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LOW COST STRATEGIES TO BUILD DYNAMIC CAPABILITIES: THE CREATIVE APPROACH OF A FRENCH PUBLIC TRANSPORT OPERATOR

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ABSTRACT

Dynamic capabilities have been discussed as a way to achieve competitive advantage. However, research on the building of dynamic capabilities is still scarce. This article tackles the issue of potential federative guidance to manage this building and illustrates it through the low cost approach adopted by a public transport operator. Resulting of an oriented creativity method combined with the use of two divergent strategies of low cost product development, the company was able to make several improvements that contributed to build dynamic capabilities at both firm and industrial ecosystem levels: (1) reviewed its managerial system, making transversal projects that were previously hard to be launched; (2) increased its absorptive capability and quality of interaction with ecosystem's stakeholders, better targeting and acquiring external knowledge through collaborative explorations; and (3) dealt with the external barriers and core-rigidities at both firm and industrial ecosystem levels through two different and complementary ways of developing low-cost offer for public transport. Thus, low cost approach appears as an eligible federative guidance to build dynamic capability, similar investigation could benefit to other firms.

Keywords: low cost;dynamic capability;public transport

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Abstract

Dynamic capabilities have been discussed as a way to achieve competitive advantage. However, research on the building of dynamic capabilities is still scarce. This article tackles the issue of potential federative guidance to manage this building and illustrates it through the low cost approach adopted by a public transport operator. Resulting of an oriented creativity method combined with the use of two divergent strategies of low cost product development, the company was able to make several improvements that contributed to build dynamic capabilities at both firm and industrial ecosystem levels: (1) reviewed its managerial system, making transversal projects that were previously hard to be launched; (2) increased its absorptive capability and quality of interaction with ecosystem's stakeholders, better targeting and acquiring external knowledge through collaborative explorations; and (3) dealt with the external barriers and core-rigidities at both firm and industrial ecosystem levels through two different and complementary ways of developing low-cost offer for public transport. Thus, low cost approach appears as an eligible federative guidance to build dynamic capability, similar investigation could benefit to other firms.

Keywords: low cost; dynamic capability; public transport

1. Introduction

As is indicated by Teece (2007), to achieve a real competitive advantage, an innovative company has to do more than invest in R&D, develop and protect its intellectual property: organizational and managerial innovations are needed simultaneously to build and sustain competitiveness. Dynamic capabilities framework (Teece et al., 1997; Eisenhardt and Martin, 2000; Winter, 2003; Lawson and Samson, 2001) appeared as an attractive theoretical answer to overcome this challenge of continuous organizational innovations but managerial issues remain for its building in large firms (Wang and Ahmed, 2007). In particular, what could be an effective strategic and unified guidance for simultaneous organizational and managerial innovations is misunderstood. Thus, a research gap exists concerning the introduction of dynamic capabilities in mature companies. This article tackles this issue and aims to describe how a public transport operator adopted a low cost approach to challenge its core capabilities at all the levels of its organization: technology, skills, management systems and corporate values (Leonard-Barton, 1992) and involved the stakeholders of its industrial ecosystem (Adner, 2006) in tackling collaboratively the issue of external barriers specific to public transport. The case-study analyzed here demonstrates that low-cost approach is an eligible unified guidance to overcome barriers and rigidities, but it also underlines the impact of an unified guidance for companies' stimulation of dynamic capabilities, and innovation process improvement at the ecosystem level. This allowed managers and decision makers in incumbent companies to improve their competitiveness.

This article is organized as follows: after a review of the literature on performance of dynamic capabilities through core rigidities management and low cost products in section 2, the methodology and research settings will be presented in section 3. The case study done in a French public transport operator, RATP, will be exposed and analyzed in section 4. Then, the main findings are exposed in section 5, and section 6 concludes this paper.

2. Literature review

2.1. Performance of dynamic capabilities: a continuous process of overtaking firm's core rigidities and external barriers

Achieving competitive advantage has thoroughly been discussed in strategic management literature for decades, and different approaches like Porter's five forces (Porter, 2008) are currently told in management schools, despite broad critics on its oversimplification. A common critique to this approach is the fact that contemporary ecosystems are rapidly changing, and that this is not taken into account by the five forces approach. Teece et al. (1997) suggested the dynamic capabilities framework to complete the resource-based view (RBV) and overcome this shortcoming. Authors argued that maintaining competitive advantage over time is possible through dynamic capabilities that allow firms to modify their resource base to adapt to changing conditions.

As pointed out by Wang and Ahmed (2007) and Barreto (2010), a consequent body of research has already been developed around the dynamic capabilities approach since its founding paper by Teece et al. (1997), but the research points in different directions, with different approaches and definitions of dynamic capabilities. Although there is still a discussion if the link between performance (competitive advantage) and dynamic capabilities is direct, as defended by Teece (2007), or if it is more indirect, dynamic capabilities being necessary but not sufficient to assure competitive advantage (Eisenhardt and Martin, 2000), all authors agree that the link exists. While the dynamic capabilities approach was first developed for rapidly changing ecosystems, more recent work argued that the same is also applicable when change rates are lower (Zollo and Winter, 2002; Eisenhardt and Martin, 2000). Therefore, Zollo and Winter (2002, p340) proposed to define dynamic capability as “*a learned and stable pattern of collective activity through which the organization systematically*

generates and modifies its operating routines in pursuit of improved effectiveness". This definition underlines the depth and the continuity of the organizational innovation process. However, while there is a great number of scholars' work focusing on the existence on dynamic capabilities, the introduction of dynamic capabilities in mature firms is less discussed (Borjesson et al., 2014). According to these scholars, building capabilities to innovate is related to change management and involves overcoming organizational resistance and barriers. On the first hand, Leonard-Barton (1992) drew attention to one kind of organizational resistance that induces difficulties to innovate in large firms: their core rigidities. Flip side to the concept of company's core capabilities, core rigidities appeared when technologies, skills, management systems and values become over-stabilized through organizational routines and impede the firm to catch competitive opportunities (Levinthal, 1997; Hacklin et al, 2009).

In addition to these, the company often also has to face external barriers, which are linked to the industrial ecosystem in which the company evolves, for example to the market organization or to sector legislations (Adner, 2006). A largely discussed external barrier for small and medium companies is the access to credit and loans (Freel, 2000). These barriers can also be overcome by dynamic capabilities, since the entrepreneurial management function that is embedded in dynamic capabilities also has an important role on external activities, including shaping the ecosystem (Teece, 2007). Some classical barriers identified for innovation in public transport can be cited here, like the fact that the choice of public transport mode is not done only on rational and technical criteria. According to Edwards and Mackett (1996) this is not only the transport planner's fault; it is linked to a political framework that is not always rational. The lack of rationality is often made worse by the fact that decision makers are often not transport experts. This means that an external barrier exists to choosing the lowest cost offer, and that a transport operator proposing one should know the

evaluation framework and have other arguments to convince of the interest of choosing them than only cost. Moreover, the construction and operations of public transport are independent and involve different parties. This often leads to a system that is not optimized, since every company tries to optimize its own part and the global system optimum is not taken into account. Better communication skills and partnerships need to be developed to allow a systematic view.

Thus, implementing an effective dynamic capability requires combining an organizational innovation process to overtake simultaneously core rigidities and external barriers, but the issue of the nature of managerial guidance to coordinate this effort remains open.

2.2. Low cost approach as a federative guidance for organizational innovation

Low cost products and services are currently a hot topic. In addition to having been widely cited in managerial literature, mainly to discuss how to fight low cost new entrants (Kumar, 2006; Ryans, 2009), some are currently being discussed in how to target non-consuming market, for example by *frugal* or *jugaad innovation* (Radjou et al., 2012), and innovating for the base of the pyramid (Ray and Ray, 2011). In addition to that, for Christensen (1997) low cost products can also be disruptive innovation. Despite the large body of research build around some low cost products and services, like for example low cost airlines, there seems to be a great number of diverging definitions, and little work has been done to model how these products emerge and associated organizations.

Cost reduction is sometimes achieved by selling a “basic” version of the classical product. That’s the case for some of the low cost mobile phone offers: these are less expensive because they do not include a mobile phone, as opposed to the classical bundled offers. However, a multiplicity of other sources of cost reductions have been employed in low cost products, and

the different sources are often combined. The first of these sources is the change of technological paradigm. The case of the ‘Transmilenio’, the low cost metro built in Bogotá, illustrates this kind of change. Significant cost reductions were achieved by using a bus-based system instead of a rail-based. The cost of capital was little more than 10% of the estimated cost of the equivalent heavy rail (Cain et al., 2007). Another important source is the change of business model, that according to (Yovanof and Hazapis, 2008) can be as important as innovations to products and services. Some changes in business model worth citing are changes of the relationship with customers and suppliers; changes in the organization of the firm; or changes in the chain of actors involved. These can be observed in the case of IKEA, that made the customers part of the production process, by letting them transport and assemble their furniture themselves (Normann and Ramirez, 1993); or in the case of low cost airlines, where the change from hub-and-spoke to point-to-point flights allowed the removal of complexity and an easy network and tariff structure, and where the travel agents were completely removed by making only direct sales (Brüggen and Klose, 2010).

Organizational change appears as essential for low cost products, not only because it might be a source of cost reduction, but also because it is often necessary when the source of cost reduction is technological. That can be linked to the new market targeted, as is the case of Embrace, an infant warmer aimed at parents in developing countries instead of hospitals that used breakthrough approach of traditional warmers to adapt to the local purchasing power, using a phase-changing material to keep the temperature constant to replace the complex climate control equipment (Radjou et al., 2012); or to the demands linked to the technology, as is the case of the Chinese BYD batteries for mobile phones, that do not need very expensive heated “dry rooms” to be produced as was the case of batteries before, and allowed a different organization.

Based on an extensive literature analysis of low cost practices, Klasing Chen (2013) proposed two different approaches of low cost objects that embedded distinctive managerial goals:

- *Low cost adaptation*: A reduction and simplification approach of both products and organizational routines. The starting point for this approach is an existing product. It's utility for the client and its cost for each function are evaluated, and the products' functions that are considered superfluous are removed. Associated organization routines are deleted. The goal is to maximize cost reduction and internal performance with a minimum client utility reduction. The resulting product or service is often described as "no-frills", like for example the low cost airlines.

- *Smart low cost design*: A design of a new product or service with an aggressive cost goal with low-cost driven development process. The starting point here is a function that needs to be fulfilled associated to a double target of cost and price. A new product and a new organization are simultaneously designed around these two targets. Innovative organizations are targeted to involve the most competent internal and external stakeholders to achieve the low-cost strategy. The goal is to achieve maximal client utility given the cost target. These products are mostly considered radical innovations, since they are supposed to achieve a great cost reduction, and according to O'Connor and Rice (2013), one of the criteria of classifying an innovation as radical is producing a significant (30% or greater) reduction in cost.

Both of these models differ from operational effectiveness, that aims to reduce cost without changing the client utility and, although it is essential to achieve lower cost products, cannot be classified as a strategy according to Porter (1996). These two low cost models were used as an analytical framework for the study done with the public transport operator.

3. Methodology and research settings

This research relies on a longitudinal research partnership between the research group of innovative design of Mines ParisTech and RATP, the French Parisian public transport operator. One of the authors was hired in 2012 as an executive PhD student to focus on low-cost as innovative design strategy, as the other was involved on a longitudinal study of organizational capability for innovation since 2008. Data has been collected through intervention research methodology (Radaelli et al, 2012; David and Hatchuel, 2008) as both authors were involved as players with industrials. Theory building process was conducted with practitioners through a continuous analysis of data and literature insights back and forth (Eisenhardt and Graebner, 2007).

3.1. Research context

Innovations in urban public transport are rare, several reasons are cited in literature (van den Bergh et al., 2007) or by transport experts to justify this lack of innovation: the lack of incentive in public services to innovate, the difficulty due to the great number of actors in this industry (each one having its own agenda), the high path dependency of public transport... All reasons return to core rigidities of main industrial or funding players and to external barriers, which made the case especially relevant for our research.

Public transport operators often face some or several of these difficulties to create innovative organizational solutions. This was also the case of RATP, who wanted to renew its offers and propose a new “low cost” or entry product that would allow it to be competitive outside its current market. This position could partly be justified by its strategic goals – like trying to increase the revenues from a subsidiary that was implemented in developing countries – and was partly justified by recent developments in the French public transport sector, with an

opening to competitors of RATP's historical bus market in 2024. Nevertheless, the first propositions failed to federate the expected enthusiasm among the concerned departments.

A part of the lack of enthusiasm for this idea was linked to the negative image associated to "low cost" products and services within the firm. Indeed, low cost products used to be associated with a degraded product image, with lower quality as the main consequence of cost reductions. Many employees in the public transport operator did not want their company's image associated to a degraded solution, especially as public service is an historic mission of RATP deeply rooted in its corporate culture.

To better understand low-cost products and to verify how the concerns of the employees could be reduced, the company decided to launch a dedicated research program on low cost mobility within the research partnership with Mines Paristech research group on innovative design.

3.2. Data collection

The collaborative research program targeted three axis of learning: (1) a benchmark of existing low cost products and the identification of the model behind it (Klasing Chen, 2013); (2) an oriented creativity method to define the low cost strategy; and (3) a projects development phase, during which the propositions from the oriented creativity method were elaborated and developed by the different departments concerned, having as goal to create low cost offers.

In this paper, main data comes from field notes and observation made during the active involvement of researchers in the oriented creativity method, the KCP method (Elmqvist and Segrestin, 2008), which was used in the transport operator to develop a competitive low-cost strategy. Semi-directed interviews were also regularly conducted with the two managers of RATP and the two consultants in charge of the workshop, while the setting-up, between the

daily sessions, and throughout the proposition phase of the method. The KCP method was developed from the C-K theory (Hatchuel and Weil, 2009) to be applied in the industry by researchers from Mines ParisTech in partnership with RATP managers in 2006, thus both practitioners and researchers were experimented, but this KCP was special as it relied on the managerial guidance of ‘Innovative Low Cost’, not on a specific breakthrough in the commercial offer (as *e.g.* ‘the subway of the XXIth century’, the topic of a former KCP in RATP). Each KCP is composed of three phases: a Knowledge sharing phase (K), a Conceptual exploration phase (C) and a Prototype and proposition phase (P). In the current case the KCP involved 25 participants from Mars 2012. The participants came from different departments in the company that were considered vital for the development of new offers (maintenance, engineering, marketing, operations, accounting...) and from different hierarchical levels. Individuals from different backgrounds are chosen because knowledge diversity facilitates the innovative process (Cohen and Levinthal, 1990). Besides that, having individuals from different departments of the company helps to diffuse the initiatives.

The KCP phases were structured as follows:

- Three half-day K sessions with three presentations from experts in the first and the second sessions and two presentations in the third session. Each session also had one or two group activities to allow the participants to better assimilate the content of the presentations. The Knowledge sharing phase is essential because it creates the basis of knowledge upon which the experts and non-experts will collaborate to develop new concepts. As stated by Cohen and Levinthal (1990), common knowledge improves communication, which is another reason why this phase is important. This first phase may involve suppliers, users and other partners. For our study, this phase was crucial to identify organization resistance and external barriers the company needed to overtake.

- One whole day C session, where three groups were formed, each being given two subjects to work on. The goal of this phase was to explore a concept and try to identify new research areas. Each concept that had to be explored can be described as a searchlight that tries to light a certain part of the knowledge, shared in the K phase. The concepts that shall be explored in this phase were chosen in order to make sure that the greatest possible space of innovation was covered. To increase the creative power of the whole group, each subgroup was asked to present its work, so that everyone could react to the propositions made. Both authors were involved in the creative workshop animation.

- Two half-day P sessions with a reduced group of experts in the domains identified as essential for developing low cost offers. This phase transforms the concepts explored in the previous phase into actionable research projects. These research projects are still on going inside RATP. It aims at selecting the best ideas of the previous phase, separating and recombining them, in order to make them more actionable and understandable for the organization. It formulates a design strategy, which is not limited to mere product or service new ideas, but includes the roadmap that allows achieving the planned strategy. This roadmap not only includes the actions needed to achieve this strategy but also the actors and their tasks. The first author of the paper is actively involved in the management of a part of the initiative with the RATP manager of the KCP, being responsible for two research projects.

The longitudinal involvement of one of the author as executive PhD student allowed an in-depth understanding of the empirical data and a favored access to rich and extensive observation (Hay, 2004).

4. Case study analysis

Our case study analysis will be presented in two parts: we start by the identification of the core rigidities and external barriers found in our case, followed by an analysis of strengths and limits of the KCP oriented creativity method deployed to overcome them.

4.1. Core rigidities and external barriers in the public transport operator

The research partnership with RATP allowed identifying a few core rigidities of the firm and external barriers that might hinder the development of low cost offers in public transportation. These were identified thanks to semi-structured interviews of managers in the public transport operator.

4.1.1. Core rigidities linked to the historical background of the company

The first core rigidity identified is due to the historical background of the operator and its high and internationally recognized expertise in underground systems, that induces the firm to consider itself as a technical and engineering company. Because of this, heavier modes that demand more infrastructure construction (underground, rail and light rail) and technological innovations are systematically privileged over other innovations. Nonetheless, these are exactly the opposite of the modes that would be interesting to look into for low cost offers, since they are already the most expensive ones.

Another core rigidity identified is linked to the definition of a transport operator's mission. The main goal of the transport operator is to supply the offer demanded by its contractor, who can be a transport authority, a city or other governmental organization. Because of that, operators specialize themselves in offering exactly what the contracts demand at the smallest cost. Considerations on trying to reduce the offer to cut costs, or proposing different offers

than the ones demanded go against the ‘normal’ process; and are, tacitly but systematically, rejected by RATP experts.

Yet another core rigidity has its source in recent efforts made to reduce the company’s overall costs. These efforts ended up having a negative influence on the innovation department, which was in charge of the low cost initiative. Due to strong budget reductions and to the great importance the operational departments have in the organization, the function of the innovation department had been reduced to accompany, finance and found projects proposed by the more operational departments. That made launching transversal projects inside the company very hard, since each department preferred to submit the projects that concerned it directly. To achieve significant cost reductions however, a system view is yet essential, since all the departments’ activities are linked, and technical changes done in one department always affect the others.

4.1.2. Core rigidities linked to exploring low cost offers

And finally the last rigidity identified was linked directly to the fact that the targeted offers were specifically low cost-based. Public transport is seen as a public service, which means that it should be accessible for all. One of the consequences of this view of public services is that subsidies are considered as “normal”, since the service is not for-profit. High costs are accepted in some occasions, when there is a reason considered good enough by local public authorities, for example improving a city’s national visibility. This means that although efforts to reduce costs are done, it is also considered that service should not be degraded without a very good reason, thereby making the development of low cost services harder than in a competitive market.

This first set of core rigidities linked to low cost is not particular to RATP but specific to public transportation industrial ecosystem. Beyond, in our particular case, another rigidity was

linked to what was defined as part of the French operator's tasks and what was defined as outside its scope. RATP is not responsible for defining the offer and the minimal service it should supply (which is defined by the contractor, in France mostly the transport authority). Therefore evaluating the client utility of each of the functions in its service and the cost, to see which could be removed, seems irrelevant, since the service cannot be changed by the operator without the approval of the transport authority. Another task considered outside the operator's task is defining the transport fares. Most low cost products attract consumers by offering a slightly degraded product for a significantly lower price. This is impossible for the public transport operator, since the price is defined by the transport authority and is often disconnected from the costs the operator found through subsidies.

As already cited above, low cost products have a very negative image in the French public transport operator, and RATP experts did not want to develop them, since having high quality is part of their corporate values. The high quality however is not incompatible with low cost products, as stated by Kumar (2006); awareness of this fact needs to be raised in the company. Despite all these organizational obstacles, the company had been making significant efforts on several cost reduction projects, all of them operational effectiveness projects, which demanded the same service quality with fewer resources. These projects' goals have been very hard to achieve for some departments, many employees complaining that they would lead to work overload. The difference between the proposed low cost projects and existing operational effectiveness projects was often unclear, and therefore many managers were reluctant to engage in them or felt their current work was being criticized.

4.1.3. The external barriers

The external barriers currently observed in the transport sector were also identified here. Although the transport authority in the Parisian region, the STIF, has a significant expertise in

public transport, they do not take many of the important transport decisions directly. And due to path dependencies much of the existing systems cannot be changed. One example of diseconomies due to these classical barriers is the existence of metro trains with rubber tires and others that circulate with metal wheels with direct contact on the tracks. The same can be observed in the different bus models that exist in the company. Since every time new material needs to be purchased a new call for tenders is opened, and the transport operator has to work with the cheapest material that responds to its demands.

How these rigidities and barriers were treated will be discussed in the following sections.

4.2. Overcoming core rigidities and external barriers: The impacts of the KCP in the public transport operator RATP

According to Leonard-Barton's (1992) framework, there are four levels of core competencies that could evolve in core rigidities: technology, skills, management systems and corporate values. We will discuss next how these levels were treated through the KCP.

To develop its low cost strategy the public transport operator chose to use a KCP, as besides its goal to develop the low cost strategy it also had as a goal to federate the departments around the developed projects, which is known property of the method across the participants (Arnoux and Bejean, 2011). Beyond participants, an approval commission was constituted to make sure top management would support the developed projects and that the developed strategy did not conflict with the company's global strategy. It gathered the directors of five departments that would be deeply impacted by the new offer. This approval commission came together before the KCP was launched to approve the scope and participants of the KCP and to approve the results after every phase, as well as the needed next steps. The creation of such an approval commission is not mandatory when doing a KCP, but proved very useful in this particular case, since the company is very large, that its departments sometimes have

conflicting interests. Besides, this kind of commissions is a unique commonplace in the studied organization. The meetings of this commission were also beneficial because it allowed the concerned directors to get more information on the planned projects than is usually the case for innovation projects in this company and to increase the legitimacy of the whole process. Finally, it also made it easier to mobilize the participants for the needed time – between 2.5 and 4 days, according to if they participated in the P phase or not - since managers found it harder to refuse their collaborators' participation when the invitation was endorsed by five directors, overcoming thereby a rigidity of the managerial system.

Since the aim of the K sessions was to allow a group of participants to acquire and share the knowledge needed to develop low cost mobility offers, a presentation of how a classical offer is made was necessary, because some of the participants did not have a global vision of the company's activities outside their departments. Besides, giving the participants a more systematic view allowed to overcome an organizational rigidity, linked to the strong department view existing in the company. The other presentations were on external knowledge identified as missing to develop a low cost offer: success and failure cases of low cost products and services; information on the target markets; and information on transport modes not operated by the operator. Their goal was first to increase awareness about the nature of low cost products and to show that their quality does not always need to be degraded. It also tried to show that the value proposition the company had was not adapted to all markets, and that several changes needed to be made if the goal was to target developing countries. Doing that, they tackled the issue of the rigidity of internal skills and technology. Moreover, one presentation about the two models behind low cost products and services was also given, and the participants were encouraged to develop offers in both models. This presentation aimed to show participants that different ways to create low cost products existed,

and that they had different outcomes that completed each other. On the one hand, the adapted low cost offer did not give the most radical cost reduction, but it allowed to simplify the existing offers and to highlight the really important features (that at the time of the research were unknown to the company), reviewing a part of the technology and skills needed in the company, but without deeply changing the organization. On the other hand, the smart low cost design allowed more significant cost reduction, but needed to radically change the organization, often needing the technology, skills, management and corporate values to be changed. The design of a this kind of offer needs the identification of the really important features that need to be targeted, so it can profit immensely from the work done to develop adapted low cost products. Thus, another aim of the presentation of the two models of low cost was to clearly define the difference and similarities between low cost and operational efficiency, thereby reducing the resistance to these projects, because, as much the first was originally considered by experts as antagonistic to corporate value, as much the latter was considered one of a common goal in the business.

5. Main findings

This paper makes a contribution to theory on the introduction of dynamic capabilities in mature companies by showing how low cost approach combined to the experience of an oriented creativity method have been used in a public transport operator.

A first managerial result from this case was that it allowed the launch of several transversal projects, which were formerly stopped by the rigidity of the management system. While the research projects launched in 2013 were mainly one-department projects suggested by operational departments (with the exception of some European projects in which the company took part), more than half of the projects launched in the beginning of 2014 were transversal and involved more than one department. This was possible because all parties involved had

understood the research object, and that its importance had been integrated thanks to the existence of the approval commission. Thanks to this and to the involvement of the animation team, project leaders coming from operational departments felt legitimate to lead transversal projects. The gain of legitimacy observed in our case is very similar to the effect observed by Kelley et al. (2011, p252), who defends that “managers can offer critical assistance to project leaders needing legitimacy and support for their innovation projects”. Thus, low cost appeared as an effective managerial guidance to involve the internal stakeholders of the firm’s dynamic capability in a collective action for organizational improvement.

A further managerial result comes from the use of the two different approaches of designing low cost products: this allowed overcoming core rigidities and external barriers across two different ways. First, by using an adapted low cost approach, the product simplification allowed an effective management of the removal of some technologies and skills became core rigidities through the removal of the associated functions. One example would be the removal of the need for new buses to use a specific outdated and expensive information system that had historically been used by removing the need for an information system entirely.

Secondly, by using the smart low cost design approach, the company can create radically innovating offers, and thereby change both the industrial ecosystem and the company, and by this way removing existing rigidities and barriers. One example was the possibility for the company to launch offers that do not replace the existing offers, but complement them. By creating something new, the existing legislation and fare system do not apply. We observed a case where that had already been done: it was in the shared vans leaving from the airport, an alternative to taxi cabs and public transport that had been developed in Paris and that fixed its fares independently both from public transport and taxi cabs. A similar approach might allow the company to develop new core competencies on pricing and yield management, as well as

on finding the break-even point of a transport system. It would also support the company in learning more on its final users and on those who are currently not its final users, since in this kind of offer they are the targeted clients. This is not the case on a classical public transport offer, where the clients today are the transport authorities. This additional knowledge on final users might be very valuable for the operator, who would be able to exploit it in order to have a better acceptance of its offer. However it would have to be handled with care on the main business, which remained selling to transport authorities and not directly to the end user. Thus, the simultaneous use of two different models opens up a larger number of options to overcome rigidities and external barriers, enriching the dynamic capabilities of the transport operator and its industrial ecosystem.

Finally, the KCP on low cost was a way for the public transport operator to improve its absorptive capacity, since it allowed, in a targeted way, to identify and assimilate external knowledge that was essential for the company. Cohen and Levinthal (1990) indicated that absorptive capacity was key to maintain and achieve competitive advantage, since it has been observed that innovative capabilities are linked to the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends. Identifying and targeting relevant knowledge is one of the big challenges companies have nowadays. In this particular case, RATP had decided low cost products were an interesting goal, but did not know how to go beyond monitoring press releases on the subject. The modeling of the innovation field done during the KCP allowed identifying the knowledge needed to develop a low cost product, dividing it into knowledge already existing in the company and the knowledge that had to be sourced externally. It is also being used as a managerial tool, to explain the link between the knowledge being acquired and the global low cost strategy of the firm, in order to render the final goal clearer and improve assimilation and application. In this

way, low cost strategies were used as a way to improve RATP's competitive advantage by improving its absorptive capacity.

6. Conclusion: managerial implications and further research

This paper described how a French public transport operator, RATP, developed its own dynamic capability and those of its industrial ecosystem through the unified and federative guidance of low cost strategies. This approach was based on the simultaneous investigation of two different low cost models (Klasing Chen, 2013).

Using an oriented creativity method named KCP (Elmquist and Segrestin, 2008) and the two different low cost strategies as guidelines, they overcame a core rigidity of the managerial system, thereby facilitating the launch of transversal innovation projects. Secondly, thanks to the unified guidance, knowledge acquisition had been efficiently oriented. This allowed increasing the absorptive capability of the firm and the quality of interaction with ecosystem's stakeholders, better targeting and acquiring external knowledge through collaborative explorations. Besides, low cost strategies had been used to deal with the external barriers and core-rigidities at both firm and industrial ecosystem levels through two different and complementary ways of developing low-cost offer for public transport, and thus, reinforce dynamic capabilities at both firm and industrial ecosystem levels. Therefore this paper contributes to empirical knowledge on dynamic capability building.

This study is based on a single case study in a particular organization. To insure generalization is possible it should be repeated in other organizations and ecosystems, which also look at building dynamic capability. Moreover, the innovation projects that resulted from this collaborative research partnership are still ongoing, and accompanying them and their

results over time would enrich this research findings. Finally, maintaining dynamic capability over time is also a challenging task that has not yet been thoroughly mastered. Further research should include a longitudinal study of the company's development and maintenance of dynamic capabilities resulting from low cost strategies.

To conclude, our research showed an example of how a low cost approach can be used as unified and federative guidance to build dynamic capabilities, thereby addressing a gap in research on the organizational capability management. It opens few research questions on how other firms could benefit of this specific guidance and what could be alternative unified guidance to build efficiently a sustainable dynamic capability.

References

Adner, Ron, 2006, "Match your innovation strategy to your innovation ecosystem". Harvard Business Review, 84(4): 98.

Arnoux, Frederic and Mathias Béjean, 2010, "Strategies for building Radical Innovation potential: Exploring the role of collaborative creative design methods". Paper presented at the 17th International Product Development Management Conference, June, Murcia, Spain.

Barreto, Ilídio, 2010, "Dynamic capabilities: A review of past research and an agenda for the future." Journal of Management 36.1 : 256-280.

van den Bergh, J.C.J.M., E.S. van Leeuwen, F.H. Oosterhuis, P. Rietveld and E.T. Verhoef, 2007, "Social learning by doing in sustainable transport innovations: Ex-post analysis of common factors behind successes and failures". Research Policy 36: 247–259.

Borjesson, Sofia, Maria Elmquist and Sophie Hooge, 2014, "The challenges of innovation capability building: Learning from longitudinal studies of innovation efforts at Renault and Volvo Cars". Journal of Engineering and Technology Management , 31: 120-140.

Brüggen, Alexander and Levin Klose, 2010, "How fleet commonality influences low-cost airline operating performance: Empirical evidence". Journal of Air Transport Management, 16: 299-303.

Cain, Alasdair, Georges Darido, Michael R. Baltes, Pilar Rodriguez and Johan C. Barrios, 2007, "Applicability of TransMilenio Bus Rapid Transit System of Bogotá, Colombia, to the United States". *Transportation Research Record*, 2034: 45-54.

Christensen, Clayton, 1997, "The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail". Harvard Business School Press.

Cohen, Wesley M and Daniel A. Levinthal, 1990, "Absorptive Capacity: A New Perspective on Learning and Innovation". *Administrative Science Quarterly*, 35: 128-152.

Coughlan, Paul and David Coughlan, 2002, "Action research for operations management". *International Journal of Operations & Production Management*: 220-240.

David, Albert and Armand Hatchuel, 2008, "From Actionable Knowledge to Universal Theory in Management Research". In *Handbook of collaborative management research*. (Shani, A.B., Mohrman, S.A., Pasmore, W.A., Stymne, B., Adler, N.). London: Sage Publications.

Edwards, Marion and Roger L. Mackett, 1996, "Developing new urban public transport systems: An irrational decision-making process". *Transport Policy*, 3: 225 – 239.

Eisenhardt, Kathleen M. and Jeffrey A. Martin, 2000, "Dynamic capabilities: what are they?" *Strategic Management Journal*, 21: 1105-1121.

Eisenhardt, Kathleen M. and Melissa E. Graebner, 2007, "Theory Building From Cases: Opportunities And Challenges". *Academy of Management Journal*, 50: 25-32.

Elmqvist, Maria and Blanche Segrestin, 2008, "Alternative design strategies to combine environmental and economic sustainability: Lessons from an empirical experiment with an automotive firm." Paper presented at the Gerpisa Conference, June Turino, Italy.

Freel, Mark S., 2000, "Barriers to Product Innovation in Small Manufacturing Firms." *International Small Business Journal*, 18: 60-80.

Hacklin, Fredrik, Martin Inganas, Christian Marxt and Adrian Pluss, 2009, "Core rigidities in the innovation process: a structured benchmark on knowledge management challenges". *International Journal of Technology Management*, 45(3): 244-266.

Hatchuel, Armand and Benoit Weil, 2009, "C-K design theory: an advanced formulation". *Research in Engineering Design*, 19: 181-192.

Hay, G.W., 2004, "Executive PhDs as a solution to the perceived relevance gap between theory and practice: a framework of theory-practice linkages for the study of the executive doctoral scholar-practitioner". *International Journal of Organisational Behavior* 7 (2): 375–393.

- Kelley, Donna J., Gina C. O'Connor, Heidi Neck and Lois Peters, 2011, "Building an organizational capability for radical innovation: The direct managerial role". *Journal of Engineering and Technology Management*, 28: 249-267.
- Klasing Chen, Milena 2013, "The two models behind low cost products". Paper presented at the 20th International Product Development Management Conference, June, Paris, France.
- Kumar, Nirmalya, 2006, "Strategies to fight low-cost rivals". *Harvard Business Review*, December: 104-112.
- Lawson, Benn and Danny Samson, 2001, "Developing innovation capability in organisations: a dynamic capabilities approach". *International Journal of Innovation Management* 5 (3): 377-400.
- Leonard-Barton, Dorothy, 1992, "Core capabilities and core rigidities: A paradox in managing new product development". *Strategic Management Journal*, 13: 111-125.
- Levinthal, Daniel, 1997, "Three faces of organizational learning: Wisdom, inertia, and discovery". *Technological innovation: Oversights and foresights*, 167-180.
- Normann, Richard and Rafael Ramírez, 1993, "From Value Chain to Value Constellation: Designing Interactive Strategy". *Harvard Business Review*, July-August: 65 - 77.
- O'Connor, Gina C. and Mark P. Rice, 2013, "A Comprehensive Model of Uncertainty Associated with Radical Innovation". *Journal of Product Innovation Management*, 30: 2-18.
- Porter, Michel E., 1996, "What is strategy?" *Harvard business review*, Nov/Dec: 61-78.
- Porter, Michael E., 2008, "The five competitive forces that shape strategy." *Harvard business review*, 86.1: 78.
- Radaelli, Giovanni, Marco Guerzi, Stefano Cirella and Abraham B. Shani, 2012, "Intervention Research as Management Research in Practice: Learning from a Case in the Fashion Design Industry". *British Journal of Management*, article first published online, 12 oct 2012.
- Radjou, Navi, Jaideep Prabhu and Simone Ahuja, 2012, *Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth*. John Wiley & Sons.
- Ray, Sangeeta and Pradeep Kanta Ray, 2011, "Product innovation for the people's car in an emerging economy". *Technovation*, 31: 216-227.
- Ryans, Adrian, 2009, *Beating Low Cost Competition: How Premium Brands Can Respond to Cut-Price Rivals*. John Wiley & Sons.

Teece, David J., Gary Pisano and Amy Shuen, 1997, "Dynamic Capabilities and Strategic Management". *Strategic Management Journal*, 18(7): 509-533.

Teece, David J., 2007, "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance". *Strategic Management Journal*, 28: 1319-1350.

Wang, Catherine L. and Pervaiz K. Ahmed, 2007, "Dynamic capabilities: A review and research agenda". *International Journal of Management Reviews*, Blackwell Publishing Ltd., 9: 31-51.

Winter, Sidney G., 2003, "Understanding dynamic capabilities". *Strategic Management Journal*, 24: 991-995.

Yovanof, Gregory and George Hazapis, 2008, "Disruptive Technologies, Services, or Business Models?" *Wireless Personal Communications*, 45: 569-583.

Zollo, Maurizio, and Sidney G. Winter, 2002, "Deliberate learning and the evolution of dynamic capabilities." *Organization science* 13: 339-351.