

Réinvention du Business Model de la SNCF à travers les phases de transformation de la routine d'innovation participative

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La réinvention du Business Model est un enjeu stratégique pour les entreprises établies. De nombreux auteurs se sont ainsi penchés sur des questions liées à la problématique d'innovation ou de réinvention du Business Model (Chesbrough, 2007 ; Sosna et al., 2010). Cependant, plusieurs barrières empêchent les entreprises de s'engager dans de telles démarches. Chesbrough (2010) souligne le problème d'inertie dans les organisations quand il s'agit de confronter les formules existantes avec de nouvelles logiques de création de revenus. L'effet d'inertie se transforme en une routine organisationnelle qui finit par freiner toute tentative conduisant au changement (Zott et al., 2010). Cette forme de résistance évolue progressivement par l'accumulation de ces routines au sein de l'organisation (Huff et al., 1992). Ces dernières sont souvent considérées dans la littérature comme étant stables (Cohen et al., 1995). Pentland et Rueter (1994) affirment cependant que ces mêmes routines peuvent être à l'origine d'une flexibilité organisationnelle. Dans ce sens, Feldman (2000) souligne que le potentiel de renouveau et de changement des routines organisationnelles reste un phénomène peu exploré.

Dans le cas étudié, les forces d'inertie générées par les routines organisationnelles, au lieu d'enfermer l'entreprise dans son Business Model existant participent à sa réinvention. En effet, nous proposons d'examiner comment une routine organisationnelle peut être un levier de réinvention du Business Model d'une firme établie.

Pour ce faire, nous analysons les phases d'évolution d'une routine organisationnelle, celle de l'Innovation Participative, au sein de la Société Nationale des Chemins de Fer français (SNCF). Les formes et finalités de cette routine ont fondamentalement évolué depuis la création de la SNCF pour être finalement considérées moins comme une source d'inertie et de rigidité mais plus comme un levier pour la réinvention du Business Model de l'entreprise.

Nous nous appuyons dès lors sur le cadre RCOV de Demil et Lecocq (2010) pour analyser les formes d'évolution du Business Model de la SNCF en les mettant en phase avec les étapes de transformation de la routine d'Innovation Participative. Enfin, nous montrons comment le Business Model de la SNCF a évolué d'un Business Model fonctionnaliste, à un Business Model centré sur le client puis finalement à un Business Model ouvert.

Mots clés : réinvention du Business Model, routine organisationnelle, innovation participative, Business Model, SNCF.

The Morphing of SNCF's Business Model through the transformation's phases of participative innovation routine

An increasing number of scholars focus on topics related to Business Model (BM) renewal and innovation (Chesbrough, 2007; Sosna et al., 2010). Indeed, Business Model's innovation is a crucial and strategic issue for established firms. Nevertheless, many barriers prevent existing firms from changing as well as innovating their Business Models. The problem of inertia, in terms of conflicts with existing assets and value creation core logic, represent, indeed, an important barrier for Business Model reinvention (Chesbrough, 2010). Inertia can be cumulated along time and transformed into organizational routine dooming all the attempts towards change to failure (Zott et al., 2010). At the same time, Huff et al., (1992) consider that the cumulative resistance to strategic change and to business evolution grows primarily out of gradually accumulating resource commitments and institutional routines.

Furthermore, organizational routines are mostly considered, in the literature, as stable (Cohen et al., 1995; Autissier and Wacheux, 2000). Feldman (2000) asserts that the potential for change of an organizational routine has not been sufficiently explored. Pentland and Rueter (1994) even suggest that the routines can be a source of organizational flexibility.

In our research, the forces of inertia produced by organizational routines, instead of binding the established firm to one Business Model for long periods of time (Huff et al., 1992), participate actively through time in the reinvention of the established Business Model.

Our research examines how an organizational routine, in the example of participative innovation (PI), at SNCF - the railways French public company - can be a lever for the reinvention of its Business Model. The morphing of Business Model and its transformation through Participative Innovation is our object of interest.

First, we present the theoretical background by introducing the concept of routine and the conditions for routine constitution.

Then, we focus on the adopted research method; we present the collected data and give the reasons that push us to define the participative innovation in SNCF as a routine.

Last, we develop our analysis by considering the milestones in evolution of the participative innovation routine at SNCF. To study the transformation of SNCF's Business Model, we build on the Demil and Lecocq's (2010) RCOV framework after underlining its relevance and contribution to strategy thinking.

We show, consequently, how the SNCF's Business Model has evolved from a functionalist Business Model into a customer-centric one and finally into an open Business Model along with the phases of transformation of the participative innovation routine.

We conclude by discussing the theoretical insights on routines' transformation and on its evolution from a source of inertia to a lever for Business Model's reinvention. We end by opening to some avenues for future research and explorations.

1. THEORETICAL BACKGROUND

1.1. THE CONCEPT OF ROUTINE

There is no unified vision of the concept of routine. Authors give very different definitions depending on whether the routine includes a model of behavior in individual or organizational level or a learning ability. March and Simon (1958) are among the first who studied this concept. They identified the use of rules or programs to coordinate behaviour between interdependent subtasks.

Scholars generally recognize the polysemic and ambivalent aspect of routine concept (Tanguy, 2000). According to Tanguy (2000), « *routines exist only from the time the individuals involved in the cooperation have interpreted them and act according to the rules of action (routines) that they have built* ».

Evolutionary theory provides a special place to routines. Nelson and Winter (1982) defined them, in this context, as « *behavior patterns regular and predictable* ». They linked organizational routines to genetic material. Such as DNA, routines are the genetic material that builds organizations. In evolutionary theory, they play the role that genes play in biology. They are tacit and stable in nature (Autissier and Wacheux, 2000). Cohen and al. (1995) attempted to clarify the concept of routine by associating them to « *action pattern* » for repeated performance that has been learned by the organization in response to certain pressures. It represents then the « *ability to perform an action repeatedly in a context that has been learned by an organization, this action is defined as a pressure towards the selection* ». When an organization finds that it has not met its aspiration levels, it classifies this event as a

problem, and it usually selects a routine to solve it. If the routine does not solve the problem, the organization revises or replaces the old routine by selecting and trying out a new routine. It continues this process until it finds a routine that yields a solution successful enough to replace the old one (Baum and Ingram, 1998; Miner et al., 2001).

The fact that an organizational routine can be transformed over time has been little studied. It is indeed generally considered as stable (Hannan and Freeman, 1993; Gersick and Hackman, 1990). Also, the potential of change that can lead to organizational routine has not been adequately explored as noted by Feldman (2000) or Zollo and Winter (2002). The literature does not contain any attempt to answer the question of how routines are generated and evolve.

At the same time, Pentland and Rueter (1994) argue, however, that routines can be a source of organizational flexibility and be considered as a support for potential change. The idea that routines can change is not entirely new. Cyert and March (1963) spoke of adaptation and Nelson and Winter (1982) evoked a possible mutation of routines. Prior models of capability development often suggested that organizations build capabilities from existing routines or enhance capabilities through replacement of obsolete routines (Nelson and Winter, 1982; Teece, Pisano and Shuen, 1997). Actually, routines have been seen as the primary building blocks of capabilities.

We consider this definition of Feldman (2000) according to which: « *the routines are temporal structures, which are often used as a way to perform organizational work* ». We inscribe our research in this constructivist approach with works like those of Barley (1986), Pentland and Rueter (1994), Feldman and Pentland (2003) or those of Rerup and Feldman, (2011). According to the last authors, the organizational routines are ubiquitous and their contribution to organizing and change has been underappreciated.

We will now identify the conditions for routine constitution and develop what Participative Innovation is about.

1.2. CONDITIONS FOR ROUTINE CONSTITUTION AND PARTICIPATIVE INNOVATION

To be a routine, Feldman and Pentland (2003) define four operational criteria used to characterize an organizational routine that are: repetition, a recognizable pattern of actions, the interdependence between actions and multiple actors.

In this paper, we examine the participative innovation (PI) via the prism of an organizational routine. We do not claim that all PI devices are systematically recognized as organizational routines in the sense of Feldman and Pentland (2003). To characterize an organizational routine according to the definition of Feldman and Pentland (2003), PI must meet the four operational criteria specified above.

At first, let's define what we mean by Participative Innovation. PI as a research object in the literature is quite new (Deslée, 2008; Teglborg, 2010). However, many authors were interested in the subject before (Everaere, 1996; Durieux, 2000). Durieux (2000), for example, define PI as the innovation proposed by actors of the company fundamentally different from their missions. It concerns particularly employee driven innovation. More comprehensive than a suggestion, this type of innovation involves active participation of the innovator throughout the development process. For Everaere (1996), PI « *emanates from a desire at the head of the company not to book innovation to a few specialists, but to spread it among all company employees* ». We complete this assertion by Van de Ven's definition of innovation (1986) for whom « *an innovation is first of a new idea. The idea of a 'new' can be a recombination of old ideas as long as the idea is perceived as new by the individuals involved. It is an innovation even if it may appear to others as an « imitation » of what may exist elsewhere. The innovation includes the development and implementation of new ideas by individuals who engage over time in transactions with others within an institutional order* ».

Several methods are proposed to enhance the introduction of new ideas. The concept of « *Idea Management* » (De Bradandère, 2002) specifies four potential sources: customers, suppliers, employees and shareholders. PI focuses thus on the 'employees' source to develop the creative potential of individuals in an organization.

In the sense of producing new ideas and eventually innovation project, PI will face some resistance when disturbing the established order (Alter, 2000). The interest in Participative Innovation is rising among practitioners with the creation of active networks all around Europe like « *Innov'Acteurs*¹ » in France. We will present our methodological approach now.

¹ This association was created in 2002 whose purpose is to promote Participative Innovation. It results from the merge of three entities: Carrefour of suggestions, Group for Participative Innovation and Initiative and Quality cluster.

2. METHOD

In this part, we present the methodological framework, the data source and Why PI in the context of SNCF can be considered as an organizational routine. Our approach is interpretative. Our project aims to understand the reality of an organizational routine and how it interacts with the morphing of SNCF Business Model. We analyze a set of contextual elements to understand events over time. Indeed, we interpret the data to ensure consistency while it is clear that we strive to maintain the neutrality necessary for research.

2.1. METHODOLOGICAL FRAMEWORK INSPIRED FROM BARLEY AND TOLBERT (1997)

Our purpose is to understand how an organizational routine, in the example of participative innovation (PI), at SNCF - the railways French public company - can be a lever for the reinvention of its Business Model. We try to shed the light on the levels of transformation of SNCF's Business Model in interaction with the Participative Innovation routine. In this section, we explain how the theoretical and methodological framework inspired by Barley and Tolbert (1997) helped us to analyse the evolution of the PI organizational routine in the case of SNCF.

We rely on the simplified sequential model of institutionalization proposed by Barley and Tolbert (1997) that we apply to the case of the SNCF company in order to highlight the different scripts and Participative Innovation routine in this context. An institution consists of cognitive, normative and regulative structures that bring stability and give meaning to social behavior (Scott, 1985). Institutions are conveyed in different ways (culture, structures and routines) and intervene at different levels. Barley and Tolbert (1997) defined the institution through shared rules and typologies that identify categories of social actors and their activities or relationships.

The theoretical framework proposed by Barley and Tolbert (1997) is based on the notion of script. These scripts can be empirically identified regardless of the type of actor or of the level of analysis in which the researcher is interested. According to Barley and Tolbert (1997), scripts are observable. These are recurrent activities and patterns of interaction characterizing a particular context. Scripts can be identified empirically. This sequential model is interesting in describing the institutional realities that are changing the Participative Innovation routine. By institutional reality, we mean structures with routine behavior considered 'for granted' (DiMaggio and Powell, 1991 ; Scott, 1995). From these everyday interactions that occur in

institutions, it is possible to define scripts (Barley, 1986). The reality of the action corresponds to the reality of what occurs at the level of actions.

2.2. DATA

In this single case study, we use the documentation, archival records, interviews, direct observation, participant observation, and physical and cultural artefacts. Our approach and our ties with the field allowed us to access all these data sources as part of our case study of the SNCF company². After an initial investigation in 2004, we legitimized our presence in this company by a research agreement signed in 2005.

In collecting and presenting data, we strive to respect the three principles outlined by Yin (1994), namely the use of multiple sources of evidence, the separation between all the data accumulated in the case study and the report of this study. We assure also the maintaining the chain of evidence by providing all relevant data. We apply the principles of triangulation and saturation of data.

We propose to summarize the sources of usable data for each period in the following table 1.

Table 1 Sources of information on SNCF and the PI routine according to the periods observed

Period	From 1938 to 1993	From 1994 to mid 2003	From mid 2003
Data archives : rules and procedures	Yes	Yes	Yes
Computer databases of recorded Innovation	No	Yes	Yes until 2004
Retrospective accounts	Difficult	Achievable	Made
Non-participant observation	No	No	Yes (from 2003- 2007)

The period of our presence in the company ranges from 2003 to 2007. For this period, we have compiled records of specific comments. However, it is not possible to access data on all previous periods. We used a variety of archival sources but also retrospective accounts

² In 1938, the SNCF is a limited company of mixed economy The state owns 51% stake. The remaining 49% belong to the shareholders of financial companies that have succeeded the five companies : Compagnie du Nord, a network of Alsace-Lorraine Railway, Company Railway Paris-Lyon-Marseille, Paris-Orleans and Company of the East. All staff has a special system of retirement and a dedicated status. The SNCF employees are not civil servants.

whenever it is possible. We have used some archives of SNCF: references, notes, memos, exchanges in meetings, transcripts of official speeches... For the recent period going from 2005, we use archival records, interviews and observations.

The obtained data are listed in chronological order. We include in the range of documents to be studied, all those relating to PI routine mainly the internal memos. Our data address, simultaneously, different denominations of the routine (i.e. Suggestions, Innovation, Continuous Improvement and Participative Innovation).

To distinguish these different periods of time, we have adapted what has been done by Barley and Tolbert (1997) in the previously described methodological framework of our research.

This approach is summarized by the following five steps :

The first step is to first determine the scope of our study under the framework of Barley and Tolbert (1997). We must determine studied groups of social actors concerning Participative Innovation. In our research, we've studied the Participative Innovation routine in the SNCF company and its transformation over time since its inception in 1938. We believe that Participative Innovation is an institution in the sense that this device of Participative Innovation is "institutionalized" in the SNCF company. As Barley and Tolbert (1997) pointed out, their methodology can be applied at various observation levels from microscopic to macroscopic. We chose a macroscopic level, given the size of the SNCF company. The choice of sites observed is relevant with the nature of the Participative Innovation routine which is centrally controlled. We relied on rules and procedures or internal memos issued by the national level with a national scope of application. The construction and validation of these scripts required the collection and structuring of numerous data. To study a company of such a size, it is necessary to establish a database (second step).

The second step in the establishment of a database on the Participative Innovation routine is an essential step in our methodology. The number of steps that we follow is five because of this second step when Barley and Tolbert believe in four. Our presence in the company ranges from 2003 to 2007. For this period, we have compiled records of specific comments. However, it is not possible to access information on all previous periods. We used a variety of archival sources (references, notes, memos, minutes of meetings, transcripts of official speeches) but also some retrospective accounts whenever possible. Finally, through our research convention signed with the SNCF company in 2005, we had access to a database

extracted from the Intranet system of the company since 1994. Thus, these databases provide evidence in terms of number of innovations produced by the Participative Innovation routine.

We conducted in total 70 interviews with operational railworkers, 15 with experts and 23 with innovators. We structured the data to deal with them, this is the **third step**.

The purpose is to then formulate and analyze scripts. The aim of these scripts is to better understand the change over time. For this work of structuring data before being able to exploit the wealth of information and highlight the script, Barley and Tolbert (1997) propose several ways of grouping. First, the use of rules and procedures help us to distinguish clear groups of actors, some of which appear over time. Finally, we classify the observations by identifying different types of behaviors that may occur over time. We seek to highlight periods of stability of the Participative Innovation routine which are the scripts.

This is the subject of the **fourth step** followed. First, we rely on the analysis of trends. Initially, our strategy is to target events that maximize the likelihood of change in Participative Innovation routine. Other endogenous phenomena and events related to the transformation process can of course lead to institutional change. It should be studied in a second time.

Each significant change in the Participative Innovation routine can be a sign of a new script, since it is by definition a stable period. It is important here to discern major changes from minor modifications of the Participative Innovation routine.

Finally, a **fifth step** for connecting the scripts from compliance with other sources of data on changes in the Participative Innovation routine, which led in practice to enhance our database on the Participative Innovations with new features over time. We used data relating to both a qualitative and a quantitative approach that can be complementary and articulated. This dual approach makes sense in terms of what Barley and Tolbert (1997) advocate, i.e. we use all available data.

The point is to consider how an organisational routine in the example of Participative Innovation at SNCF can be a lever for Business Model reinvention.

2.3. PARTICIPATIVE INNOVATION AT SNCF AS AN ORGANIZATIONAL ROUTINE

This definition from Pentland and Feldman (2003) is sufficiently descriptive to be applied to the case of PI at SNCF which meets the four operational criteria of the organizational routine, i.e. repetition, recognizable pattern of actions, interdependence of actions and multiple actors, to be considered as routine. Evolving through different forms and names during its history (Suggestions, Innovation, Continuous Improvement), the PI at SNCF has been formalized for several decades.

First, the PI is repetitive in the sense that it has existed since the creation of the SNCF company in 1938. They are every year hundreds if not thousands of innovations that have been treated. Since 1994, 100,000 of innovation ideas have been issued.

At SNCF, PI includes clearly identified actions going from the submission of the idea and the training records to their communication to hierarchical lines and technical experts. These actions are interrelated and if a line manager does not validate an idea, it cannot have a favourable outcome and the process will be stopped. It is also important to specify that PI is driven by several actors in the company who are: the innovator, the line managers, the innovation leaders and the technical experts.

Having said that, the application of PI in SNCF company meets all aspects and characteristics of the organizational routine pointed out by Feldman and Pentland (2003). PI impacted the SNCF's Business Model, which morphed along with its evolution phases. We will study then the evolution of PI routine as a lever for SNCF's BM reinvention.

3. ANALYSIS AND RESULTS: THE PARTICIPATIVE INNOVATION ROUTINE AS A LEVER FOR SNCF'S BUSINESS MODEL REINVENTION

Here we present generally the SNCF case and more specifically milestones in the PI evolution along with SNCF history. Then, we study the evolution of SNCF's BM through the contribution of the concept of BM and we analyse the different phases in SNCF's BM transformation before discussion.

3.1. MILESTONES IN THE EVOLUTION OF PARTICIPATIVE INNOVATION AT SNCF

We will consider the major events in the history of SNCF's company and the main PI forms and finalities, as we will explain it below and have synthesized it in table 2.

3.1.1. The first period from 1938 to 1989

The SNCF is a French public company concerning railways. It has a long history that began in 1938 with the merge of five private companies and two public networks. It was basically totally controlled by the state. Then in 1983, it became an EPIC³. These measures come within the law project on inland transport (LOTI) of 30 December 1982. The PI at this period of time took the form of bureaucratic suggestions.

Suggestions that are « *looking for all the savings in the exploitation* » (Agenda n°7 signed by the CEO A. Besneray in May 25th, 1938) and are controlled by the techno-structure. As specified in this internal procedure, the priority given to this routine managed by the techno-structure is savings.

This text remains during the second war. In 1942, a thousand suggestions (Janssoone, 2003) were proposed. With the reconstruction of the rail network after the war this number was exceeded. A first change took place in 1954 with an internal procedure signed in the 10th of September 1954 by Louis ARMAND, President of the SNCF company. From 1954 to the 1970s, the rules and procedures concerning this routine were more precise and were detailed and deployed throughout the SNCF company.

The period of the 1980s is characterized by huge deficits and the SNCF company is urged to change. Its 'social body' (Bouyer et al., 2003) defends the existence of the social contract (status, retirement). With this in mind, the great strikes of 1986-1987 can be explained as follows: « *there is a strike because the company had problems. We went on strike for great causes when the very foundations of the social contract was seen as challenged* »⁴

Crozier's audit after these strikes in 1986-1987 highlights that « *railworkers need to feel recognized and their status is very important to them* ». In the early 1990s, French companies such as EDF-GDF, SNCF and La Poste have undergone significant organizational changes to achieve the necessary flexibility to deal with private competition and to adapt to new EU directives.

After this period of social conflicts, the main objective was to regain the social peace. PI aimed to give the railworkers the opportunity to contribute with innovative ideas.

³ EPIC means in French « Etablissement Public Industriel et Commercial » which refers in English to : a commercial and industrial public establishment.

⁴ This verbatim is taken from an interview with railworkers concerning the period of strikes in the 1980s and the 1990s.

3.1.2. The second period from 1990 to 2002

The European Directive of 29 July 1991 led to the financial separation of infrastructure and operations and to the creation of RFF⁵ (Réseau Ferré de France) in 1997. In 1995, the European Conference of Transport Ministers held an international seminar to discuss the situation of rail transport in Europe, whose results were compiled in the publication « *The railways, for what?* » on which we rely. In discussing development opportunities for the railways in the near future, Plassard (1995) argues that the railways are in a crucial period in their history where we must define the services they develop and those they stop.

In 1996, one of the SNCF company's answer to the new regulations was the development of the Industrial Project seen as a new strategic orientation for the company. Until 1996, a "Contrat de Plan" was contractualised between SNCF and the French State. In the 1990s, a pact of "modernization" is signed and the company's debt is supported by the state to avoid bankruptcy.

General Management affirmed its desire to « *promote initiatives and staff's innovation* ». Three steps were taken. We outline at first, the creation of a network of animators for PI at regional or local level. It was driven by the Direction of Human Resources and more specially by the Management Institute⁶ whose mission is the promotion of PI.

Then, at the Department of Research, a lean technical support for innovation was created. And finally, at the Human Resources Department, a Steering Committee was responsible for coordination. Working groups were formed and a Guide for the animation of Innovation was edited. This process was supported in a Charter of Management established in 2001 through the two following practices: « *the implementation of continuous improvement* » and « *the development of employees* ». They were supposed to improve the relationship by developing managerial skills, listening and initiatives. In this context, the development of proximity managers increased in most SNCF's directions. A managerial transformation was taking place, a sort of managerial revolution of the SNCF company.

⁵ RFF refers to the 'Réseau Ferré de France', which is the *French Rail Network*. It owns and maintains the French national railways network. The trains are operated by SNCF, the national railways company, but due to European Union Directive 91/440, the French government was required to separate train operations from the railways infrastructure. Furthermore, SNCF has retained the ownership of stations.

⁶ One of its missions is the promotion and animation of the PI. In 2001, a management chart was edited. It describes the values, the core competencies and the basic practices for the managerial policy of the company.

3.1.3. The third period from 2003 to 2007

In 2004, the SNCF company is organized into four branches: Freight, VFE (Travels in France and Europe), Infrastructure and Public Transportation. Different approaches to innovation have been launched by SNCF in recent years. In 2005, the SNCF company chose a new corporate communication with: « *to give the train ideas in advance* ». This initiative showed the way for the company to increase its competitiveness. The PI became more and more structured and urged to serve innovation and strategic development themes.

In the summer of 2005, the Executive Board decided to create a number of Decision Centres. The decision was taken by the Executive Committee to establish an extra-budgetary line for PI to experiment new ideas. Then the circuit for Participative Innovation handling was reviewed. Another essential purpose was to shorten the delay of response to any author of idea in order to give answer within less than three months. These Decision Centres are responsible for handling decisions regarding proposed ideas and have a specific budget of € 3,500 in each region, and of € 50,000 for the national Decision Centres. Ideas were evaluated according to the strategic lines of the business within the entity and in line with experts' reports on the feasibility of the idea and with the resulting conclusions following the experimentation processes. More than 320 Decisions Centres were set up in 2006 at a local and national level to accelerate the implementation of ideas (tests, prototypes, etc.).

These Decision Centres should help to identify for each innovation a customer who will provide the funding for the development of this innovation.

Table 2 Key periods and milestones in the PI evolution at SNCF

Key periods	Major events	PI forms	PI finalities
1938-1989	Merger of the 5 French historic railways company 1986-1989: recovery	Bureaucratic suggestions	Savings Social peace
1990-2002	Experimentation of the Industrial Project	Animation network	Managerial renovation
From 2003	Implementation and management of the Industrial Project	Structured innovation	Innovation and strategic development

These three periods of time highlight the milestones in the PI evolution at SNCF. Now, we will consider major phases in the morphing of SNCF's BM along with the evolution of PI routine.

3.2. MILESTONES ON SNCF'S BUSINESS MODEL TRANSFORMATION THROUGH THE ROUTINE OF PARTICIPATIVE INNOVATION

3.2.1. The contribution of the concept of Business Model

In recent years, the Business Model has been the focus of substantial attention by both academics and practitioners (Zott and al, 2010). It became prevalent since the advent of Internet and has received an increasing attention from scholars and business strategists interested in explaining firm's value creation, performance and competitive advantage.

The concept of Business Model helps firms to operationalize a set of strategic choices (Shafer et al., 2005). It explains, according to Richardson (2008), how the activities work together to execute their strategy. Thus, it is the reflection of the firm realized strategy (Casadesus-Masanell and Ricart, 2010). This is in phase with Baden Fuller and Morgan's assertion (2010) according to which the Business Model function as mediator to enable users to figure out how their world works in the practical context, as well as in the academics.

At the same time, the Business Model depicts « *the content, structure and governance of transactions designed so as to create value* » (Amit and Zott, 2001). It plays, therefore, a crucial role in organizing the firm's activities and in explaining its mechanisms of revenues generation. Furthermore, the Business Model uses a bundle of key resources and competences to create and deliver value to the firm's customers. To sum up, Johnson et al., (2008) represent Business Model as a four interlocking elements that, taken together, create and deliver value. These are: customer value proposition, profit formula, key resources, and key processes. To give a more comprehensive definition elaborated on the Penrosian firm view, Demil and Lecocq, (2010) assume that a Business Model can be described with three core components: its resources and competences, its organizational structure and its propositions for value delivery. By covering those multiple and mediating roles, Demil and Lecocq's (2010) definition underlines, therefore, the usefulness of the concept of Business Models. They argue indeed that the Business Model can constitute a complementary device for strategy analysis (Lecocq et al., 2006). It represents, then, a dynamic and integrative vision on the different functions of the firm. Moreover, according to Lecocq et al., (2006), the Business Model can also be regarded as a source for creativity as it considers new levels of revenues generation through different resources and competences allocation, new activities organizations and networks configurations. The Business Model can definitely be viewed as a source of strategic innovation by breaking off the rules of the game (Mitchell and Coles, 2003).

It cannot be always the same ; it evolves permanently to cope with changing environments and routines. Many Scholars studied the evolution of Business Models. Pateli and Giaglis (2005), for example, analyzed the evolution of the exhibition's industry reference Business Model under the impact of a technology innovation. They argued that by changing their BM and identifying new ways to deliver value to their customers, firms aspire to obtain and sustain a competitive advantage in high-velocity environments. Also, Demil and Lecocq (2010) consider Business Model evolution as a fine-tuning process involving voluntary and emergent changes in and between permanently linked core components. Nevertheless, many barriers prevent existing firms from changing as well as innovating their Business Models. Chesbrough (2010) analyzed in details those barriers and consider the problem of inertia in organization in terms of conflicts with existing assets and Business Models. The cumulative inertia can be transformed in organizational routine dooming by the way all the attempts to change to failure (Chesbrough, 2010 ; Zott et al., 2010). In the same meaning, Huff et al. (1992) consider that the cumulative resistance to strategic change an evolution grows primarily out of gradually accumulating resource commitments and institutional routines.

In our research, the forces of inertia produced by organizational routines (i.e. participative innovation), instead of binding the established firm to one Business Model for long periods of time (Huff et al., 1992), participate actively through time in the evolution of the Business Model of an established company that is SNCF.

3.2.2. Phases of SNCF's Business Model transformation

Using Business Model as a device for strategy analysis is not limited to new ventures and can be extended to the case of established firms where managers think continuously of new sources of revenues generation (Lecocq et al., 2006). This become important as today's companies are operating in a landscape of continuous and complex change inviting organizations to adjust and transform their BM in order to sustain themselves in the 'new' business landscape (Voelpel et al., 2004; Chesbrough, 2007 ; Johnson et al., 2008 ; Sosna et al., 2010). Actually, the real challenge for most organizations is not whether the rules of the game will change (because they will) ; rather, will they make the necessary and appropriate transformation required for the future survival (Hamel, 1998). According to Pateli and Giaglis (2005), the existing research on defining methodological approaches for BM change is rather fragmented and all approaches share a common drawback: they are quite monolithic, in the sense that they provide a strict linear sequence of steps that an organization should follow.

In our study, we figure out the phases and levels of BM changes in interaction with the evolution of the participative innovation routine at SCNF. This gives a dynamic view of BM change in comparison with existing approaches.

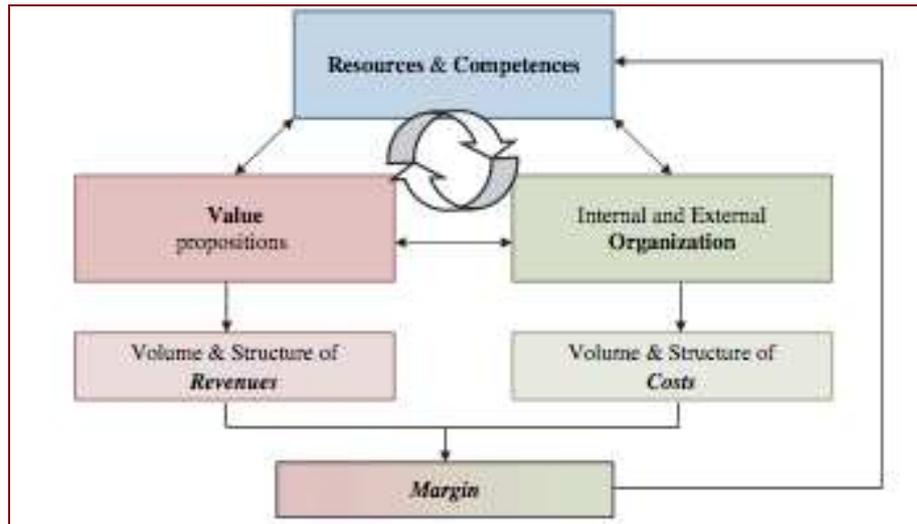
We take the RCOV framework of Demil and Lecocq (2010), as prism of analysis to follow the different stages of change of the SNCF's Business Model in parallel with the phases of evolution of the participative innovation routine.

The RCOV framework (see figure 1) covers three main dimensions that are the resources and competences, organization, and value proposition :

- The resources are the set of assets of the firms that may come from external markets or be developed internally, while the competences refer to the abilities and skills that managers develop individually or collectively. They are needed to deliver the customer value proposition (Johnson et al., 2008).
- The second dimension is the organizational structure. It encompasses the organization's activities and the relations it establishes with other organizations or stakeholders to exploit its given resources (Demil and Lecocq, 2010). It embodies, therefore, the design of activities of the firm that is to say its value chain and its value network.
- Finally, the value proposition gives a picture of the promise that the firm want to deliver to its customers. It refers to its specific offer in the form of its products and services. It specifies the target customer and the offering that satisfies the problem or fulfils the needs.

Those three components are interconnected in order to generate revenues. This represents what Johnson et al., (2008) called a profit formula, which is the blueprint defining how the company creates value for itself while providing value to its costumer. It specifies the volume and structure of revenues, the volume and structure of costs and the expected margin or desired profit.

Figure 1 RCOV framework (adapted from Lecocq et al., 2006)



In the following table 4, we mobilize the RCOV framework in order to identify how the components of the SNCF's Business Model have been transformed or reinvented along with the PI routine evolution.

As explained in our study of the evolution of PI routine at SNCF (table 3), we have distinguished three main phases :

- the first phase between 1970 and 1989 where the routine took the form of bureaucratic suggestions.
- the second phase between 1990 and 2002: the form of routine evolved to a series of animation networks.
- the third phase from 2003 to now which is a phase of a more structured innovation.

In our analysis, the SNCF's Business Model, as Winter and Szulanski (2001) argued : « *far from being a quantum of information that is revealed in a flash* » is represented typically as « *a complex set of interdependent routines that is discovered, adjusted, and fine-tuned by doing* ».

Table 4 The morphing of SNCF Business Model along with the phases of transformation of Participative innovation routine

The main components of Business Model	Suggestions 1970 - 1989	Animation network 1990-2002	Structured innovation From 2003
Value proposition	<ul style="list-style-type: none"> - Passengers transport and general freight transport - Prevalence of the notion of users rather than customer. - Usage of file formal paper to propose new innovative ideas. 	<ul style="list-style-type: none"> - SNCF became customer oriented and in this perspective aims an improvement in the quality of its services. - Formulation, after the arrival of Louis Gallois in July 1996, of the industrial project entitled « <i>Towards a pact for SNCF's modernization.</i> - Voyages-sncf.com owned at 50.1% is founded in June 2000 as the on-line travel agency of SNCF. 	<ul style="list-style-type: none"> - 30 years of service in transport sector. - In 2005, a new brand was proposed. <p>Steps towards improving its image of quality, innovation and safety.</p>
Resources and competences	<ul style="list-style-type: none"> - Above 200,000 railworkers. - Technical expertise basically related to railways carriage and train maintenance. 	<ul style="list-style-type: none"> - In June 2001, development of proximity managers as well concerning Infrastructure - Training of local, regional and national innovation coordinators. - Strengthening animation skills. - Usage of the 'Minitel' as a system for innovations disposal. - Constitution of a network for PI of more than 3000 experts. - Creation of an innovation toolkit 	<ul style="list-style-type: none"> - 160,000 railworkers - Expertise in customer safety, high-speed engineering, and complex network management. - Allocation of a budget of 3,500 euros for each structure to enhance innovation and 50,000 euros for each business unit.
Organization: the value chain of activities and the web of created relations	<ul style="list-style-type: none"> - Maintenance of trains and railways. - Settlement of 25 regional directions in 1971 23 regional directions for the SNCF - Administration direction in charge of Human Resources. - EPIC creation in 1983 	<ul style="list-style-type: none"> - Creation of the research and technology Direction. - RFF creation in the context of separation of rail infrastructure from exploitation and the opening of the market to independent operating train companies. - Establishment of the Management Institute. - Structuring SNCF to 3 branches in 1993: freight, passengers and infrastructures. - Phases of experimentation of the industrial project. - Network of local leaders and facilitators is created in 1991. - In 1997, implementation of INNOGEST as a server for innovation. - Creation of national innovation database. 	<ul style="list-style-type: none"> - SNCF distinguishes 4 branches: Freight, France Europe Voyages, infrastructure and public transport. - The SNCF has signed with key partners the sustainable development chart. - Yield-management tactics that let it slash prices, often when demand is high. - Development of the managerial renovation as a new axis in the industrial project. - Launching of an institutional internal and external communication on the theme of ideas in advance - The Direction of research and technology (DRT) became the direction of innovation and research (DIR). - Co-piloting PI by the Human Resources department and the direction of innovation and research and operations directions. - Consolidation of the computer system, INNOGEST is replaced by the new system J'NOV, dedicated for innovation. - Apparition of Decisions Centers.

The table 4 shows the transformation of SNCF's Business Model along with the evolution of the form of the Participative innovation routine.

In the first period, when participative innovation was expressed through bureaucratic suggestions, we were in front of a basic Business Model depicting an overall picture of the core logic of the firm (Bettis and Prahalad, 1996). There were not any specific competences more than those needed for railways carriage and trains maintenance. The value proposition was fundamentally usage or utility oriented. The SNCF was dealing with users rather than customers. This explains the absence of any specific customer interface or relationships. The main functions were the maintenance activity and the administration direction.

In the second period from 1990-2002, the participative innovation took the form of animation networks. Since 1990, we have noticed an increase in the quality of service and a growing of customer preoccupation in the SNCF's Business Model accompanied by the formulation of the industrial project after the arrival of Louis Gallois at the direction board of SNCF. This formulation was started with his predecessor Loïk Le Floch-Prigent⁷. The decision was followed then by the launch of the SNCF on-line travel agency. It is the first French electronic commerce website in volume. One quarter of French SNCF tickets are sold by this website.

In 2002, SNCF invested more resources by the creation of proximity managers as new innovation facilitators. It also developed new expertise by the training of local, regional and national innovation leaders and coordinators. This aimed to strengthen the animation skills at SNCF. The organisation witnessed the first phases of experimentations of the industrial project. Different decisions were taken. Among them, we outline the structuring of SNCF by distinguishing three big activities, which are related to the freight, passengers and management infrastructures. Then, the SNCF core logic evolved when it was decided to separate the rail infrastructure from exploitation and by opening the market to independent operating train companies. Also, a number of measures were taken at SNCF aimed to enhance its innovation network and its expertise by the creation, for example, of the research and innovation direction⁸ and the establishment of the Management Institute. Moreover, SNCF created an innovation toolkit towards implementing a strategy of continuous innovation.

⁷ Loïk Le Floch-Prigent at his arrival en December 1995 initiated the test of a first Industrial Project to restore order and ensure social peace.

⁸ Replacing the Research and Technology Direction created in 1991.

The last period from 2003 was that of a complete managerial renovation. The studied routine took the form of a more structured and open innovation. Henry Chesbrough (2003) defines open innovation as « *a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firm look to advance their technology*»⁹. Therefore, this period is characterized by an increasing awareness of the importance of innovation at SNCF, which decides to allocate a significant budget for experimentations of new ideas and for concepts development. This initiative was followed by the creation of a new brand in 2005 in order to improve its image of quality and safety. It highlighted at the same time its expertise in customer safety, high-speed engineering and complex network management. This image was closely associated to innovation endeavour by the launching of an institutional communication on the theme of « *ideas in advance* ».

From 1970 to 2003, the number of employees¹⁰ drops from 200,000 to 160,000 due especially to a wave of new IT applications and the deployment of innovative concepts. Nevertheless, the number of experts in different areas was increased to reach 3,000 experts, particularly in information systems.

As in the second period, the most impacted dimensions are at the organization level. SNCF arrived to four distinct branches that are the freight, France Europe Voyages, the management infrastructure and the public transport. Also, SNCF established many decisions centres related to innovation and decided to co-pilot the Human Resources department and the direction of innovation and research (DIR) formerly known as the direction of research and technology. This underlines the relevance of the concept of innovation in the new Business Model of SNCF that become embedded in its organizational structures and managerial practices. Furthermore, SNCF applied yield management tactics that let it slash prices, often when demand is high. In 2006, a new application dedicated to innovation named J'Nov replaced the application Innogest.

Having said that, the morphing does not only affect the activities' configurations but also the SNCF value network which decided, for example, to sign with a number of key partners a charter of sustainable development in order to improve its stance as a socially responsible actor.

⁹ Henry Chesbrough (2003), *Open Innovation: the new imperative for creating and profiting from technology*, Boston: Harvard Business School Press.

¹⁰ Employees here encompass the railworkers and all the 'cheminot' actors.

CONCLUDING DISCUSSION: ROUTINES FROM A SOURCE OF INERTIA TO A LEVER FOR BUSINESS MODEL INNOVATION

The literature reveals that the organizational routine is usually regarded as stable over time (March and Simon, 1958; Nelson and Winter, 1982). Thoenig and Dupuy (1985) underline the rigidity of rules and routines that people should respect. In addition, bureaucratic organizations are supposed to be based on a techno-structure, not on the creative potential of its employees. Nevertheless, the case of SNCF shows us in the example of participative innovation how an organisational routine may evolve over time by modifying its forms and changing its finalities. In line with this assertion, Feldman and Pentland (2003) believe on the capacity for a routine to transform itself through its performative aspect. Then, over thirty years, SNCF's PI forms and finalities have evolved and have participated, therefore, in the transformation and reinvention of SNCF's Business Model. This study stresses the role of time in pacing organisational change and strategic change as pointed out by Gersik (1994) in the case of new ventures and extended here to the case of established firms with the example of SNCF.

Having said that, Participative innovation routine has not only evolved but also has been the support for a continuous morphing of the SNCF's Business Model. The concept of continuous morphing was proposed by Rindova and Kotha (2001) as an important mechanism for renewing the firm's competitive advantage in inherently instable environment. Our case shows, therefore, a co-evolutionary dynamic between participative innovation as an organizational routine and the Business Model of the firm. It answers to the question of how an organizational routine helps firms to engage effectively in a process of Business Model transformation and reinvention. This constitutes a major contribution as it enables scholars to rethink the position and the role of routines in organizations from a source of rigidity and inertia to a lever for innovation and strategic renewal. This was outlined, in our case, by triggering then accompanying the phases of SNCF's Business Model reinvention.

Our observations of SNCF's case study from 1970 to now are relevant and interesting in answering this questioning. The transformation of the forms and roles of the existing organizational routines - here in the example of participative innovation - since the early dates of the SNCF can be compared with a mutation of the company's genes over time.

We distinguish three main periods that shape the forms of the participative innovation routine at SNCF and participates in the transformation of its Business Model.

In the first period, when the participative innovation routine took the form of bureaucratic suggestion, the SNCF's Business Model was more the expression of an essentialist and functionalist views (Doganova and Eyquem-Renault, 2009) by focusing on the delivered utility to users and delineating its core logic of value creation. We consider that SNCF's Business Model can therefore be defined in this period as **a functionalist Business Model**.

In the second period between 1990-2002, the PI routine evolved from bureaucratic suggestions to animation networks. This evolution was marked by a strong customer preoccupation and a will to increase the quality of service. In addition, a number of measures and decisions were taken with the arrival of Louis Gallois at the direction board of SNCF. Those measures didn't only impact the organization level, by the creation of the industrial project and the establishment of a direction for technology and research, but also the strategic level through the developing of new expertise and the investment of new resources. Those initiatives participate in changing the core logic of SNCF by separating the rail infrastructure from exploitation and by distinguishing its main activities and branches. Here, is the pragmatic view of the Business Model that prevails (Doganova and Eyquem-Renault, 2009). According to the pragmatic stance, the Business Model appears as market device that enhances socially-situated practices of calculation and decision making and where the focus resides in their materiality, use and dynamics. The SNCF's Business Model evolved than from a functionalist Business model to **a pragmatic and customer-centric Business Model**.

The last studied period was that of an overall managerial renovation where the studied routine took the aspects of an open innovation assuming that firms should use external ideas as well as internal ones, and internal and external paths to market to improve its competitive positioning (Chesbrough, 2003).

This period was, indeed, characterized by an increasing awareness of the weight of innovation at SNCF and of the importance of institutional communication in sharing it and spreading it between the different layers of the organization. In a more recent period, the effort of decentralization with the creation of local, regional and national decision centers with specific line of budget emphasizes the autonomous action and helps the impulse of new initiatives.

Moreover, as the firm looks to advance its technology through open innovation, it engages in a range of experimentations in order to enhance its service quality and safety by improving, for example its high-speed engineering and complex network management. Through open innovation, SNCF opened its Business Model to new initiatives and ideas and to new technologies, applications and systems as a step towards its general reinvention. SNCF's Business Model evolved than from a pragmatic and customer-oriented view to an **open Business Model**.

According to Chesbrough (2006), the open Business Model aims effectively to explain how to make money through open innovation and how to exploit the new opportunities available. It fosters collaboration with customers and suppliers to everyone's benefit. It's not simply a matter of searching for new technologies but also a way to adapt the existing Business Models to make them more open to external ideas and paths to market (Chesbrough, 2007).

To conclude, figure 2 depicts the milestones in SNCF's Business Model transformation along with the phases of evolution of the participative innovation routine. It figures out the different forms taken by the participative innovation routine in SNCF. This organizational routine impacted the taken decisions and therefore the configuration of SNCF's Business Model. As this organizational routine evolves from a bureaucratic suggestion, to animation networks and then to open innovation, the Business Model morphs from an essentialist and functionalist view into a pragmatic and customer oriented approach and then into an open Business Model. The feedback effect outlined in the exhibit reflects a co-evolutionary dynamic between the Business Model and the organizational routine. The self-reinforcing loop contributes, finally, to the continuousness of the morphing of the given Business Model.

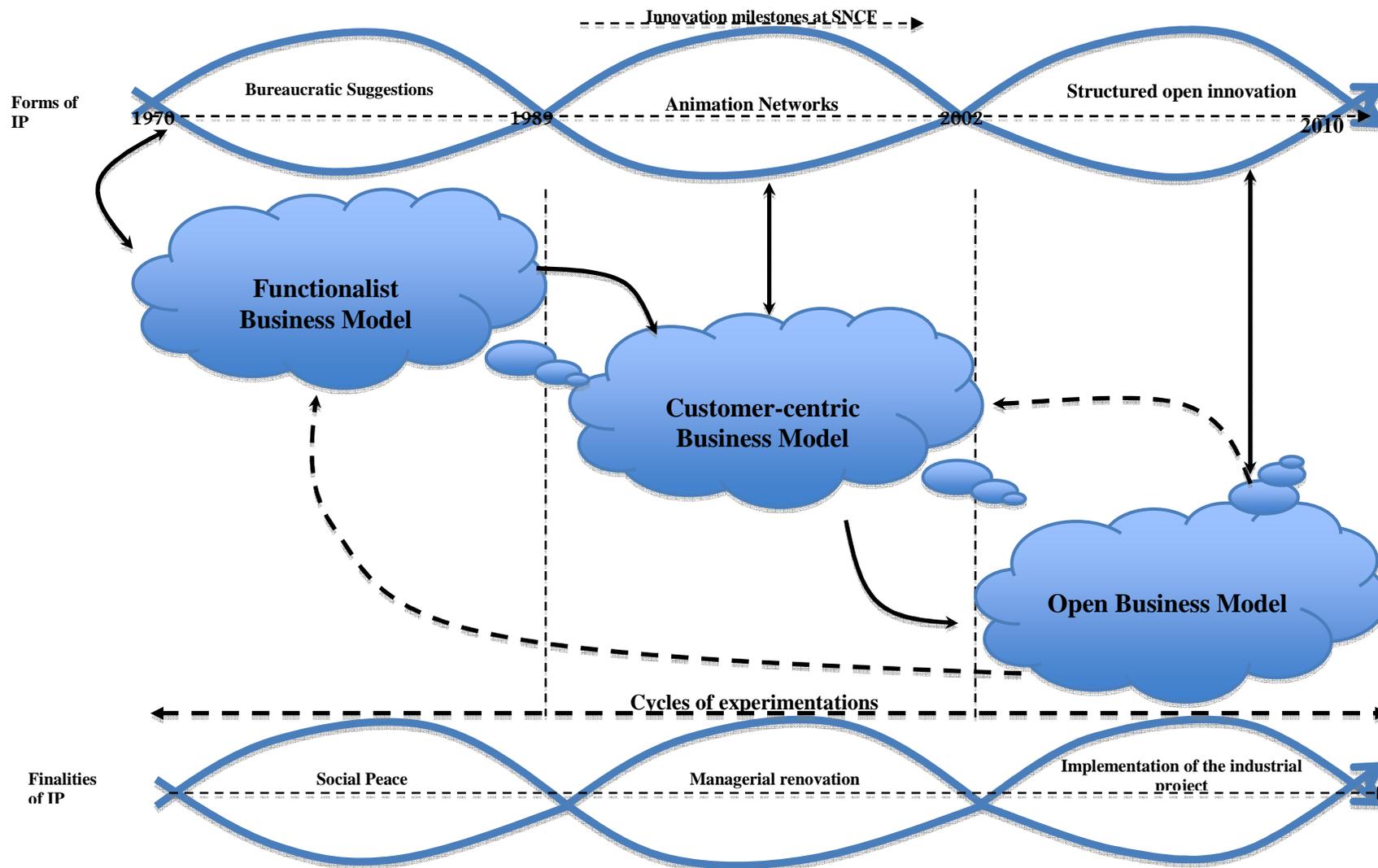


Figure 2 Morphing of SNCF' BM through the PI routine s phases of evolution

Avenues for future research

Through and beyond this work, attempts should be made for further investigations of the role of organisational routines in the reinvention of existing Business Models. In this line, one can wonder, how can we transform organizational routine from a source of rigidity and inertia to a lever of innovation and driver of strategic change? We believe that the experimentation does play a crucial role in facilitating the morphing of a given Business Model by validating and controlling the phases of its evolution.

This could lead us to think about a routine-based transformational model that we can apply to established firms as well as in new ventures to achieve an ongoing strategic renewal. In this case, organizational routine will bear, itself, the seeds of the Business Model reinvention.

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