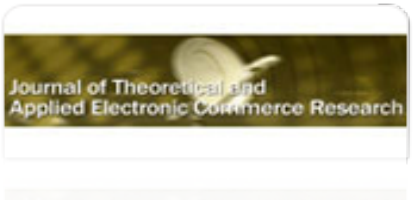

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Web 2.0, Social Networks and E-commerce as Marketing Tools

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Abstract

The spectacular development of the Web 2.0, particularly through online social networks, has awakened much interest in different areas. Marketing is one of them and businesses have decided to experiment with this new type of technology in support to their commercial activities. However, to take advantage of Web 2.0 tools and sites, it is necessary to distinguish their scope and possible applications from a business standpoint. This requires putting Web 2.0 in clear perspective with e-commerce, which is inherently linked to this purpose. In this article, we clarify Web 2.0 and present how it can be used for marketing. In particular, we discuss the role that online social networks may have in e-marketing, and in doing so how such networks might relate to e-commerce. In addition, recommendations for e-commerce researchers are presented based on the evidence obtained.

Keywords: Web 2.0, Online social networks, E-commerce, Social commerce, E-marketing

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1 Introduction

Web 2.0 applications, particularly online social networks, have made a remarkable appearance in the last decade. Given the spectacular number of users in such networks, many businesses are using them as marketing tools. The previous is important since most Web 2.0 applications offer their services for free, relying on advertisement revenue to generate income [11]. This situation has motivated the operators of the major online social networks to develop and offer marketing services for which businesses are willing to pay, allowing them to generate revenue to cover their expenses, and in this way provide their core services free to users.

Nevertheless, Web 2.0 has evolved as a fuzzy concept. According to Clarke, "the Web 2.0 movement is diffuse, and does not permit simple definition" [10] p. 40. Using Web 2.0 applications for e-marketing therefore requires clarification to determine with precision their purpose and scope. This is essential to put such applications in a clear perspective with regards to e-commerce, which currently is a fundamental e-marketing tool.

The objective of this paper is to present the potential of Web 2.0 applications, mainly online social networks, as marketing tools, and to compare and contrast them with e-commerce. To achieve this aim, we conducted a literature survey, first to explain Web 2.0 and online social networks, second to understand how they can be used in marketing, and last to clarify how they relate to e-commerce.

We conclude based on this research that, from a technological point of view, Web 2.0 is simply an evolutionary process. Yet from a social stand point, it can be considered a true revolution. Faithful to its roots, Web 2.0 favors more the creation of social networks aimed at establishing and maintaining social relationships than to promoting business sales, as e-commerce does. However, this situation is likely to change.

To explain this change, we propose two different marketing perspectives for online social networks. The first one, to which we referred to as the market perspective, considers such networks simply as collections of individuals which make a market. As Dooley et al. [15] presents, this perspective prevails in Web 2.0 marketing applications. In this perspective, online social networks and e-commerce are complementary e-marketing tools.

In the second perspective, denoted as community perspective, online social networks are seen less as a market and more as a virtual community, in which the individuals share common interests. As it is the case with communities, a seller has little influence in an online social network and the network's members could be resentful if the seller tries to seek such influence [41]. In this perspective, the borderlines between social networks and e-commerce become blurred, and an integration of these two technologies is likely to occur.

This paper is organized in six sections. Section 2 aims to clarify the core concepts of Web 2.0, based on the literature on this topic. Online social networks, the best examples of sites developed using Web 2.0 tools today, are discussed in Section 3. Section 4 discusses how online social networks can be used as marketing tools. Leaving aside the perspective of groupware, which is commonly considered as an extension of the online social networks in businesses, the previously mentioned marketing and community perspectives are presented in this section. Finally, section 5 compares and contrasts online social networks and e-commerce as strategic elements for marketing and section 6 presents conclusions and recommendations for e-commerce researchers.

2 What is Web 2.0?

The term Web 2.0 was coined in 1999 by Darcy DiNucci [14] and used in the first Web 2.0 conference held in 2004 by Dale Dougherty of O'Reilly Media, who defined it as a second generation of technology development and web design [39].

Turban et al. refer to Web 2.0 as "a popular term for advanced Internet technology and applications including blogs, wikis, RSS and social references" [54] p. 808. These authors emphasize the fact that Web 2.0 applications are made *for people and by people.* Therefore, the main difference between Web 2.0 and traditional web, which O'Reilly [39] referred to as Web 1.0, is collaboration.

Constantinides and Fountain refer to Web 2.0 as "a collection of open-source, interactive and user controlled online applications expanding the experiences, knowledge and market power of the users and participants in business and social processes. Web 2.0 applications support the creation of informal users' networks facilitating the flow of ideas and knowledge by allowing the efficient generation, dissemination, sharing and editing/refining of informational content" [11] pp. 232-233. We adopt this definition in this paper, since it relates Web 2.0 not only to social processes but also to commercial processes, which are linked to marketing.

Therefore, the advent of Web 2.0 is marked by the development and use of tools that allow the exchange of information between users through websites--to present information--, blogs --to chronologically collect items or texts by various authors on the same website--, wikis --to collaboratively create and edit web pages--, chats --to

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synchronously converse over the Internet--, syndication mechanisms, such as RSS or atom,--to retransmit web information sources--, podcasts --to distribute multimedia files--, and mashups--to combine content from various web sites. However, such tools are implemented on the original suite of protocols created for the Internet, referred simply to as TCP/IP. Therefore, Web 2.0 is not a technical specification *per se*, and refers to the technological evolution of the World Wide Web (WWW), revealing how software developers and end users actually use it [48]. Examples of websites using Web 2.0 tools include: Blogger (Site 5), Facebook (Site 9), Flickr (Site 12), Google Docs (Site 15), LinkedIn (Site 17), Picasa (Site 22), Skype (Site 25), Twitter (Site 29), Wikipedia (Site 33), Wordpress (Site 34), and YouTube (Site 36). These sites are characterized by their ability to create and share information directly by users in the form of text, photographs, sounds, videos, and music, and to enable communication and interaction between users.

According to Tim Berners-Lee, co-creator of the WWW, Web 2.0 is a fancy name to denote a set of tools for publishing content on the web. According to him, the generation of content by users was part of the intention when the WWW was created; therefore, Web 2.0 is more a social movement that enables the use of the WWW and breaks the social order of how things were done earlier in the Web 1.0 [48]. This opinion addresses the previous issue presented by Clarke [10].

Table 1 compares the characteristics of Web 1.0 and Web 2.0. As this table shows, the Internet is considered in the Web 1.0 as an information highway and the WWW as a web of information resources stored on a global network of servers. Sites characteristic of the Web 1.0 era are information portals, mainly programmed using HTML (static sites). Consequently, the typical tools for Web 1.0 are aimed at retrieving and displaying information stored on the Internet in an efficient manner, i.e., in the shortest time and with the minimal cost possible. This is related to the search for economies of scale, that is, the increase in the volume of transactions while the marginal cost of a new transaction decreases [9]. In addition, the software used to develop Web 1.0 applications is offered as a product (whose use is regulated by the terms specified in a license), either as proprietary or free software, and client-server is the basic computing model. The scope of communication ranges from local to wide area networks. Finally, due to the emphasis on information display and retrieval and the use of software as a product, Web 1.0 is mainly characterized by technological issues.

Table 1: Characteristics of web 1.0 and web 2.0 (based on [39] and [54])

Feature	**Web 1.0**	**Web 2.0**
Metaphor for the Internet	Information superhighway	Platform for interaction
Metaphor for the WWW	Web of information resources stored on a global network of servers where what matters is retrieval and display	Human web where what matters is human contacts and relations between individuals
Major sites	Information portals	Online social networks
Tools	Oriented to display and retrieve information stored on the Internet	Designed to enable collaboration and content creation on the Internet
Strategy pursued	Efficiency	Effectiveness
Economies sought	Economies of scale	Network effects
Software used	Software as a product	Software as a service
Computing model	Client-server	Cloud computing
Communication range	Wide and local area networks	Mobile communication also considered
Issues	Technological	Social

In contrast to Web 1.0, in the Web 2.0 era the Internet is considered as a platform. This new paradigm was initiated by Netscape, which developed one of the first web browsers and marketed it as a free service, and is now been pursued with more impetus by Google through its suite of Internet applications *Google Apps* (Site 13).

Unlike Web 1.0 applications, which were designed to create a web of information resources, Web 2.0 applications are aimed at creating a global human network, or human web, where information is provided by individuals and not by servers. Online social networks, i.e. computer networks that link not only computers but also people [58], are the main exponents of Web 2.0 sites, and they are intended to create this human web. Such networks are related to the small-world phenomenon, also known as the “six degrees of separation” (see [51]), in which there is a small chain of acquaintances connecting every two persons in the world.

These sites are developed using web programming languages that generate HTML on demand and interact with databases and other Web 2.0 tools. Such sites focus on collaboration and knowledge creation on the Internet, rather than on retrieving and displaying information. The emphasis on collaboration and creation of collective knowledge favors the provision of software as a service on this model of the WWW [11], supporting cloud computing --

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computing model in which software and its associated data are centrally stored on the "cloud" [2]. In addition, Web 2.0 tools are concerned with effectiveness, i.e., achieving objectives and targets, rather than with efficiency, as is the case with Web 1.0.

On the other hand, network effects are sought in the Web 2.0 model. Network effects are positive externalities, that is, situations in which the welfare of an individual increases "by the actions of other individuals, without a mutually agreed-upon compensation" [16] p. 509. Network effects clearly exist in Web 2.0 applications, since their value increases as the number of its users. Network effects become apparent after a certain level of subscription for the product or service is obtained, referred to as critical mass [45]. This requires attracting users to adopt the application before this level is reached. For pioneering or innovative applications, achieving critical mass might be simple if users find value in the system beyond network effects. However, in the case of applications that imitate others, obtaining the critical mass might be difficult. Therefore, network effects in a Web 2.0 application serves as a provider *lock-in*, since the larger the number of subscribers, the higher the users' loyalty to the particular application [11].

Another important aspect of Web 2.0 applications is the exploitation of collective intelligence. According to O'Reilly [39], the exploitation of collective intelligence is the primary reason why successful Web 1.0 companies have survived the dot-com bubble to lead now the Web 2.0 era.

Collective intelligence is related to Surowiecki's ideas presented in his book "The Wisdom of Crowds" [47]. Such type of intelligence pools the knowledge and experience of persons in relation to different social contexts. According to Golub and Jackson, individual beliefs converge to truth in a social network "if and only if the influence of the most influential agent in the society is vanishing as the society grows" [23] p. 112. This concept is based on social constructionism, theory which explains how knowledge is constructed through social processes [5]. Wiki applications fall into this category [8], and Wikipedia, in particular, provides a good example [21], [31].

However, collective intelligence in Web 2.0 applications is questioned by Turban et al. [54] due to the quality and integrity of content created by users. According to these authors, "although [Web 2.0] harness the wisdom of a large percentage of its users, it may harness the stupidity and ignorance of many others" p. 808. The above comment derives from the lack of editorial control in most of the information available on the Internet. Although it is very difficult to establish such control, the risk of erroneous information appears to be manageable, particularly in Web 2.0 sites that have high user traffic and specialize in providing information services. The same case of Wikipedia illustrates this situation. A study published in Nature found that Wikipedia is as good as the Encyclopedia Britannica in terms of the quality of its information [21]. This conclusion is reinforced by the fact that the Encyclopedia Britannica has taken the decision to invite the public to write articles in its online edition, in response to the phenomenal success of Wikipedia [38].

Furthermore, Web 2.0 applications tend to be oriented towards mobile devices due to the increase in reach of the Internet in recent years. This situation forces the development of light interfaces for such devices.

Finally, social aspects are more important than the technological ones for developing Web 2.0 applications, in contrast to Web 1.0. For this reason, Web 2.0 can be viewed as a great social experiment on a global scale. This experiment focuses on knowledge and wisdom from a large number of users, but also leads to problems related to quality and integrity of content, and also security and privacy problems [54].

3 Online Social Networks

A social network is a social structure composed of individuals or organizations, called nodes, which are interrelated or connected. These connections can be represented by arcs which represent different types of relationships between the nodes, such as friendship, functional or dependency, or relationships in terms of beliefs, knowledge or social status [13]. On a personal level, social networks reflect the ways in which people relate through various social groups [54]. Although these networks are often considered as social media [33], following Constantinides and Fountain [11], we consider in this paper such networks more from the point of view of their application, rather from their social aspects.

It is important to distinguish in social networks two distinct but related issues: connectedness, i.e., the structure of the network in terms of who is connected to whom, and behavior, that is, the effect of each individual in the network on the other members [16]. Social network analysis can be used to determine the relationships of power and dependency between individuals and organizations in social networks [13], [44].

As noted above, online social networks are websites that use Web 2.0 tools to support and develop social networks through the Internet. They are usually referred to as social networks; however, in this work we use the term online social networks to distinguish them from the actual social networks (Boyd and Ellison [7] refer to them as social network sites). Current online social networks were preceded by systems like AOL and Geocities, which relied on chat rooms to allow large groups of users sharing similar interests to meet and have conversations in real time [27]. Also e-mail systems could be considered predecessors, based on the definition of Wellman [58].

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According to Boyd and Ellison [7], an online social network can be defined as a web-based service that allows users: i) to define a personal profile, ii) to relate these profiles to a list of other profiles belonging to individuals with whom they have some type of social relationship, and iii) to view the profiles linked to their connections, recursively. According to these authors, the main characteristic of an online social network is not its ability to meet new people, but rather the possibility to articulate and make clear the social networks of its users. Therefore, online social networks are used primarily to communicate and relate with other members that are part of an existing social network. The above definition thus emphasizes the development of closed or intimate networks (other definitions might not require that such networks be closed or intimate).

Currently there is much attention regarding online social networks, since they have made more visible and quantifiable the real social networks, and also have become important tools of mass communication, particularly to disseminate news, create views, and influence others [7], [11].

There is a two-way relation between social networks and online social networks. On the one hand, social networks can be supported by online social networks, particularly by facilitating communication and contact information. On the other hand, online social networks make more evident actual social networks and enable their analysis. Figure 1 shows the professional network of one of the authors, considering his contacts in the online social network LinkedIn. (This graphical representation was obtained using the InMaps tool provided by LinkedIn (Site 16). A similar tool is offered for Facebook by TouchGrah (Site 27)).

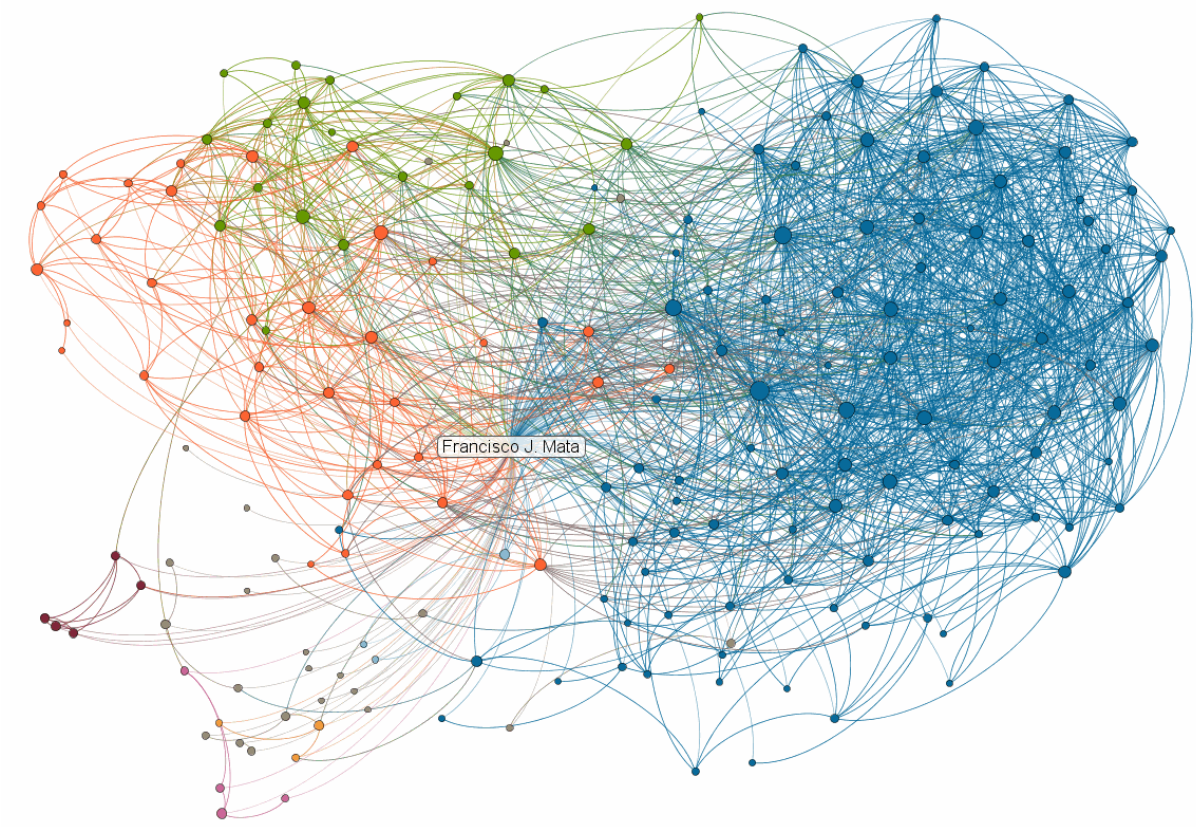

Figure 1: Representation of a social network using LinkedIn (using Site 16)

As shown in the previous figure, the social network can be divided into groups, identified by different colors according to different types of relationships. The denser a group, the greater interrelation among the contacts, which is the case in the rightmost group presented in the figure (see [13] for more information).

4 From Online Social Networks to Online Commercial Networks

Web 2.0 has already demonstrated to have an effect on consumers and its consequences are beyond technology, affecting also strategy and marketing [11]. Therefore, from a commercial point is important to analyze the effect of Web 2.0 applications, particularly online social networks, on businesses from a marketing point of view.

A common perspective on the use of online social networks in business, as evidenced in the term Enterprise 2.0 coined by McAfee [36], relates to groupware or computer-supported collaborative work (CSCW). According to Ellis et

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al. [17], groupware enables communication, coordination and collaboration, which is known as the 3C model. The relationship between online social networks and the 3C model can be appreciated in the previous sections, with the exception that coordination is not yet as evident in such type of networks [12].

Despite its importance from a business perspective, groupware is not useful for explaining the use of online social networks for marketing, since it focuses on internal processes and employees.

To explain the possible application of online social networks for marketing, we can rely on two other perspectives, which are discussed below.

4.1 Market Perspective

The market perspective takes advantage of the number of users in major online social networks, by considering them as a potential market. As explained before, the amount of users in several such networks are tremendous. This situation presents valuable opportunities to do business based on the potential benefits that a company can get from such networks to promote their brands or products.

Based on an analysis of 47 Web 2.0 case studies selected from leading bibliographic databases, Dooley et al. [15] conclude that principles related to a market perspective, such as behavior change (changing customers' perceptions and attitudes towards a brand or product), and segmentation and targeting (identifying and focusing on a particular group of consumers), can be identified in such cases. Therefore, this perspective seems to be prevalent in using Web 2.0 for marketing.

However, it is important to realize that not all consumers have embraced online social networks alike. Young consumers are leading this way, followed by professionals and mainstream online consumers who have realized that Web 2.0 applications empower them [11]. Furthermore, most existing online social networks began with a specific population in mind, and in spite of possible changes still attend such population [56]. Facebook and LinkedIn were originally intended to college students and professionals, respectively, and MySpace (Site 19) has gravitated around young people which are music fans [7]. Therefore, in order to properly use online social networks according to the market perspective, it is necessary first to understand their demographics (the site Quancast (Site 23) can be used for this purpose, since it provides demographics data for most Internet sites).

Several ways exist for companies to use the market perspective in online social networks. First, companies can create, without cost, profiles in such networks, similar to other users. A profile can be created for the company itself or for one of its brands or products. Relevant marketing information can be stored in this profile. In the case of Facebook, companies should create a *fan page* (creation of an individual profile by a company in Facebook is a violation of the terms of use of this online social network), which allow companies to be distinguished from individuals. Other social networks, such as Twitter, do not make this distinction, although this network offers a service to verify accounts, so users can be certain that they are receiving messages from a genuine source (Site 32).

Second, in the case of MySpace and Twitter, companies can apply at the registration process for a vanity URL, in the form of http://www.*onlinesocialnetworkname*.com/*companyname* (the name of the company can be substituted by the name of a brand or product, depending on the focus of the profile). LinkedIn creates a profile URL http://www.linkedin.com/login, where login is the name selected at registration to log into the account. In the case of Facebook, a company can only apply to a vanity URL after obtaining 25 fans, with the aim of avoiding users to lock in into popular names and later selling them. Similarly to company websites, vanity URLs in online social networks can be used for marketing purposes.

Third, firms can send free messages to users connected to their profiles. However, users first have to connect to the company's profiles. Processes for achieving these connections might vary between networks, but usually require that the person creating the company's profile links first its personal profile to the company's and calls the attention to his connections about it, with the expectation that his friends or acquaintances also would link to the company's profile and spread the word about the company's profile among their connections.

Fourth, several of the major online social networks offer pay services to create ad campaigns targeted at groups of users satisfying certain conditions in their profiles, such as geographic location, gender, educational background, language or specific keywords. In the case of Facebook, users of such services may pay in two ways: i) clicks (*click-through*), i.e., number of times users click the ad and go to the advertiser's page or website, or ii) cost for a thousand times that the ad is displayed, commonly referred to as CPM. Facebook, in both cases, provides performance statistics for the ad campaign, as well as information about the characteristics of users who click on the ad (Site 10). Twitter also offers targeting ads (Site 31).

Fifth, online social networks can produce powerful effects of viral marketing [46]. Viral marketing, or word-of-mouth marketing, is achieved when users advise or recommend their friends to use or buy certain brands or products. It is well known that these recommendations from friends or relatives have a strong influence in purchasing decisions, and they also can have a strong effect in acquiring new customers [3], [34], [52]. This situation has created

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"corporate interest … in the embracement of web 2.0 technologies by the corporate world, upon the recognition that customer opinion [is] becoming more influenced by other customers' opinion than by the *power of the brand* or … mainstream advertising" [6], p. I. This phenomenon can be regarded as an example of collective intelligence or wisdom of crowds, characteristic of Web 2.0 applications discussed in Section 2. The *like* and *comment* mechanisms implemented in Facebook to recommend or comment on status updates or posts function as viral marketing instruments. *Retweeting,* in Twitter, can also be considered as another such instrument.

Although viral marketing has been proved useful in web applications, the effectiveness of recommendations varies depending on product category and price. Furthermore, although viral marketing at first glance might be considered as a result of the behavior of the network and not of its connectedness (see section 3), the structure and interest of the social network should also be considered [34].

Lastly, online social networks can be used as focus groups. People in online social networks might be discussing issues related to the products of a company or to the company itself. Listening to such conversation, known as conversational marketing, can provide useful feedback on the products and the way the company is dealing with their customers [11]. Since customers are not aware that they are being monitored, due to the perception of being anonymous on the Internet, they speak more openly about their sentiments regarding a company, a brand, or a product, than in face-to-face focus groups [56]. Tools, such as Google Alerts (Site 14) and Social Mention (Site 26) allow eavesdropping customer's conversations and obtain favorable or unfavorable opinions, which can be considered in future marketing decisions (for Twitter's business applications see (Site 31)). Important in this area is the analysis of sentiments for conversations [40], [42], in which Twitter excels. Twitter advanced search (Site 30) allows to search tweets with positive or negative emoticons (☺ and ☹), and Tweetfeel (Site 28) provides an assessment of the overall sentiment for a given set of keywords.

The development of commercial services by online network operators based on the market perspective, particularly aimed at promoting sales of other companies, can be considered essential by the online social networks to generate revenue, and avoid falling into the same trap that victimized many e-commerce companies and ended with their bankruptcy, as a result of the dot-com bubble. Revenue from advertising for Facebook amounted $3.2 billion and represented 85% of the total revenue in 2011 [43]. In comparison, ad revenues in 2011 were estimated in $155 million for LinkedIn and in $140 million for Twitter [18].

4.2 Community Perspective

Different from the market perspective, the community perspective is less evident in e-marketing nowadays. This other perspective is related to the development of virtual communities using Internet. According to Turban et al. [54], a virtual community can be defined as a group of individuals with similar interests who interact over the Internet. At least five types of virtual communities can be identified, as shown in Table 2. Although the purpose of these virtual communities is different, they all have in common the creation and support of social networks.

Table 2: Types of virtual communities (based on [54])

Name	Purpose	Examples
Commercial communities	To enable commercial transactions and other businesses. Users are buyers, sellers, brokers, etc. They are focused on a commercial area and are usually associated to e-commerce	Amazon (Site 2), e-Bay (Site 6)
Information communities	To facilitate the exchange of information on topics of interest. Users contribute information or knowledge	Wikipedia
Communities of practice	To share opinions, experiences, or ideas	Twitter
Virtual reality communities	To experience imaginary environments	Second Life (Site 24)
Social communities	To establish or maintain social or professional relationships	Facebook, Linkedin, MySpace

Therefore, marketing in the community perspective should consider online social networks as communities of individuals sharing some type of relationship or common interests. When the concept of community is added to the traditional seller-customer relationship in the market perspective, customers interact with "self-selected communities" [15] p. 164. Furthermore, under the right circumstances, these communities can act very intelligently and promote innovation [23], [32], [47]. This has given rise to the use of crowdsourcing in marketing, that is, outsourcing marketing functions to a social network (see [59]).

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As it can be inferred from the previous table, the virtual communities that nowadays are most strongly associated with businesses are the commercial communities, which are directly associated with e-commerce. While e-commerce sites have not necessarily been designed in accordance to the philosophy and principles of Web 2.0, some of them are evolving naturally towards such concepts, particularly in order to facilitate more interactivity with their users or to provide them useful information for their purchases.

In the first case, for example, Procter and Gamble has developed e-commerce sites with the purpose of creating communities of users on the Internet for consumer products manufactured by this company. Such sites have the following objectives: i) to develop awareness and brand recognition, ii) to collect valuable consumer data, iii) to reduce advertising costs, and iv) to experiment with direct sales [53]. These objectives are particularly important for a company such as Procter and Gamble, since it relies mainly on distributors to sell its products to the final consumers.

In the second case, it is now very common for e-commerce sites to enable buyers to assess products once acquired, thus allowing prospective customers to make decisions about future purchases based on these recommendations. Online reputation systems are important to reduce information asymmetry [16], particularly related to quality, which seriously affects the efficiency of markets [1]. Amazon presents a good example of this mechanism to evaluate products. In a similar vein, eBay allows customers to evaluate the performance of vendors, providing information to prospective buyers about the reliability of a potential seller. The *wish list* feature (this mechanism allows relatives and friends to learn about products in which a person has interest, thus providing ideas for gifts) used in e-commerce sites, can be considered as another example of creating communities around e-commerce sites. These examples provide evidence of the evolution of e-commerce sites into virtual communities.

On the other hand, the integration between online social networks and e-commerce is been enhanced by tools that enable adding e-commerce features, such as catalogs, shopping carts, and payment options, into social network pages, thus allowing the creation of electronic stores in these networks. Payvment (Site 21) and Ecwid (Site 8) are two examples of such tools (see (Site 11) for a list of e-commerce apps available for Facebook). This type of integration is referred to as social commerce, term introduced in 2005 [57]. Social commerce can be defined as *the use of social networks in the context of e-commerce transactions*, known as f-commerce in the case of using Facebook; f-commerce accounted more than US$1.5 billion and over 100,000 businesses provided this type of service on Facebook in 2011 [35].

The above discussion shows that e-commerce sites are evolving into virtual communities, as well as the virtual communities supported by online social networks are being integrated with e-commerce features. This situation confirms the fact that the borderlines between online social networks and e-commerce sites are more blurry every day.

5 Online Social Networks versus E-commerce

As explained in the previous section, online social networks can be used for e-marketing, yet e-commerce is nowadays the premiere tool for such activity. Three major differences can be found between online social networks and e-commerce sites; however as explained in this section, such differences are not insurmountable.

In first place, there is a clear difference in the purpose of online social networks and e-commerce sites. On the one hand, the purpose of online social networks is supporting and creating social networks, which ultimately favor the development of the human web, as already explained. On the other hand, e-commerce pursues the use of electronic technologies to exchange goods and services [9]. So, while online social networks are aimed at communicating and maintaining social relationships, i.e., social purposes, e-commerce has a commercial purpose.

However, in spite of this clear difference, we have to recognize that economic activities are essential part of life, and thus complementary to social activities. In fact, “no aspect of business is more social than selling” [20]. Furthermore, economic decisions are often influenced by relatives or friends [52]. Therefore, we can argue that dividing social interactions from economic and business transactions is artificial.

Second, the criteria for success of online social networks and e-commerce sites are different: number of contacts, in the case of online social networks (effectiveness), versus quantity and volume of transactions (efficiency), in the case of e-commerce. Nevertheless, the effectiveness of the online social networks may contribute to the efficiency of e-commerce. This is due to the fact that one of the most important factors for the operation of an e-commerce site, particularly for small and medium enterprises (SME), is the awareness of the site. This is a precondition for customers to be able to buy products through an e-commerce site. Although Internet search engines can help to locate e-commerce sites, the rapid and constant development of new sites on the Internet makes it increasingly more difficult to properly position a website in these engines. Appearing first in the results of a search engine is likely to increase four times the traffic of a site in comparison to another appearing on second position [56]. Consequently, sites that already have a large number of users and also high traffic, such as is the case with the major online social networks, provide significant benefits to host or promote e-commerce sites, particularly for SMEs.

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Finally, online social networks are based on software offered by intermediaries while e-commerce sites are usually developed by the same firms. Nonetheless, this is a purely circumstantial situation. Since e-commerce involves well-established procedures, it is relatively easy to anticipate the expected functionality of an e-commerce site. This facilitates the use of existing software to generate e-commerce sites (software as a product), for example osCommerce (Site 20) or Magento (Site 18), or the use of existing software platforms for creating virtual stores using predefined e-commerce services (software as a service), such as Amazon Webstore (Site 4) or Yahoo Store (Site 35). The previous evolution of e-commerce is further enhanced by the use of mega e-commerce sites (platform as a service), e.g., Amazon Marketplace (Site 3) or Alibaba (Site 1). Therefore, the above situation favors the use of online social networks as platforms for electronic commerce. This evolution is consistent with the Web 2.0 metaphor of the Internet as a platform for interaction and the cloud computing model, discussed in section 2. Social commerce, explained before, clearly exemplifies this trend.

Based on the market perspective, introduced in the previous section, we can claim that online social networks and e-commerce sites are not substitutes, but rather complementary tools for e-marketing. Due to the large number of users and high traffic that many online social networks have, these networks provide ideal conditions for advertising brands and products. This situation promotes a virtual integration between online social networks and e-commerce sites, which is achieved through links to the e-commerce site of a company in ads or messages sent using online social networks, or through e-commerce tools, such as Payvment and Ecwid, which expand the capabilities of online social networks to e-commerce. Furthermore, platforms for developing e-commerce sites also provide this type of integration, such as is the case with e-Bay Stores to Go (Site 7) which allows the integration of e-commerce stores created using e-Bay's model with online social networks.

On the other hand, we can argue based on the community perspective, also introduced in the previous section, that virtual integration between online social networks and e-commerce sites is likely to proceed in the near future to the next level: physical integration. Although different types of virtual communities can be distinguished, it is artificial to separate social from economic or business interests, as previously indicated. Business communities have been evolving into social communities and social communities into business communities. Social commerce is a result of this evolutionary process.

From the standpoint of online social network operators, the evolution of their networks into business communities has the inherent advantage of providing revenue, which is needed not only to support the network operations and offer free of charge their core services to the users, but also to fulfill the profit expectations from the investors. The situation currently faced by Facebook, regarding its revenue growth, illustrates this point. According to Timberg: "[p]art of the answer [to the reduction in Facebook's stock value], say analysts and academics, lies in Wall Street's skepticism of a founding principle of Silicon Valley's culture – that the best way to build a company is to ignore profits in favor of building a huge audience" [50].

Although currently online social network operators have developed pay services for business to advertise and obtain feedback for their products, companies are more willing to pay for e-marketing services based on success and not on prospects for success [53]. In this way, achieving a sale is the ultimate success for a company, and therefore, paying a fee to an online social network operator for enabling a sale would be easier to justify than simply paying for an ad. This lesson was painfully learned by companies during the dot-com bubble.

Furthermore, assessing the effectiveness of an ad campaign in an online social network is not easy. Although the number of users is commonly used for this purpose, this number is problematic for several reasons. First, there is a major difference between registered and active users, that is, users having an account and those using it regularly. Second, fake accounts can be used in Facebook to give *likes*, distorting the number of real users interested in a company's product or brand pages. A similar situation occurs with Twitter, where there have been allegations of fake accounts being used to increase the number of followers. According to a recent study by Barracuda Labs, "[f]ake users should be a huge concern to both Facebook and Twitter because of the threat they create to user trust … This obviously threatens advertising revenue as organizations begin to question the true visibility and reach of their ad campaigns" [4]. Although fake accounts are mainly created by spambots, i.e. automated programs created to send unsolicited e-mail [26], a large number of accounts sending spamming in online social networks are real accounts, which have been compromised [19], [49]. Users' aversion towards spamming also affects the effectiveness of marketing campaigns through online social networks [24].

6 Conclusions and Recommendations

There is not still agreement on the advantages of Web 2.0 applications. Some authors warn about the potential dangers of such applications (e.g., [30], [54]), while others argue they benefit consumers through empowerment and creativity (e.g., [22], [32]). In this sense, Clarke claims that "[a]lthough [the significance of Web 2.0 for e-commerce researchers] contains at least as large a proportion of *marketing speak* and vacuity as other movements before it, the Web 2.0 movement draws attention to changes of substance that observers cannot afford to ignore" [10] p. 41.

Part of the *vacuity*, mentioned by Clarke in the previous quote, comes from the fact that Web 2.0 is not a technological, but rather a social revolution. In this regard, Constantinides and Fountain claim that "in the Web 2.0

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domain various technical and business aspects are heavily interrelated, often making the identification of the underlying value models difficult" [11] p. 234. As such, Web 2.0 is related to pull marketing, where the customer is at the center, instead to push marketing, in which the product or brand is the focus. In push marketing, companies *push* their products through mass communication media, such as newspapers, radio and TV. This is a one-way, non-interactive, mechanism of communication. On the other hand, in pull marketing, consumers *pull* at their will the product from the marketing channel. This last type of marketing requires interactive communication between customers and sellers (for more information on the pull/push marketing strategies see [28]). Web 2.0 applications have contributed to change the power from producers to consumers, since customer decisions are increasingly based on sources beyond the control of marketers, such as customers' reviews, referrals, and discussions [11].

According to Harris and Rae, "social networks will play a key role in the future of marketing; externally they can replace customer annoyance with engagement, and internally they help to transform the traditional focus on control with an open and collaborative approach that is more conducive to success in the modern business environment" [25] p. 24. However, although online social networks offer excellent communication channels for pull marketing, such networks bring alongside communities, thus introducing a new element to the marketing mix: people. Judd [29] has proposed to add people to the traditional four Ps marketing mix framework (product, price, promotion, and place) introduced by McCarthy [37]. People are at the heart of social networks and online social networks support and reinforce people's networks.

Consequently, Web 2.0 is germane to marketing. However, the use of Web 2.0 applications, particularly online social networks, raises questions about their relationship with e-commerce. The market and community perspectives, previously presented, can be used to address such questions.

As of today most of the marketing developments in online social networks has followed the market perspective. Consistent with this view, the primary objective of an online social network is to maintain and/or create social networks around an individual. Peripheral services related to e-marketing are provided, not as core services but rather as income generation mechanisms to cover expenses and possibly generate profits, which are necessary to provide free social networking services to users.

As previously argued, from a market perspective, online social networks and e-commerce sites are not substitute, but rather complementary marketing tools. Online social networks can be used to reach prospective as well as existing customers. Consequently, as in the case of any market, the demographic characteristics of the network become relevant. Messages, as part of the social network around a firm, and targeted ad campaigns can be used to attract new customers or to offer products to existing ones. This can be supplemented by viral and conversational marketing. Under this perspective, e-commerce sites complement online social networks by providing more detailed information about products, facilitating customization of products, and/or electronically executing transactions.

In contrast, the community perspective considers online social networks as virtual communities of individuals. As such, these communities might not only serve purely social, but also economic and commercial purposes. Therefore, the community perspective fosters integration between online social networks and e-commerce sites into social commerce. This integration might originate from e-commerce site operators, such as Amazon or e-Bay, or from online social network operators, such as Facebook or Twitter. In the first case, motivation for this integration would be to enhance the e-commerce services by providing customer's recommendations and evaluations of products and suppliers. In the second case, the drive could be to generate additional revenue by charging companies for services that enable business transactions through the Internet. This would become particularly important as the advertisement business model for the online social networks deteriorates. There is evidence that this situation is beginning to occur due to a reduction in ad rates as a consequence of growing competition in digital advertising, and the preference of retailers to target customers directly through their own e-commerce sites or through e-commerce megasites, such as Amazon [50].

Therefore, e-commerce researchers should monitor the developments towards the integration of online social networks and e-commerce sites into social commerce, which undoubtedly will have serious implications for e-commerce, as well as for e-marketing.

The announcement of Gap, Gamestop, J.C. Penney, and Nordstrom to close their Facebook stores presents evidence of problems with such integration. In this regard, Marsden and Chaney claim that these storefronts were simply clones of the external e-commerce sites, and as such did not provide any "compelling and differentiating reason to shop there" [35] p. 4. According to these authors, such virtual stores were smaller and slower than the parallel e-commerce sites, without additional convenience. This seems to be another case in which a new technology is used in the same way as a previous one, supporting Turban et al.'s claims that techniques tend to go behind technology [55]. Therefore, these Facebook stores did not complement (market perspective) nor were integrated (community perspective) with the existing e-commerce sites.

While a real integration between online social networks and e-commerce is achieved, companies will have to develop strategies to combine these tools effectively for e-marketing. E-commerce researchers can then assist in this task by providing theoretical perspectives on how this integration should proceed, and also by documenting case studies from companies leading this work (Marsden and Chaney [35] discuss some of such cases).

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Websites List

Site 1: Alibaba
http://www.alibaba.com

Site 2: Amazon
http://www.amazon.com

Site 3: Amazon Marketplace
http://www.amazonservices.com/content/sell-on-amazon.htm?id=hm1&ld=AZFSSOAAS

Site 4: AmazonWebstore
http://www.amazonservices.com/content/webstore-by-amazon.htm?id=hm1&ld=AZFSSOAAS

Site 5: Blogger
http://www.blogger.com

Site 6: eBay
http://www.ebay.com

Site 7: e-Bay Stores to Go
http://pages.ebay.com/storestogo

Site 8: Ecwid
http://www.ecwid.com.

Site 9: Facebook
http://www.facebook.com

Site 10: Facebook advertising
https://www.facebook.com/advertising/

Site 11: Facebook social commerce applications
http://digitalinnovationtoday.com/top-50-facebook-stores-top-20-facebook-store-solutions/

Site 12: Flicker
http://www.flicker.com

Site 13: Google Apps
http://www.google.com/enterprise/apps/business/

Site 14: Google Alerts
http://www.google.com/alerts

Site 15: Google Docs
http://docs.google.com

Site 16: InMaps
http://inmaps.linkedinlabs.com

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Site 17: Linkedin
http://www.linkedin.com

Site 18: Magento
http://www.magentocommerce.com

Site 19: MySpace
http://www.myspace.com

Site 20: osCommerce
http://www.oscommerce.com

Site 21: Payvment
http://www.payvment.com.

Site 22: Picasa
http://picasa.google.com

Site 23: Quantcast
https://www.quantcast.com/user/favorites

Site 24: Second Life
http://www.secondlife.com

Site 25: Skype
http://www.skype.com

Site 26: SocialMention
http://www.socialmention.com.

Site 27: Touchgraph
http://www.touchgraph.com/facebook/

Site 28 Tweetfeel
http://www.tweetfeel.com

Site 29:Twitter
http://www.twitter.com

Site 30: Twitter advanced search
https://twitter.com/search-advanced

Site 31: Twitter advertising
http://business.twitter.com/twitter101

Site 32: Twitter verified accounts
http://support.twitter.com/groups/31-twitter-basics/topics/111-features/articles/119135-about-verified-accounts

Site 33: Wikipedia
http://www.wikipedia.org

Site 34: Wordpress
http://www.wordpress.org

Site 35: YahooStore
http://smallbusiness.yahoo.com/ecommerce

Site 36: YouTube
http://www.youtube.com

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