 2007; Sirmon et. al., 2011), however here we further posit that in complex firms orchestration is foremost the ability to bridge the inherent gap emerging from the

multiple logics to synchronize such resources. In order to theoretically approach the notion of logic that guides the pooling of specific resources and actions to align the firm with its environment, and the possibility of orchestrating several of them to enhance firms' competitiveness, we shall build on the concept of action nets developed by Czarniawska (2004, 2006, 2010). This latter allows us to focus on knotting or connecting, "as a central activity in all organizing", and how this process unfolds. We are then able to identify the streams of action at work in strategizing (a specific case of organizing) in highly complex contexts, and highlight the micro-foundations of the orchestration capability.

Our paper is composed as follows. We begin by reviewing the literature on action nets to introduce the idea that orchestration can constitute a way through conflicting logics of the multiple, intertwined and sometimes conflicting action nets underlying firms' competitiveness. Second, we expose the ethnographic method and research setting mobilized to shed light on orchestration mechanisms. Then, building on the case of the development of a joint-venture in China, we illustrate how the competence of orchestration allows the creation and sustaining of strategic knots to allow strategic moves. We also outline the conditions for that process. We finally discuss our contributions and conclude with some research directions and managerial implications.

1. Conflicting resource-driven logics as a challenge for strategy making

1.1. Resource orchestration in complex settings

Today's business landscape is complex: as several researchers agree (Eisenhardt, 1989a; Brown & Eisenhardt 1998; D'Aveni et al., 2010; Goodhew et al. 2004) many industries undertake rapid changes in their environment, face entry and exit of competitors and must deal with an unpredictable demand. This had closed the door for long-term and idiosyncratic competitive advantage as the interactions of these multiple patterns of interactions are likely to lead to emerging and unforeseeable outcomes (Porter, 2010; Richardson, 2008). In such contexts, several scholars have proposed that firms who survive and achieve sustainable successes are those who are able to develop and implement dynamic capabilities, that suppose the renewal of resources and capabilities underlying their competitive advantage (Eisenhardt & Martin, 2001; Helfat et al., 2007; Teece, 2007; Teece et al., 1997; Winter, 2003).

Recently, a stream of research on resource orchestration (Helfat et al., 2007; Teece, 2007; Sirmon & Hitt, 2003; Sirmon et al., 2007; Sirmon et al., 2011) has emerged to understand how managers effectively develop, exploit and renew the competitive advantage of their firms (Augier & Teece, 2009). It has suggested that "possessing resources alone does not guarantee the development of competitive advantage; instead, resources must be accumulated, bundled, and leveraged […] for creating competitive advantages" (Sirmon et al., 2011: 1391), but that beyond this managerial work, it is their synchronization that is important for competitiveness (Sirmon et al. 2011). Accordingly, resource orchestration should be understood as the managerial activity of arranging the processes underlying the management of a resource-based competitive advantage.

Yet, rooted in non-linear, asymmetric, and unpredictable interactions (Richardson, 2008), firms must develop complex responses that require high degrees of both specialization and variety. Indeed, given that hypercompetition emerging from our global world seems nowadays commonplace (D'Aveni et al.,2010), to face competition, customers' needs, technology emergence, regulatory changes, etc. firms must thus be strongly embedded in specific fields (Porter, 2010) to develop specific flows of actions in order to (re)align accordingly its resources and capabilities. Consequently, strategy-making tends to be based on co-evolving (Inkpen & Curral, 2004) streams of actions undertook by expert (middle) managers able to sense and champion promising opportunities upward (Floyd & Wooldridge, 2000). However, this implies that the cause of performance is networked rather than linear (Richardson, 2008), and self-transcendent (Nishigushi, 2001) as knowledge tends to be highly distributed in such situations.

Ray, Barney, and Muhanna (2004: 24) suggest that processes are "actions that firms engage in to accomplish some business purpose or objective". Therefore, in complex contexts, managers must develop multiple and specialized flows of actions in order to cope with the evolution and complexity of contemporary environments (Ndofor et al., 2011; Sirmon et al., 2010). These flows are resource-driven processes that structure, bundle, and leverage firm resources (Sirmon et al, 2011) to develop, enhance and maintain overall firm competitiveness. Furthermore, actions within a specific flow must be intertwined together following a specific pattern, or logic, that allows reaching strategic objectives, ensuring fitness with part of the environment they address and successfully competing within strategic landscapes. In other words, in a

complex world, firms' competitiveness lies in the interactions of different logics of pooling strategic resources and capabilities. For instance, Regnér (2005), referring to the ambidextrous firm, showed that successful firms are those who are able to manage simultaneously the strategic logics of exploration and exploitation.

But, if the perspective of firm's performance based on the complex combination of different, highly specialized streams of actions, has gained ground, the orchestration of this "tuning" remains largely underexplored in the literature. While some scholars have highlighted the possibility, and the need, of synchronizing such resource-driven processes (Sirmon et al., 2007; 2008; 2011), other works rather highlight the difficulties of such an enterprise (Porter, 2010; Richardson, 2008). Especially, what the resource orchestration literature leaves largely unquestioned is how to orchestrate different and legitimate requirements that might simultaneously stand and be addressed. Instead, existing literature reminds us that such a coexistence of differentiated logics tends to "uncouple" the firm (Orton & Weick, 1990) which would achieve the exact opposite outcome than expected.

1.2. Firms' competitiveness as an orchestrated setting of action nets
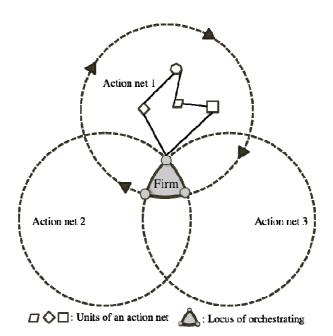
Consistently with our view of the competitiveness as constituted through a set of streams of actions, we adopt in this study a process perspective (Langley & Tsoukas, 2010). We are therefore more interested in the organizing processes, "whereby ongoing, interdependent actions are assembled into sensible sequences that generate sensible outcomes" (Weick, 1979:3), than by organizations as entities. As such, organizing is tightly linked to sensemaking processes within the organizations (Weick, 1979, 1995), as "sensemaking is a way station on the road to a consensually constructed, coordinated system of action" (Taylor & Van Every, 2000:275, cited by Weick, Sutcliffe and Obstfeld, 2005:409). Through their sensemaking processes (linking action and cognition), in interaction with each others', actors contribute to enact organizing processes.

Within process organization studies, Czarniawska's perspective is particularly appealing for our study. She highlights that the organization emerges through different streams of actions and, more specifically, through the different ways each collective action is connected to the others (Czarniawska, 2004, 2006, 2009, 2010). Therefore, in this perspective, the process of organizing can be conceptualized as the process of "creating, stabilizing, maintaining and re-

creating connections among collective actions" (Czarniawska, 2009:5). Calling attention to "knotting (Lindberg, 2002), or connecting, as a central activity in all organizing", she invites to take a closer look at "action nets", that is the different ways in which collective action are connected and reconnected, on a highly temporary and fluent mode, to one another (Czarniawska, 2004: 782). For her, "Action nets are […] a way of looking at things, not another ontological element of social reality, at least not yet. Studying action nets means answering a dual question: what is being done, and how does this connect to other things that are being done in the same context?" (Czarniawska, 2004:784). For this author, if some ways of connecting can be innovative, most of them follow institutionalized patterns, "which could be broken or improved upon" (Czarniawska 2006:1672). Institutionalized patterns refer here to ontology, epistemology and methodology systems by which individuals, and organizations, produce and reproduce their material living, and where degrees of order vary. They draw on a central logic that guides the organization of time, space, resources and actions within an organizational field, yet with enough room to be modified through human agency, which in turn develops and maintains action nets as the knotting activity unfolds (Czarniawska 2006). Yet, if Czarniawska (2006: 293) highlights the fact that action nets "often involve several formal organizations to perform the various actions required", it does not mean that several action nets cannot contribute to constitute the same organization.

Figure 1 : Firm at the crossroad of several action nets

Considering the complexity and hypercompetition of today's business environments as previously detailed, we suggest that bridges can be made between Czarniawska's approach and the research stream on resource orchestration. In other words, what we would like to defend here is the idea that global firms emerge from several action nets which must be orchestrated to develop, exploit and sustain their competitiveness (cf. figure 1). Indeed, the knotting activity underlying actions nets appears to be very similar to the structuring, bundling, and leveraging of firm resources as both of them attempt to achieve organizational (business) objectives. Yet, when firms and their managers are confronted with increasing complexity, they tend to specialize their resources and capabilities in order to respond to the different constrains and expectations of their environments. This process leads to the creation of several collections of orchestrated resources and capabilities, or action nets, with specific and differentiated objectives. Sirmon et al. (2011: 1405) would call this aspect of orchestration as the "depth" dimension, capturing the top-down and bottom-up strategy development processes (Bower, 1970; Floyd & Lane, 2000; Noda & Bower, 1996). While the authors consider the firm as the unit of study, we believe that this dimension (as well as the constituting processes) is also relevant when considering the knotting activity underlying each action net.

Yet, this calls for coordination and collaboration across these actions nets in order to achieve competitiveness and organizational successes, or in other words for a breadth dimension of the orchestration capability. Beyond some scholars working on corporate strategy issues (Prahalad & Bettis, 1986; Prahalal & Hamel, 1990; Hill et al., 1992), we suggest that this type orchestration is also crucial when considering the firm as the locus of several actions nets. Dunbar and Garud (2009) have also considered such a possibility, but they found that the coexistence of action nets, within a firm's boundaries is not unproblematic. They can notably result in the creation of "untied" collective processes of sensemaking, autonomous from each other (Roux-Dufort & Vidaillet, 2003) and can generate "interpretive indeterminacy within the organization and, ultimately, lead to no [organizational] action being taken at all" (Dunbar & Garud, 2009: 399). The coexistence of several action nets may thus promote equivocity and ambiguity without allowing resorting to interaction as their underlying resource-driven logics may spawn isolated (not connected) streams of actions. This would then appear to negatively affect the very process of strategy-making. Thus, while the co-existence of several resource-driven logics and thus several action nets appears very common and even essential for a com-

plex firm to adapt to its environment and effectively compete, it also seems a lot more problematic than previously considered.

1.3 Mediation as root of the orchestration capability

To be clear, our interest is not in the construction of a single, dominant logic (Prahalad & Bettis, 1986), but in the conditions of effective coexistence of several different ones that should, and can, be met simultaneously, without submitting to unsatisfactory choices as suggested by paradox theory (Smith & Lewis 2011). Recently, Pérezts, Bouilloud and Gaulejac (2011) suggested that *mediation* is a key element in this process. Mediation concerns the ability of "creating an interface and enacting coherence from within" (2011:41) allowing the building of a sustainable organizational practice in contradictory environments where choice among the conflicting alternatives is not an option. Mediation encourages not only drawing from both sides in view of satisfying them, but also as a proactive way to bring them together from within, without merging them or compromising. While these authors did not embed their work in the action nets perspective, it is possible to find commonalities with our own research and we draw on these insights to build our approach.

In complex firms, the different resource-driven logics necessary continue to exist, creating therefore different action nets, as they are the basis of their competitiveness. There is no other solution for this type of organizations than to deal with this complexity and to "muddle through" it (Lindblom, 1959). It is crucial for these firms that managers find a way to create interactions between the action nets underlying the competitiveness, and enact coherence from within to ensure alignment with the environment. Accordingly, we argue that the breadth dimension of the orchestration capability is the ability to create and sustain "strategic knots" (or metaconnections) in which different action nets can be coherently synchronized for greater competitiveness. Yet, how this is done and what are the micro foundations of this dimension of the orchestration capability, (and of depth, life cycle), remain largely unexplored.

Building on a case of the development of joint-venture in China, we explore how multinational firms create and sustain strategic knots in order to adapt its strategic capabilities to maintain its competitiveness. As we look for micro-foundations of knotting activities, we look at the micro-dimensions of organizing processes, i.e. how actors enact their organizations on a daily

basis through interactions. Thus, we take a particular interest as how these knotting activities are done through actors' sensemaking processes (Weick, 1995, 2001; Weick et al., 2005), through which actors are "turning circumstances into a situation that is comprehended explicitly in words and that serves as a springboard into action" (Weick et al., 2005:409). Through the sensemaking processes, "equivocality is progressively removed" (Langley and Tsoukas, 2010:4), thus allowing (collective) action to restart or continue As other sensemaking theorists, we consider sensemaking as emerging through actors' interactions building on the interplay of different pieces of organizational knowledge distributed across artifacts, people, metrics, and routines (Dunbar and Garud, 2009; Hutchins 1995; Tsoukas 1996; Weick and Roberts 1993), that is to say sensemaking emerges around distributed knowledge resources which are interwoven into action nets (Czarniawska, 2004; Dunbar and Garud, 2009). Accordingly, orchestration, as a basic mechanism of the process of organizing, is the "meta-knotting" of several action nets together, and relies on reducing equivocity through bringing closer and combining diverse sources of knowledge.

2. An ethnographic study in the vaccine industry

2.1 Method

This paper draws on the ethnographic data (Van Maanen 1988) of a study conducted over one year within a team of managers dedicated to develop strategic action in the Asian markets of a European Global Biotech Firm (hereafter, EGBF) in the vaccine industry. EGBF is one of the historical leaders of this industry which makes it a privileged organization to study the relationship between long standing logics, competitive actions, orchestration processes and organizational successes.

It was conducted with their informed agreement (Groundwater-Smith & Mockler 2007) which was quite difficult to obtain particularly considering the very strategic dimension of this area for such types of business. Confidentiality of the names of the firm and its employees was thus of prime importance.

The study is comprised of two periods. One was a non-participant observation that allowed the researcher to become familiarized with the industry, the firm, the processes and the technical language used by employees. During the second period, the researcher undertook the role

of a strategy expert in the office in charge of the strategy and growth in the Asian market and particularly China.

The whole observation lasted exactly 12 months allowing the researcher to become part of the environment for a substantial period of time (Rosenthal & Rosnow 1991). It was nonetheless complemented by subsequent regular interviews with several EGBF's members to keep the data collected updated. These varied perspectives allowed for the collection of rich empirical materials which were organized to combine several levels of analysis into a single in-depth case study (Yin, 1987). This combination earned a diversified insight into the various logics and practices constituting and partaking in EGBF.

Because the mechanisms allowing several logics to coexist within a company (while still allowing its regular activities and without damaging its competitiveness) are not well understood, we argue that an inductive, longitudinal, field-based case study is well suited to develop new insights (Eisenhardt, 1989b). Moreover, the type of data collected through an ethnographic design appears to enable the examination of feedback processes (Porter, 2010; Richardson, 2008) punctuating the deployment of actions within and across action nets, to explore how practitioners make sense of their environments and activities to create knowledge (Kaplan, 2008). Furthermore, it is well adapted to capture the very often implicit dimensions of action nets' logics (Czarniawska 2006, 2010). As Gherardi (2006:XII) argues, context is the space "in which the concrete activity of producing and using knowledge becomes visible and observable, as well as describable, without one having to assume the intentionality of people or having to delve into what goes on inside their heads".

This firm was chosen specifically because the logics underlying the vaccine industry are multiple, each promoted by different types of organizations, and requiring the control of several organizational capabilities to be successful (Smith et al., 2011). Indeed, due to the very nature of vaccines which have an impact on the population, their technological complexity and their role in countries' sovereignty, this industry is in that sense an "extreme case", where the mechanisms of interests are more "transparently observable" than they might be otherwise (Eisenhardt, 1989b). Furthermore, EGBF has a long history which makes possible to trace successful changes and to draw a credible strategic trajectory following environmental evolution.

More specifically, we decided to focus on a critical strategic event in the life of EGBF. Here, the event, conceptualized as localized moment which punctuates the life of the organization

(Abbott, 2001) and which can be either a year, a merger or an acquisition, a decision, a meeting or conversation (Langley, 1999). In this case, it is a joint-venture with a local state-owned enterprise to gain access the Chinese public market. This event started a few months before the observation period and ended up one year after. Although studying a single organization limits the generalizability of the findings, it offers the opportunity to delve deeply into the processes and therefore develop a better explanation of the orchestration mechanisms. Yet, to ensure internal reliability of our findings we have triangulated this strategic event with existing strategic projects already implemented, or in the progress of being so. A comparison was indeed possible because they all presented commonalities.

2.2. Data collection

It is thus within this uncertain context that our study takes place. The first author was thus embedded in a team who was in charge of developing and supervising strategic and growth initiatives in Asia/Pacific area (Asia/Pac). This status provided a unique perspective, and multiple sources allowed for triangulation of strategic initiative trajectory and conclusions (Miles & Huberman 1984). Furthermore, this position in EGBF was exceptional in the sense that it allows us to be at the core of a strategic initiative in china (SIC) that required the involvement of several of EGBF's functions. Particularly, the observation periods were essential in analyzing actual behavior from within, and narratives of real world contexts in regards to organizing problems (Kaplan, 2008).

Data covering the entire lifespan of EGBF were gathered from four sources: (1) Two concurrent periods of observation, both covering 12 months from July 2010 to July 2011, (2) semi-structured interviews conducted during the observation period but also during the 10 months that followed, (3) internal archives such as presentations and minutes from meetings occurring offsite and/or out the period of observation, but also reports from hired consultants, and finally (4) publicly available archival material as press releases, policy releases or competitors' notes.

Drawing on qualitative event recordings, internal document analysis, discussions and interviews we analyzed the trajectory of the SIC to uncover the organizing mechanisms that allow or constrain the orchestration of the internal logics of EGBF that may passively co-exist, be in opposition, in conflict or integrated. This embeddedness was key to render the importance of

"detailed aspects of corporate relationships" (Remenyi et al. 1998:52). We adopted this practice-based (rather than theory-based) approach focused on action , which has already been acknowledged as essential when studying complex organizational phenomena (Argyris, 1964; Perrow, 1972; Ethiraj and Levinthal, 2009) such as collective sensemaking processes and strategizing within complexity.

2.3. Data analysis

Our goal was not only to gather rich data but also to restitute them with richness and rigor (Gibbert, Ruigrok, & Wicki, 2008). The analysis of data occurred at two distinct moments. Indeed, a first analysis started when the first author finished his non-participant observation to started the participative one. It is commonly accepted that before understanding a complex firm it is necessary to understand its environment (McGee & Thomas, 1986; Richardson, 2008). We therefore undertook a first content analysis which we used to map the multiple logics underlying EGFB's action nets and competitiveness. Content analysis is now well used in managerial research in order to measure invisible and intangible constructs that are difficult to codify (Duriau et al., 2007). Central to content analysis is that it lets scholars understand organizational actors' cognitive schemas (Duriau et al., 2007; Huff, 1990) and that groups of words reveal underlying themes reflecting constructs (Huff, 1990). Duriau and his colleagues (2007) greatly show that content analysis has been increasingly used in strategic management and other managerial disciplines to explore the social and organizational mechanisms underlying firms' actions and performances.

A first coding was thus undertaken. We developed a list of themes identified from the literature and emerging along the process of data reduction (Miles & Huberman, 1994). We followed Weber's (1990) protocol with giving enough flexibility to let emerge themes from the analysis (Miles & Huberman, 1994). Data were analyzed iteratively among the research team until a point of theoretical saturation was reached (Glaser and Strauss, 1967) and we wrote a history of the industry which appeared credible (Abbott, 2001; Langley, 1999) to explain the emergence, the rise and the fall of specific action nets that constitute, while going beyond, the vaccine industry. The result of this analysis in presented in the research settings.

The results of this first analysis were integrated in the research design to guide the participative observation, collect relevant data and to track the influence of the different action nets involved in the development of the SIC. We then turned to a second analysis to treat the extended data collected in real-time. We started to build a master timeline following the temporal bracketing strategy (Langley, 1999) in order to define the SIC's trajectory over the period of study. Indeed " [this strategy] permits the constitution of comparative units of analysis for the exploration and replication of theoretical ideas. This can be especially useful if there is some likelihood that feedback mechanisms, mutual shaping, or multidirectional causality will be incorporated into the theorization" (Langley, 1999: 703). Actually, by comparing within each successive period what Asia/Pac team undertook, the actions and behaviors of other organizational actors involved and outcomes for the SIC, we were able to draw the organizing mechanism allowing action nets' articulation towards collective and consistent action.

Finally, in order to ensure the robustness of our findings, with triangulated the SIC with internal documents relating other strategic initiatives, past or present. This was particularly useful to find commonalities and elaborate more general results (Langley, 1999; Yin, 1987). We decided to present the result of our analysis using narratives and visual maps (Langley, 1999). This strategy allows the representation of a large quantity of information, several dimensions and multiple levels of analysis (Langley, 1999; Miles & Huberman, 1994).

2.4. Research setting

EGBF is a leading firm in the vaccine industry which has a significant role in global health. To illustrate this role we can briefly recall how vaccines were key in the eradication of smallpox. An estimated 300 million people died from smallpox in the 20th century. In the middle of the last century, there were still 1.5 to 2 million people dying from the disease each year. In 1965, international efforts to eradicate smallpox were stimulated by the World Health Organization (WHO), supported by financial and technical aids of international donators, the largest of which was the USA. Endemic countries were supplied with vaccines and kits for collecting and sending specimens, and vaccination was made easier by providing bifurcated needles. In May 1980, after two years of surveillance and searching, the WHO declared that smallpox was the first disease in history to have been eradicated. And despite that the costs of this quest were over US$320 million, it offered the opportunity to save millions of lives and improved
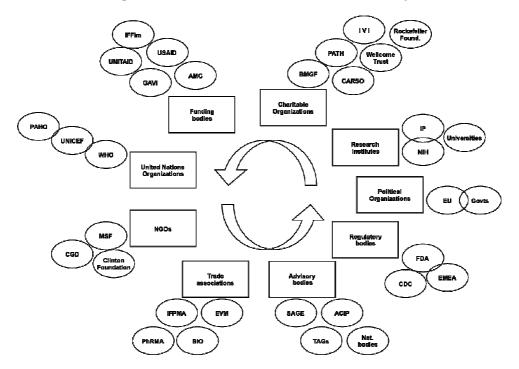
the quality of life for millions more. Other recent outbreaks (H1N1, H5N1, SARS) constantly remind us that epidemics are still a threat the world faces, and are the reason why, according WHO, access to vaccine should be a top priority.
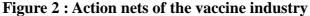
Today, our geopolitical world is also the result of epidemics. Alcabes (2009), Allen (2007), Diamond (1997), Watts (1997) and many others have perfectly shown how epidemics have shaped the world and, engraved with edifying images and stories, that are now constitutive of a collective imaginary (Flahault & Zylberman, 2008). Nations have long understood the importance to protect their soldiers from viral diseases and epidemics, but also their population as they are key in their economic development. It is for them a question of survival but also of sovereignty. Several scholars argue that improving health, and more specifically to protect people against viral diseases, have a major impact on economic development (Ranger & Slack, 1992; Allen, 2007; Watts, 1997). Nordhaus (2003) found that half of the growth of US real income in the first half of the 20th century was due to declining mortality. A WHO's report (2004) recalls than every year 4 million people die from respiratory diseases, 3 million from diarrhea, 3 millions from AIDS, 2 million from tuberculosis, and 1.5 million from malaria. And each time a worker disappears, it is 20 to 25 years of experience that disappears with him. Gualde (2006) argues AIDS is dramatic for sub-tropical African countries. The expected life in Botswana went from 60 years during the 1980's to 44 at the turn of the 21st century with major impacts on the structures and economy of the country. The economic cost of AIDS is clearly the thinning out of human capital (Lambert, 2005). The pressure that viral diseases put on a country's demography and economy is of critical concern for a government and has lead in these recent years to the emergence of local production in order to limit dependence upon other nations. In 2010, China has recently strongly restricted foreign direct investment in its vaccine market in order to protect local actors from major international players and to ensure the protection of its population and economy in case of epidemics. India, Turkey, Brazil and Mexico have for the same reason imposed several transfers of technology and the localization of production in exchange of an access to their public market.

Vaccine is thus a very sensitive product. As we saw previously, it fulfills several types of needs and objectives, but it is also very unique in health economics. Indeed, vaccines are not a medicine in the sense that it does not cure the illness but protects against it. In other words, the final user is a healthy person. Moreover, vaccines are actually attenuated or inactivated pa-

thogenic microorganisms that are injected to stimulate the immune system of patients to create antibodies and immune cells. These latter are able to recognize the pathogen and are prepared to battle it when it infects the body. A major concern is thus about the quality of the vaccine since any mistake in the process could lead to the injection of wild pathogenic microorganism and trigger the disease. Additionally, we can also note that most vaccination plans are developed for children. These dimensions make a vaccine producer somehow different among the other drug firms. Figure 2 conceptualizes and sets the landscape of vaccine companies. It displays the different action nets at work in the vaccine « world » and co-evolving to set an ongoing order underlying world vaccination.

Figure 2 : Action nets of the vaccine industry

It is thus within these socio-politico-economic dynamics that EGBF and its competitors run their activities. The big five rely on their competitive advantage built over the past to sustain their growth across the world. It was a very successful strategy as these five direct competitors were competing globally, sharing the market in a relative status quo fashion for approximately three decades, Nevertheless, in the recent years, the industry started to undertake some changes. Slowly at the beginning, the nascent shift has been accelerating for the last 24 months. The structure of the industry became truly global after a trend of mergers and ac-

quisitions with big pharmaceutical companies such as Glaxosmithkline (GSK), Novartis, Pfizer and Sanofi Synthelabo who see in vaccines a growth relay as most of their patents fall in the public domain. Secondly, competition also increased as the western markets have reached their maturity. All the big five started then to look at emerging markets and their huge unvaccinated population who presents a significant potential for growth. Yet, with the emergence of a bench of local competitors supported by local and global initiatives (local governments and WHO), competition became much tougher as pressures on price are high, as well as the legal and regulatory barriers to access these markets. And finally, governments, WHO and NGOs such as GAVI alliance, GPEI or UNICEF were much more concerned by the price of vaccines as they have seen them as a cheap mean to ensure global health and limit health insurances' deficits.

3. Case and findings

Following a temporal bracketing strategy (Langley, 1999), we were able to uncover the trajectory of the SIC and define phases that help us in our analytical abstraction. Figure below, as we shall explain in detail in the following paragraphs, allows us to present both these phases and our contributions.
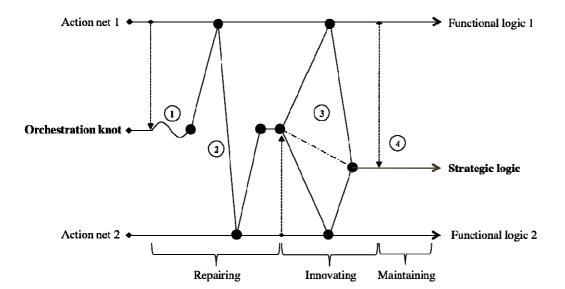
Figure 3 : the process of strategic orchestration

3.1.1. Phase 1 – Drift period

Description: While all organizational actors involved in the Strategic Initiative China (SIC) were rather supportive of the idea of building a strategic alliance with a major local player, the development of the SIC was stopped by EGBF's holding entity during a steering committee. Indeed, the initial plan presented included significant technology transfer and commercial pooling. This halt created tension and ambiguity, reinforced by the fact that the SIC development status was not clear (interrupted, but not cancelled). This resulted in the disengagement of most of the organizational actors involved who, except for the team in charge of the SIC development, refocused their resources on their own, functional, stream of actions.

Analysis: This first period started with an injunction (first top down arrow) that disrupted the flow of micro strategic activities. The first SIC proposal created under the existing Asia/Pacific mediating knot triggered an injunction for revision. This event shed light on some contradictions and incoherence between the different functional logics (ie commercial, industrial…) underlying some of the action nets crossing EGBF. A period of drift followed, where the functional action nets were reenacted and reinforced by actors but the links between them ceased, as the mediating knot was deteriorated.

3.1.2. Phase 2 – Reenacting order after a disruption of action

Description: Because they were not officially disbanded, the SIC team continued to feel committed to their mission of building a strategic alliance with the Chinese SOE. They therefore launched internal consultations to understand the reasons behind the failure of the first proposal, while in parallel initiating contacts with the Chinese partner. This allowed to collect more information on the situation and led to a recontextualization of the SIC in the broader Asia - Pacific strategy. As a result, another of EGBF's vaccines was found to be a new anchor point for the partnership. This idea was favorable received by the different EGBF's organizational actors. Yet, if the Chinese partner showed interest in this solution, it required the localization of the production in China as a condition. This requirement fuelled a new round of questions, shedding light on existing contradictions and tensions between the organizational actors involved. Once again, the action was disrupted.

Analysis: The ongoing commitment of the SIC team to their initial mission relaunched the action, allowing the collection of more cues on the situation. The SIC team members, in fact, initiated a collective process of sensemaking to face the action disruption and overcome ambiguity (Weick et al., 2005). First, by initiating more interactions, they pushed the different functional actors to assert their positions, expectations and requirements. This resulted in the re-enaction of the functional action nets, while clarifying and mitigating some contradictions between the logics. Second, the SIC team looked in parallel to more cues in the external environment in order to suggest a new technological solution. Actually both actions occurred concomitantly. It is through internal consultations and confrontation with the environment that a new sense was suggested that allowed action to resume. As the functional action nets found themselves reordered within this solution by the SIC, the links between them were restored and the mediating knot repaired. Indeed, the institutionalized pattern underlying the (re-)knotting had not evolved, as the strategic logic remained the Asia-Pacific strategy. Internal coherence had been reached but without enabling to achieve the same result with the external action nets involved. We identify this work as repairing of the orchestration activity (figure 3).

3.1.3. Phase 3 –Finding a way through

Description: At that point, the initiative could have been blocked. However, the change of EGBF's CEO, coming from pharmaceutical industry and not the vaccine one, allowed the initiative to proceed. Indeed, his different background made him rather neutral regarding the idea to localize the production in China. He asked the SIC team to conduct two strategic workshops. The first was to assess whether or not localizing the production of a core product in China was worth considering, and the second was deemed to carry out a reality check to see if the current strategy was still aligned with the Chinese environment. The workshops eventually concluded that the localization could be possible under specific conditions and that China could not be put under the umbrella of the Asia-Pacific strategy, but should be considered on its own. On a structural level, a committee was created to supervise the strategy in China, developed and deployed by the SIC team.

Analysis: While the environmental injunction (i.e. localizing production in China) could have triggered a new phase of ambiguity as in phase 1 and so a new weakening of the mediating knot, the legitimacy of the CEO's injunction to launch strategic workshops and a strategic re-

ality check allowed a new exploration phase. The questioning of the institutionalized pattern (strategy) triggered a deeper sensemaking process, nourished by more intense interactions. It eventually ended up in the constitution of a new orchestration knot. These strategic workshops were animated by the SIC team relying on its expertise to rearticulate the different logics at hand, both internally and externally through the integration of the external environment inputs. To do that, the SIC team, while on one side enacting the evolution of EGBF's external environment, pushed key actors within the involved action nets in Asia-Pacific to publicly enact their position on the question of localization. On the other side, by doing that, the SIC team created the conditions for the functional actors to behaviorally commit to the enacted positions (Salancik & Pfeffer, 1978). Moreover, the team's expertise allowed clarifying and specifying contradictions inter-, but also intra-, actions nets and to highlight the need to create a new strategic logic proper to China in which localization could be possible. In other words, the SIC team found a new way of re-interlocking the different streams of actions with the external environment. This innovative way (cf. figure) of knotting the different functional action nets, not yet linked to an institutionalized pattern (strategy), was notably enacted and stabilized through the creation of the committee. This structural modification actually marked the crystallization of the new knot in the organization and its inhabitation by actors.

3.1.4. Phase 4 – Staying on its feet

Description: While the SIC team was finalizing a proposal including the modalities of the localization of the production, the partner made a radical different proposition for the collaborative structure. It rapidly appeared that this proposition was very close to the initial one elaborated by the SIC team and rejected by the holding entity (in phase 1). To avoid a new drift period, the SIC team mobilized the new China strategy, reemphasized the inherent operational and strategic risks underlying the proposition of the Chinese SOE, and argued that it would not be viable in the long run. It then dismissed the demand of the Chinese partner, as it was not in line with the evolution envisioned for China by EGBF. Simultaneously, the SIC team restated the conclusions of the workshops in phase 3, resulting from the common reflection of the involved actors, and reminded all functional actors about their own previous public positioning.

Analysis: In this phase, the SIC team acted to resist external injunctions and to maintain the emerged China mediating knot between the functional action nets. For that, it built on referential anchors such as the previous public commitments from the different action nets' key actors. Indeed, by reminding them of their previous position and the logical conclusions of their meetings, the SIC team disciplined actors (Rouleau, 2005), and subsequently rearranged actions nets, around the logic of this new knot. In fact, when all key organizational actors enact (and continuously reenact) the same knotting between two or more functional action nets, a new institutionalized pattern can arise, consolidating the new mediating knot. Bouncing back, the functional action nets adapt to this new way of relating, and this results in them inhabiting the new mediating knot by even more actors, which contributes to strengthen it. In figure 3, we refer to this as maintaining work of the orchestration activity.

4. Discussions and conclusions

The analysis of this case has allowed us to draw significant insights on the process of strategy making in complex settings. From a theoretical standpoint, we suggested linking the literature on action nets and strategy making, and believe there are fruitful conclusions yet to be drawn from this dialogue. We suggest locating the relevance of action nets not only at the inter-organizational level, but also as a pertinent way to approach intra-organizational logics.

We therefore define an orchestration competence as lying in an integration effort to dispel the ambiguities of the contradictory injunctions of the logics of the different action nets. Orchestration is different from compromising, since the latter implies resigning to submit to an unsatisfactory choice, while orchestration implies reconciling contradictions simultaneously from within as in a paradox approach. It relies on referential anchors which can be of different natures. Orchestration is thus achieved through a proactive, cognitive and discursive process enabling action through the reframing of multiple and conflicting imperatives. Yet this orchestration becomes a full competence in the sense that it has been a collective construction in which expertise, legitimacy, and commitment played a significant role.

Our paper states that orchestration is a process allowing a situated construction of strategy, implying what we identified as three types of orchestration work: repairing, innovating and maintaining meta-connections between action nets. As our paper attempted to illustrate, or-

chestration is built on the strength of commitment to action within a constantly evolving organization, on the capacity to fit into and shape a pertinent pattern of relationships through the mobilization of actors and on the quality of its outcome. Orchestration is therefore not natural. It is indeed the complex pattern of interactions that will define and legitimate strategies through connections, oriented to the solving of problems and encouraging collaboration. This puts up front the plurality of perspectives, expectations and constraints around the division of responsibilities, but also to the need for orchestration. Yet, the resulting strategic knot is never stabilized once and for all. It is the site of an on-going flow of knowledge, know-how and life skills, enacted for some, being enacted and de-enacted for others.

However, we should note that the works underlying orchestration may overlap, repeat themselves if the learning from the situation has not been achieved, or even not happen at all. Our figure 3 is by no means intended as a sequential and deterministic model, but rather is fact useful to understand the micro foundations of the orchestration capacity as a process and allows a dialogue with other academic work. For instance, we believe there is an open discussion with sensemaking theories as they underlie how organizational actors can render intelligible a disruptive situation in order to enable action. However, in the case of orchestration, we show that individuals make sense of the environment not with their dominant logic (Prahalad & Bettis, 1986) but by voluntarily adopting several logics.

This calls for further study concerning the way coherence may be enacted within strategy-making, through the construction of strategic knots as meta-connections between different action nets (Czarniawska, 2004, 2010) in order to better understand this complex phenomenon of great impact in the making of effective strategy.

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