Business models, diffusion of innovation and imitation: The case of online press

LYUBAREVA, Inna and ROCHELANDET, Fabrice and ETIENNE, Jean-Michel

Université Sorbonne Nouvelle - Paris 3, Télécom Bretagne, Université Paris-Sud

January 2016

Business models, diffusion of innovation and imitation: The case of online press

Inna Lyubareva, Fabrice Rochelandet and Jean-Michel Etienne*

January 2016 *(Very preliminary draft)*

Abstract

A body of literature shows the destabilizing role of ICT and change from analogue to digital in the cultural industries in general, and in press industry in particular. This literature demonstrates that constant experimentation and innovation in the area of organizational arrangements and business models (BM) has become a key competitive advantage. As a result, traditional BMs, which were dominant and stable in different cultural industries (such as media, film, music, publishing etc), have given rise to a multiplicity of arrangements in business management and the emergence of disruptive and innovative business models, which often successfully coexist in the same market segment. According to this view point, strategic and structural change is necessarily driven by competition or the need for efficiency. However alternative theories predicts that in depending on the industry structural characteristic, only early adopters of innovation may be driven by a desire to improve performance, whereas as an innovation spreads and organizational field becomes more established, there may be a push towards homogenization. The case of the French press is quite symptomatic of that standpoint. From the empirical analysis of 100 press websites observed over the period from 2004 to 2014, the paper substantiates the convergence process towards three dominant clusters of online BMs: "A minima Digital", "Freebie Plus" and "Exploring Leaders". Using a Random Effects Probit econometric model the paper puts forward that this isomorphic process is mainly due to the fact that mimetic behavior over-weights search for performance in French press.

Keywords: Online Press, Business Models, Innovation of Service, Imitation, Isomorphism

* Inna Lyubareva is Associate Professor of Economics, Télécom Bretagne, Technopôle Brest-Iroise - CS 83818 - F-29238, Brest, France. Email: inna.lyubareva@telecom-bretagne.eu. Fabrice Rochelandet is Professor of Communication Science, Université Sorbonne Nouvelle, 13 rue de Santeuil F-75005, Paris, France. Email: fabrice.rochelandet@univ-paris3.fr. Jean-Michel Etienne is Associate Professor of Economics, Université Paris-Sud, 54 Bd Desgranges, F-92331 Sceaux, France. Email: jean-michel.etienne@u-psud.fr. We thank Pierre-Jean Benghozi, Franck Rebillard, Grazia Cecere, Fabrice Le Guel and seminar participants at 2nd Summer School of Digital Economics, Rennes, France for helpful comments. Financial support from the Labex ICCA is gratefully acknowledged.

1. Introduction

Digital technologies and online services have transformed most of the economic activities and social practices. Since the mid- 2000s, the second generation of the Web (social networking services, user-generated contents…) has created the conditions for radical innovations in terms of platforms and services. Among the first activities affected by these evolutions are cultural industries and media, in particular through cultural practices - illegal sharing, online reviews, social recommendation… - and disruptive business models (BMs). Press industry is fully impacted by this new dynamic environment. Firms are trying to benefit from new opportunities in terms of social interactions with their readership, new sources of revenue, and so on. At the same time, they are facing new competitors - the internet monopolies, content aggregators, infomediaries - that transform the boundaries of traditional market and the features of media products. The growing diversity of organizations in digital publishing feeds on the increasing variety of its mutations and contexts (Dagiral and Parasie, 2010; Attias, 2007). The French industry is not immune to these transformations: it reveals great disparity in terms of content and services, pricing and distribution strategies, and devices for interacting with readers. Indeed, one of the main effects of digitalization is the ability to multiply the terms of content provision and marketing due to new opportunities for content dematerialisation and delinearization.

In this paper, we focus on the evolution of BMs for the online press in France from 2004 to 2014. During this period, many events and transformations have influenced the evolution of the actors' business strategies. Among them one can mention the creation of new services and functions with the advent of Web 2.0 tools in 2004; the market entry of pure players in 2006-2007; the negative impact of the 2008 crisis on newspapers profitability; the 2009 institutional reform to adapt the statute of newspaper publishers; and finally the massive use of mobile devices such as smartphones and tablet computers to read news. Taking into account this rapidly changing environment, the purpose of this paper is to understand the dynamics of evolution of BMs in the French press industry, to map out the emergence of relevant business strategies and to identify the determinants of choice of these strategies since 2004.

Our analysis relies on an original dataset containing information about the digital business models

and web audience of a representative sample of online press websites in France. Data on the BMs characteristics of these websites were collected in Fall 2014. The dataset contains 100 websites and includes a range of firms from Le Figaro (national daily newspaper), to La Dordogne Libre (local daily newspaper), to Rue89 (pure player), to Les Inrocks (magazine newspaper). Our empirical study shows that the evolution of BMs is accompanied by the isomorphism phenomena: i.e. a decrease in the variety of organizational forms that shape online press business. Consequently one can observe convergence, in terms of BMs' characteristics, towards a few dominant designs. More specifically, this paper demonstrates the emergence and structuring of three dominant categories of BMs in French press, i.e. *'a minima digital', 'freebie plus' and 'exploring leaders'*.

In accordance with the literature review presented below, the paper explains such dynamics of evolution by process of rational mimetic contagion in actors' behavior, which over-weights rational exploitation of information such as web audience and other characteristics that can directly affect the performance of online business strategy. Previous researches argue that the tendency to isomorphic change occurs in specific industry context. From this view point, the case of French press industry is of special interest as this sector is structurally predisposed to institutional isomorphism. Indeed, high concentration in the industry with a small number of big groups controlling the whole sector ; dependence on government funding, favorable tax laws etc. ; and the major role played by professional associations – the scope of these factors spur a socialization process of business norms. In addition, firms face high uncertainty regarding the profitability of their online business and increasing reliance on online advertising. This digital environment favors rational imitation and trial-and-error behavior when firms design their digital offerings and the corresponding business models.

The rest of this paper is organized as follows. The next section provides a brief survey of the literature. The third section presents our hypotheses. Section four describes the methodology used in the paper: using the definition of BM concept provided in the literature, this section presents the variables and the two-stage analysis used in the study. Section five presents the main results. Last section outlines the further steps the authors are actually working on.

2. Literature

A body of literature focuses on some specific issues of the press industry transformations: for instance, the impact of paywalls following the failure of paying models and the losses in advertising revenue (Pickard & William, 2014; Estok, 2011), the digital future of traditional BMs in the newspaper industry (Sonnac, 2012) and the relationship between socioeconomic models of online press and media pluralism (Rebillard, 2012; Sonnac, 2009). However little is known about the dynamic process of the BMs evolution in the area and its underlying factors. Current paper proposes a dynamic approach exploring a 10 years period to investigate how those BMs have emerged and evolved since 2004. Additionally, we shed light on the mechanisms that explain these dynamics of BMs by studying the individual BMs decision of each websites and their motivations. Our study follows the work of Benghozi & Lyubareva [2013] that identifies general categories of BMs definition[1], and mobilizes different strands of economic and sociology literature on industry evolution.

Economic literature (Katz & Shapiro,1986) often explains the evolution of industries and markets through the standards or the dominant design issues. At the early stages of life cycle of products, disruptive innovation implying high technical and market uncertainty may bring about variety of competing standards or products. Technological breakthroughs create rivalry among alternative designs, resulting in a period of design variation or ferment. Then, the processes of variation, selection, and retention result in one standard or a product dominating the market. In general, the dominant design is a particular technical norm within a product category that gains general acceptance as the standard that other market players must follow if they want to acquire significant market share (Utterback, 1994; Utterback & Abernathy,1975). However, the dominant design is not always the design that incorporates the best features and performance. Moreover, several standards can coexist and compete for years without an individual technology emerging as the dominant design (Schilling, 2002). Standards wars have given rise to important debate about the efficiency of such winning standards (David, 1985; Arthur, 1989; Liebowitz,1990) and about the role of network effects and switching costs that induce users' lock-in on inefficient path of adoption.

[1] From this study and more generally, from the literature on business models (see section 4), we derive a set of variables to identify and analyze the evolution of the various BMs.

Another explanation of a convergence processes within an industry comes from the difficulty to predict a new project success and, therefore, its profitability: producers do not generally have a clear idea of their clients' tastes and, in the presence of networks effects, of the tastes' generation and diffusion. In such uncertain environments, where the 'nobody knows' rule prevails (Caves, 2000), imitation behavior is likely to appear as cost-saving solution (Ruckman *et al*., 2015) and as result of the socialization and professional norms (DiMaggio&Powell, 1983). Various theories envisage the imitation behavior as a rivalry-based or an information-based mechanism (Lieberman & Asaba, 2006) where organizations do not act independently of others, but instead their decisions are strategically founded on the behaviors of other agents in the same industry. For instance, many analyses in industrial organization consider how the decisions of one oligopolist influence the behaviors of others. This imitative behavior is thought to correspond to a rational imitation strategy to reproduce efficient decisions or just a simple result of imperfect information and bounded rationality affecting the decision-making of firms. For example, a 'gridlock' strategic imitation may take place when an organization tries to avoid being in a position where its close competitors have negotiated with all potential partners leading to its exclusion from beneficial business transaction (Gomes-Cassares, 1994). Firms can also imitate some decision, without considering their potential results, in order to avoid being dropped behind rivals, e.g. by being locked-out from new markets or technology that eventually prevail.

When all these conditions are met - it is precisely the case with online press -, literature in economics and sociology predicts a convergence resulting in a few dominant organizational forms. Despite their respective assumptions on rationality - rational mimetism for economists, bounded rationality for institutional theories -, these theories agree that uncertainty results in imitative behavior. High uncertainty may lead actors to rely on the strategic choices of early adopters (as basis of prior information) without considering their own private experience and assuming that other actors are better informed[2]. This imitative behavior can produce 'information cascades' or 'social learning' processes once a critical mass of imitators is reached (Banerjee, 1992; Bikhchandani *et al.*, 1992). This may finally lead to socially inefficient results if the first movers choose basically undesirable or inefficient solutions.

[2] Keynes [1936] identifies a similar uncertainty in the context of asset markets and demonstrates that agents neglect their private information in favor of imitating the actions of preceding agents. See also Orléan [2001]

According to Lieberman and Asaba [2006, p.367] "imitation is a natural response to environmental uncertainty, but, by reducing variety, it can compound the collective risk of firms in an industry".

In addition to the rational prediction hypothesis, sociologists and institutional theorists suggest that mimetism can be motivated by other factors than search for efficiency. They argue that only early adopters of organizational innovation are driven by a desire to improve performance, whereas the majority of agents choose to imitate them and their followers even when they cannot calculate the inherent benefits of imitation. When a critical mass of early adopters has been reached, subsequent firms decide to imitate because a new organization form, management method, product or practice is considered as being legitimate in their industry, even though the relationship between its benefits and the imitated decision is vague. Sociologists oppose this process they call 'institutional isomorphism' to that of 'competitive isomorphism' (DiMaggio & Powell, 1983). According to DiMaggio and Powell [1983, p.149], mimetic isomorphism is a "constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions". In the early stages of its life cycle, any "recognized area of institutional life" where similar services or products are created - a market, a sector, a social network… - displays a large diversity in business approaches, innovation strategies, organizational structures, and so on. But "once a field becomes well established (…), there is an inexorable push towards homogenization", i.e. a decrease in variation and diversity of organizational forms (DiMaggio & Powell [1983, p.148]). The last but not the least contribution of the sociologic literature concerns a distinction between local mimitism, when decision-making process is influenced by organizations operating in the same strategic niches (Garcia-Pont & Nohria, 2002), and global, industry-wide mimitism. From this viewpoint organizations choose to imitate primarily the behavior of their closest rivals or the most similar to them, belonging to the same 'strategic group' in the sense of Caves and Porter [1977]. In the empirical part of our paper, we consider this aspect into two distinct dimensions: (1) firms doing their business in the same market segment and (2) firms that share the same business model (see section 4).

Finally, some economic sectors seem to be more predisposed to homogeneity in structure and actors' behavior. To identify them, DiMaggio and Powell have put into evidence six field-level predictors of

isomorphic change:

- The dependence of the field upon a single source: "the centralization of resources within a field both directly causes homogenization by placing organizations under similar pressures from resources suppliers, and interacts with uncertainty and goal ambiguity to increase their impact.";
- The interaction of the field with the state: "the greater the extent to which the organizations in a field transact with agencies of the state, the greater the extent of isomorphism… [because of] rule-boundedness and formal rationality, and the emphasis of government actors on institutional rules.";
- The limited number of organizational models: "for any relevant dimension of organizational strategies or structure in an organizational field there will be a threshold level, or a tipping point, beyond which adoption of the dominant form will proceed with increasing speed.";
- The technological uncertainty or goal ambiguity: "in fields characterized by a high degree of uncertainty, new entrants, which could serve as sources of innovation and variation, will seek to overcome the liability of newness by imitating established practices within the field.";
- The structuration of the field: "fields that have stable and broadly acknowledged centers, peripheries, and status orders will be more homogeneous both because the diffusion structure for new models and norms is more routine and because the level of interaction among organizations in the field is higher.";
- The level of professionalism in the field: "the greater the extent of professionalization in a field, the greater the amount of institutional isomorphic change" (due to similarity of learned norms and models and socialization process inherent to professionalization programs).

Many empirical studies have been conducted to explore these different hypotheses in relation with mimetic isomorphism (see Lieberman & Asaba, 2006). In particular, some authors have investigated the strategy of organizations linked by network ties and hence, having more detailed information about each other. For instance, this could be the case of firms with interlocking managers (Davis, 1991; Haunschild, 1993) or combining units of the same corporation (Greve, 1996). In these situations, organizations have better chances to adopt such imitative behavior. The next section, suggests that French press sector includes the scope the sector-level predictors and, therefore, has natural tendency to institutional isomorphism. This point is all the more true under the impact of ICT, higher uncertainty rates and new

sector-specific constraints (e.g. the downturn of the advertising market).

3. Hypotheses

We suggest that there is a convergence of online press BMs on a few dominant designs and that this isomorphic path is determined by the key elements of the institutional environment of online press business. This convergence on a few dominant business models in the French press sector is especially favored by the following factors matching the field-level predictors.

(1) The sector has been traditionally dependent upon advertisers as a main source of support and some distributors to deliver newspapers.

(2) Most of newspapers depend on government funding, favorable tax laws etc.;

(3) There has always been a limited number of alternative business models;

(4) Technologies are uncertain and there is no stable internet-model:

(5) In the highly concentrated press sector, a small number of big corporations control the whole industry[3].

(6) Important role of professional associations in the press sector.

Our main hypothesis is that: An isomorphic process characterizes the evolution of the business models in the online press and results in gradual decrease in the variety of strategies. This process takes place due to the specific behavior of websites' owners. According to the literature we distinguish between three categories of factors impacting the dynamics of evolution of strategic decisions of the firms and resultant structure.

The first category of factors refers to the tendency to imitation. The question is to consider to what extent the BM decisions of other firms - whose behaviors are observable or with whom it is possible to communicate - influence the decision of a given firm to change or not her BM. Two main mechanisms are at stake.

The first one relates to rational imitation. A website owner can decide to change its BM by observing the decision of its 'neighbors'. These ones can be either the websites operating in the same market

[3] This aspect may be of particular importance in digital environment taking into account the switch of advertisers from print to the Web, preference for interactive advertising and performance marketing.

segment (daily newspapers, magazines...), or the websites based on the same type of business model. When a high share of 'neighbors' changes their BM, this could constitute relevant information or a signal for the firm to conduct similarly. The terms rational means that imitation in this case could be derived, for example, from a calculus according to which the operator considers the others' decisions as efficient. In general firms in a sector are capable, at least partially, to observe the strategies of other actors operating in the same market segment (local press, magazine, pure players…) as well as of those using the same business model. Although he cost of observation might be higher in the last case, both types of information are especially accessible in the digital context Another mechanism of imitation can result from the observation of the behavior of all the actors operating in online press sector, whatever their market segments or their business models are. If many of them change simultaneously their business models in different ways, because of an exogenous event, for instance, this could impact the website owner's decision to makes some changes without any rational ground.

Following these considerations and taking into account structural specificity of French press industry and pervasive technical uncertainty, we raise the hypotheses H1.1, H1.2 and H1.3:

Hypothesis H1.1: *In a given group of websites that operate in the same market segment, the higher is the share of websites that have changed their BM during the previous period, the more likely the website will decide to change its BM.*

Hypothesis H1.2: *In a given group of websites that have adopted initially the same BM, the higher is the share of websites that have changed their BM during the previous period, and the more likely the website will decide to change its BM. This effect is supposed to be smaller than that of H1.1.*

Hypothesis H1.3: *In the whole population of websites, whatever their BM is, the higher is the share of websites that have changed their BM during the previous period, the more likely the website is to decide to change its BM.*

The second category of factors influencing the BM diversity refers to the search for efficiency by exploiting available information on other actors and comparing it to the actor's own economic results. The impact of this second category is captured through the observation of web audience. Actually, the observation of web traffic could influence the BM decision of websites in different ways. The website

can compare its own audience with those of alternative BMs. On this basis, the website will modify its own BM in line with the most efficient ones. The website can also observe its own past audience, for instance when it proves very costly to know the audience of competitors. If its past audience is considered as inadequate, the firm might look for a new BM.

According to the research framework used in this paper, we expect no or a weaker relationship between web audience and the decision to opt for a new business model. As previously mentioned, the high rates of uncertainty and the difficulty to associate a given strategy with a certain level of performance make it difficult for online press firms to take rational decision based on a cost/benefit analysis.

Hypothesis H2.1: *Better results associated with alternative business models do not necessarily encourage the website to change its own business model.*

Hypothesis H2.2: *A negative evolution of its past traffic does not encourage the website to change its business model.*

Finally, the third and last category of factors which can shape the structure of BMs in an industry is "trial and error". As showed in the literature, under pervasive uncertainty, firms may tend to be more risk-neutral or risk-lover by experimenting and testing new opportunities. We propose, additionally, that such a behavior will more likely take place inside media corporations than stand-alone

Hypothesis H3: *A website that usually pursues a trial and error strategy will be more likely to change its BM.*

4. ICT and Press BMs : variables' definition, data collection and methodology.

Despite differences in the definition of the BM concept, researchers agree on the central role of three structural elements: value creation, value capture and value network (Shafer *et al.,* 2005; Teece, 2010; Osterwalder & Pigneur, 2009). The words "creation" and "capture" reflect two basic functions that all organizations must perform to remain viable. Firms develop core competencies and positional advantages to perform functions that are different from those of their competitors, and they implement different strategies to arrogate created value. In turn, value creation and capture occur within a value

chain that includes suppliers, partners, customer relationships and distribution channels, thereby extending the company's resources (Shafer *et al.*, 2005). The impact of ICT is perceptible at all stages of the production and commercialization cycle (Curien *et al.*, 2004; Debande & Chetrit, 2001): design and development, publication and promotion, distribution of content, distribution of derivative products (books, software, videos, etc.) and participation of new players in the value network. The development and diffusion of new technologies cause actors in the creative industries to re-consider their BMs, which historically were based on the marketing of physical objects and in-house content development.

One of the first tasks of this study was to identify – during the preliminary coding of newspaper Web sites – which modalities have proved to be most significant: offerings structure, revenue streams and pricing terms, interactivity with customers and suppliers, or distribution network.

Firstly, the supply structure is constantly evolving in terms of both the new contribution opportunities given to readers and customized interfaces and content. Newspapers tend to complement their online offerings with external content provided by guest bloggers (editorials) and readers (comments written beneath articles and readers' blogs). Readers' contributions are not limited to text: in some cases, the posting of pictures, sound and videos is part and parcel of the offering (user-generated content, or UGC). Therefore newspapers no longer offer an indivisible medium – newsprint – aggregating the content in one way only. They are open to new services such as personalized browsing while thematic RSS feeds enable them to offer readers content tailored to their wants and needs. Moreover, with online offerings readers are often informed of others' choices and interests through statistical information (most read, most commented on, and most shared). The frequency of rolling releases is another innovation made possible by new technologies, and it has profoundly changed the practices of readers, who are led to increase their contacts with one particular publication instead of simply making an occasional purchase (on a daily basis at best).

The second important point is the variability of content monetization. In addition to subscription pricing, a strategy widely adopted in the print media, a variety of pricing options has developed with ICT. Articles and associated services can be sold per unit or offered free of charge for a limited period (time credit: access to the issue for 24 hours) or in limited quantities (quantity credit: access to three

items). In addition, publishers can sell offline services (PDF articles) and access to digital archives.

The third significant trend is the evolution of interfaces available to readers and, consequently, new readership structuring built around interactivity. New technologies have opened up access to a wide range of interactivity devices: from article-assessment mechanisms ("Like") – which content publishers can use to better target their production – to the constitution of their own social networks, exclusive to some readers. In the same vein, the creation of a page on existing social networks (e.g. Facebook) is a new option in the interaction between publishers and consumers. These interactivity devices are often supplemented with discussion forums.

Finally, new distribution channels, previously unavailable to players in this industry, have developed. These include social networks (e.g., Facebook, via the article sharing feature) and digital kiosks, where a publication is available via subscription or on a per unit basis, on various supports (computers, tablets, smartphones, print version).

To understand the nature of current changes, we conduct a two-stage analysis. On the first stage, by systematically reporting the supply modalities and economic terms offered by press Web sites, we identify the strategies entailed in industry digitalization and show that some dominant forms might be lurking behind the large observable variety. The empirical study involves 100 BMs of French Web sites. These were selected on the basis of the press national association site OJD (http://www.ojd.com) in order to represent a wide variety of BMs across a range of contexts, institutional and thematic categories, publication frequency, location and size: local and national press, general and specialty press, traditional and new media actors, and so on. Through an online review of various sites and using the *wayback machine*[4], we collected the panel data of each website in period from 2004 to 2014 across six dimensions: (1) content and online services; (2) devices for interaction with readers; (3) storage devices; (4) content production networks; (5) distribution devices; and (6) pricing strategies. A total of 48 characteristics were found necessary to delineate each site. We coded each characteristic of the BM as a binary variable. We then conducted a multiple statistical analysis in order to compile a typology of BMs, extricate their stereotypes from the database and determine their structural elements. The analysis

[4] https://archive.org/web/

proceeded in two phases: factor analysis and cluster analysis. Multiple correspondence analysis (MCA), with associated clustering, is not based on distribution and therefore is free of assumptions about data properties (Greenacre, 1984; Clausen, 2008). The main assumption of this method is that all relevant variables are included in the analysis (Hair *et al.*, 1995). The focus was made on the analysis of first 11 dimensions summarizing, according to the year, between 55 and 70 per cent of the total variability of the websites' characteristics in the sample. For such a size of sample and number of variables, this percentage expresses a significant structure in the data (Husson et al. 2011). We used R tools.

On the second stage, we substantiate the factors responsible for the choice of a BM. In accordance with the hypotheses of the paper, we distinguish between the BM change driven by competition or search for better performance, and the change occurring as a result of mimetic behavior of the actors in the context of technical uncertainty and goal ambiguity. These latter factors can make organizations more similar without necessarily making them more efficient (DiMaggio & Powel, 1983). Since profits generated by online activity is seldom reported by firms a proxy variable for a measure of performance has to be found. For this purpose, we take advantage of the so-called spiral effect originally outlined by Furhoff (1973) and Gustaffson (1978) for press paper. The key idea is that profits generated by a title are contingent on audience which in turn depends on the quantity, the quality and the adequacy of contents which are assumed to improve with the financial means. The spiral effect thus implies a strong correlation between profits and audience for which it is easier to collect data. The evaluation of performance proposed in this paper builds on dynamic data from 2007 to 2014 collected by Alexa for the measurement of the audience of Internet sites[5]. Alexa computes traffic indicators based on a three months moving average of aggregated historical traffic data from millions of Alexa tool-bar voluntary users. Alexa indicators include "Traffic Rank" which yields the position of the site in interest with respect to all the sites on the web; "Reach" measures the percentage of all Internet users who visit a given site; and "Page Views per User" are the average numbers of unique pages viewed per user per day by the users visiting the site. We test them separately as well as in combination by multiplying "Reach" and "Page Views per User" to estimate the total number of visits of pages belonging to a same site. Of

[5] See http://www.alexa.com/site/help/traffic_learn_more

course, more traditional indicators such as margins, subscriptions and costs structure better capture efficiency characteristics. But not only the lack of such data in the newspaper industry - and impossibility to observe it among competitors - but also the diversity of organizations and the specific features of digital economy explain why we assume web traffic to be an appropriate performance indicator. In addition, most of websites in this field draw their revenues (advertising, fundraising…) over the internet by their capacity to create large audience.

These audience shares together with variables reflecting the mimetic phenomena in the actors' behavior and the control variable representing the website age (the date of its creation) serve as a basis for the Random Effects (RE) Probit econometric model on the choice of a particular BM. One may reasonably think that business strategies do not change drastically on a short time interval. That's why a time lag of one and, then of two years, was introduced between the independent variables (performance and mimetic drivers) and the decision to move to another cluster of BM.

The analysis is conducted using backward induction: we assume that in reality our second stage in terms of formulation induces the overall structure in the press industry. Unlike the many studies in the area examining mainly distribution or aggregation Web sites (for instance, in the music industry), in this study we focus on the economics of content producers. This permits us to consider the question of how BMs are rooted in the organization of production and to provide important insights on the dynamics of transformation of the press industry.

5. Results

5.1 Evolution of the press industry and structuring of new dominant BMs.

In the press sector as in many other cultural industries, under the influence of ICT, constant experimentation and innovation in the business model (BM) has become one of the key sources of firms' competitive advantage. As a result, traditional BMs, which were dominant and stable in their respective industries, have given rise to multiple disruptive BMs. Indeed our results demonstrate that especially at the early stages of the development in the period from 2004 to 2007, online press market was characterized by a multiplicity of business strategies. For instance, **Figure 1** presents the sector in

2006 and evidences for no particular structure in the BM organization.

FIGURE 1

At this period, essentially individual initiatives of actors gave place to a number of small clusters varying in terms of content pricing and completeness, interaction with the audience and service offerings. The only big cluster, which we designated by *A minima digital,* was driven by a strong desire to protect a traditional BM, dread seeing this BM challenged and cannibalized by online availability. Although some of the players, as *Le Figaro* or *Le Nouvel Observateur*, have rapidly left this Cluster at early stages of online market development, others haven't changed their BM over the time and stayed poorly impacted by the new technologies. These players have launched online only because they are forced to jump on the bandwagon and are the least affected by technological innovation. They striven to preserve their historical model and do not develop related services and features to any great extent. *A minima digital* publications are not open to explore the Internet opportunities. While some publications tried to build up their audiences and foster a community of readers by positioning themselves as a reference portal in the field, those in this cluster were content with minimal Internet exposure. Their sites might be mere showcases and they offered little interaction with readers or other services (e.g. access to archives). In the framework of the paper this Cluster, *a minima digital,* includes publications as *Canard Enchainé, Lutte Ouvrière* or *Golf Européen.* Table 1 presents the evolution of *a minima digital* cluster.

TABLE 1

The situation has become different since 2007. Between 2007 and 2009 an important number of new actors - pure players – entered the sector (*Rue89* in 2007, *Mediapart* in 2008, *Slate* in 2009, etc.). The majority of their business strategies was based on the richness of content offered free-of-charge and strong reader editorial involvement including direct participation in main content and other user-generated production. The emphasis on gratuity was not only due to the use of sponsored links as main source of revenue but also to the marketing of products and services that are independent of the main content (articles), namely books, comics, tutoring, dictionaries and so on. Despite that some

publications, such as *Mediapart,* were market out from the very begging by building a unique BM (and stayed unchanged over the time), others waited until 2010 to form a separated group which we designate "*Freebie plus*" due to its characteristics: i.e. combination of free content , but also high interactivity. *Freebie plus* covered, especially in the beginning, traditional medias (for example, *20 Minutes, Version Fémina* and *Alternative Economiques*), has finally gathered together the majority of new actors (e.g. *Agora Vox, Rue89, Slate,* etc). Table 2 describes the evolution of the cluster's characteristics.

TABLE 2

Finally, this paper points out for another important step in the French press sector structuring: in 2010 one more cluster of BM came to the scene. Compared to the traditional model, the originality of the online approach of this Cluster was reflected, first, in new forms of pricing for the main content and marketing-related services: time/quantity credit devices, online subscriptions supplemented by mobile and tablet offerings (Web+), sale of digital archives and offline consumer services. This cluster of BM is also characterized by interaction with readers via social networks, feedback/commentary systems and statistics on articles. However, reader involvement does not necessarily include participation in main content production, which is often quite centralized. For instance, only few publications in this Cluster had readers' blogs or other forms of UGC while forums and invited blogs are very frequent. This is one of the notable distinctions from the Cluster *freebie plus*. Importantly, this Cluster was observed for the first time in 2007 and it was mainly represented by several 'innovators' which were already well-known and established players, as *Le Point, Alternatives économiques, La Croix* and *Ouest France*. Along the time this tendency has been generalized and by 2012 the Cluster was essentially represented by the major players, made up of newspapers and of dailies (such as *L'Équipe, La Tribune, L'Humanité, Libération,* and *Le Figaro)*. That is why we designate this Cluster by E*xploring Leaders:* actors, trying before different business strategies (e.g. *Le Nouvel Observateur, Le point*) were eager to protect their leadership position and were well aware that, to do so, they must explore the new configurations. These actors have tried to generate new revenue while preserving the old (or at least avoiding further decline in revenues from the print edition). Thus *exploring leaders* is the Cluster where traditional media players are trying to develop their offerings with a wealth of editorializing and content: these major publications

launch resolutely on the Internet to protect their leadership positions and do not balk at exploring different content configurations and types.

TABLE 3

In the last Cluster, the proliferation of ways to make content available reflects the systematic exploration strategies of alternative BMs to ensure sustainability and profitability in the new environment. This explains the continual trial and error as well as the numerous changes in strategy as content providers test solutions online in search of the "right" one. Other cases as *Le Monde* and *Le Parisien* can be used to illustrate this dynamics. The positions of these newspapers show the possible consequences of such a choice for the publications' internal organization and editorial structuring; they are being forced to reconcile multimedia production objectives and methods that are sometimes poles apart. The positions of these newspapers show the possible consequences of such a choice for the publications' internal organization and editorial structuring; they are being forced to reconcile multimedia production objectives and methods that are sometimes poles apart. **Figure 2** summarizes the scope of the BM transformations along the 2007-2014 period.

FIGURE 2

This first stage of the analysis substantiates important convergence processes in the French press sector resulting in structuring of three dominant clusters of BMs. Quite chaotic at the early stages of the online development the sector has become highly structured by 2014. These results confirm our previous findings in the domain (Benghozi & Lyubareva, 2014).

The variability in types of online pricing and subscription plans offered to readers is one of the striking Cluster parameter. The models described above fit the three BM clusters identified in our study and represent important trends in the international press. For example, stakeholders from *exploring leaders* favor *freemium* models (web/web + subscription, time/quantity credits, per-unit sales, etc.), bundling (marketing higher-added-value services), advertising and, since recently, donation. Indeed, the international experience tells us that successful paid digital circulation (online subscriptions) is an indicator of audience strength resulting from the newspaper's reputation, experience and content. For instance, the *New York Times,* the *Wall Street Journal* and the *Financial Times* are strong performers

because they target those who are accustomed to paying for their information (Brown, 2013; Edmonds *et al.*, 2012).

Freebie plus is characterized by a combination of the bundling and participative models, based on strong consumer involvement in content production. However, this time bundling often departs from that of previous cluster: it is primarily a matter of marketing goods and services that are independent of the main offering (comics, dictionaries, books, etc.). Although our results show that the participative model is rarely combined with the freemium model (readers get charged for main contents), the case of *Mediapart* shows that the two approaches are not incompatible. The same dynamics, with decentralized production on the one hand and free content and indirect revenues on the other, can be observed in the case of US online media *(pure players)* – for example, *Demand Media*.

Finally, the use of free online offerings in the *a minima digital* Cluster resembles *freemium* (free offerings are meant to lead consumers to pay for other products), but online content is financed exclusively by print sales. These observations are in line with the finding of US studies that many publications focus on print revenue models and are not putting sufficient effort into the new digital revenue categories (Edmonds *et al*., 2012). These results are preliminary and more information on the French and international press is needed before conclusions can be drawn. However, they provide some interesting insights. Firstly, the press reveals a multiplicity of free-offerings models in addition to the advertising model. Secondly, various publications perform quite differently and their strategic choices are related, at least in part, to their positioning. This can be explained by the fact that press stakeholders face difficulties of various kinds, depending on their positioning. For instance, daily newspapers, given the drop in advertising revenues, seek to exploit online content initially financed with print sales and for which they are trying to find additional resources online. The new independent online press for its turn, often faced with inadequate revenues, seeks to diversify their activities and occupy new niches in the participative and socially responsible media.

It's worth noting that afore described structure with three dominant clusters of BM is not necessarily the final stage in the evolution of the French press industry. For instance, some recent tendencies in pricing strategies permit us to assume the possibility of further homogenization in its structure over

time. Indeed, since recently traditional media progressively reduces the share of free-of-charge available content (ex. *Le Monde*) and puts much attention to the development of interaction with their readers. At the same time, more and more pure players set their sights on the *Médiapart* paid model and try to follow this approach (e.g. *Atlantico, Electron Libre*). In these conditions there might be a possibility of a merger, at least partial, of the *Freebie plus* and the *Exploring leaders* Clusters.

To better understand the dynamics of transformation and how far the homogeneity in the structure of French press can extend, the rest of the paper analyses the determinants of BMs' change.

5.2 Drivers of BM change: better performance or mimetic contagion?

In accordance with the literature review presented in the first sections, we propose that choice of a particular BM by the actors can be driven either by the exploitation of available information on the others' performance (e.g. competitors' audience) or can be the result of mimetic behavior. While the former represents a rational approach in terms of competition, the latter occurs as a reaction to high technical uncertainty and goal ambiguity, industry centralization and normative pressure in a given sector. Additionally, following Alchian (1950), we add to the model another form of "conscious adaptive behaviour" which may occur under uncertainty – "trial and error". This form of behavior points out the actors' attitude to risk-seeking and constant experimentation, and represents an independent pattern of organizations' conduct.

Table 1 summarizes the variables included in the model and outlines their expected outcome as predicted by the hypotheses.

TABLE 4

The first group of variables concerns the performance characteristics. To construct these variables we used a combination of two *Alexa* indicators: "Reach" and "Page Views per User". The "Reach" indicator measures the percentage of all internet users who visit a given site. The "Page Views per User" are the average numbers of unique pages viewed per user per day by the users visiting the site. Once multiplied, the "Reach" and "Page Views per User" indicators yield a measure of the total number of visits of pages belonging to a same site. A main advantage of this last measure is that it takes account of

the fact that a user may visit a site only once but views numerous pages of this same site which means that the impact of the site is higher than if it contains a sole page. The analysis is conducted on three types of audience-based variables which may impact the BM choice: (1) difference in audience with other press websites; (2) coefficient of variation of the website's audience over the previous periods; (3) proportion of negative coefficients of variation of the website's audience over previous periods.

The second group of variables refers to the mimetic behavior. Once again with the data at our disposal we can analyze the effect of three types of variables. Firstly, an irrational imitation, underlying a change of BM and move to a new cluster, is measured as a share of websites leaving their clusters in previous periods. We call this variable *Panic*, as strategic change occurs in response to a rather chaotic activity of other industry actors. Secondly, we introduce a variable called *Herding*. It designates more rational imitation process as in moving to another cluster, the actor copies the behavior of other websites in her cluster. The third variable in this group, *Herding_market*, introduces a closer neighboring structure to the model: instead of copying the behavior of other websites in her cluster, the actor copies the behavior of her nearest neighbors in terms of institutional category (newspaper, magazine, pure player) and location (local and national press).

Finally, we complete the model with the variable *RiskSeeking* representing the aforementioned trial and error behavior and measured as the mean share of the website's characteristics changed over the previous periods.

The year of the website creation, *Age*, serves as control variable.

TABLE 5

Table 5 lists the correlation coefficients significant at the 10% level or better.

Table 6 presents the results.

TABLE 6

These results provide some important insights. First of all, they substantiate that the move to a new cluster of BM by press websites is determined by mimetic contagion rather than a rational exploitation of information like web audience that could affect directly websites' performance.

Secondly, this mimetic contagion is far from being random for two reasons: significance of the *Panic*

variable which refers to an overall BM change independent from the cluster structure; and significance of variables *Herding* and *Herding_market*. We interpret this result as a double impact of random and rational mimetic contagion phenomenon when economic agents capable to observe the business strategies of neighboring firms, copy their BMs. Unsurprisingly, this rational mimetic behavior is particular important among the actors occupying very close market segments.

Finally, our results confirm previous findings that along with mimetic conduct, another form of adaptive behavior occurring under pervasive uncertainty is trial and error learning. The significance of the *Riskseeking* coefficient in the model clearly shows that some press websites have a strong attitude for constant experimentation and often change their business strategy.

6. Further extensions

Some further extensions are important to introduce to the analysis. For example, the influence of close 'neighbors' on the firm's strategic choice should take into account some vaster social networks: two managers could belong to the same employers' organization or alumni association, or else the press titles can be members of the same professional associations in the press sector. As was showed elsewhere (DiMaggio&Powel, 1983) the greater the degree of professionalization, the greater the degree of isomorphics due to similarity of learned norms and models inherent to professionalization programs. In addition to this first point, it is important to introduce to the analysis the impact of the ownership of several websites by the same media corporation. Indeed, being governed by one decision-making center could lead sister organizations to imitate each other, or else to implement simultaneously the decision taken by the corporate center (see Greve, 1996). Another important improvement concerns a more detailed consideration of the orientation of the firms' movements between different business models: in the current version of the paper we focus only on the very fact that a website changes its cluster, but no attention is paid to where it actually moves. Finally, the decision of French actors can be also impacted by the strategies adopted by their foreign colleagues. Therefore, taking into consideration international experience is a very promising task for this research.

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Appendix

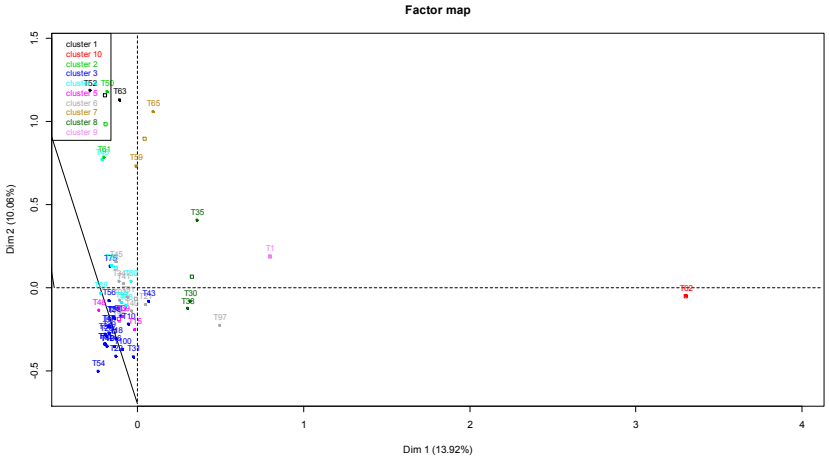


Figure 1: Factor Map of the press BMs in 2006, 11 dimensions summarizing 70 per cent of the total variability of the websites' characteristics in the sample.

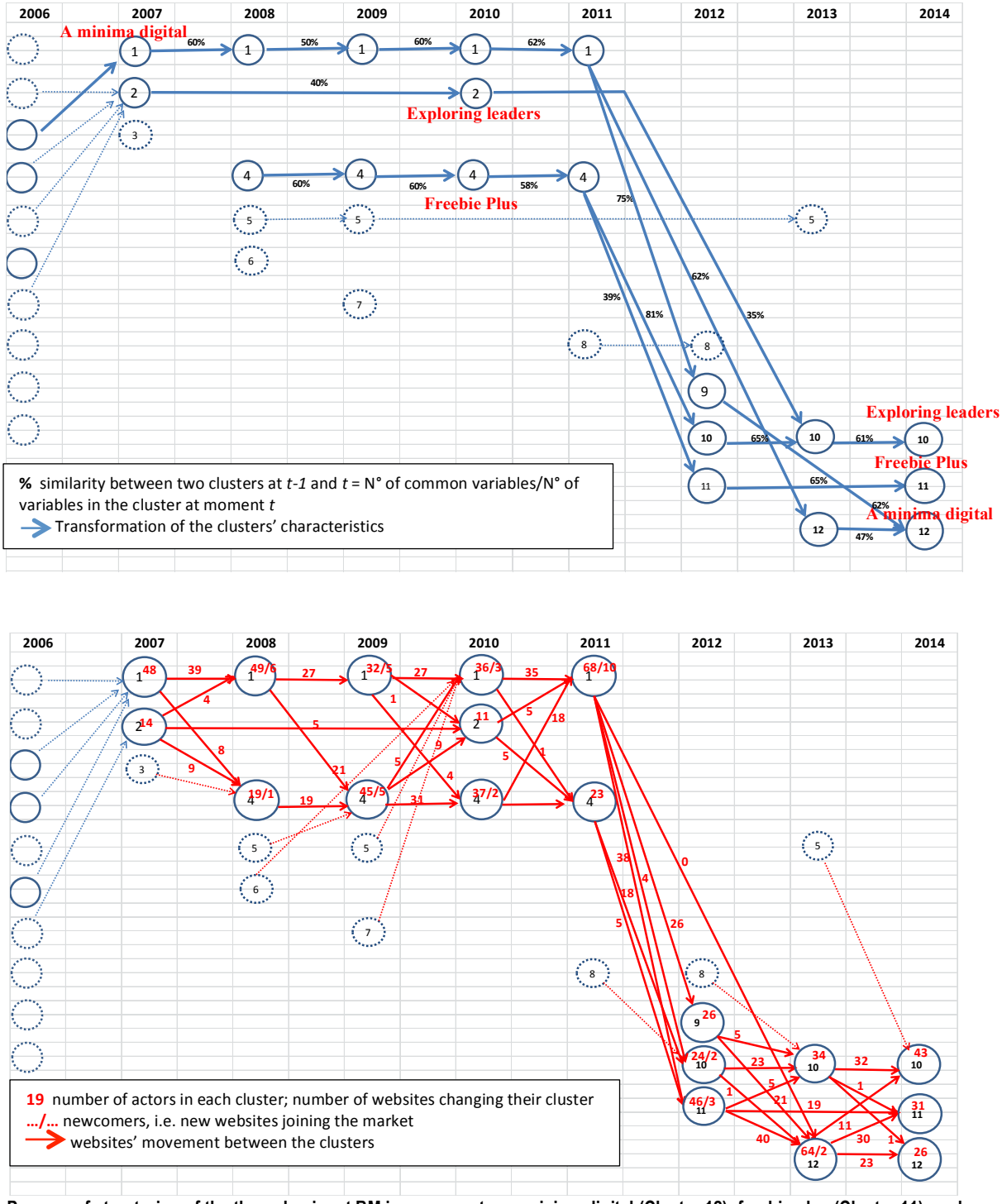


Figure 2: Process of structuring of the three dominant BM in press sector: a minima digital (Cluster 12); freebie plus (Cluster 11); and exploring leaders (Cluster 10)

Table 1: Transformation of the A Minima Digital cluster

A minima digital 2007			A minima digital 2010			A minima digital 2012			A minima digital 2014		
Variable	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**
No subscription	5.99	Télé Star	No Facebook	6.40	Telex	No sharing via social networks	6.59	Telex	No comments	6.53	M ta ville
No offline consumption	4.84	Télé 2 semaines	No sharing via social networks	5.44	L'internaute	No articles' statistics	6.07	Logic Immo.com	No articles' statistics	5.97	L'itinérant
No time/quantity credits	3.96	L'humanité	No mobile application	5.27	La revue des montres	No Facebook	5.69	Philosophie Magazine	No free-of-charge content	5.94	Telex
No archives	3.31	L'internaute	No RSS	5.17	Bilto	No RSS	5.47	Côté ciné	No mobile version	5.65	Camping-car magazine
Editorial content (no *AFP*)	3.09	Du côté de chez vous	No articles' statistics	4.77	Logic Immo.com	No archives	5.37	Les Infos-Pays de Ploërmel	No RSS	5.65	Pure Saint-Tropez
No per unit payment	3.05		No blogs	4.40		No comments	5.37		No newsletter	5.37	
No mixed subscription (paper + web)	2.69		No archives	4.15		No mobile version	4.46		No Facebook	4.69	
			No comments	3.92		No newsletter	4.45		No subscription	4.03	
			No time/quantity credits	2.40		No pub	2.97		Paper version	2.42	
			No paid content	1.99		Paper version	2.64		No sales via digital kiosque	1.96	

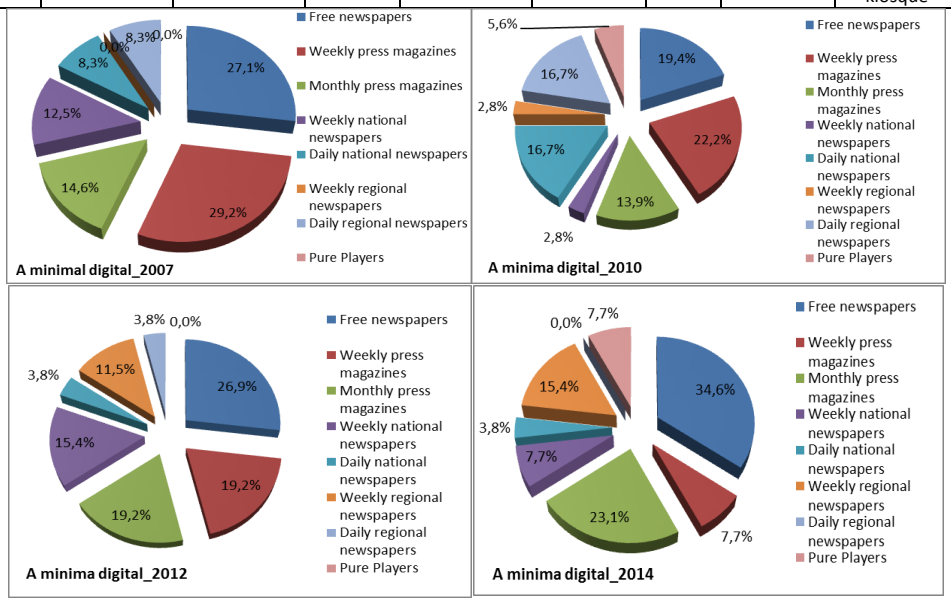


Table 2: Transformation of the Freebie Plus cluster

Freebie plus 2010			Freebie plus 2012			Freebie lpus 2014		
Variable	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**
Facebook	4.98	L'expansion	No subscription options	5.42	Purepeople	No subscription options	6.36	journal du net
Users' blogs	4.08	Dossier familial	No paper version	4.46	Zdnet	No per unit payment	5.80	Zdnet
Content sharing	4.05	Zdnet	Archives	4.45	journal du net	No paper version	4.39	Télé 2 semaines
Mobile applicaiton	4.02	L'écho du Pas de Calais	No per unit payment	4.18	electron libre	No mixed subscriptions	4.28	QUOI.INFO
Comments	3.56	La Dordogne Libre	Content sharing	4.07	France Soir	Comments	3.35	FRANCE NET INFOS
Evaluation of articles	3.55		No mixed subscriptions	3.84		Free content	3.05	
No offline consumption	3.39		Free content	3.49		Content sharing	3.05	
Invited blogs	2.91		Comments	3.26		Facebook	2.27	
Free content	2.90		Content of other producers	2.67		UGC	2.21	
Forum	2.8		Articles' statistics	2.11		Content of other producers	2.12	

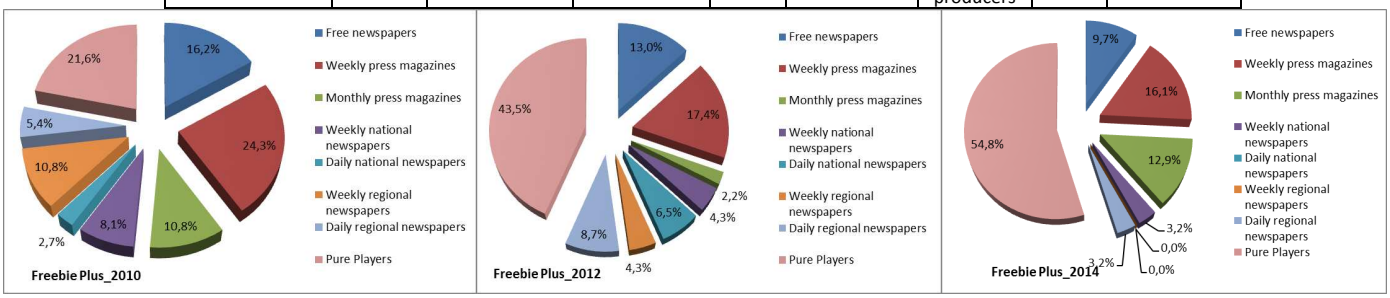
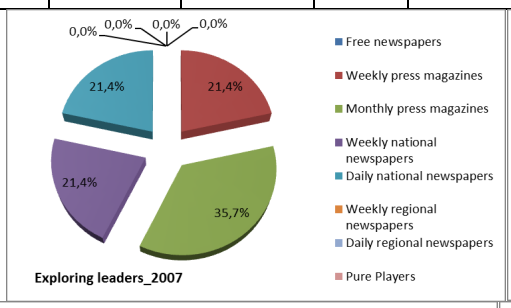
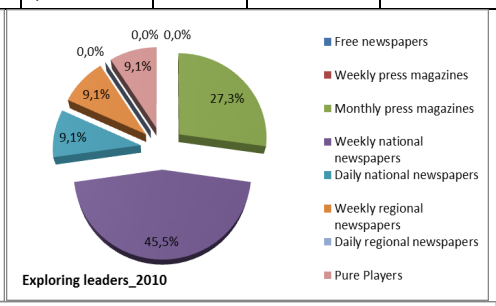
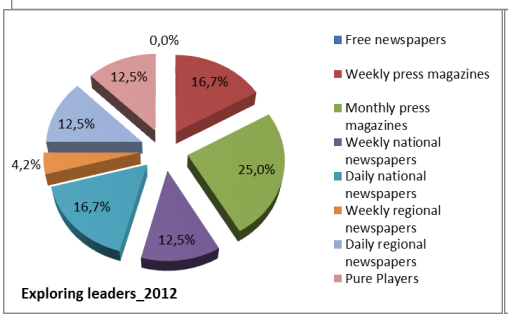


Table 3: Transformation of the Exploring Leaders cluster

Exploring Leaders 2007			Exploring Leaders 2010			Exploring Leaders 2012			Exploring Leaders 2014		
Variable	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**	**Variable**	**V.test**	**Central actors**
subscription	5.04	La Croix	Time/quantity credits	5.38	Corse Matin	subscription	6.33	Le Télégramme	Different subsciption options	9.90	Le JDD
Time/quantity credits	4.08	Alternatives économiques	Paid offline consumption	4.53	Causeur	Mixed subscriptions (web+paper+mobile)	6.12	La tribune	Mixed subscriptions (web+paper+mobile	8.35	fluctuat. premiere
Paid offline consumption	4.08	Subaqua	Paid content	3.94	La Croix	Different subsciption options	5.79	L'expansion	Subscription	8.21	Philosophie Magazine
Different subsciption options	3.63	La Manche Libre	Facebook	2.87	Ouest France	Par unit payment	5.06	Les Inrocks	Par unit payment	4.05	L'expansion
Online archives	3.19	Ouest France	Mixed subscriptions (web+paper)	2.59	La tribune	Mobile application	4.65	L'Equipe	Paid and free content	4.05	La tribune
Mixed subscriptions (web+paper)	3.14		Different subsciption options	2.41		Facebook	3.58		Invited blogs	3.53	
Par unit payment	3.14					RSS	3.26		Articles statistics	3.46	
Paid content	2.60					Paper version	3.05		Sales via digital kiosques	3.38	
						Invited blogs	2.83		Free and paid content	3.18	
						Free and paid content	2.2		Newsletter	3.18	







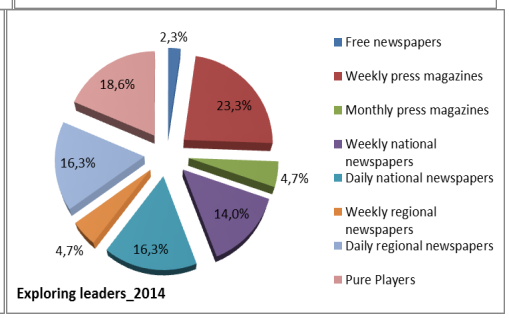


Table 4: Variables

Variable		Definition	Expected Effect
Dependent Variable	Move	Probability of BM change	
Independent variables			
Performance	Audience_1	Difference between the website's audience and mean audience of other clusters in previous periods	ns
	Audience_2	Mean variation of the own website's audience in previous periods	ns
	Audience_3	Proportion of negative variations of the web site's audience in previous periods	ns
Imitation	Herding	Share of websites in the given cluster leaving this cluster in *t-1*	+
	Herding_Market	Share of neighbor market websites leaving their cluster in *t-1*	+
	Panic	Share of websites leaving their clusters in *t-1*	+
Risk seeking = trial and error		Mean share of the website's characteristics changed over the previous periods: 0(all changed)<unchanged part <1 (nothing changed)	+
Age = website's experience		The year of website creation	?

Table 5: Correlation Coefficients

	Audience_1	Audience_3	Herding	Herding_ Market	Age	Risk_ seeking	Panic	Audience_2
Audience_1	1.000							
Audience_3	0.086	1.000						
	(0.025)							
Herding	-0.039	-0.001	1.000					
	(0.307)	(0.972)						
Herding_Market	-0.076	-0.045	0.349	1.000				
	(0.049)	(0.244)	(0.000)					
Age	-0.211	-0.038	0.011	-0.089	1.000			
	(0.000)	(0.328)	(0.768)	(0.019)				
Risk_seeking	0.003	0.046	-0.004	-0.044	-0.041	1.000		
	(0.948)	(0.269)	(0.920)	(0.288)	(0.324)			
Panic	-0.080	-0.050	0.396	0.316	0.120	-0.071	1.000	
	(0.063)	(0.240)	(0.000)	(0.000)	(0.005)	(0.104)		
Audience_2	-0.638	-0.041	0.004	0.016	0.205	-0.025	0.031	1.000
	(0.000)	(0.287)	(0.924)	(0.677)	(0.000)	(0.552)	(0.468)	

Values in parenthesis are the significance of each correlation

Table 6: Model Results: t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	**Model 7**
	b/se	b/se	b/se	b/se	b/se	b/se	b/se
move							
Audience_1	-0.383			-0.361			-0.127
	(0.26)			(0.30)			(0.20)
Audience_2	-0.000	-0.000	-0.000*	-0.000	-0.000	-0.000*	
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
Audience_3							0.004
							(0.00)
Herding	0.034***	0.033***	0.035***	0.042***	0.042***	0.043***	0.034***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Herding_Market	0.015***	0.016***	0.015***	0.021***	0.021***	0.021***	0.015***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Panic	1.431***	1.435***	1.421***				1.448***
	(0.30)	(0.30)	(0.30)				(0.30)
Risk_seeking	-1.978*	-1.847*	-1.991*	-2.535*	-2.435*	-2.594*	-1.934*
	(0.86)	(0.86)	(0.86)	(1.04)	(1.03)	(1.04)	(0.85)
Age	-0.015	-0.012	-0.016	-0.005	-0.003	-0.007	-0.018
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Obs	511	511	511	444	444	444	511
LogL	-214.723	-215.325	-212.748	-181.604	-182.187	-180.314	-215.590
rho	0.104	0.103	0.109	0.185	0.182	0.187	0.114
Sigma_u	0.341	0.340	0.350	0.476	0.472	0.480	0.359

* p<0.05, ** p<0.01, *** p<0.001