Social Networks as Enablers of Enterprise Creativity: Evidence from Portuguese Firms and Users

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Abstract: The present work analyzes the profiles of social networks' users, individuals and enterprises in Algarve (Portugal), having accomplished online questionnaires. Samples of 230 users and 70 firms were collected. According to data obtained there are different behaviors. Users' results highlight the need of harnessing the potential of recruitment and business projects through social networks, as searching for knowledge, communication and professional relations are expressive. Firms' results reveal two types of social networks' use: 1) knowledge search, interact with customers, launch new products; and 2) potential for marketing. Users' desire of expressing own ideas and being creative had low importance. In social networks they auscultate more about what others are doing than revealing own aspirations. Here firms can act in order to shape users' attitudes and preferences to their creativity. Thus, enterprises can use the first level of social networks (knowledge and product-customer interaction) in order to enhance the second level (marketing and innovation).

Keywords: social networks; users; firms; profiles; behaviors

Introduction

New communication technologies allow a global interaction like never before imagined. Internet evolution, and especially Web 2.0 (O'Reilly, 2005), opened new opportunities and benefits, given its ease of communication and information dissemination (Brandão & Marques, 2010; Fernandes and Almeida, 2009). One of the greatest opportunities was the opening of new online applications of network environments known as social networks (Tredinnick, 2006; Boyd & Ellison, 2007; Constantinides, *et. al.*, 2008). Today, the internet presents itself as the platform of greater access, in which millions of individuals daily enter at any place or time (Tapscott & Williams, 2007). In this context, new environments appeared (Evans, 2008) such as the social networking sites, including Facebook, YouTube, LinkedIn, Twitter, Hi5, Bebo, and MySpace, among others, in which users either communicate or share content (Pei, *et. al.*, 2011; Boyd & Ellison, 2007). The growth of these cyber-communities is a notable social phenomenon. Empirical studies have described new forms of social and economic behavior that call for deeper analysis.

On those platforms, people create their profiles, communicate, exchange pictures, share movies, or join groups on a particular interest, creating communities. The participation in these communities, and their influence, can add value to any business. The networked individuals can actively participate in innovation, wealth creation and social-economic development in a way never thought of before (Qualman, 2009). According to the study "Internet use in Portugal 2010" (Taborda, 2010), more than 60% of the users of social networks in Portugal consider it important that companies also have a profile there. The continuous entry of firms in these applications can completely change the way of doing business.

Some authors have suggested that, after the knowledge economy and digital economy, a new economy is happening now, naming it "Socialnomics" (Qualman, 2009), "Economy of relations" (Robison & Ritchie, 2010), or "Economy of integrity" (Bernasek, 2010). Thus, the key features of business and innovation, which in past decades were tangible, are now replaced by intangible assets such as connections, knowledge, and integration. Studies on social networking sites have expanded, receiving increased attention from the scientific community (Boyd & Ellison, 2007). These sites are currently a major research focus in several areas. One example is the Facebook application, which has been studied by Dwyer *et. al.* (2007), Acquisti & Gross (2006), Lampe *et. al.* (2007), and Stutzman (2006).

The present work aims at characterizing a group of users involved in social networks as their profiles will be increasingly important for enterprises' business models and strategies. Enterprises need to look deeper and analyze these new environments with multiple perspectives as they allow communication that covers millions of different features and potential customers (Vasconcelos & Campos, 2010; Tapscott & Williams, 2007; Brandão & Marques, 2010; Constantinides, *et. al.*, 2008). The firms' adaptation to this new reality will help them to innovate their strategy and market approach (Magalhães, 2011).

Social networks: main trends

Arima (2010) points out that "social media" is an opportunity for organizations to build brands, demonstrate leadership behaviors, expand resources, reach new audiences and find new sources of ideas. The study of Ingelbrecht *et. al.* (2010), using a sample of 4000 consumers in 10 markets worldwide (including USA, France, Germany, and China), gives to social networks, like Facebook and LinkedIn, the

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role of being the emergent places for retailing and shopping activities. The same study indicates that companies can use mass collaboration as a link between business value and social networking technologies. For example, they can examine a target community of a particular product and interact with it in order to rethink ways of selling or innovating the product.

Social networks help to further intensify networking activities, ideas' exchange and knowledge integration. They can also increase the co-operation among stakeholders (Cross & Thomas, 2010). The most visible issue is the engagement with the community: the company has the possibility to be near its customers and share benefits with them. The benefits of this representation/participation exist if the companies manage to understand the power of collective behavior in the impulse of positive changes in business (Bradley, 2011). For companies, it is important to find their social momentum, which is the social dynamics that, using the internet specificities and interactivity, provides not only an increment to the economic value of the business model but also a return maximization (Hummel & Lechner, 2002).

A review of Falcão (2010) on a study from IGMarketing concluded that social networks are a set of tools that benefits the company as much as it invests in them. Through social networks, it can participate, create content, increment the network, talk to the community, observe, and examine. This results in skills and competencies for the team or individual worker's activity. Currently, social networking sites are being invaded by companies seeking for a presence or with products to promote. Some companies are even breaking down the barriers between the virtual and physical, hiring their professionals online (E.life, 2010). Companies are migrating to social networks, keeping their first web sites on a secondary strategic line.

The large volume of digital information which many companies deal with (Big data), along with social media (social networks, blogs, etc.), will have combined applications. With the mobile wave, these will expand into useful and well-designed applications (apps). Brands will realize the need of strategies to create, distribute and capture consumer attention. The challenge for advertisers is to understand consumer habits in all of those and decide which investment is necessary to capture attention (since they know the financial power of consumers). Several data specialists defend techniques such as basket analysis, clustering, and correlations of social media data to better understand consumer habits, elected brands, and behaviors (Carravilla, 2013).

This study then tries to search for a group of users involved in social networks and discover their socio-demographic characteristics and attitudes in order to discuss potentials and trends from which enterprises or individuals can take advantage.

Data collection

Users' questionnaire and sample

We used a questionnaire oriented to users of social networks (QUTI, table 1), which aims at characterizing the profiles within a group of users of these kinds of platforms. The questionnaire was constructed using a specialized online tool (SurveyMonkey www.surveymonkey.com) which allows the creation of a website where the questionnaire is available. The use of this tool in research is justified because it allows quick access to the questionnaire and facilitates a faster response. It has also the advantage of analyzing the data obtained. Along with a community of other users and companies, it is interesting to get to know this innovative and efficient mean of research and data processing. This tool is already used by a considerable number of researchers. For example, Barry *et al.* (2008) used it in their research and cite several studies where it was also used. Evans *et al.* (2009) recommend the use of this service, SurveyMonkey, in future research as it allows users with less knowledge to develop and design efficient psychometric questionnaires.

Data were collected from October to December 2010, with participants having the opportunity to turn back to earlier questions and review their answers. The electronic version of this instrument validates and allows the questionnaire's completion with certain questions requiring a mandatory answer. An email was sent describing the main objective of this study with a link to the questionnaire online (QUTI). Responses were given directly in SurveyMonkey, then exported to Excel, and some issues were analyzed with the SPSS software. The data collected are confidential and private, and they can only be accessed through the use of a login and password (data between server and client are encrypted, encoded). The data are grouped by questions to be treated and compared (Minayo, *et. al.*, 2007).

The types of question fields used in the questionnaire included: multiple choice (one or more answers), array of options (multiple answers) and comment box (open response). The file migrated to SPSS tests the consistency of the collected data by validating answers codes, question by question.

Regarding the purpose of this study, the universe consists of a group of users of social networks. From a group of 1500 regular users of the Facebook platform, we received 230 answers from them in the referred period. Data collection began with the process of releasing online the users' questionnaire. It was relatively easy to answer and required the introduction of the users' e-mail addresses for their post reception of this investigation and its results (table 1).

Research development

After closing the process of online questionnaires, the collected data were then processed. The data treatment began within Survey-Monkey, which was later complemented by a statistical analysis and compared with other studies in the same area.

Users' profiles

Table 1 shows the 16 questions of the QUTI directed to the users, as well as the respective domain (possible values) and types of answer. These types are a multiple choice, with one or multiple responses, and an array of options. A latter attribute (comment box) appears if it is an open answer; in the case of being a closed answer, data entry is not permitted. The questions presented in this survey are based on the comparison of studies and discussion groups on social networks.

Table 1. Characterization of the questions to users - QUTI

Question	Domain	Type of answer
QUTI1: Which social networks do you use?	*Facebook; Hi5; LinkedIn; MySpace; Orkut; Twitter; Youtube*	Multiple choice (several responses), closed
QUTI2: In which social network do you spend more time?	*Facebook; Hi5; LinkedIn; MySpace; Orkut; Twitter; Youtube*	Multiple choice (unique response), closed
QUTI3: How long are you registered in social networks (*Facebook, LinkedIn, Twitter, Youtube, Orkut*, others)?	Less than 1 month; between 1 month and 6 months; more than 6 months and less than 1 year; more than 1 year	Multiple choice (unique response), closed
QUTI4: How long do you use the internet?	Less than 6 months; between 6 months and 1 year; more than 1 year and less than 2 years; more than 2 years and less than 3 years; more than 3 years and less than 5 years; more than 5 years and less than 8 years; more than 8 years	Multiple choice (unique response), closed
QUTI5: Which device do you use to connect the internet?	Phone, Computer, mobile phone	Multiple choice (unique response), closed
QUTI6: Given the following actions, which do you most frequently do?	See and send messages; insert videos; create blogs; develop web pages; share photos; chat; change profiles; download of music and games; search for a job; search for people; search for knowledge (new contents); send news to friends (ex: new products); playing games	Multiple choice (several responses), closed
QUTI7: How much time do you spend in social networks?	Once in a month; 5 hours per week; every day; only at weekends; 1 or 2 hours per day; more than 2 hours per day	Multiple choice (unique response), closed
QUTI8: At what time of day do you use social networks?	It varies during the day; in the morning; in the afternoon; by night	Multiple choice (unique response), closed
QUTI9: Are you more time at home since you start using social networks?	Yes; No	Multiple choice (unique response), closed
QUTI10: Which are the motivation factors for using social networks?	Meet new people; meet old friends; being creative; desire of expressing ideas; knowledge sharing; knowing new products; communication with friends; professional relations; stay informed about events; curiosity about other people; desire of status; dating with people	Array of options (several responses), closed
QUTI11: How old are you?	<10 years old; 10 to 14 years old; 15 to 17 years old; 18 to 24 years old; 25 to 44 years old; 45 to 65 years old; >65 years old	Multiple choice (unique response), closed
QUTI12: Your gender	F; M	Multiple choice (unique response), closed
QUTI13: Which is your education level?	Primary level; Secondary level; Graduated/Bachelor; Master/PhD degree	Multiple choice (unique response), closed
QUTI14: Which is your professional situation?	Employed; entrepreneur; unemployed; housewife; student	Multiple choice (unique response), closed
QUTI15: Civil status	Married; Separated; Single; Single (living with parents); Single (living with other)	Multiple choice (unique response), closed
QUTI16: your email address	Open answer	Text box, open, confidential

It was observed that respondents generally use more than one social network. Table 2 shows the percentage obtained by item (profile).

Table 2. Social networks' users and their profiles

Item	Characteristics/values	Percentage
Social networks used	*Facebook*	100%
	Twitter	5.7%
	Orkut	5.7%
	Youtube	55.1%
	Hi5	26.9%
	LinkedIn	12.8%
	MySpace	6.6%
Social network in which users spend more time	*Facebook*	74.9%
	Twitter	17.2%
	Orkut	0.0%
	Youtube	1.3%
	Hi5	2.6%
	LinkedIn	0.9%
	MySpace	2.6%
Gender	Masculine	42.5%
	Feminine	57.5%
Age	< 10 years old	0.9%
	10 to 14 years old	1.7%
	15 to 17 years old	3.1%
	18 to 24 years old	19.2%
	25 to 44 years old	62.0%
	45 to 65 years old	12.2%
	> 65 years old	0.9%
Education level	Secondary level	46.1%
	Primary level	3.5%
	Graduated/Bachelor	44.3%
	Master/PhD	6.1%
Civil status	Married	30.1%
	Separated	12.8%
	Single	22.1%
	Single living with parents	21.2%
	Single living with other	13.7%
Professional situation	Employed	53.7%
	Entrepreneur	20.3%
	Unemployed	10.1%
	Housewife	2.2%
	Student	13.7%
Time of internet use	Less than 6 months	1.3%
	Between 6 months and 1 year	1.7%
	More than 1 year and less than 2 years	2.6%
	More than 2 years and less than 3 years	5.7%
	More than 3 years and less than 5 years	14.3%
	More than 5 years and less than 8 years	19.6%
	More than 8 yearS	54.8%

Time of social networks use	Less than 1 month	0.9%
	Between 1 month and 6 months	7.6%
	More than 6 months and less than 1 year	18.2%
	More than 1 year	73.3%
Time spent on social networks	Once in a month	4.4%
	5 hours per week	14.2%
	every day	33.3%
	only at weekends	9.3%
	1 or 2 hours per day	25.3%
	More than 2 hours per day	13.3%
Time of day in social networks	It varies during the day	50.2%
	In the morning	0.9%
	In the afternoon	3.1%
	By night	45.7%
More time at home since social networks' use	Yes	21.3%
	No	78.7%
Mean of connecting the internet	Phone	0.4%
	Computer	57.5%
	Mobile phone/smartphone	42.0%
Actions performed in social networks	See and send messages	85.1%
	Insert videos	22.4%
	Create blogs	5.7%
	Develop web pages	9.2%
	Share photos	45.2%
	Chat	24.6%
	Change profiles	18.4%
	Download of music and games	36.4%
	Search for a job	18.4%
	Search for people	25.9%
	Search for knowledge (new contents)	53.9%
	Send news to friends (ex: new products)	21.1%
	Playing games	23.2%

Resuming these profiles, Facebook is the most used social network, followed by Youtube and Hi5. In terms of time spent in use, Facebook leads again, followed by Twitter. The age groups that mostly use these platforms are from 25 to 44 years old followed by 18 to 24 years old. Considering qualifications, the secondary level leads followed by high graduation (tertiary) level. According to civil status, most users are married, followed by single (not living with parents). Professionally, most users are employed followed by entrepreneurs, with the majority using internet for more than 8 years and social networks for more than one year on a daily basis. However, the time of day in using them varies and time spent at home did not increase since social networks' use. The most preferred mean of connecting the internet is the computer, followed by mobile/smartphone. Finally, the most performed actions in social networks are: see and send messages, search for new contents, followed by sharing photos and downloading music and games.

An important issue to analyze is the motivation behind using social networks. Thus, in this item (which are the motivation factors for using social networks - QUTI10) figure 1 shows that 'Communication with friends' is the main motivation (N=164 individuals), followed by 'Meet old friends' (N=149). These results confirm what other studies defend: the existence of relationships before having a presence in social networks (Boyd & Ellison, 2007). Thus, Facebook tends to be more frequently used to consolidate relationships that already exist offline than to create new relationships. Figure 1 illustrates several other motivations of the respondent users for adhering to social networking sites (the radar main lines have different colors according to a scale of importance: high/medium/low).

Figure 1. Motivation factors of users' presence in social networks and level of importance
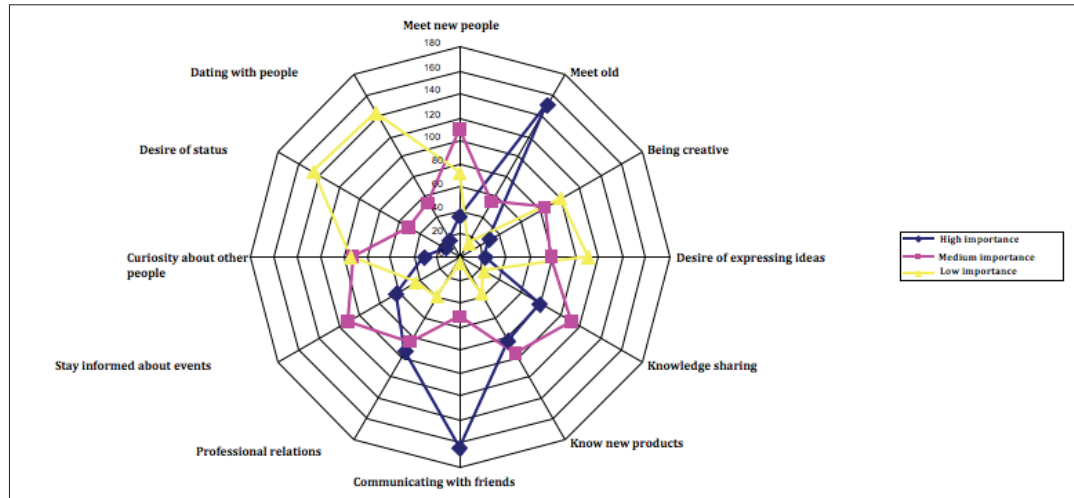
The use of such platforms for 'professional relations' is also high (N=94). Classified as medium importance factors are the following: 'knowledge sharing' (N=111) and 'stay informed about events' (N=111). Users are also receptive to knowing new products through social networks (N=96, medium importance). Interestingly, 'dating with people' in social networks is of low importance (N=143), followed by 'desire of expressing ideas' (N=110) and 'being creative' (N=99). These results confirm that social networks' use focus more on benefits to users than on dating with people.

We can relate these motivations with the users' profiles previously obtained (table 2). For instance, the main motivation (consolidating offline relations) is related with civil status, time of day in social networks and actions performed. Other important motivation, establishing professional relations, is more related with time of social networks' use, professional situation and education level (qualifications). Then, medium importance motivations (such as knowledge sharing and knowing new products) are more related with performed actions, education level and time spent on social networks.

An interesting issue emerges from this chart (figure 1). Its discussion refers that motivations such as desire of expressing ideas and being creative had low importance. This aspect, together with the other results, reveal that in social networks users auscultate more what other individuals or enterprises are doing than revealing their own aspirations or ideas. Here firms can act, even in real time (through smartphones or tablets), in order to shape users' attitudes and preferences to their innovation and creativity.

Firms' profiles

We considered 70 Algarve firms as the sample because they completed the questionnaire and answered it on time. Waiting for additional cases would take more time as companies often do not have time to answer free questionnaires. Some institutions helped with contacting firms such as CRIA (regional centre for innovation in Algarve), NERA (business hub of the Algarve region), CIEO (research centre

for spatial and organizational dynamics), and the business directory at Sulempresas.com. These institutions interact commonly with firms in the region. After closing the online questionnaire, data were collected for analysis, which began within the SurveyMonkey tool and then complemented with analyses performed with statistical software. Table 3 shows the questions that appeared on the questionnaire (QSME), including their options or attributes. Items were based on observations of social network use and comparisons with other studies. Issues raised by the questions were designed to allow analysis of various corresponding variables and relationships between them.

Table 3. Characterization of the questionnaire to firms in Algarve (QSME)

Question	Options
QSME1: Is your company represented on the Internet with a website?	Yes / No
QSME2: On which social networking sites is your company represented?	Blog; Facebook; Hi5; LinkedIn; MySpace; Orkut; Twitter; Wikis; YouTube
QSME3: Does your company usually use social networks?	Yes / No
QSME4: Has your company implemented an integrated strategy with social networking sites?	Yes / No
QSME5: Do you consider that the representation/participation of your company in social networks favors its business performance?	Yes / No
QSME6: Which activities are more benefited by the representation/participation of your company on social networking sites?	Analyze competition; analyze patterns of behaviour; technical assistance; communicate with customers; trust; knowing trends; cooperation with other companies; being closer to potential clients; loyalty; internationalization; launch new products; marketing; brands; new businesses; opinion search; find new ideas; research; recruitment; promotions

QSME7: Are you measuring gains from your company's representation/participation in social networks?	Yes / No
QSME8: If you answered "yes" to the previous question, how are they measured?	Open answer
QSME9: In your company, who manages this representation/ participation in social networks?	Person outside the company (freelancer); company's employee; director/manager; subcontractor (outsourcing)
QSME10: Is there a group of people involved with representation in social networks (for content creation, response to customer feedbacks, etc.)?	Yes / No
QSME11: How often do you use social networks for a better performance in your business?	Once a year; monthly; once a week; 3 times a week; 5 times a week; every day; several times a day
QSME12: Do your employees in general access to social networks?	Yes / No
QSME13: Is there control for limiting the use of social networks by your employees?	Yes / No
QSME14: Do you consider a decrease of employee productivity due to social networks access?	Yes / No
QSME15: Do you find your employees more motivated since they use social networks?	Yes / No
QSME16: What is your company's main sector of activity?	Entertainment; manufacturing; traditional commerce; hotels/restaurants/bars; transportation; communications; services; construction, health/biotechnology; other
QSME17: What are the qualifications of your company's entrepreneur/director/ manager?	Master; PhD; graduate; post-graduate or technical course; twelfth grade; secondary school; primary school
QSME18: e-mail address of your company:	Open answer
QSME19: name of your company:	Open answer

From QSME and the variables created from this questionnaire, a purpose was to diagnose the most relevant variables regarding firms' participation in social networks. We used categorical principal component analysis (CATPCA) as an exploratory technique of interdependence and dimension reduction (Gifi, 1990; De Leeuw, 1990; Meulman, 1992; Nishisato, 1994) to detect patterns of association among variables. According to Cronbach's alpha coefficient, an indicator of internal consistency, data were highly consistent concerning two dimensions (94%). CATPCA also revealed the weights of the variables.

To capture the most relevant variables, table 4 describes respective loadings (weights) for both dimensions, reflecting the relative importance of the variables. Extant research suggests that the criterion of relevance of a variable occurs when its weight exceeds 0.5 for at least one dimension. The values in bold show the most relevant variables for both dimensions, with 16 relevant variables.

Table 4. Relevant variables and loadings

Variable	Dimension	
	1	2
VERSOR	0,333	**0,51**
VERSWI	0,415	**0,51**
VERSFA	**0,67**	-0,056
VERSTW	**0,59**	0,436
VERSLI	0,452	**0,54**
VERSYO	**0,55**	0,45
VERSRS	**0,65**	-0,123
VEIE	**0,63**	0,098
VEODA	**0,59**	-0,4
VEACTMK	0,3	**-0,58**
VEACTNP	**0,59**	-0,256
VEACTFD	**0,66**	0,128
VEACTCM	**0,59**	-0,354
VEACTCO	**0,6**	0,068
VEGP	**0,67**	0,16
VEQURS	**0,6**	0,21

Another issue in table 4 is that all variables have positive weights for the first dimension, but the second has a strong contrast of both negative and positive weights. This means weak relationships exist between variables of the second dimension. Analysis of the most relevant variables (12 for the first and only 4 for the second) suggests two types or dimensions of social networks (table 5).

Table 5. Dimensions from relevant variables (types of social networks)

| First dimension: social networks for knowledge and for product-customer interaction	Twitter, Youtube - mais orientadas à pesquisa, comunicação e conhecimento (mais profissionais); eTwitter, YouTube - more oriented to (re) search, communication and knowledge (professional-oriented); and
	Facebook - mais orientada à interacção com clientes, novos produtos a clientes, desempenho (mais sociaiFacebook - more oriented to interaction with customers, new product launches, performance (social-oriented)
Second dimension: DIMENSÃO 2: REDES SOCIAIS DE POTENCIAL PARA MARKETIsocial networks with potential for marketing	Orkut, Wikis, LinkedIn - more oriented to marketing and promotion

The first dimension retains much more information since it captures the largest percentage of explained variance. The second retains less information, capturing residual variance. One purpose was to reduce the dimensionality of the data to the least loss of information (Gifi,

1990; Romesburg, 1984). Extracting dimensions loses some information, but use of all dimensions complicates analysis. The goal was to extract patterns, detected from explained variance while the remaining observations are residual. Thus, the first dimension (i.e., social networks for knowledge and product-customer interaction) was well characterized (table 5) since all of its relevant variables had positive weights. Due to its most relevant variable (VEACTMK) being negative and related to marketing, the second was titled social networks with potential for marketing. Another reason for this classification (especially the word potential) was weak relationships between variables of the second dimension (table 4).

Firms can act in this second dimension (even in real time, through smartphones/tablets) in order to shape users' attitudes and preferences to their innovation and creativity. Thus, enterprises can use the first dimension/type of social networks (for knowledge and product-customer interaction) in order to evolve to a higher level (second dimension). Even through simulations or virtual/serious games, firms can create scenarios of what they consider more interesting, revolutionary and functional from their experience in management and entrepreneurship.

About scenarios, figure 2 shows a trend to semantic web (web level 3) related with, among other factors, semantic databases whose data can be from different social networks. These can perform or shape issues/tasks with clients/users. This is relevant in terms of sustainability, or even resilience, meaning not just persevere but supplant sustainable situation continuously. Shaping users to enterprises' creativity will put them ahead of clients' perceptions and aspirations.

Figure 2. The third generation of web is coming
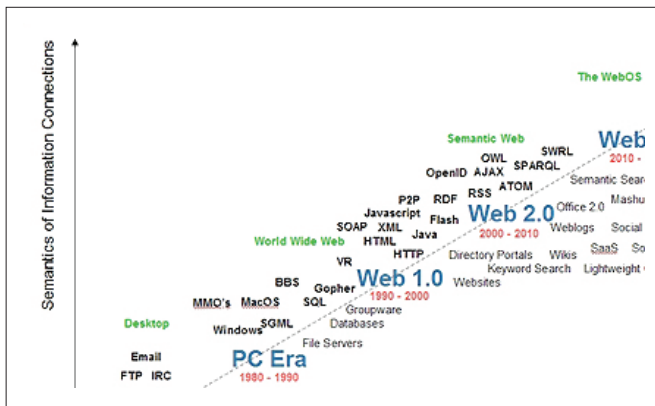
Social networks are really important to study and explore by enterprises and researchers because this kind of platforms is included in the web level 2 (together with blogs, wikis, video sharing, web services, etc.). This is evolving rapidly to the web level 3 (known as "semantic" or "intelligent" web). Its goal is to create a capability that anticipates user needs, enabling the use of autonomous agents to perform tasks for users (Borrero & Caballero, 2013). And this can capture clients/users from many segments and regions/ countries, potentiating a social networks' CRM (customer relationship management system). Microsoft's (2009) white paper already approached this intersection, a powerful tool for online data and perspectives enclosure to enrich customer interactions.

Conclusion

Social networks are the subject of much discussion, due to massive adoption by both individuals and businesses. This study combines two approaches to investigate how firms and users in Algarve (Portugal) use these networks, and analyze their characteristics and potential. It required two questionnaires adjusted to these goals and firms in the region.

In summary, by analyzing the socio-demographic data from users (such as age, time of day in social networks, level of education, and occupational status), we can think of different profiles. For example, a considerable proportion of respondents are entrepreneurs having a graduation/bachelor. These results highlight the need of enhancing the potential of recruitment strategies through social networks or of starting business partnerships/projects. This is important because the vast majority use these platforms for more than one year, and a significant percentage access them every day. Another aspect is that mobile phone connection is getting significant expression, making it relevant for new business/work applications. Regarding the actions performed in social networks, besides viewing/sending messages, searching for knowledge (new contents) is expressive which can be relevant for innovative initiatives. In the item 'motivation factors' for using social networks, besides communication with friends and meet old ones, the use of these platforms for professional relations has high importance.

The study identified two dimensions or types of most used social networks: product-customer interactions and knowledge, and potential for marketing. For the first type, the most selected social networks are Facebook, to support interactions with customers or new product launches, and Twitter and YouTube, to support research and knowledge generation. For the second type, the most selected social networks are Orkut, LinkedIn and Wikis, with potential to support marketing. However, associations between variables for this type were weak, influencing its strength. Firms can act in this second type/dimension in order to shape users' attitudes and preferences to their innovation and creativity, since motivations such as desire of expressing ideas and being creative had low importance. Results reveal that in social networks users search more for what others are doing than revealing their own aspirations or ideas. Therefore, enterprises can use the experience from the first type/dimension of social networks (knowledge and product-customer interaction) in order to evolve to a higher level (second type/dimension). Firms in Algarve are less likely to use social networks for marketing support, despite having propensity for it. This finding suggests pro-active marketing strategies related to social media. Companies should consider this because niche markets can exist in the virtual world, just like in the real world. Such niches (or even new markets) may emerge attracting public attention through the analysis of their behaviors, shaping their ideas and expectations.

References

Acquisti, A., & Gross, R. (2006). *Imagined communities: Awareness, information sharing, and privacy on the facebook*. Retrieved from http://www.heinz.cmu.edu/~acquisti/papers/acquisti-gross-facebook-privacy-PET-final.pdf.

Arima, K. (2010). *Dicas sobre o uso de redes sociais na empresa*. Retrieved from http://info.abril.com.br/noticias/corporate/gartner/dicas-sobre-uso-de-redes-sociais-na-empresa-28062010-13.shl.

Barry, M., Steyn, H., & Brent, A. (2008). Determining the most important factors for sustainable energy technology selection in Africa: Application of the Delphi technique. University of Pretoria, South Africa.

Bernasek, A. (2010). *The economics of integrity*. New York: HarperCollins Publishers.

Borrero, J., & Caballero, E. (2013). Crawling big data in a new frontier for socioeconomic research: Testing with social tagging. *Journal of Spatial and Organizational Dynamics*, 1(1), 3-24.

Boyd, D., & Ellison, N. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210-230.

Bradley, A. (2011). *Employing social media for business impact: Key collective behavior patterns*. Retrieved from http://www.gartner.com/DisplayDocument?ref=clientFriendlyUrl&id=1538316.

Brandão, R., & Marques, B. (2010). The impact of web 2.0 in the informal learning of the Portuguese SME. AIP-CE, CEPCEP. Portuguese Catholic University, Lisbon, Portugal.

Carravilla, J. (2013). *Dez tendências que vão marcar o digital em 2014*. Retrieved from http://www.publico.pt/multimedia/noticia/10-tendencias-que-vao-marcar-o-digital-em-2014-1617669.

Constantinides, E., Lorenzo, C., & Gómes-Borja, M. (2008) Social media: A new frontier for retailers?. *European Retail Research*, 22, 1-27.

Cross, R., & Thomas, R. (2010). *Conduzir o desempenho através das redes sociais*. Brazil: Editora Vida Económica.

De Leeuw, J. (1990). Multivariate analysis with optimal scaling. In S. Gupta & J. Sethuraman (Eds.), *Progress in multivariate analysis*. Calcutta: Indian Statistical Institute.

Dwyer, C., Hiltz, C., & Passerini, K. (2007). Trust and privacy concern within social networking sites: A comparison of facebook and MySpace. America's Conference on Information Systems (AMCIS), USA.

E.life (2010). *O Futuro das redes sociais: Fim das barreiras offline*. Retrieved from http://www.itweb.com.br/noticias/index.asp?cod=74536.

Evans, D. (2008). *Marketing de media social, uma hora por dia*. Brazil: Editora AltaBooks.

Evans, R., Burnett, D., Kendrick, O., Macrina, D. Snyder, D., Roy, J., & Stephens, B. (2009). Developing valid and reliable online survey instruments using commercial software programs. *Journal of Consumer Health on the Internet*, 13(1), 42-52.

Falcão, H. (2010). *Social technology*. Retrieved from http://pt.scribd.com/collections/2545330/Social-Technology-Tecnologia-Social.

Fernandes, S., & Almeida, H. (2009). Critical information as a success factor in organizations: Objective and methodological approach. *Spatial and Organizational Dynamics-Discussion Papers*, 2, 69-82.

Gifi, A. (1990). *Nonlinear multivariate analysis*. New York: John Wiley & Sons.

Hummel, J., & Lechner, U. (2002). Social profile of virtual communities. Proceedings of the 35th Hawaii International Conference on Systems Sciences, Hawaii.

Ingelbrecht, N., Patrick, C., & Foong, K. (2010). *User survey analysis: Consumer marketing using social network analysis*. Retrieved from http://www.gartner.com/resId=1381514.

Lampe, C., Ellison, N., & Steinfeld, C. (2007). Profile elements as signals in an on-line social network. Conference on human factors in computing systems. San Jose, CA, USA.

Magalhães, R. (2011). Infrastructure and infrastructuring as a bridge between information systems design and organization design. *Spatial and Organizational Dynamics-Discussion Papers*, 7, 32-44.

Meulman, J. (1992). The integration of multidimensional scaling and multivariate analysis with optimal transformations of the variables. *Psychometrika*, 57, 539-565.

Microsoft (2009). *CRM and social networking: Engaging the social customer*. White paper. Retrieved from http://az26122.vo.msecnd.net/docs/CRM_and_Social_Networks.pdf.

Minayo, M., Suely F., & Gomes, R. (2007). *Pesquisa social, teoria, método e criatividade*. Brazil: Petrópolis.

Nishisato, S. (1994). *Elements of dual scaling: An introduction to practical data analysis*. New Jersey: Lawrence Erlbaum Associates Inc.

O'Reilly, T. (2005). *What is web 2.0: Design patterns and business models for the next generation of software*. Retrieved from http://www.elisanet.fi/aariset/Multimedia/Web2.0/What%20Is%20Web%202.doc.

Pei, M., Ramayah, T., & Suki, N. (2011). Factors enhancing employed job seekers intentions to use social networking sites as a job search tool. *International Journal of Technology and Human Interaction*, 7(2), 38-54.

Qualman, E. (2009). *Socialnomics - como os media sociais estão a mudar o mundo como vivemos e como fazemos negócios*. Brazil: Editorial Presença.

Robison, L., & Ritchie, B. (2010). *Relationship economics: The social capital paradigm and its application to business, politics and other transactions*. Brazil: Editora Gower.

Romesburg, H. (1984). *Cluster analysis for researchers*. North Carolina, USA: Lulu Press.

Stutzman, F. (2006). *Student life on the facebook*. Retrieved from http://ibiblio.org/fred/facebook/stutzman_fbook.pdf.

Taborda, M. (2010). The use of internet in Portugal 2010. LINI - Lisbon Internet and Networks International Research Programme, Lisbon, Portugal.

Tapscott, D., & Williams, A. (2007). *Wikinomics, a nova economia de multidões inteligentes*. Brazil: Editora Quidnovi.

Tredinnick, L. (2006). Web 2.0 and business: A pointer to the intranets of the future. *Business Information Review*, 23(4), 228-234.

Vasconcelos, V., & Campos, P. (2010). Distributed informal information systems for innovation: An empirical study of the role of social networks. In J. Varajão et. al. (Eds.), *Enterprise information systems*, Part II CCIS 110, Springer-Verlag.