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Digital marketing effects and synergy in IMC - insights from the pharmaceutical industry

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Abstract

Recent evidence suggests a dramatic increase in the share of digital and social media marketing communications across industries. However, the effectiveness and efficiency of digital communications remain relatively under-researched and also contested. The purpose of this article is to complement the extant literature by critically assessing the effective combination of media in the context of pharmaceutical marketing in France. Based on 28 qualitative interviews and a quantitative study of 761 prescription medicine doctors our findings confirm that personal sales visits continue to have the most important impact on doctors' confidence on pharmaceutical brands, and contrary to findings in other sectors, the impact of digital marketing is very limited despite growing marketing investment. We discuss implications of our study from integrated marketing communications (IMC) perspective and propose that more context and sector specific research is needed for advancing successful digital marketing practices further.

Introduction

The era of digital connectivity and interactive communications has brought about a number of important challenges for marketing and advertising theory and practice. In particular, digital media's interactive, participatory and communal nature contrasts sharply with more conventional media in that it requires new forms of communication practices and more dynamic advertising content (Mulhern 2009; Winer 2009; Gallaugher & Ransbotham 2010; Kozinets, de Valck, Wojnicki & Wilner 2010). The proliferation the digital media touches not only advertising strategy, planning, investment and measurement but it also has broader implications for marketing and branding thought overall as marketers are forced to seek new ways of reaching and engaging with their customers (e.g. Kaplan & Haenlein 2010; Truong, McColl & Kitchen 2010; Fournier & Avery 2011; Rokka, Karlsson & Tienari 2013; Schultz & Peltier 2013). For these reasons it is of crucial importance to understand how digital media and marketing can be integrated effectively and efficiently with other communication means.

In the prior marketing and advertising literature this problematic has often been discussed from Integrated Marketing Communications (IMC) perspective that offers a holistic approach for marketing and advertising planning and execution (Schultz & Kitchen 2000a; Schultz 2005). In addition to creating important synergies by integrating firms' communications across fragmented media (Naik & Raman 2003; Schultz 2005; Assael 2011), the benefits of IMC include the provision of clarity, consistency, and maximum communication impact for advertising campaigns (Schultz *et al*. 1993), and enhanced efficiency and effectiveness in reaching objectives (Phelps,

Harris & Johnson 1996). Yet, as recent commentaries on the IMC concept suggest (e.g. Cornelissen & Lock 2000; Gould 2000; Schultz & Kitchen 2000b; Cook 2004; Kitchen *et al*. 2004; Kliatchko 2008), significant disagreement and controversy has been symptomatic to this otherwise popular and influential notion. In addition, difficulties of measuring the success of IMC has been one of the most pressing and widely debated questions (e.g. Naik, Schultz & Srinivasan 2007; Schultz 2011). In this article, we join prior theoretical discussions regarding it by examining the role of digital media in IMC framework.

As suggested by both anecdotal evidence from practitioners and also several scholars (Peltier *et al*. 2003; Hoffman & Novak 2009; Winer 2009; Mangold and Faulds 2009; Mulhern 2009; Deighton *et al*. 2011; Assael 2011; Voorveld, Neijens & Smit 2011; Schultz & Peltier 2013), continuous efforts are needed for integrating digital and social media into IMC framework. Since digital media embraces open participation and constant interaction between marketers and customers, key challenges entail coordinating and controlling content and messages across wide range of media and also issues related to measurement. Despite being a fairly new and turbulent area of research, most research focused on examining the various synergies and effects between online and off-line media hold that digital media accentuates effectiveness of integrated marketing communications (Peltier *et al*. 2003; Chang & Thorson 2004; Dijkstra, Bijntel & van Raaij 2005; Havlena, Cardarelli & de Montigny 2007; Naik & Peters 2009; Winer 2009; Assael 2011; Voorveld *et al*. 2011).

This article contributes to these recent IMC debates by offering an empirical study where the effectiveness and effects of growing digital marketing investments are investigated in the pharmaceutical industry in France. The pharmaceutical

industry offers an interesting context for our study as it has recently experienced a rapid (30.4%) growth in online marketing investments (UDA 2012). New online media including electronic detailing (i.e. e-detailing) suitable for promoting medicines for physicians is being adopted by pharmaceutical firms (Bates, Bailey & Rajyaguru 2002; Alkhateeb, Khanfar & Loudon 2010). Although the share of online medical marketing is still very low, it allows us to investigate emerging digital marketing practices in an established and large market. In terms of marketing expenditure (a total of € 3.1 billion in 2012) (UDA 2012), the French pharmaceutical industry is characterized by a strong investment of medical brands and laboratories on more conventional media, including personal sales force (i.e. detailing) (54.2%), mass media advertising (21.2%), seminars and professional events (12.2%), and specialty press (2.7%) (Ibid.). Prior research has studied the effectiveness of these off-line media (Narayanan, Desiraju & Chintagunta 2004; Marchanda & Honka 2005; Kremer, Bijmolt, Leeflang & Wieringa 2008; Fischer & Albers 2010), while empirical research on digital medical marketing is scarce.

By taking a global view on different media effects in this sector, the purpose of this paper is to investigate whether synergy effects can be found between new and more conventional media use. More specifically, we examine how increasing digital marketing efforts influence prescription medicine doctors' (physicians') confidence towards drug and laboratory brands. Our empirical findings based on 28 qualitative interviews and a survey of 761 doctors lead us to suggest that personal sales visits remain the single most important and effective marketing activity. In contrast to prior research in other sectors (Chang & Thorson 2004; Dijkstra *et al*. 2005; Naik & Peters 2009; Assael 2011; Voorveld *et al*. 2011), however, we were not able to show the reinforcing effects of online media. Neither did we manage to demonstrate synergy

effects between online and off-line media, suggesting that the investments in digital marketing are not yet paying off in this sector.

In the following, we first offer a review of research on digital media in the light of IMC research debates. Second, we outline and justify our multi-method research approach and research context. Third, we present our findings providing insights into how the studied doctors use and relate to new media, and how different media influence their views about medicine brands and laboratories. Finally, we discuss the implications of our findings for future research and managerial practice.

IMC in the digital era

Propelled by advances in technologies that allow for more efficient and targeted communications and also by wider transition towards customer relationship marketing paradigm, the IMC concept has become extremely resonant among academics and practitioners, as well as globally spread and widely employed across different markets and sectors in the last few decades (Kitchen & Li 2005). According to most authors (e.g. Duncan & Everett 1993; Schultz & Kitchen 2000a; Kitchen & Li 2005), IMC can be understood both as a managerial concept and as a strategic business process that entails development and implementation of communication programs with customers and other stakeholders. Essentially, IMC is founded on its emphasis on holistic or integrative thinking about companies' communication and the role and functions of different media (Schultz & Kitchen 2000a). This means that all customer touch points that a company has should be carefully mapped, assessed, and designed in order to produce the maximum customer impact over time.

However, as mentioned above, IMC has also provoked critical commentaries and long lasting debates around a variety of topics, including conceptual clarity and scope of IMC (Nowak & Phelps 1994; Cornellissen & Lock 2000; Gould 2000; Kitchen *et al*. 2004; Cook 2004; Kliatchko 2008; Kitchen & Schultz 2009), the difficulties of measuring IMC (Lee & Park 2007; Naik, Schultz & Srinivasan 2007; Schultz 2012), the pertinence of real-life application of IMC (Schultz & Kitchen 1997; Duncan 2005; Kim *et al*. 2004; Kitchen & Li 2005; Reid 2000), and the functioning and synergies of different new media (Peltier *et al*. 2003; Truong, McColl & Kitchen 2010; Assael 2011; Schultz 2011). In this paper, we join theoretical discussions addressing the role of different media in IMC by focusing on media effects and synergies between online and off-line media.

It has convincingly been argued that 'new electronic media' including new social media networks and sites has dramatically altered advertising and marketing communication planning and IMC more specifically (Hoffman & Novak 1996; 2009; Bezjian-Avery *et al*. 1998; Peltier *et al*. 2003; Mangold and Faulds 2009; Winer 2009; Assael 2011; Schultz 2011). Most importantly, large-scale interactivity, customization, and user-generated and -controlled communications enabled by digital and social media stand out as novel tools for marketers that still require new ways of thinking and acting in order to result in effective and efficient marketing communications (Peltier *et al*. 2003; Winer 2009; Kozinets *et al*. 2010; Smith, Fischer & Yongjian 2012; Schultz & Peltier 2013). This presents important challenges to companies, including branding (Fournier & Avery 2011; Schultz & Peltier 2013), customer community building (Fournier & Lee 2009), and reputation management (Rokka *et al*. 2013), requiring them to plan, combine and also co-create different media in new meaningful and integrated ways.

While empirical research on new electronic media and IMC perspectives still remains limited, the following literature review draws also from cross-media advertising research that has sought insights into the nature of different combinations of online and off-line media and their possible interaction effects on target audiences.

Efficiency of Multi-Media Communications

It is important to note that most authors agree that the (missing) criteria for evaluating media efficiency is one of the main problems in prior research. Winer (2009) cites the example of using 'audience reach' as criteria to be problematic because it does not account for the impact of (any type of) interaction with the studied media. Although measuring audience reach may seem suitable for conventional media, it is not the case with online media where advertising allocation becomes evidently more complex issue.

According to Naik and Peters (2009), online media amplify the efficiency of conventional media and works best as a supplementary medium. The authors provide a case in the car industry and estimate that car buyers obtain 69% of the information regarding the purchase of their new vehicle online, even though the actual purchase is made off-line, at the car dealer. In this case, the conventional media works on to augment the visibility of web sites. In a related study, Briggs, Krishnan and Borin (2005) demonstrate that a re-allocation of advertising budget towards online media returned 20% increase in the in advertising exposure with regard to comparison group. A summary of related findings are presented in Table 1.

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Insert Table 1 about here

From this perspective, IMC ideally offers companies the possibility of targeting and communicating with different customer groups with the most efficient combination of media that is both effective and creates synergy. For Nowak and Phelps (1994) it is not so much a matter of measuring and understanding the effects of medias one by one but instead a horizontal view over media campaigns that is needed. The overall aim is to have all marketing communications speak directly to customers with 'one voice' so as to influence them over multiple integrated media.

Voorveld *et al*. (2011) have shown interesting evidence of psychological mechanisms that underlie people's behaviour online when they are exposed to cross-media campaigns where forward encoding effect is present (i.e. the ad in one medium directs the interest to campaign in other medium). Comparing with the condition of simple repetition of the same ad, forward encoding effect produced stronger brand recall. In addition to this, the effect was reinforced even further when the number of message sources was increased. In line with this, Ehrenberg *et al*. (2002) have also demonstrated that multiplying advertising channels seem to increase brand recall.

In sum, it can be said that there is a considerable agreement that multimedia campaigns employing both online and off-line media have more positive results than

Table 1: Outline of research on multi-media effects and synergies

Authors	Results
Bezjian-Avery *et al*. (1998)	Interactive advertising was not superior with all conditions. Traditional ads performed better for visual consumers, interactive for verbal consumers.
Leong, Huang & Stanners (1998)	The web works best as a rational medium and it is not good for stimulating emotional effects.
Yoon & Kim (2001)	The web is better for high-involvement products and for targeting rational consumers.
Chang & Thorson (2004)	Television-web synergy found when measuring attention.
Briggs, Krishnan & Borin (2005)	Cross-media campaign led to 20% increase in advertising exposure
Dijkstra, Bijntel & van Raaij (2005)	Positive complementary effect of multi-media campaigns
Havlena, Cardarelli & de Montigny (2007)	Media synergy found between print and TV
Naik & Peters (2009)	Online and offline synergy, interaction effect between media
Pfeiffer & Zinnbauer (2010)	Online media has three times more effective conversion rate for prospective buyers than TV, print
Voorveld, Neijens & Smit (2011)	Coding effect of the first medium towards the second, multi-source perception effect

campaigns using only one or the other medium (Naik & Raman 2003; Chang & Thorson 2004; Dijkstra *et al*. 2005; Havlena *et al*. 2007; Voorveld *et al*. 2011).On the other hand, researchers have identified conditions and contextual factors that mediate findings. For example, Bezjian-Avery *et al*. (1998) showed that more conventional advertising worked better for visually-oriented consumers where as interactive campaigns were more effective with verbally-oriented consumers. Yoon and Kim (2001) and Leong *et al*. (1998) add to this that the web is a more rational medium and therefore better suited for more rational consumers as well as high-involvement products.

Synergies of Multi-Media Combinations

Synergy is one of the most fundamental goals of all advertising campaigns (Havlena *et al*. 2007; Voorveld *et al*. 2011), and it can be achieved through IMC (Schultz 2005). The question is how different media work together to produce and contribute to the outcomes of marketing campaigns. Ultimately, these effects are based on positive reactions of the target audience (Chang & Thorson 2004).

Before the Internet era, different media were studied and planned independently. Assael (2011) describes this as the 'silo' approach, where companies sought to maximise the number of (potential) customer contacts per money spent. However, all this has changed due to new technology and multiplicity of media. Instead of simply purchasing the cheapest media contacts, companies need to shift their thinking towards maximising the return of investment for their campaigns and also the multiplier effects between different medias (Assael 2011). In other words, the focus is on interaction effects, not main effects in isolation. Assael (2011) defines

media synergy as the "joint impact of multiple media that exceeds the total of their individual parts" (p. 43). It has also been shown that synergy effects can occur both in sequential and simultaneous media exposures (Pilotta & Schultz 2005; Schultz, Block & Raman 2009; Enoch & Kelly 2010).

In spite of growing interest in studying cross-media advertising situations, only a limited number of studies can be found where synergy effects between online and off-line media have been demonstrated (Assael 2011; Li 2011). Generally speaking the existing studies have pointed towards the benefits of using multiple media campaigns where both online and off-line media is used (Chan & Thorson 2004; Dijkstra *et al*. 2005; Havlena *et al*. 2007; Voorveld *et al*. 2011). Yet, some studies contradict or find only weak evidence for similar findings (Bezjian-Avery *et al*. 1998; Wakolbinger, Denk & Oberecker 2010). However, it is fair to say that many of these studies have been conducted at a time when Internet advertising was less developed and thus perhaps less impactful than today.

In particular the studies by Chang and Thorson (2004), Dijkstra *et al*. (2005), Havlena *et al*. (2007) and Voorveldt *et al*. (2011) stand out as rare examples where multi-media campaigns were studied to examine synergy effects between online and off-line media. According to Chang and Thorson (2004), multi-media campaign (television, web) led to significantly higher attention, message credibility, and positive thoughts compared to individual media. Study by Dijkstra *et al*. (2005) claimed that multi-media campaign (television, print, web) was more effective in producing positive brand attitudes and purchase intent than individual media campaign. Havlena *et al*. (2007) concluded that multi-media campaign resulted in optimal results on all common brand metrics in a study on packaged foods. Adding to

these consistent findings, Voorveld *et al.* (2011) showed that cross-media condition performed better than repeated media condition, suggesting synergy effects.

Most importantly, the Internet seems to have taken a hybrid role in the new communication environment (Mangold & Faulds 2009) serving as the integration point for different campaign elements across different media. Social media, in particular, has increased the multiplier effect of WOM making viral marketing campaigns more and more making them attractive to companies (Kozinets *et al.* 2010; Assael 2011; Chatterjee 2011; Deighton *et al.* 2011). Moreover, recent research has pointed out to increasing multitasking between online and off-line media (Pilotta & Schultz 2005) that may strengthen multi-media synergies even further (Schultz, Block & Raman 2009). Thus, the digital and social media seems to have radically changed the types and forms of measurement that are needed, and therefore, pose new challenges for studying the interactive marketplace as well as the effects and synergies of IMC perspective (Schultz 2012).

To address these issues, and to direct discussion towards exploring how different market contexts respond to the emergence of new online media, we move next onto our empirical study.

Methods and research setting

Instead of developing a more generalist model of digital media effects within the IMC perspective, this research takes a different view and offers an empirical analysis of a particular market context: the marketing of prescription medicines in France. Two studies are offered in the following sections to investigate and measure how the increasing digital marketing investments by medicine brands and laboratories

in this market are reflected on key marketing objectives – in particular, doctors' confidence on drug brands. Our research approach is both qualitative and quantitative in its approach as it was first necessary to understand prescription medicine doctors' views and behaviour regarding digital media and marketing by means of in-depth interviews before a quantitative survey was constructed and data was gathered. As a result, a total of 28 recorded interviews were conducted in 2011 and a total of 761 survey responses were obtained in 2012.

We chose this research strategy for several reasons: (1) it allowed us to gain a more in-depth understanding of the impact of digital marketing on target customers in an established and large market (pharmaceutical industry in France); (2) it enabled us a relatively good access to study a representative sample of key target customers (prescription medicine doctors) from the point of view of marketers (medicine brands and laboratories); and (3) it made it possible for us to benefit from and combine insightful contextual data with quantitative measurements in our analysis helping us in drawing more general conclusions regarding this market context. Before describing the studies and their findings in full, further background information of the French pharmaceutical industry is provided briefly.

Research Context

France is the largest pharmaceutical market in the EU, with an estimated market value of €26 billion at ex-factory prices in 2011 (EFPIA 2012). It also has the highest consumption of pharmaceutical products per capita in the world (CBI Report 2010). In addition to being one of the top-performing high-tech industries in Europe, the pharmaceutical business is also a key economic asset, employing an estimated

total of 700,000 people (EFPIA 2012). In 2011, the estimated worth of the total world pharmaceutical sales was €667,653 million, of which the share of Europe was second (26.7%) only to the US (41.0%) (Ibid.). Although the sector is largely driven by innovation and scientific advancements, it is also characterized by a strong presence of multinational brands and heavy marketing investment. Moreover, it has even been argued that the pharmaceutical sector spends more money on marketing than on research and drug development, and that the expenditure on sales force and advertising is bigger than in any other industry (Marchanda & Honka 2005).

The bulk of pharmacy marketing is directed to prescription medicine doctors (physicians), although the share of direct-to-consumer (patient) marketing has been on the rise since 1997 when restrictions to consumer advertising were made more flexible (Narayanan *et al*. 2004; Marchanda & Honka 2005). Yet, pharmaceutical firms continue significant investments on physician-oriented marketing as it has proven more important and effective (Marchanda & Honka 2005; Fischer & Albers 2010). The main ways to influence physicians have traditionally been sales force (drug detailing), sampling (sending free drug samples), advertising in mass media, and seminars and events (Narayanan *et al*. 2004; Marchanda & Honka 2005). Research on pharmaceutical marketing also suggests that, in spite of physicians' often negative attitudes toward sales representatives and marketing promotions, detailing serves as an important and inexpensive source of information to physicians and also it affects their prescription behaviour in a favourable manner (Marchanda & Honka 2005). Constant interaction with the pharmaceutical firms' sales force seems to generate "goodwill" that increases trust and satisfaction towards drugs and leads to positive prescription behaviour over time (Ibid.).

The French pharmaceutical industry is similar to the US context in terms of the dominant marketing activities. According to Union des Annonceurs figures (UDA 2012), the total marketing investment in this sector amounted to €3.1 billion in 2011, with a 6% decrease from 2010 due to difficult economic outlook. In 2011, the principal marketing activity was drug detailing by sales force (54.2%), of which 27.6% (-11.5% change from previous year) was directed to generalist doctors, 17.2% (-7.2%) to specialist doctors, and 9.4% (-13.1%) to pharmacists. Other main investments included mass media advertising (21.2%), seminars and events (12.2%), specialty press (2.7%), clinical tests (2.6%), free drug samples (0.6%), and mail (0.5%). The fastest growing marketing expenditure is online channels, with an exceptional 30.4% yearly growth, although its share (0.2%) still remains far behind the industry average (12.2%) (UDA, 2012).

Facing difficult economic times and considerable cuts in marketing budgets and sales force, the French pharmaceutical firms seem to be in a desperate need for making their declining marketing investments as efficient as possible. Reflecting trends in other sectors, many firms have shown interest in adopting new digital marketing channels such as 'e-detailing', i.e. by using digital technology to disseminate information about pharmaceutical products to physicians (Bates *et al*. 2002; Alkhateeb *et al*. 2010). According to Alkhateeb *et al*. (2010), there are two alternative types of e-detailing; the first is video detailing where the sales representative and doctor meet in an online video conference meeting (usually lasting 5-15 minutes), and the second type is when pharmaceutical firms adopt Web 2.0 tools such as online videos, wikis, podcasts, blogs and social networks to disseminate (on-demand) medical information to doctors. Yet, empirical research on the adoption and impacts of these new medical media still remains scant.

Study 1: In-Depth Interviews

Our first study was designed to explore the ways in which prescription medicine doctors view and use the Internet, thus enabling us to gain in-depth insights into the industry and to the everyday life of our respondents. Given the large size of our target market, a convenience sample was employed with two main criteria: geographical and professional categorization. Since most of the doctors in France are working in the Paris area (Île-de-France) we recruited half of our respondents there. As a comparison group, we recruited participants from the South of France. The two largest groups of prescription medicine doctors that differ significantly in terms of their professional practice are generalist and specialist doctors. We recruited a total of 16 generalist doctors and 12 specialist doctors, respectively. The resulting 28 interviews were carried out between September and October 2011.

In addition to the mentioned criteria, we ensured that our respondents included only active practitioners and equal number of female and male participants. We also wanted to interview both more and less active Internet users. The only criteria for exclusion was when candidates no longer exercised their work fulltime or were working in otherwise temporary position. All participants were recruited through telephone. The recruitment was stopped when a saturation point was reached, in other words, when new interviews no longer produced new insights into our key themes and when the value of recruiting further informants was deemed minimal from the point of view of our study. The interviews were conducted face-to-face in a calm and convenient environment, and not between doctors' appointments. We used semi-

structured interviews consistently, and allowed flexibility for the participants to express their opinions freely. The interviews were recorded and transcribed verbatim.

The interview guide was structured along the following themes. First, we asked the participants to describe their experience of using the Internet more generally. We then asked how they regard the communication by medicine laboratories and brands via Internet. We encouraged the participants to describe relevant situations they had encountered and also to navigate different websites during the interview to provoke more concrete insights. Finally, we analyzed the interviews thematically by first searching for key themes and categories and coding them accordingly. Based on several readings of the transcripts the findings were then compared for coherence and consistency, until a common reading of the data set was achieved. In particular, we sought to identify multiple points of view towards pharmaceutical marketing online among respondents with different backgrounds.

Study 2: Survey

Consequently, a survey was conducted in order to measure online and off-line media effects on prescription medicine doctors' brand perceptions. More specifically, we build on Moulins and Roux (2008; 2009) who suggest that the central variable for measuring the brand strength is confidence toward the brand. In addition, we are interested in the return on investment on multimedia campaigns and also in measuring the multiplier effects that different media have on each other as proposed by Assael (2011). Our hypothesis is that these constructs enable us to investigate and compare the effects of different media on the brand. To adapt our study to the present context – i.e. the marketing of pharmaceutical brands to prescription medicine doctors – we

employ the multidimensional scale to measure brand confidence developed by Gurviez and Korchia (2002). As said, we focus our study only on the direct-to-physician (DTP) marketing media (Kremer *et al.* 2008) including online media or 'e-detailing' targeted to doctors (Alkhateeb *et al.* 2010). Our survey questionnaire consists of five sections of propositions that were measured on a 6-point Likert scale.

A sample of 761 respondents was obtained through a self-administered online questionnaire. The questionnaire was posted on Pratis TV website dedicated to prescription medicine doctors, behind login password (http://www.pratis.tv). The questionnaire took about 10 minutes to fill and it was targeted to doctors from all over France. The data was gathered in January and February 2012. We examined the sample for representativeness in terms of age, gender, doctors' specialty, geographical location, professional experience, number of patients, and the number of sales representative visits. The share of generalist doctors (60%) was slightly higher in our sample reflecting the fact that our questionnaire was about prescription medicines. Otherwise, the sample can be considered well matched with the French medical demographic, for instance, in which the male practitioners dominate (73.3% in our sample) and where the share of practitioners from Paris area is comparable (14,5% in our sample).

First section of the questionnaire maps the most frequently prescribed medicine brands by doctors. According to our study, five of the most frequently cited brands, in descending order, were Tahor, Plavix, Xalatan, Crestor and Seroplex. Not surprisingly, these brands reflect the top performing drugs on the market in terms of sales, and – as our study reveals – brands that have been active in using the online media in their marketing activities. Most frequently cited pharmaceutical laboratories were Pfizer, Sanofi-Aventis, and Astra-Zeneca – the producers of the top selling

drugs, respectively. Both medicine and laboratory brands were measured with the same items enabling us to compare results between these two types of brands.

In the first phase of our analysis we used multivariate tests to measure the dimensionality of our scales and established validity between dimensions and studied constructs. We verified a statistically stable factorial structure for each of our scales by examining that correlations between individual items were inferior or equal to 0.5 and also that same items did not correlate with two or more factors. The distribution of scores was also found to follow a normal distribution.

Using Principal Component Analysis we extracted factors that account for a high percentage of each dimensions' total variance: 83.1% of confidence in product competence, 91.1% of confidence in company competence, 89.1% of confidence in company honesty, 93.1% of confidence in company goodwill, 73.3% of confidence in reading information on the Internet. The reliability of factors is highly satisfactory according the reliability coefficients. Cronbach's alphas are superior to 0.7 in general which is in line with usual reliability standards (Peterson 1994): 0.896 for confidence in product competence, 0.955 for confidence in company competence, 0.938 for confidence in company honesty, 0.925 for confidence in company goodwill, and 0.635 for confidence in reading information on the Internet. The dimension regarding Smartphone and social media use is the only one indicating unsatisfactory reliability, given that it explains only 63.3% of the variance and that it indicates an alpha of 0.397.

Finally, in order to test the hypotheses of our study, we carried out an exploratory typological analysis based on the Ward method for measuring Euclidean distances for dimensions of confidence towards product and laboratory brand competence in relation to the factor scores that were obtained.

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Findings: medical media's influence on doctors

Study 1: In-Depth Interviews

The prescription medicine doctors that we interviewed experience that they are accustomed to using the Internet in their everyday life and that they are quite familiar with the new media. Yet, they claim that they can spend only a limited amount of time surfing the web. On average, our respondents estimate that they use the web once or twice per day, approximately 20 to 30 minutes in total. Whereas the generalist doctors emphasize the role of online channels as an important source of information supporting their daily practice, the specialist doctors are keen on using it more elaborately for their own research work and for keeping them up-to-date on therapeutic innovations.

Half of our interviewees were using a Smartphone, allowing them to access the web on the go. Smartphones were used for online navigation as frequently as computers, and also for downloading useful applications. Two thirds of the participants connected online principally from their office, but nearly half of them also had professional reasons to use the Internet at home. At the office, three quarters of generalist doctors and half of the specialist doctors had unlimited access online to use also audio and video sharing websites.

About 75% of all the doctors we interviewed feel comfortable with using the web and they appreciate the new possibilities it brings about, including better functionality and rich and dynamic information. In particular, the younger generation

of doctors seems more avid in using new forms of communication and their enthusiasm is only hindered by busy working schedules and lack of time.

As noted by Alkhateeb *et al.* (2010), our interviews indicate that pharmaceutical firms are indeed taking early steps in approaching the prescription medicine doctors via online channels. Several e-detailing actions are frequently mentioned, including web-conferences, online surveys, and mobile applications. Yet, the doctors have encountered such actions rarely and think that there is still much to do in terms of making better use of this form of communications. For instance, better use of expert online videos, video conferencing, and online reports could enhance online interactions between the doctors and laboratories.

In terms of the extent of e-detailing behavior, three quarters of doctors mention that they have participated in online activities facilitated by pharmaceutical firms on a regular basis, and about half of them have also downloaded mobile applications designed for doctors or patients. Regardless of age or professional category, most of the doctors claim they have visited pharmaceutical firm or medicine related websites at least once per month. In addition, majority of them have replied to online surveys or received online newsletters or congress reports during the last year.

Our interviews suggest that the new media can help significantly in offsetting the dramatic cuts in pharmaceutical firms' sales force and decreasing investments in the traditional media. From the point of view of specialist doctors, the most effective online influence channel was web conferences as they save considerable amount of doctors' time and because they are practical and modern. Downloadable mobile applications were considered also compelling due to their attractive and innovative design. As proposed by Alkhateeb *et al.* (2010), actions that seem to replace conventional drug detailing most directly include web conferences, websites, long-

distance detailing, press reviews and congress reports, according to specialist doctors. In general, the doctors expect byte-size information that is always up-to-date and accessible without effort. The generalist doctors in turn stress that long-distance detailing is the most impactful action for them, mainly due to its significant time-saving effect. Other mediums such as medicine websites, web conferences, and videos are viewed largely complementary to conventional detailing.

Overall, the findings from study 1 reveal that the prescription medicine doctors are motivated to adopt and see the benefits of using interactive and helpful new media communication tools. They are also continuously exposed to and use these media already. Yet, not all modes of communication are considered equally effective by the doctors. For instance, the usefulness of commercial mobile applications, blogs, and online forums still divide opinions between our informants.

Study 2: Survey

Building on the insights from study 1, we next report our findings from the prescription medicine doctor survey (n=761). The respondents were first divided into three groups that differ significantly in terms of their confidence toward product and laboratory brands. The largest group (G1, 439 individuals) was characterized by sincere confidence towards the brands, whereas the second group (G2, 220 individuals) was marked by reserved confidence, and the third and smallest group (G3, 120 individuals) was suspicious in their confidence towards the brands. These results reflect a similar group structure and typology in comparison to a related prior study (Andreani *et al*. 2010). The average confidence scale scores are shown in Table

2. All differences are statistically significant at the 0.00 confidence level (ANOVA) and group pair comparisons (T-test).

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Insert Table 2 about here

The sincerely confident group is characterized by higher exposure to sales force drug detailing (G1 4.5 times per week) as compared to other groups (G2 3.9 and G3 3.4 times per week). They are also more active in participating in doctors' meetings and seminars (G1 6.8 times, G2 5.3 times, G3 4.2 times per month), and more responsive to taking surveys (G1 2.9 times, G2 2.4 times, and G3 1.7 times per year) and reading mail from laboratories (G1 7.6 times, G2 6.6 times, G3 5.6 times per month). The groups read as much generalist (G1 8.9 times, G2 8.4 times, G3 7.8 times) as well as specialist press (G1 4 times, G2 3.7 times, G3 3.2 times per month).

Doctors' use of online medical media between groups is shown in Table 3. The group with highest brand confidence level (G1) is more active in consulting pharmaceutical laboratory and medicine brand websites (5.3 times) as compared to the less confident groups (G2 4.4 times and G3 4.7 times per month). However, there are no statistically significant differences between groups with regard to their Smartphone or social media use – all groups spend equal time consulting medical information on their Smartphone (G1 2.5 times, G2 2.8 times, and G3 2.8 times per month) and on social media (G1 1 time, G2 0.6 time, G3 0.9 time per month).

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Insert Table 3 about here

Table 2: Clustering of doctors based on confidence in brand competence

Confidence toward brand	Product brand	Laboratory brand
Group 1 (55.7%)	5.1	4.6
Group 2 (26.4%)	4.7	5.1
Group 3 (15.8%)	2.7	2.8
Average (100%)	4.69	3.07

Table 3: Average online medical media use between groups

Average times per month	Read information about medical products online	Read medical articles online	Read medical information on Smartphone	Read medical information on social media
Group 1 (55.7%)	5.3	9.1	2.5	1
Group 2 (26.4%)	4.4	9.4	2.8	0.6
Group 3 (15.8%)	4.7	6.6	2.8	0.9

Table 4: Doctors hard to influence

Average times per month	Read information about medical products online	Read medical articles online	Read medical information on Smartphone	Read medical information on social media
Doctors not receiving sales representatives (12.0%)	7.2	9.3	2.2	0.6

Table 5: Clustering of doctors based on online medical media use

Average times per month	Read information about medical products online	Read medical articles online	Read medical information on Smartphone	Read medical information on social media
M1 (10.9%)	13.2	14.56	14.78	6.9
M2 (31.2%)	16.03	17.6	1.07	0.12
M3 (57.9%)	4.06	4.7	0.8	0.9
Average (100%)	8.8	9.8	2.4	0.89

To complement these observations, our findings also reveal that the doctors who are not receiving any sales representatives (12.0%, 92 individuals) are the most difficult to influence from the point of view of pharmaceutical firms, as shown in Table 4. These hard-to-reach doctors show relatively strong confidence towards the competence of drug brands (4.4) but less towards pharmaceutical laboratories (3.2 on average). They are also less active reading the professional press (6.5 times generalist press, 3.4 times specialist press per month) on average and not more active in using the online media than their colleagues. This unwillingness to receive sales representatives cannot be explained with the background variables in our data but would require further investigation.

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Insert Table 4 about here

In order to investigate the impact of online medical media to doctors' brand confidence further, we carried out a second exploratory typological analysis. The respondents were consequently clustered into three distinctive groups based on the pertinence of their online medical media consumption, as summarized in Table 5. The most active group online (M1, 83 individuals) navigates significantly more on medical brand websites (13.2 times), reads more online articles (14.6 times), and takes advantage of their Smartphones (14.9 times) and social media (6.9 times per month) in consulting medical information on average. The second most active group (M2, 237 individuals) is similar to the previous one with the exception that it does not use Smartphones or social media for consulting medical information. Finally, the least active and the most dominant group (M3, 440 individuals) is characterized by very limited to non-existent online medical media use. Based on subsequent analysis comparing this clustering with doctors' confidence on product brands (M1 4.4, M2

4.6, M3 4.5) and laboratory brands (M1 4.0, M2 3.8, M3 3.6), we concluded that no statistical differences between the groups could be found.

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Insert Table 5 about here

The most active group online receives as many medical sales representatives as other groups (M1 4.1 times, M2 4.2 times, M3 3.7 times per month) but they accept more e-detailing (i.e. meeting sales representatives via internet) (M1 7.9 times, M2 5.8 times, M3 2.9 times per year). They accept also more conventional medical promotions more frequently, including professional meetings and conferences (M1 7.5 times, M2 7.1, M3 0.5 times per year), participation in surveys (M1 4.9 times, M2 2.7 times, M3 2.1 times per year), and reading mail (M1 10.7 times, M2 9.5, M3 4.9 times per month). There were no statistically significant differences between these groups in terms of sex or doctors' specialization but the members in the most active group online (M1) were (on average two years) younger than others.

From doctors' point of view, the medias that appear most important for them are personal sales representative visits (detailing) (4.06) and the medical press (4.30). Surveys (3.0), direct marketing (2.9) and the advertising in mass media (2.7) are considered less important. Interestingly, online channels are rated low in their importance even among the most active groups online: emails and online newsletters (M1 3.3, M2 3.1, M2 2.4), Smartphone applications (M1 3.8, M2 2.1, M3 1.9), advertising on Internet (M1 2.6, M2 1.9, M3 1.9), websites (M1 3.1. M2 2.6, M3 2.2), e-detailing (M1 3.0, M2 2.5, M3 2.2) on average.

Discussion

IMC research has suffered from a major focus on individual media and a lack of adequate multi-media measurement over the years (Schultz, Block & Raman 2009; Assael 2011; Schultz 2011). Most pressingly, the challenges of incorporating the new online media with more conventional media have proven persistent and difficult (Assael 2011). Although there is a growing interest in addressing these issues (Chang & Thorson 2004; Dijkstra *et al*. 2005; Havlena *et al*. 2007; Naik & Peters 2009; Voorveld *et al*. 2011), several gaps in literature remain unexplored. In this study, we have argued that more research needs to be directed towards uncovering particular context specific dynamics at play in different industries and market settings as they may have a deciding influence on the most effective combination of media and marketing investment. Our empirical study from the pharmaceutical industry in France serves as an illustrative case in point.

Our study set out to explore whether rapidly decreasing investment in historically important pharmaceutical marketing channels – i.e. sales force (detailing) and conventional marketing media directed to prescription medicine doctors – could be set off by integrating new online media tools including e-detailing (Alkhateeb *et al*. 2010) in this large but at least momentarily declining industry. More specifically, our objective was to gain insights into the effects and possible synergies of using online media to influence prescription medicine doctors by pharmaceutical firms. By means of 28 interviews and a survey among 761 doctors, our study brings forward several findings that contribute to the existing debates about the role of digital marketing in the IMC theorizing.

First, following recommendations by Assael (2011) to embrace a global view on media and their effects instead of 'silo' approach, we opted to measure return on pharmaceutical firms' investments on different media in terms of 'doctors' confidence

toward brand competence.' This construct is particularly relevant to doctors' real life context and a key variable for measuring brand relationship strength (Moulins & Roux 2008; 2009). In addition, our approach allowed us to avoid measurement problems usually linked with studying individual marketing campaigns, particular therapeutic practices, or drug lifecycles, and made it possible for us to examine the most prescribed medicine and pharmaceutical laboratory brands from a holistic perspective. Our results confirm findings from prior research (Kremer *et al.* 2008; Narayanan *et al.* 2004; Marchanda & Honka 2005; Fischer & Albers 2010) that the personal sales visit (detailing) remains the most important means for reinforcing doctors' confidence towards medicine product and laboratory brands. Other promotional media, such as professional seminars, press and surveys play only a complementary role, according to our findings.

Second, regarding the potential effects of online medical media including e-detailing (Alkhateeb *et al.* 2010), however, we were unable to demonstrate impact on doctors' confidence on drug and laboratory brands. This contrast with prior research conducted in other sectors where multimedia combinations have proven more effective than single media activities (Chang & Thorson 2004; Briggs *et al.* 2005; Dijkstra *et al.* 2005; Havlena *et al.* 2007; Naik & Peters 2009; Voorveld *et al.* 2011). The weak impact of online media may be explained by the fact that pharmaceutical industry requires highly specialized contextual marketing knowledge (Kremer *et al.* 2008) that is at stake in personal face-to-face interactions.

In addition, one may ask if the share of online investment (0.2% of total marketing investment) is still too marginal in order to demonstrate effects in the studied industry. This raises important questions concerning what is the optimal amount of exposure and repetition to trigger thresholds of memorization and

interactivity online. As stressed by Huedo-Median *et al*. (2006) and Venkataraman and Stremerch (2007), we need to be careful in taking into account the sufficient frequency of actions and exposure when studying multiple media. Our study suggests that even if most doctors were exposed to online medical media on monthly basis, and most active (M1) reaching nearly 50 monthly contacts on average (total amount of contacts with all pharmaceutical firms), no significant effect could be ascertained on their influence on brand confidence levels. Moreover, this raises questions regarding what specific online media and e-detailing formats are most effective for pharmaceutical marketing. Based on our interview data, the online video conferences were considered most useful and convenient by doctors.

Third, in contrast to prior research (Chang & Thorson 2004; Naik & Peters 2009; Voorveld *et al*. 2011) and in spite of our efforts, we did not manage to demonstrate synergy effects between off-line and online media. Yet, the relatively limited online media investment by the pharmaceutical brands did not help in highlighting the impact. Even after we clustered the most active doctors in online media, we were unable to detect interaction effects between online and off-line communication means. Higher rate of online contacts with pharmaceutical product and laboratory brands is not linked with higher brand confidence levels. What seems to matter, however, is the combination of off-line media that is used. Paradoxically enough, all the doctors in our survey were recruited online and were given a small incentive in return for their participation, indicating that they are in fact quite open to engage in online collaborations.

Finally, the implications of our study with regard to pharmaceutical marketing literature and practice seem counter-intuitive to certain extent. Although, the rise of digital marketing has come to change market and marketing logics in various

industries (Peltier *et al*. 2003; Winer 2009; Kozinets *et al*. 2010; Kaplan & Haenlein 2010; Schultz & Peltier 2013), it is important to bear in mind that not all sectors seem to benefit from the same advantages instantly. In the pharmaceutical sector, the promise of electronic detailing has been voiced as an important new media that has the potential to replace more conventional media (Bates *et al*. 2002; Alkhateeb *et al*. 2010). Based on our findings, this vision remains firmly in the horizon even if our data indicates that the younger generation of doctors is using new media more and more. According to our research, at least for the moment, the investments on online medical media are not paying off and they have not proven effective in contributing to integrated marketing communications.

One particularly discouraging finding for the pharmaceutical firms concerns the doctors who are hardest to reach. These doctors (12% of our sample) are neither willing to receive sales representatives, nor active in reading other medical media or adopting new digital tools to complement their lack of interaction with the pharmaceutical firms. In addition they were more skeptical in their confidence towards the pharmaceutical laboratories than their colleagues. The opportunities to influence this group's prescription behavior directly seem worst.

Limitations and future research directions

The limitations of our research are mainly methodological. First of all, our research is exploratory by nature and thus further research is needed to confirm and test its findings. The sample we gathered is large and it represents the studied prescription medicine doctor population relatively well. Yet, it is important to keep in mind that the participants were recruited via self-administered online questionnaire,

which may cause bias. However, should bias be found towards more avid online users, this would grow our arguments even stronger.

The generalizability of our findings beyond prescription medicine category to other healthcare or consumer goods sectors calls for further research. In addition, our findings can be interesting to read and compare with research on Business-to-Business marketing perspective, another closely related research area where investments in personal sales force are dominant but where digital marketing practices are also quickly proliferating. A follow-up survey in the coming years would be necessary to investigate whether the online medical media has been able to generate impact.

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