How to experiment Business Model Innovation in an established firm?
Lessons from Corporate Entrepreneurship process in an airline

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Résumé :

Le concept de Business Model Innovation (BMI) est devenu de plus en plus influent dans la recherche en gestion stratégique au cours des quinze dernières années. Il introduit la notion d'innovation au sein du concept de Business Model (BM) qui est défini comme « "*the design or architecture of the value creation, delivery and capture mechanisms*" » d'une entreprise. Il soulève par la présente un certain nombre de questions théoriques et empiriques essentielles: un BMI provient-il uniquement de la haute direction, ou peut-il également être développé à un niveau de gestion inférieur par le biais d'un autre mécanisme ? Alors que les facteurs de développement de BMI occupent une certaine place au sein de la recherche universitaire, les pratiques organisationnelles telles que le Corporate Entrepreneurship (CE) sont de plus en plus reconnues comme un moyen légitime de niveler la performance organisationnelle par l'innovation. En effet, de plus en plus d'entreprises s'appuient sur le CE pour remédier aux lacunes de leurs processus d'innovation existants. Le but de cet article est d'explorer comment les processus de CE sont conçus dans une entreprise établie pour explorer et expérimenter des BMI. Sur la base des littératures CE et BMI, nous analysons le cas empirique d'une compagnie aérienne française

que nous avons anonymisé sous le nom de *Constellation* en ayant recours à une étude de cas multiple imbriqués et prenant pour cas, les projets de BMI. Le cas de Constellation est un exemple intéressant car la compagnie aérienne a commencé à encourager des pratiques de CE en 2017 que nous avons investigué au grain des projets. Nous avons ainsi mis en évidence plusieurs conditions par lesquelles l'exploration de BMI est permise par des pratiques de CE au sein d'une entreprise établie. Nous avons ensuite explicité les tensions qu'une telle pratique peut engendrer lorsqu'il s'agit d'explorer des BMI.

Mots-clés : Corporate Entrepreneurship, Business Model Innovation, Airline

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INTRODUCTION

The concept of Corporate Entrepreneurship (CE) dates back to the 1980s but today entrepreneurship trends and start-up mania gives it a second wind. Such a process is more and more put back on track by established firms to foster innovation and strategic renewal, in France but also all over the world. Thus the French Ministry of Economic and Financial Affairs launched in 2018, an approach to support french leaders that aim to initiate CE within their organization to enrich and invigorate their innovation processes. However, each organization designs its CE process according to the objectives it aims to fulfill: developing startups and spin-off, accelerating digital transformation, reinventing internal processes, developing new products or services etc. Despite these various objectives, core to CE is a paradoxical characteristic and tension: it supposes that both the "new" interlocked in the "current", have to coexist within the same organization (Bouchard, 2001, Burgelman, 1983). Indeed Sharma and Chrisman (1999) define CE as "*the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization".* A similar tension is underlined in the literature about Business Model Innovation (BMI) when it comes to introduce a novel business model within an established firm (Christensen, 2002, Koen et al, 2011). In fact, the concept of Business Model (BM) has become more and more influential in strategic management research over the last fifteen years. Literatures defines BMs as "*mechanisms for creating, delivering and capturing value*" to reflect the value proposition, target segments, value chain organization and revenue capture components (Foss & Saebi, 2017). According to this definition, BMI might involve changes in terms of components but also in the overall architecture linking these components. The vast majority of established companies operating today have a dominant BM and introducing a novel one raises several issues related in particular to the fact that they lack a process for managing such BMI. (Chesbrough, 2007).

Hence, in this article we propose to bridge the literature on CE and on BMI. In today's context, CE can be set up in order to contribute to BMI in established firms. However such an process raises several questions untackled in the literature. To what extent can CE help generate BMI ? To what extent can CE help to overcome the barriers to introducing a novel BM beside established ones? Are there specific processes related to CE which can support such renewal when BMI is targeted ? Consequently, managers need organizational processes and enough authority to act from those BMI tests to their results. It hereby raises a number of crucial theoretical and empirical questions: Does BMI only stem from the upper management? Should BMI be tested before scale up as innovation? The aim of this paper is to explore how CE process is designed in an established firm to experiment innovative business model.

For this purpose, we analyzed the empirical case of an established airline using a qualitative single embedded case study design. We anonymized this airline and call it *Constellation*. This case appeared as an interesting empirical setting to analyze because the airline started to encourage CE practices both to introduce BMI and trigger strategic renewal.

We show that CE allows to experiment new business model in an established firm. First of all, we show that CE designs a decision-making process similar to incubators ones, in which MVP development plays a crucial role. We then find that CE processes are designed so that it turns top management members into a venture capitalist mindset while employees are converted into internal entrepreneurs. To some extent, the third stream shows that this stance turnaround has partly allowed to struck organizational inertia.

1. THEORETICAL BACKGROUND

The theoretical section of this paper is built on literature on both BMI and CE. The first section proposes an overview of the challenges of BMI for established firm and shows how BMI are usually experimented. A second section presents a picture of CE process.

1.1. THEORETICAL BACKGROUND ON BUSINESS MODEL INNOVATION

1.1.1. A growing emphasis on Business Model Innovation

Business Model (BM) are nowadays an important lens to analyze success or failure of companies, when they need to adapt to new technologies (Kapoor and Klueter, 2017) and tackle emerging markets (Koen et al, 2011). In this context, to ensure the alignment of their strategies with the ever-changing competitive environment, companies need to be able to revise their

business model, to reflect the existing market realities, customer's expectations and competitive strengths (Braganza et al, 2009). Teece (2010) provides an often-cited definition of a Business Model (BM) as "*the architecture of the firm's mechanisms for creating, delivering, and capturing value"* also proposed by Foss & Saebi (2017). Value creation describes products and services offered to customers whereas value capture concerns the financial viability of the revenue model focusing on revenue streams and costs structure. BM are designed with specific environmental conditions in mind. According to Foss & Saebi (2017), BMI is defined as *"designed, novel, non-trivial changes to the key elements of the business model and/or the architecture linking these elements".* Thus, this definition of BMI involves changes in the individual components and in the overall architecture of the BM. Santos *et al* (2009) discuss that BMI appears when the company is in a reactivation position and is said to be a mandatory answer to "*strategic discontinuities and disruptions, convergence and intense global competition*" (Doz and Konosen, 2010). It includes competitive pressure (Johnson et al, 2008), or major and unpredictable changes in the business environment, but also the increasing importance placed on innovation, knowledge as value-creating attributes, and the accelerating pace of the business environment (Voelpel et al, 2004). In that vein, BMI represent a significant opportunity for established firms. Despite this need and necessity, literatures have shown several times that managing BMI is quite difficult for established companies because it strongly challenges organizational processes (Damanpour, 1996). Firms can offer new products and services, but these lasts are embedded within a system of activities, relationships comprised in the firm's BM (Chesbrough and Rosenbloom, 2002) and need to take their environment in mind at three levels: macro level, firm level and micro level.

1.1.2. Business Model Innovation in an established firm isn't easy-going

Established firms consistently demonstrate their ability to succeed in sustaining innovation, but they frequently have difficulties to develop BMI for new markets, even with existing technologies (Koen et al, 2011). It is quite evident with Kodak's failed attempt to dominate digital photography market and, more recently in 2019, with Thomas Cook's bankruptcy: an asset-intensive company in a low-intensity digital economy that, *inter alia*, missed its digital turning shift. Indeed introducing BMI raises several challenges. First, the success of established BM strongly influences the information that is routed or filtered out of the corporate decision processes. In that vein, the notion of a dominant logic which relates to an established way for the firm to create and capture value has a strong influence. Based on this

logic, the firm chooses which information is important, and it will search what fits with this logic and eschew what conflicts with it (Chesbrough, Rosembloom, 2002). Then managers are likely to resist what might threaten their ongoing value to the company. Moreover, the effects of the revenue streams and cost structure of BMI demonstrate and describe how disrupters gain market share through low-price business model designed to appeal to existing customers with a more affordable option (Christensen & Raynor, 2003; Christensen & Rosenbloom, 1995). In this area, innovation typically involves projects with a lower hurdle rate than the established cost structure would permit. In the same vein, the degree of novelty associated to the BMI is to be strongly considered such like innovation management teaches (Christensen, 2007). Indeed, the failure to recognize that new products and services can require significantly different BMs is often what leads to missed opportunities. Therefore, numbers of studies highlight the capabilities, learning mechanisms and needed leadership that lead to successful BMI, and especially on the importance of experimentation and learning (Andries and Debackere, 2013; Moingeon and Lehmann-Ortega, 2010). Authors suggest that experimenting novel BM might be required to come up with the appropriate BMI. In addition, new digital technologies have reduced BM's experimentation costs, then entrepreneurs and managers have been leveraging in recent technological development to redesign their business model (Marston et al, 2011) in several ways.

1.1.3. Experimenting Business Model Innovation

According to Thomke (1998), experimentation is mainly a form of problem solving essential to any innovation process. It is described as an iterative process of trial and error leading to the complex phenomena resolution by exploring a field of possible solutions where each test generates knowledge about a given problem (Thomke et al. 1998). In that vein, experimentation presents itself as an effective tool for predicting and exploring the future (Thomke, 2003) as well as a vector for new strategic directions for the firm (March, 1991). It gives actors the freedom to explore – without constraint - new horizons (Brown and Eisenhardt, 1997).

In that vein, established companies must strive to develop experimentative processes that provide high fidelity as quickly and cheaply as possible, aiming to gain cumulative learning from (perhaps) a series of failures before discovering a viable novel BM. According to Chesbrough (2010), a real-scale experiment allows testing alternative BMs according to market conditions. Trying out BMI on real customers, paying real money in real economic transactions

provides the highest fidelity and tangible proofs (Chesbrough, 2011). Such an iterative process is emphasized in entrepreneurial literature, among which Moogk (2012) shows the importance of confirming or refuting growth hypotheses with a Minimum Viable Product (MVP) in startup technology. However, established firms have to define their BM. Thus, importing these entrepreneurial behavior and innovative methodology within established firms may help them to innovate their BM. Casadesus-Masanell and Ricart (2010) consider as relevant such technology-driven types of BMI but also mention socially-oriented enterprises that focus on the bottom of the pyramid segment as generating a notable kind of BMI. BMI is a strategic issue for established firms, but they face numerous obstacles. The literature does not currently propose an approach to bring out and implement BMI. In the following, we propose to consider that CE may be an answer as it tends to support entrepreneurial behavior and in the same time integrate their processes with the organization, strategy and competencies of an established firm (Phan et al, 2009).

1.2. THEORETICAL BACKGROUND ON CORPORATE ENTREPRENEURSHIP

As announced in the introduction we propose to bridge both literatures on BMI and CE. CE has been recognized as a legitimate path to leverage organizational performance (Garvin, 2004; Morris et al. 2008) and is closely linked to entrepreneurship. Developing organizational environment that cultivate employees' interest and commitment to innovation may contribute to successful competition in today's economy. Authors such like Kuratko, Ireland and Morris (2006) show that firms increasingly rely on CE to simultaneously develop and nurture future competitive advantages grounded in innovation. However, despite the positive aspect of CE, challenges remain to be addressed and overcome (Dess et al. 2003; Hornsby et al. 2002). The existence of CE strategy implies that firm's strategic intent is to be able to continuously and deliberately leverage entrepreneurial opportunities for growth and advantage-seeking purposes.

1.2.1. Defining Corporate Entrepreneurship

CE, which also refers to corporate venturing or intrapreneurship, has been initiated in established organizations for purposes of profitability (Zahra, 1991), strategic renewal (Guth and Ginsberg, 1990), fostering innovativeness (Baden-Fuller, 1995) and gaining knowledge for future revenue streams (McGrath et al, 1994). The concept of CE has constantly evolved over the last decades as well as its definition. Burgelman (1983) states that "*CE refers to the*

process whereby firms engage in diversification through internal development". This diversification requires new resource combinations to extend the firm's activities in areas related or unrelated to its current value creation and capture. According to Guth and Ginsberg (1990), CE refers to the process of organizational renewal and relates to two distinct but related phenomena.

First, CE can refer to innovation and Corporate Venturing activities (CV). Narayanan *et al*. (2009) state that CV focuses on the various steps and processes associated with creating new businesses and integrating them into the firm's overall business portfolio. In Sharma and Chrisman's hierarchy of CE (1999), CV can be divided into internal and external CV. Internal CV involves the creation of new businesses that usually are part of the corporate structure although they may be located outside the firm as semi-autonomous entities like spin-off. Pre-existing internal organization structures may accommodate these new ventures and organizational entities may be created within the corporate structure (Kuratko, 2007).

Secondly, CE supports renewal activities that enhance a corporation's ability to compete and take risks, which may or may not involve the addition of new businesses to a corporation. Morris et al (2008) define this aspect of CE as "strategic entrepreneurship". It has been defined as involving the identification and exploration of novel opportunities, while simultaneously creating and sustaining a competitive advantage (Ireland et al. 2003). It may involve strategic renewal, sustained regeneration, domain redefinition, organizational rejuvenation and business model reconstruction (Covin & Miles, 1999). In the same vein, organizational learning, either acquisitive or experimental, is a key aspect of CE. CE activities may take place at the corporate, business unit division, functional or project levels (Zahra, 1991).

1.2.2. Why do firms develop CE?

Nowadays, more and more organizations initiate CE, to develop and expand with completely new offers their range of products and services. According to Dess et al (1999), CE occurs when organization strive to "*exploit product-market opportunities through innovative and proactive behavior*". According to Sharma and Chrisman (1999), CE aims to fulfil three objectives: **(1)** Developing innovations; Stopford and Baden-Fuller (1994) described this purpose as changing the rules of competition in the concerned firm industry. **(2)** Strategic renewal which refers to the efforts the company settles to bring up renewal in terms of strategy or structure. These efforts may be demonstrated from the inside of the company but not from the creation of new business unit or a new activity. **(3)** Corporate Venturing, which is defined

as the creation of new activities or new businesses. As such, CE facilitates a firm's efforts to exploit its current competitive advantages as well as exploring new opportunities and competencies required to successfully pursue them (Covin and Miles, 1999; Covin, Slevin, and Heeley, 2000; Ireland, Covin and Kuratko, 2009). The overall motivations of firms in engaging in CE include the motivation to exploit under-utilized resources and build new business around internal capabilities and to extract further value from existing resources. The choice of using CE is a primary means of strategy adaptation.

1.2.3. CE: Some moderators to take into account

Research have also examined the organizational origins that affect the breadth and depth of entrepreneurial actions that are taken within the firm so that they deploy CE. An internal supportive environment for innovation tends to get stronger antecedent for entrepreneurial behavior while an environment which dismisses innovation and its importance for firm performance yields lower performance (Hornsby et al. 2002). If some researchers have noted some of the factors that can influence middle managers (Kanter, 1985; Vesper, 1984), there is no universal agreement on which factors matter the most in promoting CE efforts. However, some writings on the topic appear to converge on at least five factors. In 2002, Hornsby and colleagues developed the Corporate Entrepreneurship Assessment Instrument (CEAI) to reveal five moderators for CE success: (1) Management Support, (2) Reward and Reinforcement, (3) Resources Availability (4) Work discretion and autonomy, and (5) Organizational Boundaries.

CE appears as a potential answer to the challenges when it comes to BMI. However, the literature does not dig into the specific practices and activities implemented in the context of CE program. At the same time and as underlined in the introduction, more and more firms tend to support CE program. We thus propose to investigate whether CE program can support BMI and more specifically which CE practice and to what extent it allows BMI experimentation. Accordingly, by combining both literatures on BMI and CE, we pursue with the following research question with a deep analysis: How does CE allow to experiment BMI in an established firm ?

2. METHOD

2.1 RESEARCH DESIGN

In this article, we want to investigate how CE allow to foster and experiment BMI in established firms. As we aim to describe and understand a new phenomenon, a qualitative research design is undertaken (Dumez, 2016). To do so, we relied on a single embedded multiple-case study design to identify similarities and differences between several CE projects within the same organization (Eisenhardt, 1989, Yin 2011). Multiple CE cases permit a replication logic. Each case allows to confirm or disconfirm features and provides some basis for comparison (Yin, 1994). This approach aims at shedding light on how CE can be used by firms to support BMI. It allows the understanding of processes of BMI and CE in a comprehensive and longitudinal way that a large empirical sample wouldn't have had permitted.

2.2 INDUSTRY AND CASE SELECTION

To address our research question, we selected an industry and then a firm that rely on CE to experiment BMI. Several industries are willing to renew or extend part of their BM, such as the airline industry, which is the one we selected to conduct our analysis.

2.2.1 The airline industry: a value chain under pressure

The airline industry is now experiencing a strategic shift, leading its historical players to question their BM and bring transformative initiatives to sustain their activities. This industry has been taken as an example several times to illustrate the importance of BM adjustment for firm survival (Lohmann and Koo, 2013; Bieger and Agosti, 2017). Indeed, airlines operate in a fast-moving environment and in a business that requires considerable capital deepening (Belobaba et al., 2015). Although the access to the market has been risky for new entrants for decades, the deregulation of the US air market (1978) and then the European one (1997) have allowed airlines to set conditions of their offers. It increased significantly the number of operating airlines and strengthened the conditions of competition. Thus, several companies went to bankruptcy (VLM in August 2018, more recently WOW Air in April 2019, and so on…). In such a context, competition is global and the competitive advantage of these airlines depends on their responsiveness and effectiveness to adapt and innovate. Moreover, the industry is facing an ever-increasing security constraint, huge operating costs, and an increasing traffic -expected to double in the next 15 years. Airlines are seeking to respond to these challenges, particularly through innovation, and ensure that this

exponential demand is met (O'connell et al., 2017). Therefore, this sector appeared as a relevant empirical setting to study the link between CE and BMI experimentation.

2.2.2 Empirical setting: Constellation case

To analyze the articulation between CE and BMI experimentation, we decided to investigate the case of *Constellation,* a legacy airline that we anonymized. The core activity of the airline is divided in three main activities: (1) Passengers transport, (2) Fret and (3) Maintenance, Repair and Operation of aircrafts. The choice of this firm appeared as a relevant one because *Constellation* started in 2018 to rely on CE to develop new growth opportunities opening the way to BMI.

2.1.1.1. The creation of a transformation department

Constellation has committed to a new strategic shift in 2017, with the goal of implementing a strategic transformation. The airline has engaged in a number of initiatives to continuously adapt itself to the turbulent environment in which it evolves and promote innovation both in its offer and in its processes. This is particularly obvious with the creation of a transformation department, directly assigned to Top Management Committee, which aims to accelerate the transformation and digitalization of the airline. This new department started to stimulate new managerial practices to reinvent the employee experience and symmetrically the customer experience, with a focus on innovation, cooperation and transparency. Among these new managerial practices, in January 2018 this department launched the first CE program in order to identify new growth opportunities that may require organizational transformation of the airline. In the following, we describe how data were gathered and analyzed on this case.

2.3 DATA COLLECTION

We collected data from both primary and secondary sources to gather more information and strengthen the quality of our data using triangulation techniques (Eisenhardt, 1989). One of the author had the opportunity to be part of the process study heritage (Langley & Tsoukas, 2010). Data were collected during a 18 months period (2018-2019), when CE was firstly launched and CE projects were fostered, selected and experimented. We conducted a longitudinal in-depth study (Dumez, 2016). A summary of data sources appears in **Table 1**

according to the type of data. One of the authors had the opportunity to observe and follow CE program from the inside of the company all along the duration of the first campaign. We collected primary data through 19 meeting attendances. It concerned mainly: steering committees, decision-making committee, jury's deliberation, but also follow-up-project meeting. Took part to these committee meeting the Corporate Entrepreneurs (CE project leaders), legal teams, middle-managers, Top Management members, project managers in charge of the CE program and also Human Resources (HR) teams. We also had the opportunity to conduct 10 semi-structured interviews with Corporate Entrepreneurs, and project managers in charge of the CE program, that were conducted face to face or by call. The duration of interviews was of 1 hour in average. All interviews were transcribed, and we ensured the interviewees they would be anonymized as well as their business department reference. We also collected secondary data from several sources: internal documents (emails, meeting reporting, contracts, and presentations) but also external documents (corporate videos, press articles, and social media follow-up). The combination of primary and secondary data allowed us to triangulate information and reduce biases.

Table 1. Data Sources

SOURCE CATEGORY	TYPE OF DATA	NUMBERS
Primary Sources	Meeting Attendance	**19**
	Semi-structured interviews	**10**
	Informal conversations	**10**
Secondary Sources	Meeting report	**19**
	CE project presentation	**15**
	Videos & Podcasts	**5**
	Press Article	**2**

2.4 ANALYSIS

We began with an in-depth analysis of each case through the lens of our research question. Involved in an explorative design, we had no *a priori* hypothesis. We analyzed the cases independently in order to build our own view of each case. The objective was to identify independently the theoretical constructs, relationships and longitudinal patterns within each case and with respect of our research question. We used table and graphs to make analysis easier (Miles and Huberman, 1994). We each developed an understanding of the major chronological event, which we reconciled by going back to the data and, sometime, going back to the informants (see Appendix 1). Thus, we turned to cross-case analysis, in which the insights

that has emerged from each case were compared with those from other cases in order to identify the relevance of each (Eisenhardt and Graebner, 2007). CE projects were grouped randomly and by variables that emerged from the literature to facilitate comparisons and develop propositions accordingly. Comparisons were initially made between varied pair of cases. We followed an iterative process of cycling among theory, literature and data to refine our findings, to relate them to existing theories, and make our contributions clarified.

3. CASE ANALYSIS

The presentation of our findings is organized in three parts. We first show that CE is a three phase-design-process allowing each phase to assign an objective. We then present each CE project, its related BM and its features accordingly.

3.1 A THREE PHASE DESIGN PROCESS

For *Constellation*, CE process is divided in three phases over one year, with assigned objectives for each phase and for each CE project as follow:

(1) An "*Idea call*" that lasts two months and during which all employees are invited to submit a "customer-centric concept that generates new revenue streams" on a digital platform and fill-in the BM associated to their idea. They also have to recruit up to 4 team members. A peer-review committee composed of innovation directors from all the airline departments (Maintenance, Digital, Revenue Management, Human Resources, Airport Operations, Crew Operation and so on…) is in charge of selecting the 10 most promising ideas based on the estimation of their innovativeness, feasibility, and viability. These 10 selected projects are then invited by these peer-review committee to present an elevator pitch of their concept. At the end of this stage, 5 of the 10 projects were selected to enter in the second phase.

(2) The second phase is dedicated to the "*Maturation*" of the 5 selected projects. CE teams are invited to a training session during three months in order to be sensitized to the cultural aspects of CE with test & learn stance and methodologies inspired from startups: street-maketing, lean startup, elevator pitch, business model canvas etc. In an iteration posture between the company and their potential final customers, Corporate Entrepreneurs have to build and strengthen the BM of their concept. This phase ends with a jury meeting during which Corporate Entrepreneurs have to pitch their BM. This jury is composed of both several *Constellation* Top Management members but also external Directors and Venture Capitalists (VC). Their role is

to define whether CE projects are to be pursued in the third and last phase to be accelerated or if they are not worth it for the airline.

(3) Once the final CE projects are selected, each of them is sponsored and supported by one of the Top Management members and entered the last phase of "*Acceleration*". During this phase, Corporate Entrepreneurs could have been distanced from their current job to work full-time or part-time on their CE project both inside the company and in a startup incubator while being trained with several methodologies inspired from startups. They had to prototype their Minimum Viable Product, to be experimented on real-market. This phase aimed assessing the offer on three dimensions:

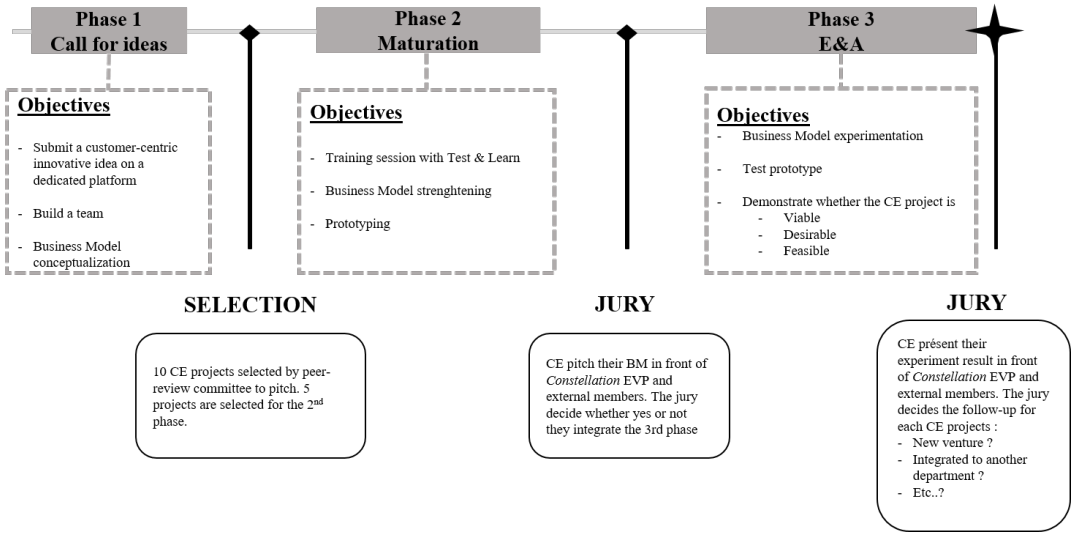
Feasibility: The team had to demonstrate that their MVP is technically feasible. Are the functionalities working? Is it possible to link this MVP with the IT infrastructure of the airline?

Desirability: The team had to prove that the MVP is appealing to the market and targeted customers. Is the concept delivering value for customers?

Viability: The team had to demonstrate that the MVP is viable. Is it capturing value for the airline and generates revenue?

This phase of *acceleration* lasts 4 months and ends up with a second jury, also composed of AF Executive Vice President (EVP), external Directors and Venture Capitalists (VC). This jury decides whether the CE projects were to be implemented or not within the airline and which organizational forms it could take: start-up creation via spin-off, business unit integration, subsidiary creation etc. **Figure 1** represents the CE design process.

Figure 1: CE Program description of *Constellation*



3.1.1 Top Managers converted into internal venture capitalists

CE process is designed so that not only it allows to turn employees into internal entrepreneur's position but also Top Management members had to adapt their way of thinking to conceive future business model according to the market reality. Each jury session was headed by Top Management members and external venture capitalists and entrepreneurs. Metrics and score card were specially designed to evaluate the MVP so that it represents its business impact and not to simply produce feel-good results through "vanity-metrics".

Indeed each CE project were assessed according to five criteria's: (1) Image and Customer's benefits, (2) Team Dynamic and Capabilities, (3) Value of Experimentation, (4) Business Potential and (5) Quality of recommendations for next steps. They were evaluated both by Top Management members as well as external Venture Capitalists.

3.1.2 Employee turned into internal entrepreneurs

First of all, CE process has allowed stakeholders to take some distance from both their current roles, their routines and considerations. Further, once being selected to join the CE program, Corporate Entrepreneurs are trained by startup incubator to step back and get used to startup way of doing, as stated by the CE program manager:

"As from their selection to the program, Corporate Entrepreneurs were trained with Canvas methodology, prototyping methods, Street Marketing, lean startup etc. Most of them were taken aback by the strength of such methods, far removed from their linear way of managing projects in their job". **CE program manager**

Second, the idea of launching MVP was to test a version of a new BM rather than testing relevant metrics as business plans. Indeed, A Top Manager & Sponsor detailed this point:

"The MVP idea is to check if there is a market willingness in order to package what is expected by customers and how we can iterate to go step by step. The MVP is important for that, but we often debate it together to create a clear Business Plan, identify the cake's share and to what extend drone BM may become one of our new activity. We have to develop all of it before addressing it to CFO." **Maintenance Business Unit Top Manager & Gamma Sponsor**

"MVP objective is to assess the risks, to demonstrate that it is feasible and to detect value market" **Beta Corporate Entrepreneur**

"The market willingness must be validated; it is the key at that moment"

CE program manager

Then, although established companies typically serve known customers in deterministic markets, CE practices have allowed to address environment under uncertainty and gain knowledge of their targeted market from their experimentation.

At first, we targeted all kind of customers, but the experimentation allowed us to sharp our market. Now we know that our target is more leisure traveler than business travelers. We know that its average trip lasts one week. He travels either alone or with his family because it multiplies the compensation he receives. But the price he paid isn't a criteria". **Alpha Corporate Entrepreneur**

In the airline industry, production and experimentation cycles are long ones. It can take several years, even decades before a new business offer is internally thought and launched. It appears that CE practices has allowed innovative business offers to be officially explored and conceptualized in an established firm such as our airline case, as stated:

"This new practice has allowed the firm to explore, test, iterate and accelerate innovative offers that our usual processes wouldn't have been able to explore and test before decades". **A CE manager**

*"We developed a product that works for the Yield Management team of Constellation and which delivered first results in less than one year". **Alpha*** **Corporate Entrepreneur**

*"As from today, we've pivoted, we first mistook, but we tried again in another way, we adjusted our team and tools, we created Beta in less than six months and tested it". **Beta*** **Corporate Entrepreneur**

3.2 CE PROJECTS: COMBINING NOVEL AND ESTABLISHED MODEL

To analyze the link between CE and BMI, we analyzed the four CE projects which were selected by the peer-committee as from the early second phase of the CE process. It appeared relevant to start from that timing point, because in an early stage, no BMI was yet selected by

the organization to be experimented. A description of each CE project is available as follow, as well as in the **Table 2**:

- **Alpha**: The concept was to develop a digital solution dedicated to Yield Management teams to allow them optimizing revenue management and plane filling. Alpha is a platform based on an algorithm that identifies too full too soon flights whose revenue are not optimized. It swings passengers –who agreed – being transferred to another flight, allowing then to sell the seat at higher price.
- **Beta**: The concept was to take advantage of second-hand marketplace trend to develop a virtual marketplace to let passengers sell their unused flight tickets and be part refunded in case they sell it. For the buyer, the aim would be to get a plane ticket at a lower price.
- **Gamma:** Gamma aimed at being a Digital platform offering to Drone constructor a predictive maintenance follow-up of their drone engine and monitoring to their customers about their maintenance needs.
- **Delta:** The aim of this project is to address a door-to-door booking service for business travelers taking into account their agenda constraints.

TABLE 2: Description of each CE projects

Characteristics	Alpha	Beta	Gamma	Delta
Type of Service	Digital Platform (SaaS)	Digital Marketplace	Digital Platform (SaaS)	Digital Platform
Concept of the BM	Alpha is a platform based on an algorithm that identifies too full too soon flights whose revenue is not optimized. It swings passengers – who agreed – being transferred to another flight for compensation, allowing then the airline to sell the released seat at higher price.	Beta is a marketplace which allows passengers to sell their non-refundable flight tickets in case they will not be able to use it. It allows the seller to be half refunded if the ticket is sold, while offering the buyer a cheaper flight ticket and giving commission to the airline.	Gamma is a Digital platform offering to Drone constructor a predictive maintenance follow-up of their engine directly to their customers.	Delta is a virtual marketplace which aims at addressing a door-to-door solution for business travelers and enable them to book their all journey (including train, hotel, flights etc…).
1. CE Factors				
1.1 Management Sponsor	Chief Financial Officer	Subsidiary CEO	Maintenance Business Unit TM	Functional VP linked to holding
1.2 Resources availability				
1.2.1 Time	100% time dedicated to experimentation	40% dedicated to experimentation (2 day a week)	20% dedicated to experimentation (1 day a week)	40% dedicated to experimentation (2 day a week)
1.2.2 Financial				
1.2.3 Technological	1 developer dedicated to the CE	1 developer dedicated to the CE but left during the experimentation	No developer dedicated to the CE	No developer dedicated to the CE
2. BMI Moderators				
2.1 Degree of novelty	New to the company	New to the	New to the	New to the

		industry	company	company
2.2 MVP nature	Automated Digital Prototype	Part Automated Digital Prototype	No Prototype	No Automated Digital Prototype
2.3 Experimentation Outcomes	Experimentation Finished	Experimentation stopped 48 hours after the launched	Experimentation Finished	Experimentation Finished
2.3.1 Desirability	Proved	Proved Visibility to 14 million users 10 tickets for sale	Proved	Partly Proved
2.3.2 Viability	Proved Generated half a million € turnover	Non Proved because stopped before	Non Proved yet	Non Proved yet
2.3.3 Feasibility	Proved	Proved	Non Proved	Partly Proved
Jury Scoring : Image and Customer's benefits	5,8	6,5	5,1	4,2
Jury Scoring: Team Dynamic and Capabilities	5,3	5,3	4,9	3,3
Jury Scoring: Value of Experimentation	6,3	4,3	4,1	3,5
Jury Scoring: Business Potential	5,8	5,1	5,7	2,7
Jury Scoring: Quality of recommendations for next steps	5,3	4,6	4,5	2,3
Global Jury Scoring	5,7	5,2	4,9	3,2
Decision of the jury	Implementation	No Implementation	Implementation	No Implementation
Kind of implementation	Spin Off perspectives	/	Integration to Maintenance Business Unit	/ Results of the experimentation sent to Business Development Unit

The core activities of the firm are: (1) selling flight tickets to transport passengers, (2) selling spaces to companies in order to transport their goods and (3) selling maintenance offers to aircraft operators. The CE program was marketed to "*explore innovations that generate new revenue streams for Constellation*". We noticed that only Alpha BM is optimizing the current BM of the airline whereas Beta, Gamma and Delta are addressing and exploring new activities which differ from the core operations of the company. Beta wanted to launch the first second-hand flight ticket marketplace in order to target usual low-cost customers. Gamma explored the possibility to package and sell new maintenance offer dedicated to drone constructors even if current ones are only aircrafts. Delta targeted non-yet-customers by offering a door-to-door and all-inclusive offer dedicated to business travelers from SMEs and start-ups. This kind of package is yet only sold by travel intermediaries. Each project but Alpha aimed at diversifying the existing BM of the firm and gaining new customers. In that vein, CE practices allow to pull away from the current BM of the firm by adding new activities and gaining new customers.

3.2.1 A customer-centric approach

Our analysis allowed us to notice that all CE projects experimented their BMI with three variable : **(1)** The market **desirability** of each offer was explored thanks to the opportunity of CE practices to make them reach the customer and make him test the offer and its attractiveness among the market; Indeed *Alpha*, *Beta*, *Gamma* and *Delta* all have had access to crucial market

information, to validate whether or not their idea was attractive and needed by the targeted market; **(2)** the CE process offered each BMI the opportunity to test the **technicity** of its offer. Indeed, all CE teams managed to develop part or full prototype of their digital tool and even a Minimum Viable Product for the *Alpha* case. Only *Gamma* didn't build up prototype of its offer as the objective assigned by its sponsor consisted in exploring and mapping the market instead of experimenting a new offer. However the *Gamma* team managed to go further and finally signed up a *Non-Disclosure-Agreement* with a prospective customer to experiment their future offer. And **(3)**, their experimentation phase aimed at verifying the **viability** of their offer: Is the BM profitable for the company, in terms of cost-effectiveness and revenue? This was allowed by the iterative processes of CE which differs from linear and traditional project management in established firms. Instead of starting from a business plan, each CE team though of a concept first. Thus, they managed to design both prototype of their digital solution as well as their BM. Iterations with customers but also with several internal departments as allowed each CE team to follow an abductive process between the market, their BM and their final solution to accelerate experimentation at lower costs and more quickly.

3.3 TENSIONS INTERTWINED BETWEEN CE AND BMI EXPERIMENTATION

As mentioned, all CE projects have ended their experimentation phase. All but one: *Beta* which was stopped two days after its launch. Thus, we investigated the reasons why the experimentation of this BMI had to be suddenly stopped.

CE process allowed the airline to experiment BMI projects that could modify part or the entire BM of the company. The CE projects *Alpha*, *Gamma* and *Delta* completed the experimentation until the end of the *Acceleration* phase. However, the Beta project was suddenly stopped two days after its launch. Then, we decided to go deeper into that case to instigate the reasons of this outcome. In a nutshell, the BM of *Beta* was to take advantage of the development of second hand market trends to develop a digital marketplace for second-hand flight tickets. The aim was to allow customers to sell their unused tickets, get half refunded and give commission to the airline in case the second-hand ticket finds a new buyer. For the new buyer, the opportunity is to find a flight at lower price than usual ones. No such a marketplace yet exists to sell flight tickets worldwide.

As soon as the MVP of the digital platform was built, the *Beta* CE team decided to launch the experimentation directly on the market in October 2018 in order to find real customers.

They relied on the corporate website of the airline to announce a partnership as well as on social media. This announcement made a very positive buzz on traditional and social media and has been known by millions of persons. In two experimentation days, 23 unused tickets were submitted on *Beta* digital platform to find a buyer. However, the external communication of this project – due to the buzz - was more effective than the internal communication of the airline and made the Group Business Top Manager aware of this project as well as other major stakeholders of the airline. Because the *Beta* project was conflicting with the traditional BM of *Constellation*, Business EVP has imposed the shutdown of the experimentation. Various points of view have emerged to explain the reasons of the sudden closing of the experimentation of such a BMI, which certainly wouldn't have existed without CE process.

First, it appeared that the BMI of *Beta* had an impact on legal issue. Indeed, it appeared in all general terms and conditions of sales that all tickets are "non-enterable and non-refundable". This legal rule would be cancelled with such a BMI, as explained by a legal manager:

"With this offer, we will never be able to defend ourselves anymore, even if this is a very good idea. If we launch it, not only passengers using your offer will be refunded, but all passengers as well if they ask, it opens the door to all possibilities and not only with your new offer". **Legal Manager**

Moreover, airlines based their model on several offers and several BMs all intertwined with each other. Although the CE process was settled to create BMI that generate additional revenue streams, it appeared finally that the BMI of *Beta* would have had an impact on current and established revenue streams of the company's portfolio as mentioned by a business director:

"This offer would cannibalize the flexible price, one of the most rentable pricing product of our range". **A Sales director**

Our case study on BMI allowed us to focus on a specific and original angle of the BM which is revenue streams. Therefore, we deduced that the company authorized BMI exploration in parallel with the operation of the current BM of the company as soon as it doesn't risk to weaken existing revenue streams. In the tourism, transport and travel industry, legal constraints do not allow to develop all possible offers as explained by a legal manager:

"We are on a highly regulated legal framework which doesn't help developing new products and bypassing this framework would cost us a lot. These CE projects are well under way, but we have to respect further details. Today, our legal status is an airline, and not travel agency, so we have to be very careful". **Legal Manager**

Indeed the two projects that were accepted to integrate the company after the CE program in December were *Alpha* and *Gamma* because these two projects did not question the legal conditions established in the company. By contrast, *Beta* could weaken the legal assets of the company in the short term, because it suggested to the customers that all tickets sold by the company could become refundable and not only those that could be submitted to the marketplace prototyped by *Beta*.

"With this offer, we will never be able to defend ourself at the courtyard, even if this is a very good idea. If we launch it, not only passengers using your offer will be refunded, but all kind of passengers as well". **Legal Manager**

As for the *Delta* project, it was also in contradiction with the legal status of the company. Today the company has the legal status of "airline". The sale of a door-to-door and almost "all-inclusive" offer which could include taxi, train, flight, hotel (as suggested by the *Delta* project), questioned the legal status of the company and pushed it no longer to be an "airline" but a "travel agency". Even if this CE project didn't integrate the company after the experimentation of its BMI, its results feed the business unit in charge of the distribution systems of the company and will not be in vain.

"The service we wanted to develop would have given high added value to the airline. But it supposes to directly sell services such like taxi, train as well as flight tickets. But it isn't possible as we are an airline and not a travel agency". **Delta Corporate Entrepreneur**

4. DISCUSSION AND CONCLUDING REMARKS

4.1 INTERPRETATION OF THE RESULTS

Regarding the BMI literature, our case study allowed us to shed light on the specific tensions associated when BMI occurs in an established firm. While most papers on BMI focus

on BMs tensions due to disruptive and technological innovation, our approach gave us the opportunity to identify a specific tension that didn't steam from technology but steams directly from the revenue streams of the company. By focusing our attention on the *Beta* case, we found out that an established firm may refuse to innovate part or full of its BM when a new offer is identified as unsettling current revenue streams. Several articles have investigated the tensions related to the development of new technologies within an established firm due to its incompatibility with the BM of the firm. Our analysis is a continuum to several research, led in particular by Christensen. He and Raynor (2003) distinguished continuous innovation to disruptive innovation according to their greater or lesser adaptation to the current BM of the company. A disruptive innovation is an innovation that requires a BM different from the current one of the established firm. This analysis of the *Beta* case shows that disruptive innovation, in terms of pricing offer instead of technological offer remains the same logic because it doesn't make it possible to the assets value of the firm. Thus, the firm found rational to ignore the potential of the *Beta* BMI and declared it unattractive. Christensen, Johnson and Kagermann (2008) highlight the firm's reaction toward this kind of BMI through three elements: Resources (or assets), Processes and Value according to which the firm transforms its assets in value proposition. The *Beta* offer, seen as less attractive and less profitable than current flexible offers is automatically cancelled by the firm because it is supposed to destabilize the current profitable flexible offer. Therefore, this research is in line with Christensen (2008) as long as these four CE projects show that an established firm rather foster continuous innovations such like *Alpha or* extending activities such like *Gamma* provides without destabilizing current revenue streams.

There is a fundamental asymmetry between companies for a given opportunity and this is the reason why disruptive innovation (technology or non-technology) are mainly developed by new entrants such like start-up because they are able to design suitable BM according to their opportunities and they are not inhibited by existing BM. Established firm are somehow trapped in their own BM, and it refers to the *"core rigidity"* introduced Leonard-Barton's (1992). However, if CE practices do not allow to foster disruptive BMI within an established firm, our analysis highlight that CE processes may prepare the established firm for future strategic turning points.

4.2 THEORETICAL CONTRIBUTIONS

This research contributed to two main streams in the literature.

Regarding the BMI literature, our study contributes primarily to the literature on BMI tensions in established firm (Chesbrough, Rosembloom, 2002) and elements and processes of BMI (Zott et al, 2011). Our analysis and case study allowed us to put forward on particular tensions associated with BMI fostering in existing firm. While several contributions focus their attention on tensions generated by the technologic angle of disruptive innovation, our approach gave us the opportunity to identify tensions specifically related to another angle of BM: revenue model based on pricing product range. Thus our research extends Amit and Zott work and their "structure-content-governance" model from which BMI stems from. Focusing our attention on both project and strategic level allowed us to show that tension may also stem from the conflicting temporal and objectives.

Regarding the CE literature, our study contributes to the literature on contingencies and processes of CE (Phan *et al*, 2009). While most contributions focus on organizational level, our case study focuses both on project and strategic level which allowed us to investigate the management of the CE processes and the development of each CE project. We have shown that in the AF case, CE process didn't allow too disruptive BMI to overcome the established BMI. However, CE process has allowed the firm to prepare itself and anticipate further strategic shifts. Our case study have also shown that CE processes, as they allow Corporate Entrepreneurs to take distance from the core business of the firm, permits the acceleration and prototyping of digital products and services.

4.3 MANAGERIAL IMPLICATIONS

Our analysis also has several managerial implications. First of all this study allows to highlight organizational and strategic tensions faced by CE projects all along their implementation within a firm. We explained that these tensions have very different characteristics from one CE project to another according to (1) the nature of their concept, and (2) the revenue model they have an impact on. This study thus reveals that CE process foster continuous BMI but not disruptive one as they destabilize the existing BM of the firm and especially the pricing revenue model. This case study thus reveals that CE process can be a proactive way to prepare the firm for future strategic turning point in case the BMI is considered as too disruptive for the existing BM at a certain time, and accelerate experimentation with prototyping.

4.4 LIMITATIONS AND AGENDA FOR FUTURE RESEARCH

Obviously, our study contains several limits. First of all, our study focuses on tensions related to BMI at the project and strategic levels and revealed original tensions based on the revenue model of BMI. However, several others components of BMI (distribution channels,

costs structure etc.) may also address tensions within an established firm and deserve attention. This may need further research to be investigated. As it is explained in our case and in the existing literature, others tensions may appear at the organizational level. Although CE process allows to take distance from the core business of the company, BMI emerge within the company. Consequently CE processes are relevant for continuous innovation but less for disruptive innovation which may necessitate independent structure. Further research needs to be undertaken to study the impact of corporate startup studio on BMI fostering.

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