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**MULTILEVEL INTEGRATION OF EXPLORATION UNITS :
BEYOND THE AMBIDEXTROUS ORGANIZATION**

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ABSTRACT

How firms combine incremental and radical innovation? The ambidextrous model suggests to differentiate exploration units from exploitation units. We show the importance of integration between these entities in outlining the tensions between them. We suggest that integration takes place on a multilevel basis and relies on various mechanisms.

INTRODUCTION

Several authors have stressed that large multidivisional firms are efficient in exploiting existing product lines but face obstacles when exploring new businesses and technologies (Dougherty, 1992 ; Leonard-Barton, 1992). Several organizational designs were suggested for innovating organizations from autonomous (Christensen, 1998), to integrated (Iansiti, 1997) and hybrid (Tushman and O'Reilly, 1997) or modular (Galunic and Eisenhardt, 2001). We focus on the hybrid ones, the ambidextrous model, that suggest the establishment of specific units dedicated to the exploration of radical innovations and separated from the units in charge of the exploitation of the established products. The ability to balance and combine these two different processes, exploration and exploitation, in one firm is a critical challenge but few works analyze it at a fine-grained level. Recent works on the ambidextrous model (O'Reilly and Tushman, 2004; Benner and Tushman, 2004; Smith and Tushman, 2005) underscore the importance of strategic integration of these units, identifying this as the responsibility of the top management without elaborating on how they should bring it about. We developed an in-depth case study in a large multidivisional automotive supplier that wanted to enhance its growth through innovation and created a unit dedicated to the development of radical innovations. In this research we further characterize the ambidextrous organizational model by focusing on the activities performed by the unit in charge of radical innovations. Furthermore, we looked at the tensions associated to these activities and the effective forms of integration between this entity and those

in charge of the established products. The paper shows how firms can enable an exploratory entity to exist separately from exploitation entities and yet be integrated. Another contribution is to link the literature analysing the dynamic of reconfiguration of resources (Galunic and Eisenhardt, 1996; 2001) to the work on the ambidextrous organizations.

THEORETICAL BACKGROUND

On the basis of the seminal work of Burns and Stalker (1961) and Abernathy and Utterback (1978) who shed light on the specificities of organization dedicated to innovation, Tushman and O'Reilly (1997) apply the opposition between exploration and exploitation proposed by March (1991). They distinguish the "exploiting units" whose operations follow a certain routine allowing incremental innovation from the "exploratory units", which are less finalized and formalized and whose mission is to generate radical innovation. Thus, according to Tushman and O'Reilly (1997), the generation of radical innovation is the core mission of the exploratory units.

Some work underline (Christensen, 1998) the separation of the entities dedicated to the development of new businesses such as the disruptive innovation. However, this separation can in some situations lead to the isolation of the structures focused on exploration which fail to have their idea accepted and to draw on the resources of the firm's other structures.

Other authors suggest that exploratory activity does not need to be separated and can be developed within the existing structure by autonomous entrepreneurs (Leonard-Barton, 1995). The benefits of integrating various areas of expertise for innovation were highlighted by Clark and Fujimoto (1991) and Iansiti (1997). However, recent work (Charue-Duboc and Midler, 2000; Ben Mahmoud-Jouini, 2004) underscored that cross functional and integration teams fall short of developing radical innovations.

Henderson and Clark (1990) highlighted that in order to achieve architectural and radical innovations, the organization must be re-designed and resources recombined because these innovations call into question the very structure of the organization. In the same line of thought, Galunic and Eisenhardt (1996, 2001) stressed the firms' need to continuously restructure the divisions in order to adapt to rapid technological changes and market trends anchoring the superiority of the multidivisional form in this capability. But, with the exception of the pioneering work of Burgelman (1983, 2002), research studies that provide a detailed analysis of resource recombination processes and their management within the organization are few and far between.

The most recent works on the ambidextrous organization (Benner and Tushman, 2003; O'Reilly and Tushman, 2004) stress the importance of the separation of the exploratory and exploitation units and at the same time their integration that they assign to the top management. Gibson and Birkinshaw (2004) develop an alternative view with the concept of contextual ambidexterity: the behavioural capacity to simultaneously demonstrate alignment and adaptability.

Our research aims at understanding how ambidexterity can be actually achieved. We explain how firms enable exploratory entities and exploitative unit to exist separately and yet be integrated. We analyze the dynamic of resources reconfiguration that enables the ambidextrous organization.

RESEARCH SITE AND METHOD

To address this question, we developed a longitudinal study in a firm that created a new entity in order to enhance radical innovation.

Research Site

Our field work took place within one of the ten largest suppliers of the automotive industry which works with the main car manufacturers throughout the world and operates in all main geographic zones. The company is a large multidivisional firm : each division is dedicated to a functionally consistent product line. To stand out from its competitors and ensure growth in this highly competitive market, in January 2004, Domauto (a pseudonym), created a new organizational structure designed to enhance radical innovation and innovative synergies across its divisions. A new entity, the “powertrain efficiency domain of innovation” henceforth referred to as PTE, was structured in a separate unit existing alongside the previous organization. The objective for this new entity was to offer manufacturers innovative products and services, based on integrating components and exploiting synergies between the products and the industrial capabilities of the five contributing divisions the powertrain (PWT) scope in Domauto. This new unit was responsible for exploring innovations to enhance the efficiency of the powertrain, in particular radical innovations. Its mission was defined as follows: “to offer automobile manufacturers solutions capable of anticipating their most stringent requirements in the powertrain”.

PTE is led by a high status manager (the former R&D Senior Executive of a division which produces components within the scope of the PWT). PTE relies on a working group of 10 persons referred to as “the team” comprising, for each contributing division, representatives from R&D and marketing functions. Two other persons were dedicated to PTE on a full-time basis: one to monitor the projects launched by PTE and the other to manage the marketing function.

PTE has positively influenced the capacity of the firm to foster radical innovation. Using the Henderson and Clark (1990) typology, among the innovation tracks generated by PTE, 29 were radical innovations, 2 were architectural, 4 were modular and more than 5 were incremental.

PTE can be regarded as an exploratory entity operating within the PWT scope. It is responsible for managing innovation within this scope and for medium and long-term growth through innovation. On the other hand, Domauto’s divisions can be regarded as exploitation units. They are organized into business units, each one dedicated to a functionally consistent product line. The creation of the PTE alongside the divisions gave Domauto several of the characteristics of an ambidextrous organization. This company offered the researcher a setting to tackle their research question.

Research method

We developed our field study in this new PTE entity. This allowed us to observe and analyze the operational activities of the new entity as well as its numerous relationships with the divisions.

Data was collected over a period of 24 months from January 2004 until December 2005 and started with the creation of PTE. During the first six months, the authors spent one day on-site each week, then three days a month over the following 18 months. Data was collected from multiple sources: observation, interviews and reviews of documents. Observations consisted of

passive participation (sitting in) at each PTE team meeting over the two years. During these meetings, we focused on discussions between the team members and on the progress of PTE activities. In total, we attended and documented 53 “team meetings” amounting to a total of 353 hours with a mean presence at these meetings of 8 persons of the company. Observations also involved sitting in on project meetings when exploratory projects were launched after the first six months. The “team” meeting was our principal place of observation because it provided a valuable database of all the activities undertaken by PTE, the obstacles encountered, and the relationship between the new entity and the divisions.

According to the paradigm of grounded research, (Glaser and Strauss, 1967; Miles and Huberman, 1984; Eisenhardt, 1989), and according to the research tradition within our research centre, our analysis drew on detailed field notes, interview notes, transcripts of meetings and company documents. Our orientation with regard to data analysis was inductive and the aim was to generate insights into how this new entity managed the exploration process and overcame interdependency issues. Qualitative analysis is an inherently dynamic and ongoing process and we conducted multiple readings of field notes, minutes of meetings and documentation to create categories and identify recurring themes. We proceeded iteratively, with the early stages being more open-ended than the later ones.

DATA ANALYSIS

PTE’s activities typology and the benefits of separation

We identified six types of activities carried out by this entity during this period. The first activity is identifying innovation tracks and structuring and managing projects to explore these innovations. We differentiate two main types of exploratory projects: developing innovative products within the new scope, and incorporating several innovations developed separately by the divisions into a prototype or Democar. The second activity is drawing up a technological strategy on the new scope, based on an understanding of technological and market trends. This selection of planned exploratory projects represents PTE’s technological roadmap. The third activity is developing interactions with targeted customers and experts on specific technological issues associated with the PWT scope which is larger than the divisions’ one. This led to interactions with different customer representatives and at different stages of the car development process. The fourth activity is organizing external communications on the new scope, for example for World Auto Shows. The fifth activity is analyzing potential acquisition and partnership targets. Finally, PTE was also involved in proposing reorganizations and resource redeployments across divisions in order to rationalize product lines where different divisions had developed similar products or technologies or to enhance visibility for customers. The activities were generally carried out in connection with a technical object. The detailed analysis of these activities showed the extent to which separation from the divisions was necessary to carry out the exploration mission of PTE.

Interdependencies and tensions between the exploratory entity and the divisions

While separating PTE from the divisions appeared to bring benefits, at the same time, many interdependencies existed between the exploratory entity and the exploitation units. These interdependencies gave rise to tensions that have occasionally been mentioned in the literature but never been described in detail. We identified four types of tensions. The first occurs when the

exploratory unit has to share scarce resources, like experts, with the divisions in order to develop its exploratory projects. This competition between the divisions' development projects and PTE's exploratory projects appears also on other topics : the technological strategies of the exploitation entities and the exploratory entity can be incompatible. It is the case, for example, when some technologies are pushed by a division and rejected by the exploratory entity or vice versa. This leads to a second type of tension. A third type of tension emerges when there is incompatibility between the image that the two entities want to promote towards the customer. Finally, PTE created new market and technological knowledge that could be useful for both of these entities. However, the utilisation and management of this knowledge base can be conflictual.

DISCUSSION

Multilevel integration of exploration units

Integration was required to overcome these tensions and take advantage of complementary aspects between exploratory and exploitative units. Our work suggests that both separation and integration between the entities are required; We reconcile the views of authors recommending autonomous designs for innovation organization with those in favour of integrated. Our results are consistent with the recent thesis put forward by Westerman et al. (2006), arguing that "strategic contingencies of uncertainty and interdependence created conflicting signals for managing integration and separation" and that "contrary to many theoretical recommendations none of the modes is purely autonomous or purely integrated".

We highlighted the various integration strategies developed by an exploratory unit to deal with interdependencies and overcome the tensions associated to the separation integration duality. Four levels of integration were outlined: the top management, the PTE leader himself, the division VPs and divisions senior R&D executives and the middle managers of the divisions. Hence, integration is not carried out purely at the level of corporate senior management (Tushman and O'Reilly, 1997) and does not rely solely on ambidextrous individuals (Gibson and Birkinshaw, 2004). The corporate management level in particular corporate R&D VP and the Exec VP to whom the PTE leader reports is the first of four integration levels. The second level is the PTE leader that plays a major role in integration through his frequent informal contacts with the divisions and his initiative in inviting experts and senior managers from the divisions to important events organized by PTE. According to that, he can be compared to an ambidextrous individual. Through their participation in various committee meetings, the division VPs and divisions senior R&D executive contribute towards integrating their divisions' strategies with that of PTE. Finally, the middle managers of the divisions participating in the PTE team meeting and the members of the exploratory projects contribute to integrating the exploratory units to the divisions.

Our analysis also shows four types of integration mechanisms:

- permanent cross-divisional working groups,
- ad hoc cross-divisional committee meetings,
- assigning transversal subjects to a high status actor such as the PTE leader, giving him de facto authority and responsibility for integration,
- specific ambidextrous individuals such as the PTE leader or the PTE team members

involved in the activities and working for their division. The behavioral orientation of key individuals towards connecting disconnected people has recently been emphasized by Obstfeld (2005) and predicts involvement in innovation.

Resources reconfiguration

Besides the fact that the exploratory entity itself is the result of resources reconfiguration this entity contributes to the resources recombination considered by Galunic and Eisenhardt (2001) as a competitive advantage of the multidivisional firm facing a rapidly changing environment. Two activities of PTE relate to this issue: recommending and analyzing partnerships or acquisition targets and redeploying resources across divisions. In these two types of resources reconfiguration, PTE appeared to be an important actor in preparing, proposing and implementing it although this reconfiguration did not directly affect the organizational boundaries of the exploratory entity itself. Galunic and Eisenhardt (2001) place responsibility for this restructuring at senior management level. Our longitudinal field work enabled us to demonstrate that these changes are not carried out solely at the instigation of senior managers. However, they are prompted by an actor capable of identifying and examining this type of decision and enjoying a certain level of autonomy and legitimacy on the basis of a cross-divisional position, technological and market knowledge. In relation to the above-mentioned activities, PTE has developed a unique technological and market knowledge. Resources reconfiguration based on this new knowledge are therefore driven by different and complementary motivations to those of senior management as well as divisions.

CONCLUSION

Perspectives on organizational design for innovating firms have tried to tackle the challenge of balancing exploration and exploitation. The ambidextrous model and the reconfiguration of resources are one of them but very little detailed investigation of how organization actually achieves ambidexterity and reconfiguration has been conducted. The aim of this paper is to link these two research trends and understand how firms actually enable exploratory and exploitative entities to exist separately and yet be integrated. Our study raises important issues for both theory and practice.

It complements the rapidly growing literature on ambidexterity in providing empirical evidence of what organizational design principles are appropriate in the context of technological innovation. We suggest that both separation and integration of exploratory and exploitative entities are required. We highlight the interdependencies between the exploratory entity and the divisions and the tensions that arose.

We provide a framework to analyze how integration is achieved. We emphasize the multilevel dimension of integration and outline four levels. We also underscore four types of integration mechanisms. We show that these various integration strategies were combined.

This analysis of integration is of direct managerial importance as it shifts from the question of should exploration be structurally separated to how dealing with interdependencies and achieving integration between exploratory and exploitative entities.

We have only touched upon the interesting issue of resource reconfiguration and how it relates to the exploratory entity.

By grounding our study in detailed data of an exploratory entity operation collected on site we also complement the literature from a methodological perspective. Over the past years most studies have relied on interviewing and survey data methodologies that tend to lose some of the richness of the underlying phenomena. On-site observation allowed us to discover new phenomena on interdependencies between exploration and exploitation entities.

This article analyzes integration strategies within the firm across its divisions. However we believe that our findings are of relevance also for integration across the boundaries of the firm and could expand the concept of integration to inter-firm relationships. This should be explored in further research.