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A Framework for Digital Marketing Research: Investigating the Four Cultural Eras of Digital Marketing

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Abstract: The digital marketing discipline is facing growing fragmentation; the proliferation of different subareas of research impedes the accumulation of knowledge. This fragmentation seems logically tied to the inherent complexity of the Internet, itself resulting from 50 years of evolution. Thus, our aim is to provide an integrative framework for research in digital marketing derived from the historical analysis of the Internet. Using practice theory and institutional theory, we outline a new type of institutional work: imprinting work. We apply this framework to the analysis of historical secondary sources. We find four cultural repertoires on the Internet (collaborative systems, traditional market systems, co-creation systems, and prosumption market systems) and describe the dynamics of imprinting work leading to their creation, showing how new systems are created by appropriating and assimilating existing cultural repertoires. We contribute to the digital marketing literature by providing a cultural framework and a theory explaining the dynamics of the creation of four cultural repertoires. Moreover, we outline three paths of potential evolution of the digital landscape. Our framework may help managers make sense of their digital strategy and navigate the various Internet systems.

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Introduction

Most recent reviews of the digital marketing literature observe a fragmentation in the discipline (Lamberton and Stephen 2016; Yadav and Pavlou 2014). This fragmentation is not surprising when we recognize that the Internet is an extraordinarily complex system (Hewett et al. 2016). This complexity is the natural outcome of a complex history, and fragmentation is the outcome of the absence of a comprehensive view of the Internet. Some academics tend to overlook the fact that the Internet did not emerge suddenly and uniformly, and while some authors acknowledge that the technical architecture of platforms has an impact upon the link between marketing actions and consumer behaviors (Yadav et al. 2013), these contingency effects are still considered exogenous in most research work. However, when adopting a historical perspective, contingency effects are seen less as independent factors than as cultural features: behaviors and platforms are interdependent, and the Internet is both an outcome and a determinant of the behavior of consumers and firms. In this article, we aim to investigate this issue by reconstructing the cultural history of the Internet and its relationship with marketing. In so doing, we provide an integrative cultural framework for subsequent research in digital marketing.

A cultural approach emphasizes the mutual constitution of the environment and the actors over time (Reckwitz 2002b). Towards the end of the 20th century, Nicovich and Cornwell (1998) describe what they call “the Internet culture” as a unique cultural repertoire. However, the Internet has grown in complexity in the last 50 years, and new cultural repertoires have appeared. Subsequent academic research has used a cultural lens to investigate subcultures at a virtual community level (Kozinets 1997; Muniz and Schau 2005), and more recently at a brand public level (Arvidsson and Caliandro 2016). These communities are strikingly similar in terms of cultural practices (Schau, Muniz, and Arnould 2009). As a result, and despite the complexity of the Internet, the similarity of the cultures

coexisting on the Internet indicates that they have many traits in common. The Internet is a sociotechnical system (Latour 1991) affected by the way users *use* the material components of the system (Humphreys 2016). Like any material object, the infrastructure of the Internet (both hardware and software) is a vehicle for a specific culture (Orlikowski 1992; Reckwitz 2002a). As the Internet is a heterogeneous space (Dijk 2013), various cultural influences may exist at the same time. Our aim is to trace the emergence of these cultures.

In the first section of this paper, we present our theoretical understanding of the Internet as a sociotechnical system. In the following sections, we present a historical analysis of the Internet to describe the emergence of different cultures and the links between them. Our first objective is to provide an overview of the Internet cultural repertoires and propose a mechanism of their formation and its consequences on the links they have with each other, with specific Internet platforms, and with current approaches of digital marketing in the literature. Our second objective is to explore the potential paths of evolution of digital marketing. Our third and final objective is to offer guidance to marketing managers intending to create strategies that are relevant to the cultural environment they are targeting. We argue that the Internet culture has developed in four eras characterized by four types of systems: collaborative systems, traditional market systems, co-creation systems, and prosumption market systems. Each one of these carries specific representations of consumers and firms. It is also clear that the different systems overlap, and our analysis emphasizes the connections between the different systems.

We contribute to the digital marketing literature in two ways. First, we offer a general conceptualization of how the cultural frameworks operating on the Internet evolve. We contribute to the institutional literature on marketing by outlining the process of cultural evolution based on two types of institutional work: appropriation work and assimilation work. Specifically, we contribute to the digital marketing literature by providing a description of

four cultural structures, their location in specific Internet systems, the links between them, and their impact on the potential evolutions of the digital environment. Second, we provide managers with the key cultural elements they need to take into account when devising their strategy, depending on the kind of virtual environment they are targeting.

Theoretical framework

Our overall aim is to theorize a mechanism through which socio-technical systems emerge, evolve, and stabilize on the Internet. We use a multi-level theoretical approach to conceptualize this mechanism (Brodie, Saren, and Pels 2011), combining practice theory and neo-institutional theory. The former helps us conceptualize socio-technical systems, their cultural components, and the mechanism of their evolution; the latter, with its concepts of imprinting and institutional work, helps us formalize explanations of system stability and understand the individual contributions to systemic change. Marketing scholars have recently outlined the need to distinguish between general theories and middle-range theories (Brodie, Saren, and Pels 2011). Whereas general theories are broad and abstract, middle-range theories constitute a way of linking a body of abstract knowledge to empirical findings. A general theory provides the fundamental premises upon which the middle-range theory builds to make propositions or hypotheses that can be empirically investigated. We use the global framework of practice theory (Feldman and Orlikowski 2011; Reckwitz 2002b) to assess the fundamental mechanisms inherent in the socio-technical system we investigate. Next, we use neo-institutional theory and its concepts of organizational imprinting (Stinchcombe 1965) and institutional work (Lawrence, Suddaby, and Leca 2011) to operationalize these abstract premises into functional middle-range concepts.

Practice theory and cultural mechanisms of system evolution

Practice theory is one of the latest integrative cultural theories. Practices are defined as

a “routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood” (Reckwitz 2002b, p 250). Practices are a set of recurring patterns of action and understanding occurring in a socio-technical system, namely an organized set of human beings and objects (Bajde 2013; Latour 1991). General systems theories posit that each system is made of several subsystems (Simon 1977), especially as the system grows in size; similarly, practice theory classifies practices as integrative practices composed of dispersed practices (Schatzki 1996). This theory sees culture as a filter between reality and individuals that orientates human agency (Berger and Luckmann 1967). This filter is constituted by a symbolic structure (a codified way of representing and understanding reality) that influences the way actors interact. In this article, we use the term “cultural repertoire” to refer to a logically organized set of representations tied to a certain practice. For example, the practice of cooking implies the existence of a cultural repertoire segmenting ingredients between edible ones and non-edible ones, and specifying which ones “fit” together or not. The existence of a cultural repertoire therefore depends on the existence of a practice (Schatzki 2005). By the routinized enactment of practices, the corresponding set of representations is created, organized, and stabilized over time. Thus, a cultural repertoire guides the behavior of a socio-technical system while being sustained by the practices enacted in it. As each system is made of subsystems, each practice involves various subpractices and subcultural repertoires. An analysis of the yoga market has shown that the same practice (yoga) can be guided by different cultural repertoires (Ertimur and Coskuner-Balli 2015).

A repertoire emerges over time from the enactment of practices and is considered a property of the system it is part of (Archer and Elder-Vass 2012). While it is quite straightforward that human beings possess representations of the world, it is important to note that objects are also infused with representations. They are subject to interpretive flexibility (Orlikowski 1992): while an object can be understood differently by users, designers embed

understandings in the objects they create, limiting the span of possible representations subsequent users can mobilize. Thus, objects have an impact of their own on the enactment of practices. For example, the use of chopsticks in Japanese culture induced a certain way of preparing food (e.g. in bite-size pieces). However, there is no human agency at play in this process: no one decided to create chopsticks to influence the size of the pieces of food.

Despite the tendency of the routine enactment of practices to create stability, a socio-technical system is open to change: on the one hand, evolution can result from micro-improvisations in the use of objects, efforts toward improvement, and the co-occurrence of various practices (Warde 2005); on the other hand, change can originate from the modification of the socio-technical systems themselves, by adding, removing, or modifying the human actors and objects included in a system (Orlikowski 2000). Adding an object is not random, as it has to be judged “practically adequate”, namely coherent with the symbolic structure (Schatzki 2005). Both mechanisms influence the organization of representations (cultural repertoires), the actors and objects included (socio-technical systems), and the resulting behaviors. For example, the use of vegetable peels in cooking practices has resulted from a micro-adaptation that made the representation of peels shift from “non-edible” to “edible”. Conversely, a single practice can diversify into different subpractices involving diverse cultural repertoires: in this case, a single object can be understood differently in two loosely coupled socio-technical systems. For example, a yoga chant can be included in two different cultural repertoires (Ertimur and Coskuner-Balli 2015).

A virtual environment such as the Internet, created by a few individuals and massively used afterwards, is particularly subject to interpretive flexibility. The cultural repertoire that developed during its creation had to evolve when the system was modified by adding new actors (marketers, individual users) and new objects (algorithms, source codes). Hence, cultural repertoires had to evolve in parallel, and different parts of the system (social media

platforms, virtual marketplaces, or forum-based brand communities) may be related to different cultural repertoires. Studies have shown how behaviors differ across platforms (Smith, Fischer, and Yongjian 2012) and how cultural repertoires share similarities in the same kind of platforms across product categories (Schau, Muniz, and Arnould 2009).

In this section, we have presented the fundamental mechanisms of cultural stability and change: cultural repertoires emerge over time from the practices enacted in a socio-technical system made of human beings and objects, through the modification of the entities involved in the system and micro-variation in practices. However, cultural theories do not help understand how the original shape of the socio-technical system and its first cultural repertoire emerge; this is why we introduce institutional theory and its concept of imprinting and institutional work in the following section.

Institutional theory: Cultural construction and stabilization through imprinting work

Recent developments in institutional theory have begun to draw from practice theory to incorporate the effect of individual practices into the shaping of institutions (Feldman and Orlikowski 2011). In particular, these theories deal with the mechanisms that shape an organization, through the reformulation of the concept of organizational imprinting (Stinchcombe 1965). Organizational imprinting is the phenomenon by which environmental features (such as symbolic, economic, or material patterns) are included in an organization during its founding and tend to reproduce over time (Marquis and Tilcsik 2013). Previous studies have used the imprinting concept for different levels of analysis: organizational fields (Marquis 2003), organizational building blocks (Perrow 1999), and individuals (Schoar and Zuo 2017). Imprinting applies to a system level, as organizational collectives are a system defined by the fact that all entities included are organizations. In conceptualizations of field-level imprinting, organizations are linked by loose bonds such as geographical (Marquis

2003) or industrial (Stinchcombe 1965) proximity; some authors argue that the organizations constituting the field “need to do nothing more than take note of one another” (Wooten and Hoffman 2008, p 64).

Three sources of imprints for organizational fields exist: economic and technological conditions acting as constraints during the founding process; institutional factors providing standards of legitimacy; and individuals (political and industry leaders) providing ideologies and templates (Marquis and Tilcsik 2013). These imprints persist over time due to routine creation (Bryant 2014), technological lock-in (Perrow 1999), and isomorphism (DiMaggio and Powell 1983). The routinization of Japanese cooking, the persistent use of chopsticks, and the transmission of family cooking rituals are factors that could maintain the original imprint on the Japanese cooking practices.

The persistence of imprints is not to be taken for granted, as some imprints can fade away (Kriauciunas and Kale 2006), nor is it exclusive, as several layers of imprints can “sediment”, namely “be simultaneously present on the surface of an organizational life” (Cooper et al. 1996, p 635). A promising research avenue stems from this sedimentation process, as different layers of imprints could combine over time (Marquis and Tilcsik 2013). The fast technological evolution of the Internet does not exclude the role of technological imprinting, since in the case of a change in technology, actors tend to rely on old understandings to use the new technology (Raviola and Norbäck 2013). Hence, technological imprints can persist even after a technological change.

As the environment does not “stamp itself” magically on the organizational field, Simsek, Fox and Heavey (2015) call for the investigation of the micro-level individual or collective strategies underlying the imprinting process. Institutional theory refers to actor-driven institutional change through the concept of institutional work, defined as “the effort of individuals and collective actors to cope with, keep up with, shore up, tear down, tinker with,

transform, or create anew the institutional structures within which they live, work, and play, and which give them roles, relationships, resources and routines” (Lawrence, Suddaby, and Leca 2011, p 53). Institutional work refers to the way individuals adapt their behavior in relation to institutional pressures. It is a key feature of organizational imprinting (Johnson 2007) not restricted to the founding moment.

Research has outlined three types of institutional work: creating, maintaining, and disrupting institutions (Lawrence and Suddaby 2006). Recent developments advocate the integration of materiality studies to get a better understanding of these three types of institutional work (Gawer and Phillips 2013). Hence, the study of the micro-level process of imprinting must include material components into the traditional institutional work approach.

In the next section, in order to understand how the micro-level processes of imprinting explain the system-level dynamics (Simsek, Fox, and Heavey 2015), we combine findings from the institutional literature with elements from practice theory to define two kinds of imprinting work. We define imprinting work as a sequence of actions involving symbolic and material resources designed to imprint specific environmental features into a system. Two kinds of imprinting work can be enacted depending on the state of the system, especially its size, during the imprinting episode. On the one hand, when the system does not exist yet, its foundation takes place in an entirely external environment: at that moment, we expect institutional workers to appropriate features from their own external environment and imprint those on the system; this is what we call appropriation work. This type of work comes from the traditional formulation of the imprinting concept (Marquis and Tilcsik 2013) adapted to the founding moment of the system. On the other hand, a system can grow over time and its parts may develop their own cultural repertoires. Studies investigating the coexistence of various cultural repertoires have outlined the possibility of cultural co-optation (Thompson and Coskuner-Balli 2007) or integration (Ertimur and Coskuner-Balli 2015). In this case, we

expect institutional workers creating a new subsystem to integrate existing features from multiple existing subsystems, constituting the environment of the new subsystem, during the imprinting episode; this is what we call assimilation work. Appropriation is likely to occur first as for small or inexistent systems, features can only come from the outside. Then, as the system grows and subsystems and their cultural repertoires stabilize, assimilation should take place as actors can find subsystem features more practically adequate than external features: a family resemblance would then exist between the different subsystems as they originate from the same overall system. To investigate the evolution of a system, historical approaches are particularly relevant. In the next part, we describe the methodology we have adopted.

Historical approach: Rationale and method

Cultural change in an institutional field is a non-deterministic and non-linear process (Meyer, Gaba, and Colwell 2005). Therefore, it is important to investigate the entire timespan of the emergence of Internet cultures. We conducted a historical-theoretical analysis (Fullerton and Punj 1998) focused on secondary sources and aiming at theoretical developments, an approach previously used in consumer research (Twede 2002; Witkowski 1989). This focus on secondary sources is a common historical procedure (Heaton 2008) justified by the already extensive body of literature about the history of the Internet and the ephemeral nature of digital contents (Brügger 2013). Historical sources do exist, but none of them identifies all the Internet cultural repertoires to bring them into a single framework. Thus, we undertook an analysis of secondary sources of published historical studies about the history of the Internet. We cross-searched and analyzed historical research about the Internet in order to build the whole picture of the phenomenon we wanted to investigate. However, in order to fully “get into the minds of contemporaries” (Fullerton 2011, p 438), we read a number of primary sources cited in the historical research we used. We used the Internet

Archive Wayback Machine (<https://archive.org/web/>) to access some of the primary sources we needed to consult.

The core body of literature we used is made of books, chapters, and articles focusing on the history of the Internet or presenting historical material about this topic. Previous studies using this kind of method (Low and Fullerton 1994; Twede 2002; Witkowski 1989) followed the procedure of a traditional literature review, without making their criteria of source inclusion explicit. We decided to select our sources using a straightforward criterion of relevance (Golder 2000). We started from major readings about the history of the Internet as a whole (Abbate 1999; Castells 2001; Ceruzzi 2012; Hauben and Hauben 1997; Schafer and Stenger 2014) to obtain a comprehensive picture of our object of study. We then looked for additional material to further investigate specific topics such as the history of web marketing (Abbate 2010; Amor 2001; Beuscart and Mellet 2008; Brunton 2013; Jansen and Mullen 2008; Thorson, Wells, and Rogers 1999), cultural influences on the development of the Internet (Barbrook and Cameron 1996; Dijck 2013; Marwick 2013; Werry 1999), and counter-cultural phenomena that can have an impact on business activities on the Internet (Coleman 2013; Coleman 2014; Johns 2010; Phillips 2015). All our searches were made using the Google Scholar database, as it references both books and articles; we also used the reference lists of our sources to find more relevant material.

When needed, we went through non-academic secondary sources, after assessing their credibility, in order to gather factual evidence and first-hand quotes (Gibson 2012; Morrissey 2013; National Science Foundation 2000; New Media Institute 2014; Stewart 2015; Templeton 2003a; Templeton 2004; Templeton 2003b). In order to link our findings to general academic research on digital marketing, we then collected several literature reviews and editorials from marketing journals such as *Journal of Marketing*, *Journal of Interactive Marketing*, *European Journal of Marketing* and *Journal of Research in Interactive Marketing*

(Hoffman and Novak 2009; Malthouse and Hofacker 2010; Ngai 2003; Pomirleanu et al. 2013; Ratchford 2015; Schibrowsky, Peltier, and Nill 2007; Yadav and Pavlou 2014). By combining the work of professional historians with that of non-historian academics, journalists, and bloggers, we reduced any potential bias by collecting multiple sources of many kinds (Fullerton 2011). We used only elements that are agreed by all the sources we consulted in order to maximize the plausibility of the reported information (Golder 2000).

We used the problem-solving approach to interpret our data (Haydu 1998). The problem-solving approach is a way to periodize history based on turning points, a method considered as the “most logical and acceptable method of periodization” (Hollander et al. 2005, p 37). In this approach, historical periods are connected by the overarching theme of solving a specific enduring problem, as each period exhibits a particular way of dealing with the problem. Thus, the analysis focuses on how actors form relationships and act in order to solve this problem in one way rather than another. The chosen solution may generate later crises, revealing causal processes. More importantly, this solution embodies “tools and understandings with which later actors confront those crises” (Haydu 1998, p 354), and as such, it has a strong impact on the modification of the symbolic structure of the system.

An abductive analytical process revealed that the enduring element that could periodize our data is the extension of business practices to new Internet subsystems. Drawing together different elements of historical material, we found three regularities: first, actors recognize the whole Internet (or a part of the Internet) as a system of its own; second, they identify business opportunities in this system; third, they enact practices to benefit from these business opportunities. Even though our approach is broadly chronological, we did not find markers that could clearly delineate the beginning or the end of each era. Moreover, our periods overlap significantly for two reasons: first, time passes between recognizing a business opportunity and seizing it, and at a single point in time, exploitation in one era can

coexist with recognition of the opportunity in the subsequent era; second, the separation between eras is more spatial than temporal. In other words, older systems co-exist with newer ones. Hence, we did not try to temporally circumscribe our periods, even though we listed them in chronological order of creation of the systems. The four eras we describe correspond to four moments of the extension of marketing to Internet systems; for each system, the cultural repertoire appeared to stabilize in one specific way. The following section presents the four eras of Internet development. For each era, we outline the process of creation of the corresponding system, the entities populating this system, the extension of marketing, and the resulting cultural repertoire.

Results: The four eras of the development of Internet cultures

From the late 1960s to 2016, many events took place that modified the cultural environment of the Internet. However, new cultural repertoires did not erase the previous ones, since a virtual system is not limited in size. This cultural juxtaposition enabled the persistence of old repertoires and reduced the need to intertwine different ones. As a result, the idea of a global Internet culture (Nicovich and Cornwell 1998) could logically emerge in the 1990s, when Internet users were interacting mainly in one subsystem, namely user-managed Internet forums. Through the creation of brand-managed communities, showcase websites, electronic marketplaces, and social networks, users were subject to other cultural influences, and this Internet culture from the 1990s has to be understood as *one* Internet culture among others. In this section, we use “Internet system” to refer to the whole socio-technical system; other uses of “system” refer to the subsystems we investigate.

The four eras do not constitute “finite” eras, but rather persist over time, as properties of enduring systems. We find that in the first two eras, actors undertake appropriation work, through the creation of two systems with culturally opposed repertoires: collaborative systems

and traditional market systems. In the last two eras, actors undertake assimilation work, where institutional workers from traditional market systems integrate features from collaborative systems. For each era, a table summarizes the main historical events (Tables 1 to 4) upon which we build our results. The four cultural repertoires we outline can be organized around two dimensions referring to how they define entities and their behaviors in the system: the centralization of management decisions and the behavioral diversity of individuals.

Management decisions refer to decisions constituting the activity of business administration such as organizational structuration, goods and services production management, marketing management and so on. The organization of management decisions refers to the diversity of actors entitled to take these decisions. Two types of management decision structures can be found in our results: decentralized management decision structures, where all actors can take part in management decisions, and centralized management decision structures, where one type of actors is entitled to make most of the management decisions. This dimension refers to a quantitative aspect of decision making, namely the dispersion of decision-making acts among types of actors. Behavioral diversity refers to the width and complexity of the range of actions that individuals are expected to perform. The largest the behavioral diversity, the largest the width of the range of actions. The next sections are dedicated to the presentation of the systems we have identified.

First era: Collaborative systems

At the beginning of the Internet, computer scientists were the main institutional workers because they had the skills and the time to engage into the creation of the network (Event 1.1). The scientific culture of computer scientists resembles, for most traits, the hacking culture. Both have a decentralized management decision structure and recognize a large behavioral diversity to all individual actors involved in the system (Coleman 2013). This cultural repertoire sees actors as capable of various complex tasks (such as creative and

productive tasks), and therefore hackers tend to value competence over status (Castells 2001). The complexity of the available technology made early users of the ARPANet accustomed to this culture (Abbate 1999).

Event n#	Date	Description
1.1	1969	ARPANet, a computer network entirely government-funded, is created by DARPA (US Department of Defense). It is used by the military, administrative staff, and computer scientists. The network is expensive, and machines are slow and in limited number (Stewart 2015; Brunton 2013).
1.2	1975	Jon Postel, influential Internet pioneer, writes the RFC 706. It states that applications must be conservative in their sending behavior and liberal in their receiving behavior (Postel 1975).
1.3	1978	The first spam is sent on the ARPANet by Gary Thuerk and is strongly rejected by the ARPANet users. Computer scientists advocate autonomous governance instead of external control from the military (Brunton 2013).
1.4	1979	Usenet, a non-official network cheaper than the ARPANet, is created by computer science students from poor universities. Four years later, thousands of people interact on it (Hauben and Hauben 1997; Brunton 2013).
1.5	1994	A law firm sends the first spam on Usenet, sparking a strong negative reaction. Usenet users retaliate by exposing as much private information about the spammers as they can (Brunton 2013).

Table 1: Main events of the era of collaborative systems

The limited number of available machines and the slowness of computers at that time led to the development of a high degree of pragmatism in this culture. In the words of David Clark, chairman of the Internet Architecture Board, “we believe in rough consensus and running code” (Clark 1992, p 540). The decentralized management structure and the collaborative spirit made decision making a matter of consensus: since users are all peers, anyone is seen as a potential value creator.

Internet pioneers undertook appropriation work by imprinting features from the culture

of founders into the system through translating the cultural repertoire into technological solutions. The main example is the RFC 706 written by Jon Postel, an Internet pioneer working at UCLA (Event 1.2). The liberal receiving behavior aligns with the collaborative trait of the culture of founders: since everyone is welcome to participate in the decision-making process, applications must not discriminate a priori between contributions. However, participants must be careful about transmitting valuable information only. This collaborative system is paired with an imperative of self-governance: thus, a decentralized management structure can persist since governance is decentralized. Since ARPANet itself was a decentralized network, there was a fit between material structure and governance.

The founders sustained the cultural repertoire they created against perceived attacks from a marketing repertoire they opposed. The main attack came from the first spam (Event 1.3). This spam, a message massively broadcast to all users, was not “conservative in its sending behavior” and therefore did not produce value. The first reaction was from Major Raymond Czahor, from the U.S. military, and after him Elizabeth Feinler, who ran the Network Information Center, who asked the network users to deal with the issue themselves and to refuse “[external] controls that will be a nuisance” (Brunton 2013, p 32). In the same way, Richard Stallman, initiator of the Free Software movement, called for self-governance, instead of letting the military deal with it. Internet founders imprinted this collaborative self-regulation technologically by creating automated filtering software for spam messages (Brunton 2013). All participating actors were seen as management decision makers.

The culture of founders extended to technological platforms beyond the ARPANet, created in the same cultural context. One of these platforms was Usenet (Event 1.4). Its creators, computer science students, shared the same cultural repertoire, enacted the same appropriation strategy, and therefore reacted in the same way to the second massive spam (Event 1.5). The message sent by a law firm on a huge number of Usenet threads was

irrelevant to most of them and massively duplicated: it was clearly not “conservative” sending behavior, and did not add value to the conversations held on the different threads of discussion. The reaction was negative: Usenet users engaged in “charivari”, exposing as much as possible of the spam authors’ privacy and overloading their phone, fax, and network lines with useless messages (Brunton 2013). In doing so, they were breaking the cultural norms the same way the spam did. The anonymity norm was also translated into a technological tool and part of the appropriation work: the anonymity of accounts on Usenet ensured the irrelevance of previous status when it comes to collaboration, erasing most of the status biases that could exist (Turkle 1996). Finally, as part of the maintenance process, a number of books and intellectual pieces helped to broadcast and reinforce the culture of founders: *Computer Lib* (Nelson 1974), *The Virtual Community* (Rheingold 1993), *Hackers* (Levy 1984), *Cyberia* (Rushkoff 1994). All these books advocate an autonomous and collaborative decision-making process on the Internet and contrast it with traditional market governance.

In summary, the founders of collaborative systems undertook appropriation work through imprinting their cultural repertoire in the technological features of the systems they created. Collaborative systems display a decentralized management decision structure and recognize a strong behavioral diversity to all actors: as such, they advocate autonomous governance, materialized by platforms (bulletin board systems) and features (spam-filtering applications) fostering collective decision making and reducing the threat of valueless contributions, such as marketing solicitations.

Second era: Traditional market systems

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

The first spams showed the inability of a traditional market cultural repertoire to enter the Internet. Therefore, private company-owned networks were created then merged with the existing ARPANet and Usenet networks. Subsequently, commercial parts of the system were

created, and the two parts of the system (commercial and collaborative) coexisted in isolation from one another. Founders of the commercial part imprinted their cultural repertoire through appropriation work.

Event n#	Date	Description
2.1	Early 1980s	Company-owned private networks and ARPANet join to form the Internet. The Acceptable Use Policy of the Internet prevents companies from using it for commercial purposes and encourages them to operate backbones (Schafer and Stenger 2014; Abbate 2010; Ceruzzi 2012).
2.2	1983-1995	The National Science Foundation (NSF) creates and operates the Domain Name System (DNS) in 1983. The .com extension is created in 1985 for domains owned by commercial companies. In 1995, Network Solutions is in charge of the operation of the DNS and is allowed to charge registrants a yearly fee (Abbate 1999).
2.3	1989-1995	Privately operated commercial networks (AOL, CompuServe, Prodigy, Microsoft) provide access to the whole Internet network. The National Science Foundation transfers the operation of the main backbone to two private companies: MCI and IBM (Lee 1989; Abbate 2010).
2.4	1990-1993	In 1990, the World Wide Web is created based on the hyperlink technology. In 1993, Mosaic, the first web browser with a graphical interface, is launched (Ceruzzi 2012).
2.5	1993-1994	In 1993, the first banner ad is placed on the Global Network Navigator. In 1994, Lou Montulli, a Netscape employee, creates the HTTP cookie, a file placed on the buyer's navigator in order to make possible the use of an online shopping cart.

Table 2: Main events of the era of traditional market systems

First, company networks were allowed to join the ARPANet, and the National Science Foundation (NSF) encouraged them to operate backbones (Event 2.1). Companies were still bounded by an Acceptable use policy preventing them from using the network for commercial purposes. At the same time, some private companies already sold access to their own network and various services (mostly e-mail services and access to newspapers). Second, the Domain Name System (DNS) was created (Event 2.2), with a .com extension used specifically for companies. The DNS provided a structured and easy way to access content on the different

networks. In 1995, the NSF allowed the selling of domain names, thus creating a market for domain names. Third, private companies (Internet service providers) were allowed to sell access to the whole network, beyond the company-owned subnetwork (Event 2.3). At the same time, the NSF transferred the operation of the main backbone to private companies. The fourth step involved reducing the level of skills needed to access the Internet. Computers were still not easy to use, and accessing specific domain names required technical competence. The creation of the Mosaic browser and the HTTP technology (Event 2.4) enabled navigation on Internet pages through a graphical interface and a system of “point and click”. Commercial content could then be legitimately displayed on commercial websites that were easy to use and attractive, owing to the presence of graphical content, two factors of satisfaction in online environments (Hoffman and Novak 1996).

These newly accessible company websites formed a new system imprinted with a cultural repertoire that was radically opposed to the repertoire of collaborative systems. These websites were created with dedicated uses, limiting their interpretive flexibility: showcase websites and e-commerce websites, the main websites of that period (Cockburn and Wilson 1996; Ng, Pan, and Wilson 1998) were scarcely interactive platforms, inviting only a limited set of actions from their visitors. At the same time, as websites became easier to use, the need for individual skills decreased along with the behavioral diversity that this cultural repertoire acknowledged. Representations of individuals shifted back to the traditional marketing duo of “consumer” and “producer” as the traditional market system cultural repertoire conceptualizes consumers as simply being able to buy (limited behavioral diversity) whereas firms can enact a wide variety of practices, including marketing practices.

Contrary to the decentralized management structure of collaborative systems, traditional market systems display a centralized management structure whereby firms withhold the major part of the production process, and consumers are left with the end of the

process: buying. A great part of the digital marketing literature of that time focuses on how to design websites in order to facilitate only one set of purchase-related behaviors and attitudes (Drèze and Zufryden 1997; Dholakia and Rego 1998; Hoffman and Novak 1996).

Many articles of the digital marketing literature pre-2000s focus on Internet use and implementation by companies, illustrating how the Internet is a business matter (Ainscough 1996; Good and Stone 1995; Wilson and McDonald 1996). By recognizing the Internet as a marketing tool, these authors were advocating the adaptation of the available technology to a traditional marketing use, undertaking appropriation work.

Technological developments were made in harmony with this repertoire, aiming at facilitating information gathering about consumers, improving targeting in order to facilitate purchase. One technology designed to meet these three goals was the HTTP cookie (Event 2.5). It enabled the use of a virtual shopping cart, making the virtual shopping experience similar to real-life shopping, thus making individuals behave in the same way on- and offline. The HTTP cookie also enabled a more precise measurement of advertising efficacy and the tracking of individual consumers across different websites (Kesan and Shah 2004). It served as a powerful data-gathering technology, providing companies with more information in order to build a strong market orientation based on customer knowledge (Kohli and Jaworski 1990). After the creation of the first banner advertisements (Event 2.5), the HTTP cookie fostered the creation of the retargeting technique, improving advertising efficacy by tailoring advertisements based on customers' navigation behavior. The HTTP cookie turned online retail environments into traditional market systems where firms take care of production and acquire knowledge about the needs, desires, and behaviors of their customers, who are left with the sole task of purchasing goods.

The massive information gathering enabled by online environments gave new strength to relationship marketing techniques, leading researchers to claim that “in the information

age, every marketer has the potential (and perhaps the responsibility!) to be a database marketer” (Deighton and Glazer 1998, p 2). The Internet gave marketers the opportunity to use the interactive media as both a relationship medium and a sales channel (Parsons, Zeisser, and Waitman 1998). The downscale of individual behavioral diversity in this cultural repertoire led to websites designed to actually limit this behavioral diversity, reducing the interpretive flexibility of these platforms. At the same time, the centralization of management structure in the hands of the companies helped focus on sophisticated relationship marketing techniques and conceptualize consumers as targets to be acted upon; as a result, a traditional market culture could be institutionally maintained. During this period, a few books contributed to maintaining the traditional market system: publications such as *The Attention Economy* (Davenport and Beck 2001), *How to Make a Fortune on the Information Superhighway* (Canter and Siegel 1995), alongside articles of the *Harvard Business Review* (Kim and Mauborgne 1999) were all promoting the traditional market culture.

In summary, commercial actors undertook appropriation work in order to imprint their cultural repertoire on commercial platforms (networks, servers, and then websites) and technologies (the HTTP cookie), thus creating an online traditional market system with its own cultural repertoire. This repertoire is characterized by the sharp reduction of the behavioral diversity granted to the individual actors and the strong centralization of the management decision structure in the hands of the company. In this regard, traditional market systems and collaborative systems display opposing cultural repertoires: centralized vs. decentralized management systems, weak vs. strong behavioral diversity. After two sequences of appropriation work, the Internet system was made of two systems: collaborative and traditional market systems. Subsequent eras would illustrate the operations of assimilation work, as firms from traditional market systems would recognize business opportunities in collaborative systems and their cultural repertoire.

Third era: Co-creation systems

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

The traditional market systems were hampered by the small number of actual online customers and companies needed to maximize the value of the individuals populating the Internet. In order to achieve this goal, an assimilation process started, modifying the traditional market cultural repertoire by integrating some traits from the existing collaborative cultural repertoire. This integration was fostered mostly by the publication of influential business books and the use of culturally collaborative technologies into marketing strategies.

Event n#	Date	Description
3.1	1995	Canter and Siegel, owners of the law firm that created the first Usenet Spam (Event 1.5), publish <i>How to Make a Fortune on the Information Superhighway</i> , a business book acknowledging the existence of Internet "natives" from collaborative systems (Canter and Siegel 1995).
3.2	1996	The pharmaceutical firm Smithkline Beecham launches Café Herpé, a virtual community assembled around the topic of genital herpes. Virtual communities are usually organized in Bulletin Board Systems such as Usenet, and are used as a way of maximizing the audience size for advertisements (Werry 1999).
3.3	1997	Hagel and Armstrong, business consultants, publish <i>Net Gain</i> , a book outlining the productive capacity of virtual communities. They put a strong emphasis on the generation of valuable content by community members, and how this content can be used by firms (Hagel and Armstrong 1997).
3.4	Early 2000s	Publication of the influential books <i>Wikinomics</i> (Tapscott and Williams 2006), <i>The Future of Competition</i> (Prahalad and Ramaswamy 2004) and <i>The Wisdom of Crowds</i> (Surowiecki 2004) together with articles in <i>Advertising Age</i> (Garfield 2005) and <i>Wired</i> (Howe 2006) about the business opportunities of crowdsourcing.

Table 3: Main events of the era of co-creation systems

The first step in this process was the recognition by business people of different “ways” of seeing individuals. A book from Canter and Siegel (Event 3.1), while strongly

advocating a traditional market system, unwittingly acknowledged the existence of Internet “natives” independent from business websites. Two years later, Hagel and Armstrong highlighted the productive capacity of virtual communities and provided some insights about their integration into business strategies (Event 3.3). At that point, these books fostered the entrance into the traditional market cultural repertoire of the idea of productive individuals assembled into virtual communities, hence increasing the scope of behavioral diversity. This discourse was paired with some real-life examples that exemplified a successful merge between traditional market systems and collaborative platforms.

Some experiments helped these books prove the business potential of virtual communities. Smithkline Beecham was one of the first companies to host a virtual community (Event 3.2). While early communities were supposed to “attract eyeballs” in a traditional advertising perspective, Hagel and Armstrong showed that these communities could hold “a collective expertise that could not possibly be matched by any individual expert” (Hagel and Armstrong 1997, p 30). These claims were proven true by some real-life examples such as Wikipedia, spread through the business sphere with websites such as Threadless.com (selling user-created t-shirt designs), and were supported by academic research on online communities (Kozinets 1999) and consumer-created advertisements (Muniz and Schau 2007). In the meantime, Amazon.com built its business model around consumer reviews in order to gain competitive advantage (Zwick and Dholakia 2004). All these examples spread the idea that consumers can produce value for the company and enact more diverse behaviors than acknowledged by the traditional market cultural repertoire. Many virtual communities used a Bulletin Board System (BBS), organized into threads of discussion, similar to the architecture of Usenet boards and other collaborative systems. The importation of a BBS into business websites facilitated the importation of traits of the collaborative cultural repertoire into traditional market systems.

This idea was spearheaded by the publication of influential books in the 2000s (Event 3.4). Academics, journalists, and consultants engaged in assimilation work in order to make the traditional market culture assimilate the productive capacity of individuals, creating what we call co-creation systems. In these systems, consumers enact a large range of behaviors in order to create value for the company (ideation, product creation and choice, advertisement production), and expertise is delocated from inside the firm to the outside world. Collaboration produces valuable outcomes that are meant to be commercialized: the company retains control over the production process, and consumers are (paid or unpaid) labor (Humphreys and Grayson 2008). In other words, productive consumers are a component of the value chain of the company, and the management decisions are still mostly centralized in the hands of the company.

In this case, technology and discourse acted together to favor assimilation: certain kinds of platforms, such as BBSs, were imprinted with a collaborative cultural repertoire, and their integration into business websites by business people functioned as assimilation work to incorporate some of their cultural traits into the traditional market system. The co-creation systems thus created were legitimized and maintained by intellectual and professional discourses. This move was fostered by an intellectual pressure finding its roots in the most libertarian views of the founders' cultural repertoire, opposed to big corporations. The influential *Cluetrain Manifesto* (Levine et al. 2000) promotes "human-like" companies: "Companies need to come down from their ivory tower and talk to the people with whom they hope to create relationships / To speak with a human voice, companies must share the concerns of their communities" (Levine et al. 2000, p 9). Contrary to the centralized management decision structures of co-creation systems, the next era would treat both communities and businesses as management decision makers.

Fourth era: Prosumption market systems

The libertarian ideology promoted by the founders' culture contributed to extending the degree of assimilation of the collaborative culture into the traditional market culture. Beyond co-creation systems and the integration of the productive capacity of individuals, new Internet businesses and intellectuals, through their institutional work, also epitomized the ability of both companies and individuals to make management decisions. At the end of the 1990s, small human-sized companies were more fashionable than large ones (Event 4.1). With the spread of the Californian Ideology, "each member of the 'virtual class' [was] promised the opportunity to become a successful hi-tech entrepreneur" (Barbrook and Cameron 1996, p 53). Individual success was twofold: interpersonal success (through social network popularity) and business success (i.e. the ability to make money). The Californian ideology functioned as assimilation work, incorporating the decentralized management decision structure of collaborative systems into the cultural repertoire of traditional market systems: all individuals become entitled to make management decisions.

Event n#	Date	Description
4.1	End of 1990s	Startups become more fashionable than large companies. The dotcom bubble explodes in 1999-2000, mutating startups from e-commerce websites to social networking services. Development and diffusion of the Californian Ideology (Barbrook and Cameron 1996).
4.2	2000-2004	Creation of the major platforms dedicated to user reviews: TripAdvisor (2000) and Yelp (2004). On these platforms, individuals act on their own and do not take part in a company co-creation process.
4.3	2002-2006	Creation of the major social networking services: LinkedIn (2002), Facebook (2004), YouTube (2005) and Twitter (2006). All of them are created in the San Francisco Bay Area. Company and individual accounts on these platforms are similar. Normalization of self-branding behaviors (Tanz 2008).
4.4	2007-2012	Creation of the major platforms of the "sharing economy": Zilok (goods rental, 2007), AirBnb (house rental, 2008), Lyft (car sharing, 2012). All transactions that take place on these platforms are between individuals; the platforms only undertake the task of coordinating the encounter between people's offers and demands.

Table 4: Main events of the era of prosumption market systems

The first step in the decentralization of the management decision structure was the ability of individuals to enact self-branding strategies. Social networks have a culture of audience seeking and individual promotion (Marwick 2013), and their conflation of strong and weak ties into one indiscriminate number of “friends” or “followers” (Dijk 2013) created a quantitative proxy for popularity (Event 4.3). The monitoring of this popularity led to a self-branding imperative: “But come on, admit it: you’ve spent a good half hour trying to pick out the most flattering photo to upload to your Myspace page ... you compare the size of your Twitter-subscriber rolls to those of your friends ... Anyone can be a personal branding machine” (Tanz 2008). The next step after recognizing the productive capacity of individuals was for them to adopt marketing strategies to promote their skills.

The technological structure of social networks also had another effect on the decentralization of decision making. Since both individuals and firms have access to the same sort of accounts, they have the same access to advertising options and can adopt similar marketing strategies. This is different from a brand-managed virtual community (characteristic of the third era) where individual users have restricted options on their accounts. The similarity between company and individual accounts creates the same behavioral possibilities. The difference between firms and users was technologically blurred by platform creators, following assimilation work focused on the management decision structure. Since individuals could behave like firms, advertise themselves like firms, and promote their own brands, they could also adopt another feature of firms: the production of goods and services for profit, therefore the ability to make management decisions.

The expansion of individuals’ behavioral diversity turned traditional market systems into co-creation systems, and the ability of individuals to make management decisions turned them into what we call prosumption market systems. While prosumption is usually defined as “buyers producing products for their own consumption” (Xie, Bagozzi, and Troye 2008, p

109), we use the term in a slightly different way. Prosumption market systems are here defined as systems where consumers produce goods and services for others to consume. The multiplicity of buyers and sellers led to the creation of a new role for companies: the handling of coordination. This role emerged through the merging of social networks and online review sites (Event 4.2 and 4.3): prosumption platforms had to link buyers and sellers (social networks) and help them acquire information on each part of the exchange dyad (online reviews). The material components of these platforms were infused with the new cultural repertoire: social networks invited self-branding, and online reviews invited consumer value creation outside a formal co-creation process organized by a company.

This cultural repertoire resulted in prosumption market systems where the productive agents may be individuals without a legal existence as producers: Lyft (car sharing), AirBnB (house rental), or Zilok (goods rental) users are not required to be legally registered as commercial entities. In this system, “producer” and “consumer” are roles that can be played indifferently by any individual. These systems are usually referred to as the “Sharing Economy” (Sundararajan 2016). Given this blur between roles and the production task in the hands of the consumers, the firm is left with a role of coordination between supply and demand. New companies do not produce the offers anymore; they handle the task of assembling in a single space all the information the users need. The traditional companies are left competing with the newborn “prosumers”.

In this period, assimilation work started with the discursive crafting of the Californian Ideology in the San Francisco area by Silicon Valley business people, incorporating the decentralized management decision structure of the culture of founders into a business discourse. This discourse constituted the cultural repertoire of prosumption market systems, and individual entrepreneurs from the Silicon Valley infused this cultural repertoire into the technological platforms they created. Assimilation started with a discursive constitution of the

cultural repertoire and subsequent technological creation, whereas in the previous era, it had started from the technological shaping of the cultural repertoire and the subsequent crafting of the co-creation discourse.

As in the previous eras, the production of discourse helped legitimize and maintain the cultural frame of these systems. Some highly influential books such as *What's Mine is Yours* (Botsman and Rogers 2010), *The Wealth of Networks* (Benkler 2006), *Peers Inc.* (Chase 2015), or *Remix* (Lessig 2008) develop ideas similar to those exposed in Rifkin's *End of Work* (1996), where the author predicts the disappearance of industrial jobs and the need to develop voluntary and community-based services. All these books question the traditional market system and call for new forms of collaboration between peers that escape the grasp of big corporations. This way of thinking is common in the sharing economy, even though the reality is much more nuanced (Eckhardt and Bardhi 2015; Belk 2014).

The evolution of the Internet has been a long and discontinuous process where many different institutional workers (computer scientists, coders, journalists, intellectuals, and consultants) have created and maintained four different cultures on different technological platforms. The platforms themselves, depending on their interpretive flexibility, have paired with the production of discourse in order to either import a cultural repertoire from outside the Internet system (appropriation) or integrate traits from the cultural repertoires of two systems (assimilation). The modification of cultural repertoires has had an impact on the distribution of roles between companies and individuals and has had many consequences on the functioning of markets and the role of marketing.

Discussion: mechanisms of the evolution of digital marketing

In the previous section, we outlined how the historical evolution of the Internet has entailed not only technological improvements but also a cultural evolution. The representation

of consumers and firms has been modified, creating four different systems and their corresponding cultural repertoires: the collaborative system, the traditional market system, the co-creation system, and the prosumption market system. Collaborative systems refer to humans actors all engaged in value creation, with a strong orientation toward anonymity, granting them their peer status. Traditional market systems are based upon traditional market relationships with a strict separation between producers and consumers: firms produce and direct goods and services to consumers who are left with the choice of accepting or not the exchange. Co-creation systems blur the separation between producers and consumers, the latter gaining the ability to participate in value creation while the former still drive the value creation process. Finally, prosumption market systems emphasize the productive role of individuals while granting the firms a role of coordination; producers are consumers who engage in both production and consumption.

Our findings complement those of Giesler (2008) in outlining the dynamics of market systems: we find that conflict is not the only driving force of evolution as it is complemented by the recognition and exploitation of business opportunities. Recognizing business opportunities involves the modification of managers' mental models. Recent research has investigated how the historically constructed mental models of managers can have an impact on their digital marketing strategy (Rydén, Ringberg, and Wilke 2015), and there is a large marketing literature focused upon finding the historical roots of cultural frames in the minds of both managers and scientists (Diaz Ruiz and Kowalkowski 2014). In this article, we outline the way technological and discursive systems participate in framing the respective roles of consumers and firms in digital marketing. This framing orientates both managerial action and academic research. Table 5 provides an overview of the four cultural repertoires of the eras detailed previously, summarizing the key features of each and the type of academic research produced. The purpose of this table is not to be exhaustive but rather to inscribe some

Era	Symbolic structure	Related systems	Areas of marketing research (and examples of studies)
Collaborative systems	Meritocracy based on individual contribution to collaborative and non-commercial projects, regardless of users' identity, with an autonomous governance structure building on this meritocracy.	Bulletin Board Systems, user-managed brand communities, collaborative and Open Source systems.	<ul style="list-style-type: none"> • User-managed brand communities (Kozinets 1997; Mathwick, Wiertz, and Ruyter 2008) • Gift and social exchange (Giesler 2006) • Privacy concerns (Milne 2000; Tucker 2014) • Spam and negative reactions to online advertising (Palmer 2005; Schlosser, Shavitt, and Kanfer 1999)
Traditional market systems	Commercial interaction between a company producing goods/services to be sold to a consumer target, with a sole focus on consumer <i>reactions</i> to firms' <i>actions</i> .	Corporate and showcase websites, online marketplaces.	<ul style="list-style-type: none"> • Online marketing-mix related research (Yadav and Pavlou 2014) • Recommendation algorithms (Ansari, Essegaiier, and Kohli 2000; Ying, Feinberg, and Wedel 2006) • Avatars and anthropomorphism (Ben Mimoun, Poncin, and Garnier 2012; Jin and Bolebruch 2009)
Co-creation systems	Commercial interaction between a company handling the production of goods/services and active consumers contributing to some extent to the firm's value chain.	Brand-managed and co-creation communities.	<ul style="list-style-type: none"> • New product development (Füller et al. 2009; Kozinets, Hemetsberger, and Schau 2008; Poetz and Schreier 2012) • Other consumer integration in the value chain: product support (Nambisan and Baron 2009)
Prosumption market systems	Commercial interaction between a network of individual prosumers and traditional firms handling the production and consumption of goods/services and networking firms handling coordination tasks.	Social media, collaborative network platforms.	<ul style="list-style-type: none"> • Access-based consumption (Bardhi and Eckhardt 2012) • Sharing and the sharing economy (Belk 2014; Belk 2010) • Collaborative networks (Scaraboto 2015)

Table 5: Overview of the four cultural repertoires of the Internet and related marketing research streams

research traditions into the cultural frames outlined.

Mapping cultural systems on the Internet to enrich managers' mental models

Table 5 presents a first theoretical contribution: different streams of digital marketing research can be associated with a subsystem of the Internet that has its own specific culture. We make explicit the symbolic structure of each subsystem: doing so, we address the fragmentation of the digital marketing literature, where the cumulative property of science is prevented by the focus on very specific problems and the use of an *ad hoc* terminology (Lamberton and Stephen 2016). We add to existent frameworks (Lamberton and Stephen 2016; Yadav and Pavlou 2014) a cultural mapping of Internet environments allowing both theoretical elaboration and managerial action. The cultural specificity of these platforms may be more important than traditional contextual effects: indeed, Schau et al. (2009) find similar online behaviors from communities spanning diverse industries. In the same way, Herhausen et al. (2019), investigating the determinants and consequences of online firestorms, find no significant effects from industry-related factors. All significant effects come from factors inherent to the platform under study (here, social networking platforms). Therefore, future researchers can draw from our framework to develop research hypotheses proposing a system effect instead of an industry effect.

From a managerial point of view, we provide managers with an explicit understanding of the cultural repertoire guiding each type of digital marketing practice. Viewed as fashionable management practices, many digital marketing practices may be accepted by marketing managers for reasons due more to isomorphism than rationality (Abrahamson 1991; Perkmann and Spicer 2008). For example, social media management practices spread largely before digital marketing research started investigating their return on investment (Kumar et al. 2016). Table 5 provides managers with the necessary keys to understand each

system and as such may help them interpret emerging practices and purposely decide to implement each type of digital marketing practice according to its fit with their general marketing strategy. For example, many marketing managers are disappointed with their Facebook page engagement rate: in light of our results, engagement solicitations work better in a co-creation system (such as a brand-managed BBS) because firms are entitled to lead the co-creation process on these platforms. On social media platforms, firms and consumers are granted the same decision-making abilities: hence, firms solicit contributions less legitimately, but they could expect more spontaneous solicitations from consumers. On a broader level, managers seeking to develop a real community management strategy, using the “strong” sense of community (Muniz and O’Guinn 2001) should focus on BBS-like environments which foster consumer activity while retaining firm control. Because of the uncontrolled social activity they foster, social networking platforms are more suited to uses like text-mining (Tirunillai and Tellis 2014). A formal training in netnographical methods (Kozinets 2010) could be an advantage for any marketing manager engaging with digital environments because of its ability to uncover cultural phenomena. In the same way, a manager’s expertise on one type of system (say traditional market systems) may not apply to a different system: this has hiring and training consequences for digital marketing departments. Encompassing all these issues, our findings suggest that managers should explicitly question the mental models they use in their decision-making on digital environments, and should be given the intellectual and methodological tools to do it.

Appropriation and assimilation work as drivers for systems’ evolution

Our second theoretical contribution emerges from the evolution mechanism we outline. This mechanism is based on two types of imprinting work: appropriation work and assimilation work. Appropriation is based on importing a cultural repertoire from the outside

into a new system; assimilation works by incorporating two cultural repertoires from existing systems into a new one. We found that the evolution of the Internet system worked through four imprinting sequences: two appropriation work sequences led to the creation of two opposed cultural repertoires (collaborative and traditional market repertoires); two assimilation work sequences then led to the assimilation of cultural traits from collaborative systems into the traditional market cultural repertoire, creating co-creation and prosumption market systems. These sequences are illustrated in Figure 1.

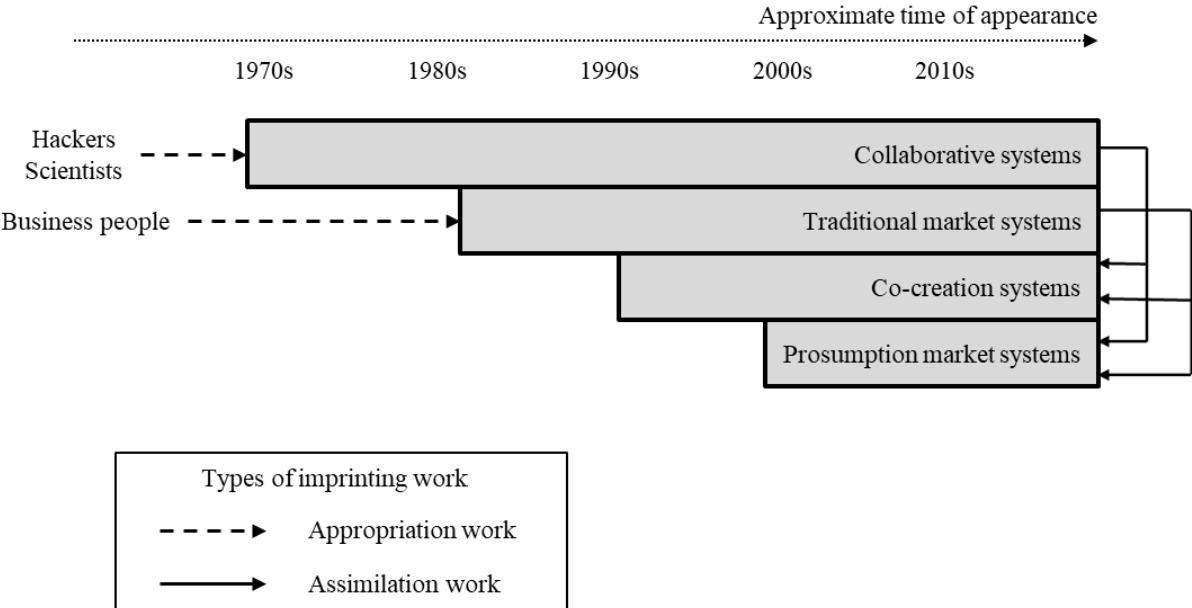


Figure 1: The cultural process of Internet systems evolution

As can be expected, appropriation work took place before assimilation work, suggesting that a new system must first be imprinted with an outside cultural repertoire before it grows sufficiently to allow its own repertoires to be merged. Future research could expand our findings by investigating imprinting work in other settings; we presented appropriation and assimilation as relatively exclusive mechanisms, but we do not exclude potential imprinting sequences mixing appropriation and assimilation work. We add to previous research on conflict-based system evolution (Giesler 2008; Giesler 2012) by outlining two

ways of dealing with conflicts (assimilation and appropriation work). Moreover, while previous research has focused on consumers (Martin and Schouten 2014; Harrison and Kjellberg 2016; Dolbec and Fischer 2015) or extraordinary marketing practices (Humphreys 2010) as sources of change, we identify the recognition of business opportunities in a new system as a source of system evolution and, potentially, a source of conflict (Giesler 2008; Thompson and Coskuner-Balli 2007).

From a managerial point of view, these findings show that managers can navigate between cultural repertoires for strategic reasons: the evolution of the payment algorithms of Deliveroo workers, from a pay-per-hour to a pay-per-delivery (Osborne 2016), shows a re-centralization of management decision making into the hands of the firm, bringing Deliveroo back to a traditional market cultural repertoire where workers behave like employees, following orders instead of being real freelancers. The evolution from traditional market systems to prosumption market systems is not inevitable, as platforms can “go back” to previous cultural repertoires; this is coherent with the imprinting literature outlining the possibility of multiple sequences of imprinting for the same system (Marquis and Tilcsik 2013). However, navigating between cultural repertoires involves cultural adaptation. Making the content of the four cultural systems of the Internet explicit, this article may help managers align the changes they wish to make with the cultural codes of the repertoire they are moving towards.

Centralization of management decision structures and actors’ behavioral diversity as cultural dimensions of Internet systems

Our third theoretical contribution is the identification of the cultural dimensions along which Internet subsystems can be ordered. Two cultural dimensions emerge from our results: the management decision structure and the behavioral diversity of actors. The former refers to

the distribution of the decision-making ability among all actors in the system; the decision making may be centralized, withheld by the firm, or decentralized, granted also to consumers and other individuals. The latter dimension refers to the array of behaviors potentially enacted by consumers and other individual actors in the system. Figure 2 shows the position of the four systems along these axes. The two dimensions are theoretically independent but are empirically related since the main tendency of the evolution of digital marketing seems to be a move toward both more decentralized management decisions and more behavioral diversity, even though traditional market systems continue to be prevalent on the Internet. In the following section, we focus the discussion of the two cultural dimensions on outlining three paths of potential evolution to new cultural systems, represented in Figure 2 as Evolution 1, 2, and 3.

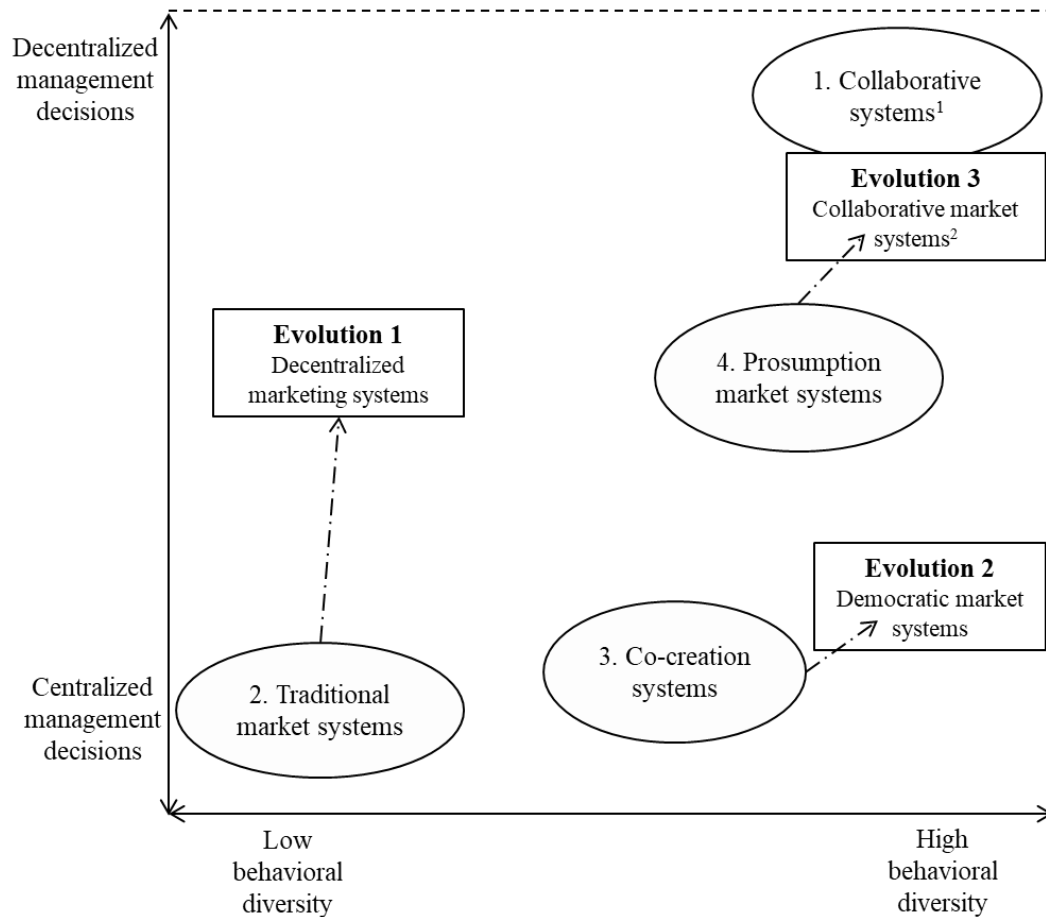
Three potential evolutions of digital marketing

Digital marketing may evolve in three different directions, which are not mutually exclusive: it can recognize more decision-making abilities to consumers with a low behavioral diversity; it can allow consumers to act out more types of behaviors while keeping a centralized management decision structure; it can also come closer to collaborative systems, with different collaboration modalities involved.

Decentralized marketing systems

The first path (Evolution 1) refers to the persistence of low behavioral diversity for individuals coupled with an expansion of management decision making to them. Recent studies in the digital marketing field have investigated the dynamics of viral marketing strategies (Berger and Milkman 2012). The assumption of viral marketing is that company-created content transmitted to a small number of key individuals will spread throughout a

social network. In this regard, some studies have looked for the best seeding strategy, namely the best consumers to target in order to reach the biggest audience. Goldenberg et al. (2009) find that hubs, highly connected individuals, are key to the massive diffusion of a message.



¹ Collaborative systems are non-commercial in nature, and then may not foster evolutions of digital marketing practices on their own.

² Indeed, Evolution 3 comes close to collaborative systems: decentralization of management decisions is less pronounced because companies keep on assuming coordination tasks through the development and use of proprietary algorithms. See Danaher et al. (2017) for further developments on algorithmic governance.

Figure 2: Cultural dimension of Internet subsystems and potential evolutions

This result was confirmed by Hinz et al. (2011) who add an interesting element: hubs are more likely to participate in the viral campaign, but also more active when participating. Similar results are found by Chen et al. (2017) who show that social relationships (where individuals invest time and personal resources) are more important in the diffusion process than economic ones. These results reflect the prosumption market cultural repertoire:

individuals highly invested in Social Media are prone to self-branding efforts, and the information they diffuse to their followers is used to manage their audience. In this sense, Evolution 1 refers to a cultural repertoire whereby firms recognize a management decision-making ability to individuals (i.e. their self-branding decisions) while using (and thus acknowledging) low behavioral diversity: individual action is limited to simple transmission behavior. What we can call a “decentralized marketing system” is perfectly exemplified by the use of “professional” influencers on social media platforms: product placement on Instagram does not require strong behavioral diversity but acknowledges individuals’ ability to make management decisions. Recent research by Gong et al. (2017) on paid influencers on Weibo exemplifies this cultural repertoire.

Evolution 1 illustrates a counter-intuitive situation where decision making becomes highly decentralized (the success of a viral marketing campaign depends on multiple individual decision-making episodes) while behavioral diversity does not increase: in an exaggerated way, “buying” is simply replaced by “retweeting”. This evolution involves assimilation work focused on the reinterpretation of the prosumption market cultural repertoire: decentralized marketing systems incorporate the decentralization element of prosumption market systems into the low behavioral diversity of traditional market systems. This mechanism opens the way for a strategic use of decision-making decentralization processes: if the decision making of influencers impacts the effectiveness of the marketing campaign, influencers are co-responsible for this effectiveness. Thus, the brand could benefit from fewer accusations of manipulation. This phenomenon is in line with the consumer empowerment discourse (Labrecque et al. 2013). However, the normalization of paid influencers could mitigate this effect. Moreover, since engagement rates on social media platforms are low (the median engagement rate across all industries on Facebook in 2018 was 0.16% [0.08%; 0.24%], Feehan 2018), Evolution 1 could illustrate the maximum managerial

exploitation of a low agency context, whereby companies enact strategies focused on promoting a small set of behaviors by instrumentalizing multiple individual self-marketers.

Democratic marketing systems

The second path (Evolution 2) refers to a particular configuration whereby most management decisions remain centralized within the firm while consumers are granted the ability to enact a larger array of behaviors, including behaviors usually tied to management professionals. In such a configuration, the blurring between the roles of consumers and producers is even more pronounced. This trend is seen in the creation of consumer cooperatives that compete with traditional brands. These cooperatives are not organized by a collaborative culture: their management is more structured and formalized than the management of Open Source projects such as Wikipedia and most of the management decisions are made by employees of the cooperative. However, strategic decision making is subject to a shift to online forms of participation. Consumer cooperatives ask their members to vote online on a whole series of decisions that affect them directly. For example, recently initiated food consumer cooperatives¹ recruit members online and ask them to make important decisions related to product specification (origin, method of production, ingredients, packaging) while taking into account the impact of their choices on the final price. Members are also in charge of controlling the compliance of suppliers with product specifications. However, the staff of the cooperative remain in charge of selecting suppliers, negotiating with them and with the retailers, and they make other necessary management decisions. In this situation, decision making is mostly centralized, as most of the day-to-day management decisions are withheld inside the cooperative. Yet, behavioral diversity is increased as consumers are granted the opportunity of participating in the strategic planning process of the

¹ This is especially the case of the brand “C’est qui le patron” in France (<https://lamarqueduconsommateur.com/>)

cooperative. This results in what can be called a “democratic market system”.

The democratic market system is based on the claim that consumers must be empowered (Fuchs and Schreier 2011). Online cooperatives involve their members in the outline of the strategy and assert that the power belongs to them. The diverse nature and complexity of the subjects on which members must express their opinions obviously broadens behavioral diversity. This evolution is based both on appropriation and assimilation work. It borrows from the external cultural system of cooperatives through appropriation. The cultural repertoire of cooperatives includes the democratic principle of one person one voice and a certain societal responsibility and ethical vision of the world (Diacon and Ennew 1996). This external repertoire is then assimilated with the co-creation cultural repertoire.

Collaborative market systems

The third path (Evolution 3) illustrates a situation where behavioral diversity and the decentralization of management decision making are maximal: the only difference with pure collaborative systems is that Evolution 3 systems can be commercial. Recent studies have shown that the sharing economy displays a hybrid nature, intersecting commercial and non-commercial logics (Scaraboto 2015), as do locally organized gift systems (Weinberger and Wallendorf 2012). The maximal decentralization of management decision making stems from the fact that collaborative market systems come into existence with less need for company-managed coordination: prosumers rely on loose self-managed coordination.

Like Evolution 1, Evolution 3 illustrates assimilation work focused on reinterpreting existing technology to adapt its uses to a new cultural repertoire. Recent research on self-managed Facebook selling communities for subsistence entrepreneurs (Delacroix, Parguel, and Benoit-Moreau 2018) shows that these communities are formed around Facebook group functionalities that are reinterpreted by consumers to acquire a commercial purpose infused

with social relations. In these communities, consumers with limited financial resources (e.g. single mothers or unemployed people) sell various items to each other while gathering social and emotional support. Theoretical concepts such as sharing (Belk 2010) or mutuality (Arnould and Rose 2015) have been proposed, all referring to a kind of generalized exchange system built on social bonds. Studies indicate that digital technologies are core to these collaborative market systems, enabling the circulation of value (Figueiredo and Scaraboto 2016), helping manage the offline encounter (Harvey, Smith, and Golightly 2017), or intertwining social and commercial relationships (Delacroix, Parguel, and Benoit-Moreau 2018). In this regard, marketing in collaborative market systems could cease to be a pure company function, as (digital) marketing activities are enacted by individual prosumers. In that case, a new marketing theory may focus on consumer-to-consumer (CtoC) marketing. For now, few studies have investigated CtoC marketing practices (Abdul-Ghani, Hyde, and Marshall 2011), but since many of these interactions occur online, the digital marketing literature is in a perfect position to develop a new marketing theory aimed at helping consumers (Bazerman 2001).

Conclusion

The current landscape of the Internet seems to be reducible to four cultural repertoires, each one related to specific socio-technical systems. The four repertoires we present coexist on the Internet, and while we insist on their specificities, we have to acknowledge that real-world systems are seldom culturally homogenous. Individuals can interpret cultural repertoires because of the interpretive flexibility of objects: as a result, there is variance in behaviors inside a subsystem because the cultural interpretation of technological features may accept concurrent interpretations. Further research could investigate the existence of cultural hybrids, firms acting in different systems at the same time.

Yet, the historical analysis we propose in this article focuses solely on the evolution of virtual worlds. The advent of prosumption market systems has coincided with the strong interweaving of virtual and real worlds caused by the spread of smartphones with Internet access. As a result, evolutions in Internet cultural repertoires are not independent from evolutions in real-world repertoires, and distinguishing between real and virtual worlds may not be relevant. Due to its focus on digital marketing, our study did not take into account the effect of devices such as smartphones, smart watches, the Internet of Things, or augmented reality devices. However, these devices are likely to create a deeper interweaving of real and virtual worlds. The joint development of Big Data and artificial intelligence (AI) is also an evolution worth investigating. Up to now, Big Data is mostly used in a traditional market culture in order to harvest and analyze consumer insights (Erevelles, Fukawa, and Swayne 2016); in the same way, AI is mostly used in pricing strategy (Martínez-López and Casillas 2013) or in order to assist managerial decision making (Wierenga 2011). Neither Big Data nor AI has incorporated the recognition of consumer competence.

Our framework for digital marketing research helps identify this kind of missed opportunities. The past, and historical methods aiming to investigate it, outlines the blank spots of present research in order to harness creativity in future research. After all, looking back and looking forward are part of the identity of interactive marketing research (Malthouse and Hofacker 2010).

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