Opening the Black Box of Ambidexterity: Three Product Development Stories

John Fiset and Isabelle Dostaler

> " *In an apparent defiance of logic or of physical possibility, the* "
> *creative person consciously formulates the simultaneous operation of antithetical elements and develops those into integrated entities and creations. It is a leap that transcends ordinary logic. What emerges is no mere combination or blending of elements: the conception does not only contain different elements, it contains opposing and antagonistic elements, which are understood as coexistent.*
>
> Albert Rothenberg
> In *The Emerging Goddess*

Organizational ambidexterity, which can be roughly defined as the ability for organizations to combine old and new ways of doing things to meet organizational objectives, has drawn considerable attention in the management literature in recent years. Authors distinguish clearly between structural ambidexterity, which implies that ambidextrous organizations are firms in which groups of people concentrate on traditional business or ways of doing things while others explore new avenues, and contextual ambidexterity, which characterizes companies where any individual can be ambidextrous. Our research is positioned in the contextual ambidexterity perspective. In this article, we apply the typology of four ambidextrous behaviours developed by Birkinshaw and Gibson (2004) to increase our understanding of the process whereby organizational actors are able to build on existing capabilities or business processes while developing new ones. Our results indicate that at least three of the ambidextrous behaviours proposed by Birkinshaw and Gibson (2004) (initiator, broker, and multitasker) are helpful to understand how new product development team members rely on proven approaches while simultaneously introducing new ones to successfully overcome daily challenges. Practitioners should be encouraged to become familiar with the concept of ambidexterity, to recognize when and how the successful combination of old and new ways of doing happens, and to promote these occurrences.

Introduction

Although the tensions between exploitation and exploration (and between adaptability and alignment) have been discussed at length in the classic management literature (March & Simon, 1958), Duncan (1976) was the first author to employ the term ambidexterity. He used it to refer specifically to the structure of organizations that are able to find a proper balance between the conflicting objectives of remaining aligned (i.e., maintaining coherence among the patterns of current activities) and adaptable (i.e., being able to quickly reconfigure activities to meet changing environmental demands). Duncan's (1976) solution for finding a balance between

alignment and adaptability objectives relied on creating dual structures within the same organization. This partitioning of the organizational groups for the purpose of focusing on separate objectives has been termed structural ambidexterity (Benner & Tushman, 2003; Duncan, 1976; Tushman & O'Reilly, 1996). More recently, Wang and Rafik (2014) have identified structural ambidexterity, cyclical ambidexterity, and reciprocal ambidexterity as the three different types of a "bi-polar construct".

There has been some debate regarding the difficulty of having two separate groups present within the same firm (Lewis, 2000), and a number of studies have docu-

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mented that firms may resolve this difficulty by combining divergent features (Adler et al., 1999; Jansen et al., 2005). Gibson and Birkinshaw (2004) argued that contextual ambidexterity enables individuals within various business units to make their own judgments about the best way to resolve the conflicting demands they face on a daily basis. Unlike structural ambidexterity, contextual ambidexterity does not rely on separated groups to manage competing goals. Rather, alignment and adaptability goals are managed concurrently by each employee. The fact that this distinction between structural and contextual ambidexterity is clearly mentioned in the definition of ambidexterity available on Wikipedia (2016) suggests that it is well established.

Gibson and Birkinshaw (2004) use four constructs to describe the context that will allow organizational actors to combine alignment and adaptability: stretch, trust, support, and discipline. Stretch challenges individuals to strive to accomplish more. Support takes into account the accessibility of tools and information as well as the willingness of group members to collaborate. Discipline focuses on how members commit to objectives that they have set for themselves. Finally, trust is the ability to rely on others to meet agreed-upon commitments.

When reporting in the *MIT Sloan Management Review* on the three-year ambidexterity research project that they had conducted across ten multinational companies, Birkinshaw and Gibson (2004) were particularly explicit about what it means to be ambidextrous. Writing for a practitioner audience (the same year as their seminal *Academy of Management Journal* paper on contextual ambidexterity was published) seemed to have forced the researchers to be more precise (or less abstract). Hence, they proposed a typology of four ambidextrous behaviours, stating that ambidextrous individuals: i) take the initiative and easily identify opportunities, or ii) are willing to cooperate with others, or iii) act as brokers always looking to build linkages, or iv) are multitaskers (Birkinshaw & Gibson, 2004) (Table 1). The authors clearly indicate that these behaviours should be observable in organizations that are contextually ambidextrous, namely characterized by a context with proper levels of stretch, trust, support, and discipline. Although their article has been referenced over 600 times, only a handful of authors, including Mom, Fourné, and Jansen (2015), have built on the four ambidextrous behaviours introduced by Birkinshaw and Gibson.

Table 1. Ambidextrous behaviours (adapted from Birkinshaw & Gibson, 2004)

Behaviour	Description
Initiator	Ambidextrous individuals take the initiative and are alert to opportunities beyond the confines of their own jobs.
Cooperator	Ambidextrous individuals are cooperative and seek out opportunities to combine their efforts with others.
Broker	Ambidextrous individuals are brokers, always looking to build internal linkages.
Multitasker	Ambidextrous individuals are multitaskers who are comfortable wearing more than one hat.

Building on the above typology, the research we report on in this article aimed to answer the following question: how does ambidexterity manifest itself in the new product development process? Although a considerable amount of ambidexterity research has focused on the antecedents and impacts of ambidexterity, there is still a need to understand how ambidexterity manifests itself in day-to-day organizational life. In other words, we argue that the ambidexterity "black box" has not been completely opened, and our research goal is to contribute to further opening it. We therefore examine several "episodes" of three product development "stories" to find out if and how organizational actors were able to combine alignment and adaptability activities. Each episode starts with a triggering event (Schmitt et al., 2010) that gives product development team members the opportunity to demonstrate an ambidextrous behaviour (Birkinshaw & Gibson, 2004). In the next section, we will describe the methodology that we used to answer our research question.

Methods

The product development stories reported here are based on empirical material that was collected during interviews with project team members. We omit the names and locations of participating companies and their industries to ensure anonymity. We conducted 24 interviews with actors at various hierarchical levels of new product development teams, including some team members who were in charge of coordinating the design work subcontracted to various suppliers. We

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asked each senior interviewee to provide the names of up to three direct reports for subsequent interviews. This snowball method of data collection continued until we had interviewed actors from all hierarchical levels of the three new product development teams.

In each interview, we asked respondents to describe a particularly important change or challenge (i.e., triggering event) they had faced within the past six months as well as how they reacted to it. We focused on a six-month period prior to the interview in an effort to collect rich material without having to dig too far back in the respondents' memory. We recorded and transcribed all the interviews and analyzed the transcriptions to isolate the triggering events and determine whether the actor's reaction to it demonstrated an ability to combine adaptability and alignment behaviours. In the sections that follow, the results are presented as three product development stories.

Story 1: All or Nothing

This first product development story took place in a manufacturing company that was in a challenging competitive situation. The sales of its main product line were stagnant and the organization was losing ground to its key competitor. The only way that the company could succeed was to create an innovative design that integrated the latest technological advances in order to offer the most efficient product on the market. The new product was intentioned to have a strong symbolic value with the goal of it eventually becoming the flagship product of the organization. Furthermore, this project was the largest endeavour taken on by this organization thus far, both in terms of cost and scope; it was a financial gamble as it could either be a successful venture ensuring the survival of the company, or a failure that could cause the downfall of the organization.

This new venture also represented an opportunity to implement cross-functional product development teams in which supplier representatives, customer service team members, and designers were co-located. In the new product development literature, such teams are recognized as efficient integration mechanisms (Adler, 1995; Oliver et al., 2004). One manager described the structural change as follows: "What we are trying to do is essentially change the way the whole company behaves."

For the new project to be successful, the organization had to create a highly innovative product that suited customer needs and would be delivered to them in a timely manner. Individuals involved in this project experienced significant deadline stress because top management insisted that each team must not "fail to deliver."

Next, we now consider four discrete episodes of this first product development story, during which organizational actors demonstrated ambidextrous behaviour.

Organizational actors as brokers
We identified two episodes during which organizational actors played brokering roles. In this first episode, the triggering event was the interruption of the project's concept definition phase because top managers were not convinced that the specifications of the product were meeting market requirements. The specifications had to be optimized before developers could start the detailed definition, which forced managers to reduce the number of employees working on the project to only conceptual design team members. In reaction to this trigger, some managers acted as brokers and used their contacts within the organization to re-allocate employees not involved in conceptual design and assign them to other projects or functions. Along with this allocation to other projects was an assurance that, once the concept design was fully optimized, these relocated employees would be able to work again on the new project.

Once potential clients and top managers became satisfied with the optimized concept design, a ramp up was initiated and internal transfers as well as external hiring began in earnest. The project managers kept their promise and offered a position to all employees displaced during the optimization process. This ingrained trust attained from management upholding their word contributed to a much smoother ramp up of employees, given that many had previously worked on the project and could help train new employees.

We see this episode as a good example of a process through which organizational brokers manage not to lose the project-specific knowledge embedded in the team members who were relocated and eventually came back to the project team. As a result, creative work could be undertaken to optimize the design of the project while existing tacit product development knowledge acquired in the initial stages of the project was retained within the organization through project re-allocation. Thus, exploration and exploitation were therefore combined simultaneously to ensure consistent deliverable attainment during the project ramp up.

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The second episode during which an organizational actor acted as a broker was triggered when a phase of the design project was almost completed and the structure of the organization started to change in preparation for the beginning of another phase of the project. Because this restructuring exercise took place at the same time as the transition phase, a number of communication problems arose: employees were unclear of their responsibilities and the rationale behind the changes. In response to this triggering event, one team leader helped employees recently transferred under his supervision to complete their initial projects so that they could all focus on the next phase of the project together. Playing a broker role, this team leader helped his team to carry out the ongoing work while adapting to the structural change made necessary by the beginning of a new phase of the design project.

Organizational actors as initiators
We identified two episodes during which organizational actors played initiator roles allowing exploitation and exploration to be combined. A first episode took place when the detailed design phase resumed and the size of the design team grew considerably. We interviewed a section chief who had recently joined the company. This individual had years of experience working in another firm where he always knew where to go for assistance on a particular problem. He realized that he felt rather isolated after joining an organization where he did not know anyone. During a continuous improvement brainstorming session with the project director, the new section chief discussed his difficulty finding experts within the firm to help him with his work and asked how other recent hires overcame similar hurdles. From this triggering event, he was tasked by the director to produce a contact list that each new project team employee would receive as part of their welcome package. This initiative proved to be an efficient method to make veteran personnel more accessible to new team members in need of advice and mentorship.

The second episode in which an organizational actor played an initiator role took place during a team meeting held early in the project. One of the managers that we interviewed explained that project team members seemed to have the bad habit of wanting to "change and improve just for the sake of change." This mindset stood in stark contrast to the notion of ambidexterity, given that past knowledge was being discredited without consideration instead of being incorporated into new thinking. This excessive emphasis on change reached a breaking point at a project team meeting

when one employee interrupted the group and said, "Wait a second. Do you realize what you are doing and how you are mixing up everybody? We must go back to basics. Before we decide that we want to change something, let's ask ourselves why." This triggering event led to the implementation of a formalized change process. Improvement suggestions were discussed in groups and captured in a list of the top ideas. Volunteers would then provide their own timeline for implementing one of the listed improvements. This formalized approach included a vetting process where existing capabilities were examined to decide whether a completely new way of doing things was necessary or whether minor changes could bring about a solution instead. As with the previous episode, the response to this challenge illustrated a dialectic process through which organizational actors managed to exploit existing capabilities while exploring new ones.

Story 2: Time to Modernize Our Product

The new project development team featured in this story was working on a new, modernized version of an existing product in response to a competitor's product that had outperformed theirs. The company realized that they needed to respond quickly to this new design, or they would lose valuable market share.

Organizational actors as initiators
We identified two episodes of this second new product development story during which organizational actors played initiator roles allowing exploitation and exploration to be combined. The first episode started when one director that we interviewed formed the opinion that organizational members tended to focus on meeting short-term goals to the detriment of long-term objectives. This director initiated a number of changes that resulted, according to him, in a different managerial approach: "[the company] has moved towards a much more holistic view of management and a much stronger long-term focus." We noted that, during the interview, the director seemed careful not to be too judgmental of past management approaches, given that they were very successful. Rather, he stated that, "You can have a strong long-term vision and it can have a real effect on the plans of the company in the coming years, yet still have a focus on what is happening today, without undermining the strength of the organization and the ability to achieve stakeholder goals." These comments point toward an ambidextrous process through which organizational actors were making an effort to learn from the past and use this knowledge to deal effectively with new challenges.

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Revamping the product involved considerable redesign effort. However, the inevitable pressure to control costs forced the group to consider the optimal use of all the resources including various specialists within the organization. A second episode during which organizational actors played initiator roles was triggered by the fluctuating demand for key specialists within the organization. Organizational actors initiated the creation of a centre of excellence in which all expertise in a specific domain was centralized. Bringing all the resources together served to smooth out the variance in demand because the specialists could be allocated to teams as they were needed. Through this process, the organization managed to adapt to the cost pressure from the competitive environment by hiring fewer contractors. At the same time, this initiative favoured the leveraging of internal expertise as well as its improvement.

Story 3: Let down by a Key Supplier

In this third story about the new project development project, the company studied had decided to design a product using a completely new material in the hope of gaining a significant competitive advantage. The relatively recent introduction of this material in the industry made it difficult to find a sufficient number of employees comfortable with its use. Some of the design and production work had therefore been subcontracted to an overseas supplier. Unfortunately, the supplier filed for bankruptcy protection and the focal company needed to decide whether or not to develop the competencies in-house or shutter the project completely. The decision to continue with the project created significant upheaval in the organization because it required hiring new designers, bringing together expertise, and learning new techniques – all in very short order. The organization needed to be particularly cost-sensitive at this time because they were developing new expertise during a period where their cash flow position was particularly weak. As a result, organizational members were asked to delay spending as much as possible and to optimize what was being purchased. Surprisingly, this vigilant eye on spending seemed to be taken more as an opportunity to display the team's professional skill than a negative constraint on their ability to successfully run the project.

Organizational actors as initiators
We identified three episodes during which organizational actors played initiator roles allowing adaptability and alignment to be combined. The first episode started shortly after the company learned that its supplier filed for bankruptcy. This news came as a major sur-

prise to all, and there were no contingencies planned for this eventuality. Senior managers looked around the industry to see if there was another supplier capable of taking on the work and eventually decided that "the best choice was to go ahead and consolidate our own internal resources and augment those by hiring new people," as mentioned by one manager that we interviewed. This approach proved to be a significant challenge because the supplier's host nation had strict bankruptcy laws that prevented the company from hiring employees from the bankrupt company. Organizational actors were nonetheless able to combine exploitation (i.e., consolidating existing internal resources) with exploration (i.e., hiring new people).

The second episode started when the organization wanted to improve how they met commitments. A new director was brought in, and his mandate was to change the culture from one that was, in his words, "officious and stuck to one that is more entrepreneurial and innovative." He explained that he tried to be very inclusive and asked for input on how to efficiently meet buyer commitments. From these discussions, he produced a list of cultural changes that he believed needed to be implemented immediately. He referred to this list as a collectively developed "charter" and added: "as far as the path that we would take for change, I think [the development of the path] was 30% mine and 70% my team's." The production of this charter represented a process through which existing and new ideas for improvement were combined and helped to demonstrate the importance of supportive leaders in the development of cohesive and ambidextrous teams.

The third episode took place when a manager was put in charge of the product testing, which provided essential data to many other organizational actors. Given the level of novelty of the product, this manager took the following initiative: "We went through all the lessons learned and saw if they were still applicable or not. Also, we made sure that we were addressing them so we would not repeat some of the mistakes that we have done in the past." Through the examination of the past lessons learned, organizational actors became open to new ideas while continuing to believe that a strong sense of the past is a source of competitive advantage.

Organizational actors as brokers
We identified two episodes during which organizational actors played the role of brokers. The decision to carry out the design in-house with a previously unused material resulted in a radical change in the composition of the work force, from small groups of engineers

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playing a liaison role with the supplier to much larger groups of designers. During this first episode, the organization was able to meet this challenge by including actors from upper and lower levels in frequent discussions, resulting in quick and efficient decisions, thus easing the process of combining existing capabilities with new ones.

The second episode was triggered during a meeting when a major problem was found in the product design. The manager's reaction to this triggering event was to challenge all the team members involved to find alternatives that would satisfy all stakeholders. After long debates, a consensus eventually emerged, as the manager explained to us: "We started working with the stakeholders, we built a mockup, we ran through it, and everybody ended up being happy." The broker role played by this manager led organizational actors to put a new spin on an existing idea and still manage to clear the design with all stakeholders.

Organizational actors as multitaskers
Despite the efforts that were made to cope with the numerous challenges inherent in their industry, the company continued to suffer from a critical shortage of highly trained personnel. One organizational actor that we interviewed mentioned that he was responsible for three separate sub-assemblies of the product and had to make sure that they fit together perfectly during the manufacturing process: "each of these three sub-assemblies had their own demands that I had to fulfil, and sometimes you have to neglect one to work on the other." During our discussion with him, this actor said that he was really doing the work of two employees, due to a lack of personnel. He even added that "there are others in the group who are doing the work of three or four." The fact that various actors take on multiple roles suggests an apparent lack of organizational slack. This episode also indicates that the organizational resources are used as much as possible in a context where the organization was also forced to develop new capabilities.

The lack of trained personnel prevented one manager, who was responsible for two different groups of designers, from providing adequate support to his subordinates. His dual role also led him to take care of both administrative and technical issues at the same time. To solve his problem, he created for himself a new role that encompassed all the administrative and strategic work related to the two design groups, while the supervision of the technical work was delegated to another individual. The process by which this manager took on a new strategic role while ensuring continuity by promoting someone below him to manage technical issues and provide support to the two design teams illustrates a combination of adaptability and alignment.

Discussion

In the various episodes detailed above, we have seen organizational actors enacting various ambidextrous roles in response to triggering events, allowing them to build on what their organization excelled at while designing new ways of doing things. The stories provided rich answers to our research question by showing how contextual ambidexterity manifests itself in the new product development process. As summarized in Table 2, our findings include observations of 13 instances where individuals demonstrated ambidextrous behaviours: seven acted as initiators, five as brokers, and one as multitasker. When coding the data, we soon realized that the cooperator role suggested by Birkinshaw and Gibson's (2004) was too similar to the broker role and we therefore only used the latter. It is puzzling that we only had one episode to report where an organizational actor engaged in multitasking to combine exploitation and exploration, given that, from a conceptual standpoint, it is easy to understand how engaging in multiple roles can help combine exploitation and exploration.

The competitive environments and the organizations studied in this research are shaping each other, and this process generates very concrete triggering events, such

Table 2. Summary of observed ambidextrous behaviours

Behaviour	Story 1: All or Nothing	Story 2: Time to Modernize Our Product	Story 3: Let down by a Key Supplier
Initiator (7)	2	2	3
Broker (5)	2		3
Multitasker (1)			1

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as the interruption of the concept definition phase resulting in job cuts or the change in the composition of the work force in the aftermath of a key supplier bankruptcy. Triggering events are interpreted by actors as situations needing to be acted upon; some actors seem to be very good at responding in a way that builds on what the organization is already good at (alignment; exploitation) while favouring the development of new and creative ways of doing things (adaptability; exploration). Finding alternative positions for designers elsewhere in the organization following the interruption of a project and offering them the possibility of rejoining the team when the design project resumes is an example of ambidextrous behaviour. When organizational actors are not able to combine adaptability and alignment, they tend to resolve the dilemma by choosing one or the other. We posit that choosing adaptability over alignment could result, for example, in creating products that would be perceived as "too novel" by the market to which they are destined, or in creating organizational processes, structures, or strategies that would not be perceived as legitimate by the institutional environment. Conversely, organizational actors that would systematically favour alignment behaviours over adaptive ones could contribute to decisional and institutional inertia. We believe that ambidexterity acts as a "muscle" that needs to be developed and nurtured – a muscle that may contribute to the long-term survival of the organization. Such a nurturing process is even more prevalent in contextually ambidextrous organizations in which any actor can learn to combine alignment and adaptability.

The three new product development stories depicted in this article allowed us to open up the black box of ambidexterity. Our research results suggest that ambidexterity hinges on the effective development and exchange of knowledge. The ambidextrous roles played by the various organizational actors that we interviewed allowed them to engender both the preservation of existing knowledge and the development of new knowledge. This was clearly demonstrated by the efforts that were made to smooth the transition from one design phase to another, the addition of a contact list to the welcome package for new hires, the development of new expertise within the organization, or the creation of a centre of excellence. This serves to prove the relevance of at least three of the Birkinshaw and Gibson's ambidextrous roles: initiator, broker, and multitasker.

Although some authors have stated that organizational capacity for change is closely linked to ambidexterity (Judge & Blocker, 2008; Moreno-Luzon et al., 2014), our

study suggests that the combination of alignment and adaptability amounts to a form of "disciplined change". This disciplined change was visible in the episodes where organizational actors attempted to implement a more structured change process in order to avoid the tendency to "change just for the sake of changing", and where the lessons learned from previous projects were carefully reviewed. This disciplined approach to change was also represented by an organizationally-defined charter for change, which is consistent with emergent research on implementing an ambidextrous mindset (Zimmermann et al., 2015). Contained within this charter were core ideas for improvement as well as a strategy for how these ideas should be implemented.

Conclusion

In this article, although we have attempted to provide rich descriptions of organizational challenges and the behaviours exhibited by project teams in response to those challenges, the small number of observations does not allow us to generalize our research findings. We nevertheless believe that an important message has emerged from our research. Building on the growing literature that has established a link between ambidexterity and firm performance, we posit that the typology of ambidextrous behaviours proposed by Birkinshaw and Gibson (2004) is an effective and simple tool to generate a concrete understanding of a concept that is undeniably challenging. The initiators, brokers, and multitaskers featured in the new product development stories presented above were indeed able to build on existing capabilities while simultaneously developing new ones. Management scholars should therefore encourage practitioners to become familiar with the notion of ambidextrous behaviour, to recognize when and how the combination of exploitation and exploration happens, and to even promote these instances in their organizations. Even if we do not know how future chapters of the three stories featured in this article will unfold, we have nevertheless presented episodes that took place in challenging competitive environments and during which some organizational actors had simple but clever ideas to limit the waste of past efforts while simultaneously embracing change. In this way, the stories create an important link back to the literature on change. Studying the emergence and impact of such ideas and promoting ambidextrous thinking could favour the success and long-term survival of organizations. Further research is also needed to see if the typology of ambidextrous behaviours used in the research reported here could be further developed and enriched.

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