

**Title:**

**Managerial cognition and the value chain in the digital music industry**

**Brief Running Title:** Cognition in the Digital Music Industry

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*Technological Forecasting and Social Change (2014) 83: 84–97*

## **Managerial cognition and the value chain in the digital music industry**

### **Abstract**

Do entrepreneurs construct new cognitive frameworks or adapt existing ones in unstable, transforming industry contexts, and what importance do existing mental models, in particular the value chain, take on for them? The official discourses, mission and vision statements of the 21 most visible online music ventures were analyzed using mixed methods to capture the representations of the digital music industry of the entrepreneurs at their helm. The managerial cognition of digital music entrepreneurs challenges all the dominant logics and industry recipes of the traditional music industry and encounters no cognitive barriers. The cognitive frame of the value chain remains prevalent however in the representations of digital music entrepreneurs, and restrains them from embracing the specificities of the creative industries.

### **Keywords**

managerial cognition; entrepreneur; value chain; digital music industry; cognitive frame; transforming industry

## **Managerial cognition and the value chain in the digital music industry**

### **1. Introduction**

In recent years, digitalization and the Internet have had a profound impact on music and other creative industries. They have caused a declining industry of reference, the traditional music industry, to evolve to better address the needs of its actors and consumers. The digital music industry is transforming and characterized by an extraordinary entrepreneurial rush, with a proliferation of new ventures credited with substantial headways in audience appeal and online visibility, measured through capitalization, catalogue, media impact, and other such indicators [1-3]. According to IFPI (International Federation of the Phonographic Industry) and BPI (British Recorded Music Industry) reference data, peer-to-peer music sharing practices have already led to a 40 to 50% decrease in revenue for the music industry as a whole, and digital music revenue outstripped the sale of physical CDs for the first time in 2011 in the USA with a total of 52% of all music sales [2] and in the first quarter of 2012 in the UK with a total of 55.5% of all music sales [4].

The impact of peer-to-peer music sharing practices has also been demonstrated to range from a decrease of up to 30% in the probability of purchasing music [5] to an actual decrease in 20 to 25% in music CD sales [6]. Each music album illegally downloaded has been estimated to reduce music purchases by 0.2 albums [7] or 0.42 albums [8]. Essentially, peer-to-peer music downloads both complement CD album purchases when downloads are used to ‘sample’ before actual purchase, and substitute for them when music albums are perceived to be overpriced [9]. These two effects end up cancelling each other out, and unveil unprecedented market opportunities for new and existing labels and artists willing to experiment with new technologies and new modes of music production, distribution and consumption in order to “adopt to the evolving music preferences or tastes and the new ways music users prefer their

music to be delivered and consumed.” (Andersen and Frenz, 2010: 735 [9]). A focus on the disassembly and reassembly of existing mental models in the digital music industry resonates with this insight, as digital music entrepreneurs, investors, and consumers seem to have all joined forces to break down physical constraints and to storm the economic and cognitive models of the traditional music industry.

Managers develop cognitive mental models that both enable and structure their understanding of their organization and competitive environment. Such cognitive representations condition managerial decisions and actions [10-13], which are consequently often driven by simplified representations based on implicit theories of the world [14, 15]. Managerial cognition has become a prime target of investigation in the search for explanations of the cognitive microstructure of strategy, competition and markets. In particular, the way established competitors develop and consolidate cognitive frameworks in stable, mature or declining industries has attracted much attention [12, 16-18]. In such settings, dominant logics [19, 20] filter managers’ understanding and interpretation of data. Industry recipes, which consist in an industry’s patterns of managerial belief [21, 22] related to the logic of the economic, competitive, and institutional environment and their effect on the focal firm [21], also go against the idea that managers may be defined as entrepreneurs able to come up with new solutions to the uncertainties they are confronted with [22].<sup>1</sup> Blind spots, defined as: “areas where a competitor will either not see the significance of events at all, will perceive them incorrectly, or will perceive them very slowly” (Porter, 1980: 59 [23]), and cognitive barriers, defined as the routing into or filtering out of information from corporate decision processes [24], may also emerge and hinder innovation.

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<sup>1</sup> Even so, industry recipes are dynamic: they capture managers’ experience and learning, and allow reorientation through both innovation and imitation (Spender, 2002).

In contrast, the cognitive challenges encountered by established managers and entrepreneurs in hypercompetitive industries characterized by rapid changes in environmental factors, relative ease of entry and exit, and ambiguous consumer demand are still mostly unknown [25-27]. In emerging or transforming industries, in opposition to mature or declining industries, cognitive configurations and categories are under development and unstable. Competition is in a state of flux and industry clusters and strategic groups are being organized or reorganized. Schumpeterian entrepreneurs act to construct the value of new technologies and impose their vision of this value, and to build their institutional landscape [27, 28]. In doing so, whether they create new mental models or implement existing ones remains unclear.

Understanding the complex relationship between technologies, categories, and actors' interests as they emerge and co-evolve has become a crucial objective in managerial cognition research [16]. Our study purports to do so by moving away from the previous focus of managerial cognition on clusters of industry insiders and traditional competitors in stable, mature, or declining industries. In the wake of the research agenda set forth by Porac, Thomas and Baden-Fuller (2011), we seek to understand how a transforming industry is socially constructed via the managerial cognition of entrepreneurs, and the existence (or lack thereof) of industry recipes [21], cognitive barriers [24], and tension between competitive isomorphism and differentiation as the industry transforms [18]. By focusing on the mental models involved in the reconfiguration of the digital music industry, we also aim to shed new light on the challenges of the digital revolution for industrial and organizational restructuring in the creative industries [29, 30].

The cognitive frameworks developed by new digital music ventures focus on the upheaval of all the dominant logics and industry recipes, and adopt a discourse of liberation from all the cognitive blind spots and barriers of the traditional music industry. One of these existing

mental models, however, seems to resist the overthrow, and therefore invites particular attention. The value chain [31], due to its simplicity, versatility and comprehensiveness, has succeeded in imposing itself as a pervasive cognitive framework. The present study aims to better understand the managerial cognition of entrepreneurs in a transforming industry by answering two questions. First, do entrepreneurial newcomers construct new cognitive frameworks or adapt existing ones in unstable, transforming industry contexts? Second, what importance do existing mental models, in particular the value chain, take on for entrepreneurs in a transforming industry?

The article is structured in the following fashion. The following section (Section 2) reviews the managerial cognition literature, and introduces the general management concept of the value chain as a mental model suited for use at different levels of analysis in most industries. Section 3 of the article presents digital music as our industry setting and discusses our methodology. Our empirical analysis focuses on the 21 most visible music websites at the time of data collection. Results are presented in Section 4. Section 5 discusses an apparent paradox: at organization and industry level, digital music entrepreneurs reject all the dominant logics and industry recipes of the traditional music industry, and do not seem to be hindered by cognitive barriers. However, they are still defined by the value chain, which they apply regardless of industry structure and particulars. Section 5 defines the value chain as a pervasive cognitive frame, and discusses potential limitations of the research. General conclusions and paths for further research are provided in Section 6.

## **2. Literature Review**

### **2.1. Managerial Cognition and Mental Models**

Interest in managerial cognition and in the influence of managers' perceptions on decision-making in organizations has grown consistently over the past two decades. Porac, Thomas, and Baden-Fuller's (1989) seminal article on the role played by managerial cognition in shaping strategies blazed the trail for subsequent research on the way managers envision their industry and competitors and develop strategies [16-18]. The managerial cognition approach builds on research on bounded rationality. It establishes the importance of cognitive representations in managerial action [10-13, 32], as managers' behaviors are often driven by simplified representations based on implicit theories of the world [14, 15]. Managers may follow one of two cognitive logics [33]. In the experiential logic, action leads to learning (backward-looking wisdom), and experience influences the formation of "sensemaking" cognitive frameworks [34]. In the cognitive logic, action derives from a model (forward-looking wisdom). The cognitive logic forms the focus of the managerial cognition approach.

Pioneering research on managerial cognition looked into managers' perception of intra-industry stratification or "strategic groups" [16-18]. Strategic groups illustrate inter-firm strategic and performance heterogeneity within the same industry [35], and emanate first and foremost from managers' subjective perceptions. The essence of strategic groups is therefore primarily cognitive [17]. Industry competitors, defined as rivals who compete on similar traits or by an agreed-upon social reality, are also caught in a "competitive cusp": they have to conform to the norms of the established categories to which they belong in order to establish their legitimacy, yet at the same time, they also have to differentiate from competitors within these same categories so as to establish their uniqueness [17].

In trying to untangle the cognitive dimension of managerial decision and action, most subsequent works on managerial cognition, including the ones that drifted away from the analysis of strategic groups [36], shared a similar focus on competition among clearly identified rivals evolving as insiders within a rigid, hierarchical industry structure. They

focused almost exclusively on established competitors operating in stable, mature, or declining industries, and neglected the managerial cognition of outsiders and entrepreneurs in emerging and transforming industries. A few studies acknowledged however that in emerging and transforming industries, managerial cognition “connects a firm’s actions to a changing environment by influencing what is noticed, how this information is interpreted, and why certain choices are made” (Kaplan, 2008: 673 [27, 37]).

In contrast, entrepreneurial cognition studies focus on: “the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation and venture creation and growth” (Mitchell et al., 2002: 97 [38]). Entrepreneurial cognition research is deeply grounded in cognitive science [26, 39], and defines cognition as: “all processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used” (Neisser, 1967: 4 [40]). Entrepreneurial cognition aims to understand better how entrepreneurs think, and what their mental processes are [26, 41]. So far, it has not looked into the mental models and cognitive frameworks that entrepreneurs and new ventures use to represent their markets and competitors in unstable industry environments. Neither has it investigated as yet the influence of existing mental models of competition on entrepreneurs’ perceptions and definitions of the ventures they embark on [26].

The present study sits firmly within the research stream of managerial cognition. Unlike studies anchored within the entrepreneurial cognition approach, it does not seek to investigate the specificities of entrepreneurs’ mental processes. However, by extending managerial cognition research to the study of the mental models and cognitive frameworks underlying the decisions and actions of entrepreneurs in unstable, transforming industry contexts, it contributes to building a bridge between managerial cognition and entrepreneurial cognition research.



At the level of analysis of the organization and within an existing industry structure, the influence of the dominant logic is pervasive [19, 20]. Blind spots also affect competitors and illustrate their incomplete understanding of their competitive situation, as overconfidence [42], firms' focus on local search [43], and winners' curse and limited frames of reference [44] limit managers' ability to question their assumptions and beliefs. They entail a confirmation bias, as competitors may ignore or discard information that calls their model into question, and a self-centered view based on self-justification, as competitors interpret facts through the lens of their model [42].

At the level of analysis of the industry, shared belief systems [11] are defined as taken for granted assumptions [45]. They form industry recipes [21], and mirror organizational dominant logics and blind spots. Industry recipes provide managers with a cognitive structure that permits both screening and interpretation of industry events, and may become embodied in procedures, programming, and institutionalizing behavior [21]. They are influenced by industry contexts and managerial frames (industry logics), and by the collective mindset of an industry, defined as mental models shaping managers' thinking within a given industry and influencing decision-making processes and outcomes. Managers have both personal beliefs and beliefs that are widely communicated and shared, for instance those reflecting scientific knowledge and well-established commercial and industrial practices [21]. Shared mindsets directly underpin the perception, thought, feeling, and behavior of group members in ways that are not directly obvious to themselves or to observers [46].

Commonly held mindsets exist across firms within industries and drive strategic decision making by individuals within those firms. Within the collective mindset of the strategic group or industry that they belong to and identify with, established competitors may develop and fall prey to an enactment circle. In other words, their choices may both stem from and reinforce long-held beliefs relative to their competition and strategic positioning. The

enactment process needed to synchronize the cognitive and material aspects of strategy is complex. It consequently makes innovation difficult to undertake, particularly in mature and declining industries [17, 18]. Myopic enactment still remains only partially understood. It manifests itself as industry insiders' difficulty in generating new ideas, both as incremental innovation and as major changes undergone by organizations only when constrained by dramatic circumstances and powerful new entrants (Porac et al., 2011: 658 [18]). Cognitive constructs are shared by both internal and external constituents of firms in an industry [47], and end up forming cognitive communities [17].

## **2.2. The Mental Model of the Value Chain**

The value chain [31] is a most prevalent cognitive construct. The mental model provided by this concept, which was first developed as a means to list and describe sequentially the nine vertical activities a product or service goes through from inception to delivery [31], is generally taken for granted and used as a blueprint of conceptual categorization. It is deeply embedded in managerial thinking and action across organizations, strategic groups, and industries (see for instance [17, 18]). Thus, even though the elements and visual representations of the value chain have been extensively discussed, the fundamental characteristics and relevance of this deeply grounded mental model were never disputed. The statement that: "there is still much to understand about how category creation and stabilization occur within industry value chains" (Porac et al., 2011: 655 [18]) also demonstrates the primacy and structuring role played by the value chain and its value-adding sequence in managerial cognition research.

Although Porter [31] formalized the value chain model, Forrester [48] provided one of the first systematic explorations of the dynamics of material and information flow in complex, multi-echelon systems. This early analysis planted the seed of later supply and value chain

works. By definition, the primary activities “involved in the physical creation of the product and its sale and transfer to the buyer as well as after-sale assistance” (Porter, 1985: 38 [31]) are: inbound logistics, operations, outbound logistics, marketing and sales, and services. The activities that “support the primary activities and each other by providing [...] various firmwide functions” (Porter, 1985: 38 [31]) are: firm infrastructure, human resource management, technology development, and procurement. Products and services gain value (and increase in cost) as they go through the various links in the value chain. The margin, which forms the third and last component of the framework, is the difference between gross revenue and total cost [31]. It is positive whenever value created exceeds cost incurred [49].

The value chain is a neat, linear, and transitive sequence of strategically important, interconnected, and value-enhancing activities. This model allows managers to achieve a competitive advantage through their orderly management of the flow of goods and services from idea generation and procurement to product or service delivery and after-sale servicing across suppliers, manufacturers, buyers, and customer relationships. The value chain, like the managerial cognition approach, primarily focuses on competition, as an organization’s relative competitive position is uncovered when comparing its value chain with those of its main rivals [49]. Managers in most industries and organizations use the value chain mental model to linearly deconstruct the various discrete yet related activities, inputs, and interactions necessary from idea inception to product or service delivery, and to identify which of them are cost or value drivers. They then act upon them to reduce the former and increase the latter, thereby enhancing their organization’s competitive positioning [31, 50-52]. The value system [31], which consists of the various interconnected value chains in an industry, also helps them determine how this industry is organized.

The value chain framework, the linear sequence of which is reminiscent of an assembly line, is deeply grounded in industrial organization economics. Yet, the emergence of an

increasingly interconnected and volatile post-industrial society challenges its core assumption of an orderly, linear, and inward-looking sequencing of activities. By allowing reconfiguration at the level of the industry and of the organization, new technologies, in particular the Internet, may also have rendered some value chain activities obsolete, and brought hitherto-neglected partners in value creation to the fore. Alternative models of organization and industry activities have consequently emerged to account for this new, post-industrial reality. Even though their explicit, stated objective is to move away from the linear approach of the value chain, most of them, from the rather conservative innovation value chain [51, 53], reverse logistics value chain [54], and vertical architecture [55, 56] to the more radical value grid [52], radix organization [57], value matrix [58], and value constellation [59, 60], still implicitly use the value chain as a cognitive foundation.

None of the alternative models listed above has spread so far within business schools, organizations or industries. This may be because akin to the more complex frameworks developed as alternatives to the dominant linear model of innovation (that is, basic research; applied research; development; and production and diffusion), the multiple feedback loops and levels of analysis of alternatives to the value chain may also “look more like modern artwork or a ‘plate of spaghetti and meatballs’ [61] than a useful analytical framework” (Godin, 2006: 660 [62]). As such, they may lead to added confusion rather than to a better understanding of the processes at play, and may be more difficult to apply. Fully connected systems also tend to be unstable, and a strict sequencing of activities within the value chain may increase stability, manageability and predictability. Moreover, mapping activities out allows for an easier and more immediate identification of weak activities or linkages between them [63].

Likewise, new technologies hardly call into question the mental model of the value chain, and the reconfiguration that they bring about is not as transformational to it as one would have

anticipated. As an enabling technology, the Internet in particular allows for a better and faster integration of the various links in the value chain and for immediate transfers of information and knowledge within and outside the organization [64, 65]. It also offers new opportunities to unbundle information from physical modes of delivery, which in turn accelerates the demise of traditional hierarchical channels and breaks the traditional trade-off between richness and reach [66, 67]. At best, the Internet may therefore lead to the reassembly of industries formerly constrained by high costs of communications, information, transactions, and physical distribution (for instance, the global cinema industry: [68]). However, even though it may replace some elements in the value chain or deconstruct it, the Internet only rarely results in the complete destruction of the value chain [65-67].

The contributions cited above do not purport to offer an exhaustive view of the rich literature focused on disassembling and reassembling the value chain, in particular at the interface of the creative industries and technology. Rather, they are used here as exemplars of three pervasive traits in this literature. First, all these contributions point to an opening up of the value chain to external influences, in the form of complementary horizontal and lateral value chains or of an increased permeability of its boundaries. Even so, the dilution of power that such an opening up entails, and the strategic intent of some actors—in particular new ventures and industry outsiders—to radically change existing industries, are rarely discussed. Second, several of them are very critical of the linear, specific input-to-output transformational process depicted by the value chain, and point to the existence of multiple inputs. Third and somewhat paradoxically in light of these criticisms, neither researchers nor managers openly challenge the existence and relevance of the mental model of the value chain, which they seem to recognize as an obligatory step in their description of organizations and industries.

Myopic enactment, coupled with the following three factors, may partly explain such inertia. First, just like the sequence of the linear model of innovation [62, 69] and even though this linearity is often a fiction [62, 63], the linear sequence of the value chain has become in time a lesson for entrepreneurs, managers, consultants and scholars. Linearity does not preclude the existence of feedback loops, and a purely sequential model may also exhibit non-linear relations [63]. Again in analogy with the linear model of innovation [63], the linear representation of the different activities a product or service goes through from inception to delivery may successfully lead to the identification of bottlenecks and of weak linkages between some of these activities, and may therefore contribute to improving value creation within organizations and industries. Ultimately, the breaking up of the value creation process into separate activities may allow for better control, reward systems, accountability and sharing of responsibility within the organization.

Second, the inherent simplicity of the model also accounts for its fortitude, as scholars strive to develop “conceptual models that creatively and intelligently simplify reality” (Balconi, Brusoni and Orsenigo, 2010: 2 [63]). This sometimes entails forcing non-linear processes into linear explanations. It also makes the value chain a rhetorical device aimed at streamlining the complexity of real-life organization. As such, it affords entrepreneurs, managers, consultants and scholars a sense of orientation when they develop, manage and analyze organizations and industries. While over-simplification of activities and processes may be misleading [63], simplicity may also allow for clarity when allocating budgets and tasks across divisions and when identifying cost and differentiation drivers within the organization.

Third, the extensive teaching of the value chain framework and of some of its incremental variations in business schools made the value chain a fundamental descriptive heuristic. Subsequently, its extensive application within organizations by both internal managers and external consultants further contributed to cementing the value chain model as a prescriptive

tool. The resulting entrenchment of the value chain model as a preeminent blueprint of how to organize activities and value creation processes within organizations and industries has crystallized the model as a taken-for-granted social fact, and explains its long survival in the face of often severe rebuke.

### **3. Industry Context and Methodology**

Our chosen industry context offers an ideal setting for investigating entrepreneurial newcomers' construction or adaptation of cognitive frameworks and the importance that existing mental models, in particular the value chain, take on for them in transforming industries. The digital revolution has accelerated the rate of competition and considerably increased competitive uncertainty in the music industry. Although global recorded music sales grew in 2012 for the first time since 1999, it is too early to tell whether this 0.3% increase to USD 16.5bn is a one-off or a sign of sustainable recovery after twelve years of decline. Without accounting for piracy, counterfeiting and bootlegging, digital music revenue also rose from 2% in 2004 to 34% of total music revenue worldwide in 2012 [1].

This growth in digital music revenue went hand in hand with increased competition among multiple designs [70-72] and a proliferation of new digital ventures [2, 3]. They emerged organically or as spin-offs from organizations as diverse as telecom handset manufacturers (e.g., Nokia with "Comes With Music"; Sony Ericsson with "Play Now"); telecom network operators (e.g., Orange); generalist and specialist retailers (e.g., iTunes, amazon.com, Tesco, HMV, Play.com); social networks (e.g., MySpace Music), and newcomers (e.g., Deezer and Spotify). This list, which does not include websites considered illicit by the music industry and its regulators, is anything but exhaustive. The abundance and variety of new propositions in the digital music industry reflects its current state of flux and competitive instability, which stands in sharp contrast to the stable, mature competitive environments on which managerial

cognition research has hitherto mainly focused. Most of the organizations cited above have also developed visions that underline the inefficiencies and obsolescence of the traditional music industry in the new digital age. With the support of investors and consumers alike, digital music entrepreneurs have set out to challenge and transform the traditional economics of the music industry.

Our methodology followed three sequential steps. First, we opted for a measure of media impact on the Internet as our sample selection criteria. Our rationale was that the buzz generated on the net around a new digital venture is more adapted to evaluating its potential success in terms of added value to consumers than traditional media coverage or performance indicators. Media impact on the Internet serves in our model as a subjective proxy for Internet users' perception of new digital music ventures.

We resorted to common search engines to conduct repeated extensive searches using combinations of the following terms as filters: “digital music”, “music industry”, “entrepreneurs”, “digital entrepreneurs”, “best”, “list” and “ranking”. In doing so, we identified sites offering referencing or rankings of digital music services. Our final list of the ten most important websites or blogs classifying or referencing new ventures in the digital music industry included one or more organizations per broad category. Categories comprised traditional search engines (Delicious, Google), individual listings (eConsultants), scientific listings (World Best), editors' listings of choice (MusicDownloadFinder, RIAA, Wired, and Mashable), and Wiki listings (Wikipedia on music stores and music databases). We used these ten websites and blogs as extensive and diverse filters to identify the most visible music websites at the time of data collection. We aggregated the results of these searches into a list of 247 ventures, and only retained the organizations that were quoted at least three times in the ten websites and blogs. This systematic approach led to the selection of the 21 most visible-on-the-web digital music websites in July 2011.



Second, we gathered the following information for each of the 21 ventures in our sample: date of creation, geographic location of the server, audience/customer base, catalog size, revenue model, content type, distribution channel, and vision. Most data were obtained through the organizations themselves, and from press releases available on the Internet. At the time of data collection, all 21 organizations were active in music distribution. However, none of them directly intervened in music production by writing, composing, or performing music. Appendices A and B provide details on the ten websites and blogs we used as filters and on the 21 organizations included in the sample.

The 21 ventures split into three groups: ten were independent; ten belonged to technology, media and telecommunications companies; and one was funded by a private equity fund. Four of the online organizations were named after their parent company (Wal-Mart Music, Amazon mp3, Yahoo! Music, and AOL Music). The dates of creation of the ventures were equally distributed: at the time of sampling, they were one to twelve years old. Eighteen services out of 21 originated from the USA, and three from Europe (UK, France, and Luxemburg). Eight adopted a business model based on providing their services for free, and 13 involved “freemium” models: that is, free basic services combined with pay-per-use or subscription premium services.

The analysis was devoted to identifying and interpreting the representations that our 21 sample firms displayed of the digital music industry and of the opportunities this industry provided them with. A focus on small, entrepreneurial businesses allows for a more effective understanding of the cognitive coherence and of “the relationship between entrepreneurship and the cognitive underpinnings of the firm” (Witt, 2000: 736 [73]). Separating cognition from other sources of explanations of subsequent action is difficult [27]. Even so, official communications such as mission and vision statements and letters to shareholders are

customarily used to capture managers' perceptions and examine cognition [12, 16, 27, 74-76].

Mission and vision statements project a shared sense of organizational meaning. As such, they partly uncover the cognitive coherence of the organization. As official communication instruments, they reflect what current managers, directors and owners believe the companies and their added values are, and where they are likely to be headed next [76, 77]. A vision feeds on emotion and energy. Elusive, inspiring and motivating, it provides an image of the future state of the organization and its environment, and "effects a collective leap of faith of imagination beyond forecasts and figures" (Sapsed, 2009: 310 [78]). The writing up of a vision statement also allows the organization to determine which competences it will prospectively develop to attain its imagined future state [78].

Letters to shareholders feature in companies' annual reports and are available for all listed organizations over time [16]. Unlike interviews, during which managers may engage in ex-post rationalizations of events and how they have evolved, letters to shareholders are customarily seen as capturing managers' views contemporaneously [16, 27, 79]. Despite some limitations, they allow for the examination of managerial cognition in a consistent manner across organizations and over time [80]. Legitimate measures of managerial cognition include word counts of themes developed within letters to shareholders, which also paved the way to longitudinal studies connecting cognition to action [16, 27].

Due to the importance of establishing an installed user base in digital economics [81-83], services users (the consumers) are relevant and significant stakeholders of internet startups. Just like mission and vision statements and letters to shareholders in traditional communications to shareholders of listed or publicly traded companies, all information disclosed on digital music entrepreneurs' websites and blogs is in the public domain, and

consumers, shareholders and other stakeholders have all access to it. It also generally includes mission and vision statements. Official company websites and blogs consistently provide digital music entrepreneurs' contemporary and prospective views of their industry. In the digital music industry, communication on official company websites and blogs is therefore very similar to, and often entirely substitutes for, traditional shareholder communication.

We placed a particular emphasis on organizations' mission and vision statements and on the way statements, visuals and text displayed on official websites and blogs described the industry and organizations' activities. For each of the 21 organizations, we searched the baseline and the short definition the organizations provide for themselves (both in the "About us" section of their websites), and the baseline result from a Google search (in the Google results page). We did not purport to investigate the exact nature of the business models, in terms of value capture and services sustainability, implemented by the organizations in our sample. Rather, we were interested in examining the mental models, cognitive frameworks, and industry recipes developed by the entrepreneurs at their helm. Our key premise was that the discourses of the top 21 "web-matic" organizations served as proxies of what these organizations perceived as their positioning, added value, and innovation. Our research consequently focused on the cognitive frameworks embedded in these organizations' official discourses of mission, vision, and positioning.

When coding the data in the third phase of our methodology, we used discourse analysis techniques to analyze the 21 organizations' official discourses of mission, vision, and positioning. Since the categories used by industry actors are constitutive of their mental models, the method consisted of both authors independently identifying and comparing categories that could encompass the organizations' discourses. This analysis led to the identification of two dimensions. The first one is self-categorization, i.e. a self-proclaimed

definition of the organization's positioning. Some new ventures used idiosyncratic categories to describe their activity, instead of resorting to more traditional ones (including, for instance, producer, editor, and radio station). The second one encompasses the organization's innovation and value creation discourses, as most of the organizations under scrutiny claimed to add value above and beyond the traditional music industry.

We then considered the two sets of data separately. We classified the self-categorization data into four clusters, according to the degree to which this data referred to the traditional industry categories. Discourse analysis led to identifying three main features in the innovation and value creation discourses: use, supply, and prescription. This last concept is defined in the next section, and ended up broken down into three different modes in our analysis. We then examined the resulting data along the three dimensions of use, supply, and prescription, in order to provide a structured presentation of the way the most visible companies in the digital music industry go about promoting themselves. Figure 1 provides a synthetic overview of the main dimensions and sub-categories.

----- **Insert Figure 1 about here** -----

## **4. Results**

### **4.1. Self-categorization and Degrees of Subversiveness**

As illustrated in Table 1, only three ventures in our sample chose to define themselves in reference to traditional music industry categories. Four organizations, all established companies, chose not to define themselves through a specific category. Among them, two are "old" Internet companies acquired by rival newcomers (mp3.com, AOL Music), and two are subsidiaries of larger corporations (Yahoo! Music, Wal-Mart Music).

----- **Insert Table 1 about here** -----

A majority of the companies in our sample have a subversive innovation discourse. Four adopt traditional categories to define themselves, and ten present themselves through idiosyncratic or generic categories. Four ventures adopt a radical revolutionary discourse, and claim to change the rules of the game in the digital music industry: “to shake things up a bit” (mTraks); “anyone with a computer and an Internet connection can create his or her own Internet radio station” (Live265); “change the music industry” (Grooveshark); “a community of free, legal and unlimited music under Creative Commons licenses” (Jamendo). This self-categorization reflects varying degrees of subversiveness, from weak in organizations referring to traditional categories to high in ventures with an idiosyncratic or revolutionary discourse.

#### **4.2. Discourses of Innovation and Value Creation**

We identified three main dimensions of innovation and value creation in the discourses of the new ventures. They claim to innovate and to create value on use (by proposing new ways to experience music), and/or supply (by offering a richer supply), and/or prescription (by introducing new prescription modes). We define prescription as follows. In the creative industries, intermediaries such as editors, producers, talent agents [84], and critics [85, 86] act as gatekeepers to control creators’ and artists’ access to the different stages of the value creation process [87, 88]. Ultimately, customers’ consumption decisions are partially transferred to third-party actors. Their main undertaking, prescription, consists in selecting and filtering among a profusion of value propositions, with a view to bestowing special value only to a few of them [89]. Prescribers therefore partake in consumers’ decision processes and are actively involved in value creation. They transform traditional economic transactions

between suppliers and consumers into three-pronged relationships among suppliers, prescribers, and consumers [89].

The three dimensions of use, supply, and prescription break down into subcategories, as follows: ergonomics and payment (free) for use; renewal and abundance of supply; and ways to find music and customization for prescription. The coding process consisted in giving a “0” (no reference in the discourse) or a “1” (at least one reference) to use, supply, and prescription. It led to the following observations.

Four of the 21 companies were found to have no innovation discourse, whereas 17 did. They were consolidated in five groups of three to four companies each, as shown in Table 2. All of these 17 organizations claim to innovate on prescription, i.e. on the nature of their intermediation between suppliers and consumers, or on supply. They also all claim to change the way music is proposed to the consumer, either by asserting that they do not filter the general supply, or by maintaining that they change the way prescription occurs. When it comes to mental representations, however, a discourse that denies all forms of prescription may as well be interpreted as a specific prescription discourse.

----- **Insert Table 2 about here** -----

We cross-referenced the way prescription occurs among these 17 organizations and their innovation discourse, and identified three new paths: no explicit prescription (the choice is left to the consumer), customized prescription through technical devices and algorithms, and customized prescription through communities. Table 3 illustrates the ventures’ discourses on prescription, not the reality of their actions with regards to prescription. It focuses on new ventures’ perception of the value added by their customers. All of the organizations with an innovation discourse also have a discourse on prescription, and all but one, which explicitly mentions “real people,” deny all subjective interventions in their prescription mode.

----- Insert Table 3 about here -----

## **5. Analysis and Discussion**

### **5.1. Moving Away from Dominant Logics, Industry Recipes and Cognitive Barriers**

Our first question asked: Do entrepreneurial newcomers construct new cognitive frameworks or adapt existing ones in unstable, transforming industry contexts? The results discussed in Section 4 point to the former. Our analysis shows that managerial cognition occurs among new entrepreneurial entrants in a transforming industry in different ways than the ones observed among managers in mature or declining industries. Rather than conforming to them, the digital music entrepreneurs in our sample claim to call in question the dominant logics and industry recipes of the traditional music industry. As such, their discourses tend to validate the general observation of an obsolescence of traditional industry categories: they define themselves by contesting and rejecting them, and at first glance, do not seem to be constrained by blind spots or cognitive barriers.

Most organizations in our sample have an innovative, subversive, or revolutionary discourse, and do not describe their mission, vision, positioning and core activities through the categories traditionally used in the music value chain. Their discourse reveals their keenness to distance themselves from the traditional music industry recipes and cognitive frameworks, and to come up with new, idiosyncratic approaches. It also uncovers digital music entrepreneurs' willingness to radically differentiate from each other. They do not feel the need to balance conformity and differentiation: In other words, the competitive cusp does not seem to occur in the digital music industry. The shattering of traditional categories in the cognitive frameworks displayed by digital music entrepreneurs reflects an overall logic. The discourse of differentiation, rather than identification, adopted by new entrants demonstrates their eagerness to radically stand out from historical taxonomies. And the spirit of rebellion

that consumers exhibit vis-à-vis traditional business models feeds into the ability of digital music ventures to ignore traditional cognitive frameworks.

In contrast to existing studies that identified important cognitive barriers to innovation [24, 90, 91], we unveiled a situation in which entrepreneurs do not appear to be hindered at industry level. Prior research also showed that the success of established business models influenced the information used by managers to reach decisions [92]. The revolutionary discourse of digital music entrepreneurs exhibits no such cognitive constraints, possibly because none of the existing economic or cognitive models of the traditional music industry has proven successful so far in the digital age. Entrepreneurs have no successful industry recipes to look up to, and represent themselves as free of all dominant logics and cognitive barriers. In spite of their efforts to make a clean sweep of all existing cognitive frameworks however, the discourses of digital music entrepreneurs still remain heavily shaped by the cognitive frame of the value chain.

## **5.2. The Value Chain as a Pervasive Cognitive Frame**

Our second question asked: What importance do existing mental models, in particular the value chain, take on for entrepreneurs in a transforming industry? Our results show that in situations where references are blown apart, existing economic and cognitive models have proven ineffective, and actions have no immediate, tangible financial rewards, actors fall back on cognitive frames that transcend the particulars of their organization and industry.

A cognitive frame is a socially shared mental model that operates at different levels of analysis (including the individual manager, the team, the organization, the industry and the environment) as a system aimed at organizing the various cognitive cues that help decision-makers “memorize patterns and discriminate among the incoming information” (Witt, 2000: 742-743 [73]). In doing so, it allows entrepreneurs and managers to screen, represent and



interpret knowledge and events meaningfully, albeit oftentimes with constraints [73, 93]. Inasmuch as it also durably influences and shapes managerial mindsets, decision-making processes and outcomes across economic sectors and time, a cognitive frame transcends industry particulars, and is more pervasive than a management fashion, which may be more transient in nature.

In the case of digital music entrepreneurs and in absence of cognitive barriers within the transforming music industry, the value chain becomes a most prominent cognitive frame. It seems to both enable and structure digital music entrepreneurs' representations and discourses, and serves as a preeminent cognitive blueprint of how to organize the various activities and value creation processes in the digital music sector.

The statement above may seem counter-intuitive. As discussed in Section 2, the traditional value chain and its subsequent developments all rest on the orderly and mostly self-contained sequence of core activities within an industry, with various actors successively transforming and linearly bringing value to a single, specific, and mostly exogenous input. Value creation in the creative industries, including digital music, contradicts this model in three ways. First, value propositions (that is, value chain inputs) are diverse, and they are brought in simultaneously or sequentially at different stages in the product development process. Second, all actors, from creators to distributors, co-construct the value of the end products they play a part in developing in the creative industries [88, 89, 94] and in the digital economy [81, 95-99]. Third, this co-construction of value also implies a new, expanded role for intermediaries, which primarily entails prescription. Just like firms do not innovate in isolation [63], digital music entrepreneurs co-create value with a varied community of actors within and outside of their organization.

This inconsistency is further brought to the fore by carefully deconstructing the discourses of the digital music ventures in our sample. Most of them claim to innovate on supply. They communicate on the credo that the main added value the Internet allows them to offer to their consumers comes through a “hands-off” approach, whereby they relinquish the choice of artists and recordings to the consumers themselves. All the companies of our sample with an innovative discourse claim not to filter artists and recordings (large supply), or to filter them in more objective or customized ways. They do so, for instance, by replacing specific elements of the value chain with analytical tools or community prescription mechanisms. These choices clearly signal that their main added value lies in disintermediation. Substituting themselves for traditional actors allows them to propose a more adapted supply, and to replace subjective and costly filtering by traditional music labels’ Artists and Repertoire managers with “objective” filtering (no filtering, technically customized filtering, or community-based filtering). In their perspective, filtering brings no added value, whereas disintermediation does. This embedded view purports to move away from the traditional structure of the creative industries, in which actors within and outside of the organization act as gatekeepers [88] and prescribers [89] by weeding out undesirable value propositions and selecting in attractive ones.

Paradoxically, however, this innovation discourse further embeds its proponents within the confines of the value chain cognitive frame, instead of freeing them from it. Indeed, these organizations’ direct or indirect claims of disintermediation rest on a linear perception of the industry. Inasmuch as it is tantamount to suppressing one or several of its primary activities, the concept of disintermediation itself is inseparable from that of the value chain. Similarly, digital music entrepreneurs’ eagerness to use disintermediation to challenge prescription, defined in Section 4.2 as the selection and filtering by third-party intermediaries among a

profusion of value propositions with a view to bestowing special value to a few of them only [89], reveals how imbued they remain with the linear model of the value chain.

Thus, the efforts deployed by new online ventures that have adopted an innovation or a subversive discourse to cut themselves off the traditional music industry value chain leads them to consistently refer back to the very concept of the value chain. We believe that this is a sign that these organizations are still analyzing their industry through the lens provided by the value chain cognitive frame, wherein disintermediation is often described as a source of value. In spite of its inability to explain the diversity and plurality of value propositions, the co-construction of value, and the expanded role of intermediaries in the creative industries, the value chain is more than a dominant cognitive construct in these new ventures' perceptions. Existing research suggests that the break-down of heuristics in industries subjected to technical change and high uncertainty results in firms adopting widely divergent interpretations [27]. Instead, our analysis shows a broad convergence in discourses and interpretations. This convergence attests to the persistence of the value chain cognitive frame as a mental blueprint and comprehension grid of the digital music industry deeply set within the mindsets of digital music entrepreneurs.

The linear sequence of the value chain, the inherent simplicity of this model and its ubiquitous use in business practice and education should have cemented its obsolescence in developing, analyzing and making sense of the interactive, multifaceted and trailblazing processes of value creation and actor interactions in the transforming digital music industry. In contrast and as discussed in Section 2.2, the very same properties that exemplify the inadequacies of the value chain and should have logically condemned it to oblivion in transforming and emerging sectors such as the digital music industry contributed to entrench it as a powerful heuristic in the discourses and managerial cognition of digital music entrepreneurs. As traditional music industry outsiders, the latter should be in an ideal position

to challenge all the cognitive frameworks of the traditional music industry, particularly as they are proving ineffective in the new digital economy. Instead of doing so, however, they continue to analyze the digital music industry through the cognitive frame of the value chain.

The straightforward and relatively un-sophisticated analytical and interpretative grid of the value chain cognitive frame considerably helps digital music entrepreneurs get support from potential employees, business partners, creators and customers in implementing their vision [73]. The value chain also “trumps” (so to speak) existing dominant logics and industry recipes of the creative industries, which are by definition essentially confined to these industries and as such, less pervasive than cognitive frames. However, the prevalence of the value chain cognitive frame also results in a myopic enactment process [18], and restraints industry actors from embracing the specificities of digital music as a creative industry. In other words and to paraphrase the popular shorthand phrase, when one is looking at the world through value chain lenses, everything looks like a value chain.

### **5.3. Potential Limitations of the Research**

A first potential limitation of our study relates to the relationship between technology and innovation, as our results do not confirm or invalidate the conclusion that technology facilitates innovation. Through their adoption of revolutionary discourses, organizations signal their ability to release competitive as well as cognitive barriers. The leading ventures in the digital music industry see digitalization and the Internet as enablers of innovation and value creation, with no consideration for the technological and human constraints associated with their application. Inasmuch as technology lowers barriers to entry in a given industry, it allows outsiders to offer novel processes, products and services. Yet, the prevalence of cognitive frames may partially limit new entrants’ ability to do so.

Entrepreneurs and managers in hypercompetitive environments make decisions and interpret the outcomes of these decisions to change their frames of interpretation [10, 27]. The digital music industry qualifies as hypercompetitive. However, decisions made in this industry often lack immediate results: they are backed by investors who expect long-term financial returns. This is not to say that digital music ventures do not adapt their actions to their online visibility, and to the reactions of their audiences and other stakeholders. They may do so, however, with little reflection on their future profitability. Since no economic model has so far proven effective, the disconnection between financial results and results in terms of audience and visibility is often patent. We therefore do not witness any phenomenon of adaptive sensemaking in the digital music industry. Contrary to the existing literature, we show no link in the managerial cognition of entrepreneurs between cognitive frameworks and the results of specific actions, as we kept the latter outside of our research scope.

A second and more fundamental potential limitation of our study relates to the actual nature of the innovative, subversive or revolutionary discourses adopted by industry newcomers. Difficulties in untangling pure cognition from the tactical and strategic uses of official websites and blogs content are at the heart of this issue [78]. Our analysis and discussion above rest on their definition as expressions of the core beliefs of these newcomers. Yet, the discourses of industry newcomers displayed on official websites and blogs may not reflect their managerial cognition, or may only do so marginally.

Ultimately, they may have been deliberately engineered to resonate with the managerial cognition of other key industry actors, or at the very least with digital music entrepreneurs' perception of said cognition. In which case, the discourses, websites and blogs of digital music entrepreneurs would be little more than instrumental signaling devices aimed at attracting investors interested in more innovative ventures than the traditional incumbents, or at appealing to consumers who had so far adopted subversive or revolutionary practices

through digital music piracy, counterfeiting or bootlegging. As demonstrated below with a focus on the value chain cognitive frame, reality seems to lie somewhere in between these two extreme interpretations, albeit closer to the managerial cognition one.

Potential investors' general approach to start-up funding and development may make them more tightly constrained than the digital entrepreneurs themselves by the value chain cognitive frame, regardless of industry particulars. The cognitive frame of the value chain could consequently affect investors' screening and interpretation of events more than it would affect digital music entrepreneurs' screening and interpretation of events. Having realized this, digital music entrepreneurs could be deliberately referring to value chain activities and linkages in their discourses, websites and blogs. By doing so, they would use the latter as mere legitimizing devices in their efforts to attract funding<sup>2</sup> and to resonate with investors' mental model of the value chain, which they may not share.

Visions, in particular, may be seen as either opportunities rooted in entrepreneurial and managerial beliefs to break free from path-dependence [100], or as instruments of propaganda and public relations aimed at generating internal adhesion or external support, notably from investors [78, 101]. There is no denying that the vision statements displayed on the websites of digital music ventures serve instrumental purposes, including appealing to investors and attracting positive publicity. However, the fact that 17 out of the 21 organizations in our sample converged in their questioning of traditional prescription goes against previous conclusions that in times of technical change and high uncertainty, firms' interpretations tend to substantially diverge [27]. This result may be interpreted as a tangible manifestation of a collective belief of what gets investors interested in a venture. In other words, it is a tangible manifestation of a shared mental model unconsciously used by digital

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<sup>2</sup> We wish to thank Professor Elke Schüßler for suggesting this alternative interpretation of our findings.

music entrepreneurs to understand and interpret the world around them and to reach out to investors.

All the same, digital entrepreneurs' appeal to investors may rest more on their ability to create and nurture a significant critical mass of consumers than on their actual discourses [81, 82]. Entrepreneurs' websites and blogs may consequently be targeted more at consumers than at investors. In the creative industries, including digital music, consumers are foremost arbiters of value. Digital music entrepreneurs could therefore be using their discourses, websites and blogs as mere legitimizing devices in their efforts to attract consumers and to resonate with consumers' mental model of the value chain (be it actual or alleged), which they themselves may not share.

In the same way, letters to shareholders have been criticized as outcomes of public relations and symbolic management work rather than genuine evidence of CEO cognition [102].

Follow-up interviews carried out by the authors confirmed that the direct contribution of digital music entrepreneurs into the writing and editing of website and blog content is as important as the input of CEOs into letters to shareholders [27]. As such, they at least partly reflect their cognitive frameworks. Moreover, if official websites and blogs were only used as legitimizing devices, we would witness some variance in the specified forms of prescription, as new ventures would strive to differentiate in terms of competitive positioning within the digital music industry. This is again not the case, as nearly all 21 organizations in our sample claimed to waive traditional forms of prescriptions in favor of new modes of prescriptions (customized through technical devices and algorithms or through communities) or of a negation of prescription.

Digital consumers have also developed a particular perceptiveness of online offerings, and an uncanny ability to use social networks to make or break individual and corporate reputations

online. A digital music entrepreneurial venture that uses discourses, websites or blogs to “sell” a specific added value to prospective consumers (for instance, disintermediation) can therefore be reasonably assumed to actually believe in said added value. The discourses, websites and blogs of digital music industry newcomers consequently tend to go beyond mere exercises in legitimation to reflect, if only partially, managerial cognition. Inasmuch as they reflect their core belief that disintermediation is a source of value, they also reinforce the prominence of the value chain cognitive frame.

## **6. Conclusions and Suggestions for Further Research**

Our study set out to shed light on the managerial cognition of entrepreneurs by answering two questions in the particular context of the digital music industry. We asked first if entrepreneurial newcomers constructed new cognitive frameworks or adapted existing ones in unstable, transforming industry contexts. Second, we asked what importance existing mental models, in particular the value chain, took on for entrepreneurs in a transforming industry. Answers to these two questions, as detailed in Section 5 above, show that the managerial cognition of entrepreneurs goes through a dual process in the digital music industry.

In response to our first question, our study demonstrates that the managerial cognition of entrepreneurs involves the creation of new cognitive frameworks clearly differentiated from existing dominant models and displaying no evidence of blind spots and cognitive barriers. In contrast to situations hitherto observed in mature or declining industries, entrepreneurs in the digital music industry tend to define themselves by contesting and rejecting the dominant logics and industry recipes of the traditional music industry. Their innovative, subversive, or revolutionary discourses show their eagerness to distance themselves from historical music industry taxonomies, and to singularize themselves.



The dynamic pace of creation of new online ventures also mirrors the transforming nature of the digital music industry, and illustrates a general perception shared with digital consumers of a bounty of new opportunities in this sector. While the tactical and strategic uses of statements on official websites and blogs as signaling devices and public relations tools is real and should not be neglected, we believe that these statements also partially reflect managerial cognition. The subversive discourse adopted by digital music entrepreneurs is more than a mere communication ploy. It reaffirms their willingness to free themselves from the shared cognitive frameworks, industry recipes and cognitive barriers of the traditional music industry. This may be in part because none of the existing economic or cognitive models of the traditional music industry has been effective so far in the new digital age. With no successful industry recipes to look up to, digital music entrepreneurs represent themselves as free of all dominant logics and cognitive barriers.

Even so, our analysis also concludes in response to our second question that in the context of a transforming industry in which competition is in a state of flux, references are blown apart, existing economic and cognitive models have proven ineffective, and actions have no immediate, tangible financial rewards, the managerial cognition of entrepreneurs also conforms to the value chain. This pervasive cognitive frame has imposed itself in the digital music industry as a preeminent cognitive blueprint of how to organize activities and value creation processes. And yet, the value chain is mostly ineffective in accounting for the diversity and plurality of value propositions, the co-construction of value, and the expanded role of intermediaries in the creative industries.

By opting to innovate on supply (notably through no filtering, technically customized filtering, or community-based filtering), digital music entrepreneurs clearly signal the importance they place in disintermediation as a core value proposition. The notion of disintermediation however is deeply rooted in a linear representation of the digital music

industry, which both contradicts most processes of value creation and actors interactions in this sector and reinforces the hold of the value chain cognitive frame on the managerial cognition of digital music entrepreneurs. Their readiness to refer to disintermediation in their efforts to challenge prescription similarly illustrates their cognitive reliance on the value chain.

The straightforward and relatively un-sophisticated analytical and interpretative grid of the value chain transcends existing dominant logics and industry recipes. Somewhat paradoxically, the linear sequence, the simplicity and the ubiquitous use in business education and practice of the value chain have entrenched this model as a powerful heuristic in the discourses and managerial cognition of digital music entrepreneurs. The value chain cognitive frame helps them communicate and gather support around their vision. Its prevalence, however, may also result in a myopic enactment process, and restrain industry actors from embracing the specificities of digital music as a creative industry.

These conclusions were drawn in the specific context of the digital music industry, and by focusing on the official discourse of the 21 most visible new digital music ventures. Although the digital music industry does share several core characteristics with other creative industries, more research is needed across creative sectors before we can extend our conclusions to creative industries in general. For instance, reproducing a similar research protocol in a different creative industry may lead to interesting insights on the extent to which the managerial cognition of entrepreneurial new entrants within this industry is similarly structured by the cognitive frame of the value chain, even though the latter goes against the creative industries' three core characteristics of diversity and plurality of value propositions, co-construction of value, and expanded role of intermediaries. Introducing a dynamic pattern to the research would help understand how the cognitive frameworks of new entrepreneurial

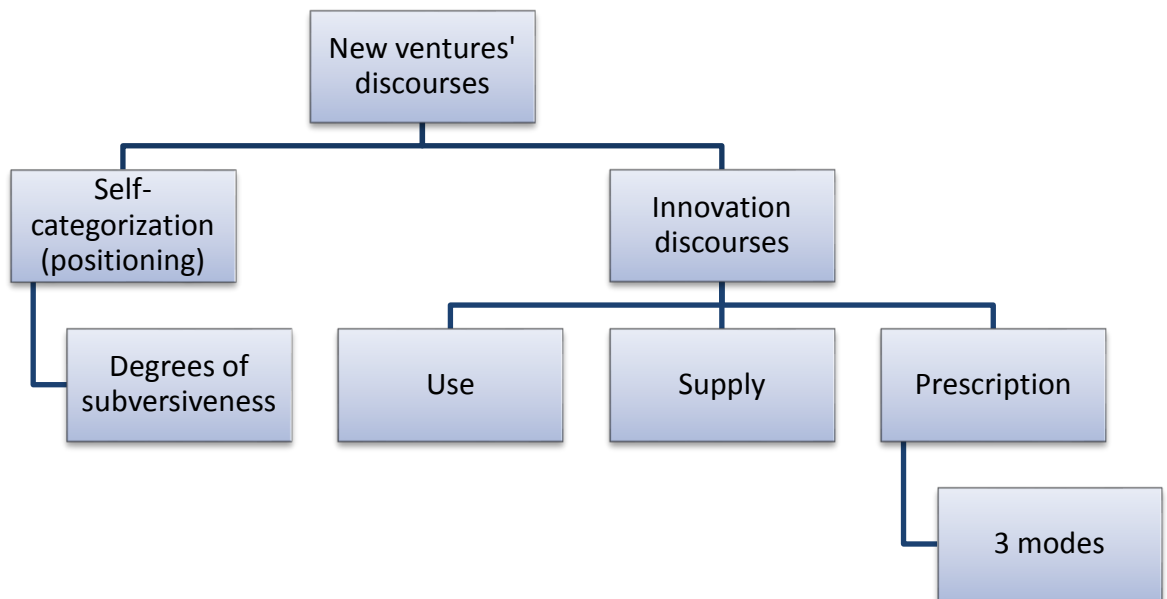
ventures, as reflected in their discourses, evolve as they become increasingly established within an industry.

Moreover, the subversive innovation and value creation discourse adopted by many digital music entrepreneurs is a consistent trope in the creative and digital industries, which may be quite different from the reality of their business models and actions. Therefore, future research may involve testing the correspondence between the managerial cognition of entrepreneurs and their new ventures' actual business models and mechanisms of value creation and capture. In particular, the prospect of replicating our study in an emerging or in another transforming industry with proven sources of short-term revenue seems promising. Another option would involve comparing the key performance indicators and financial results of digital entrepreneurs' ventures over a few years, in order to better understand the relationship between cognitive models and performance in the longer term.

A more conceptual next step may involve investigating additional sources of explanation of the cognitive frame of the value chain, for instance by building on the existing literature on sensemaking [34, 103] and on organizational identity [104, 105]. Ultimately, managerial cognition research also defines maturity as a mental state of mind rather than an immutable market condition. As such, managers' very perception of their industry as mature or declining, much more than the actual competitive and institutional environments within which they compete, leads them to lose their imagination and stop innovating and creating new sources of value [18, 106]. Our study contributes to the mirror definition, at industry level, of transformation as a mental state of mind. Future research could build on this definition to extend our initial effort to bridge the gap between managerial cognition and entrepreneurial cognition by extending the former to the study of the mental models and cognitive frameworks underlying entrepreneurial decisions and actions in unstable, transforming industry contexts.

More comprehensive definitions of emergence and transformation as mental states of mind could be further developed within the field of entrepreneurial cognition with a focus on why and how entrepreneurs may use their imagination and innovate in a nascent or a transforming industry. They could also be further developed within the field of managerial cognition with a focus on the ways in which the managerial cognition of entrepreneurs may free itself from the influence of pervasive cognitive frames, including the value chain, or learn to use them to radically expand entrepreneurial imagination and innovation.

**Figure**  
**Figure 1: Conceptual Model**



## Tables

**Table 1: Self-Categorization Matrix**

<b>Self-categorization through...</b>	<b>Number of organizations</b>	<b>Categories referred to</b>
Traditional categories	3	“radio,” “store,” “entertainment superstore”
Traditional categories with specific qualification	4	“internet radio,” “digital entertainment retailer,” “interactive webradio,” “Internet radio network”
Idiosyncratic or generic categories	10	“music service,” “social network,” “digital music service,” “pioneer of digital music,” “website for the discovery and promotion of new music and emerging artists,” “your personalized gateway for music discovery,” “community,” “to improve the connection between people and music,” “ultimate online music experience,” “killer social music community and digital music marketplace”
None	4	

**Table 2: Innovation and Value Creation Discourses Combinations**

<b>Dimensions involved in the discourse</b>	<b>Number of companies</b>
No innovation discourse	4
Prescription	4
Supply	4
Prescription and Supply	3
Use and Supply	3
Prescription, Use and Supply	3

**Table 3: Nature of the Prescription Discourses**

Prescription modes	Number of organizations	Examples
No prescription (choice left to the final consumer)	9	“offering unrivaled discovery tools,” “creating better ways to discover, share, acquire and enjoy music,” “best way to discover new artists,” “which helps searching, finding and playing music,” “changing the way we find and listen to music”...
Customized prescription through a technical device	4	“the most comprehensive analysis of music,” “get customized recommendations, personalized recommendations based on your recent listening history, deliver free personalized radio that is customized”...
Prescription through communities	4	“browsing other people’s playlists is a great way to discover great new songs,” “based on shared tastes and interests, a music service that learns what you love,” “you recommend some music to a friend”...

## Appendices

### Appendix A: Filters Used in the Initial Search

Categories	Filter	Web address	Search or listing date	Description	Referencing methods (simple, automatic or selective, ranking, etc.)
Search engines	<b>Delicious</b>	<a href="http://www.delicious.com">www.delicious.com</a>	Feb. 2009	Social bookmarking service that allows consumers to tag, save, manage and share web pages from a centralized source.	Search First 17 results out of the search engine (keyword Online music)
	<b>Google.com</b>	<a href="http://www.google.com">www.google.com</a>	Feb. 2009	Search engine	Search  First 12 results (Online music)
Individuals listings	<b>eConsultant</b>	<a href="http://web2.econsultant.com/music-playlist-sharing-services.html">http://web2.econsultant.com/music-playlist-sharing-services.html</a>	29 July 2006	eConsultant maintains eConsultant.com , the Ultimate Web Developer Lists (featuring 4000+ sites in 200+ lists) and the Web 2.0 Directory (1200+ sites in 50+ categories).	List of music services (post)
“Scientific-like” listings	<b>World Best</b>	<a href="http://www.worldbest.com/music.htm">http://www.worldbest.com/music.htm</a>	Feb. 2009 (frequently updated)	World Best Website Awards are granted to exemplary websites that are pursuing "best practices" in website design &	Best Online Music Websites. Websites are evaluated using a mixed method, involving rigorous criteria, and experts judging. ( <a href="http://www.worldbest.com/criteria.htm">http://www.worldbest.com/criteria.htm</a> )



				Internet communications	
Editors choices	<b>MusicDownloadFinder</b>	<a href="http://www.musicdownloadfinder.com/">http://www.musicdownloadfinder.com/</a>	2009 (updated every year)	Covers legal music sites with full reviews, comparisons, trials, and special promotions	Best Online Music Sites, by category (editor choice)
	<b>RIAA</b>	<a href="http://www.riaa.com/toolsforparents.php?content_selector=legal_music_sites">http://www.riaa.com/toolsforparents.php?content_selector=legal_music_sites</a>	Feb. 2009 (Frequently updated)	The Recording Industry Association of America (RIAA) is the trade group that represents the U.S. recording industry.	Some of the more popular legal online music sources
	<b>Wired</b>	<a href="http://www.wired.com/listening_post/2008/07/listening-posts">http://www.wired.com/listening_post/2008/07/listening-posts</a>	6 July 2008	On-line Press	“Listening Post’s Top 10 Hottest Music Sites.” “Sites were chosen based not only on what they currently do for music fans, but also on their potential to impact the future development of the music industry.”
	<b>Mashable</b>	<a href="http://mashable.com/2007/07/06/online-music/">http://mashable.com/2007/07/06/online-music/</a>	6 July 2007	Mashable is the world’s largest blog focused exclusively on Web 2.0 and Social Networking news.	90+ Essential Music and Audio Websites (by Mashable team)
Wiki listings	<b>Wikipedia</b>	<a href="http://en.wikipedia.org/wiki/Comparison_of_online_music_stores">http://en.wikipedia.org/wiki/Comparison_of_online_music_stores</a>	Feb. 2009	Free encyclopedia	Multi-dimension comparison of selected online music stores
	<b>Wikipedia</b>	<a href="http://en.wikipedia.org/wiki/List_of_online_music_databases">http://en.wikipedia.org/wiki/List_of_online_music_databases</a>	Feb. 2009		List of online music databases

## Appendix B: Final Sample of “Web-Matic” Organizations

New Venture	Created	Owner	Number of citations
Pandora	2000	Independent	6
Last.fm	2002	CBS	6
eMusic	1998	JDS private equity fund	6
iTunes	2001	Apple	5
Meem	2004	Independent	5
Rhapsody	2001	Real Networks	4
Napster	1999 (reborn 2003)	Best Buy	4
mTraks	2007	Independent	4
Amazon MP3	2008	Amazon	4
PureVolume	2003	Independent	3
Zune Marketplace	2008	Microsoft	3
Yahoo! Music	2001	Yahoo!	3
Wal-Mart Music	2007	Wal-Mart	3
Slacker	2004	Independent	3
AOL Music	1983 (AOL)	Time Warner	3
Musicoverly	2006	Independent	3
MP3.com	1997 (reborn 2003)	CNET (CBS)	3
MOG	2005	Independent	3
Live365	1999	Independent	3
Jamendo	2005	Independent	3
Grooveshark	2007	Independent	3

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## **Acknowledgements**

We thank Elke Schüßler, Jonathan Sapsed, Vincent Mangematin and two anonymous reviewers for their very helpful and constructive feedback on the article throughout the reviewing process. We also wish to thank Sebastian Concha, Julien Jourdan, Rosalind Horton, Chris Sinclair, and participants at the EGOS Digital Technology and the Creative Industries Sub-theme in Gothenburg, the *itps* Media and Content Industries workshop in Seville, and AIMAC in Antwerp for their helpful comments at various stages of this project. The second author received support to carry out this research from the French ANR Impact program.