



## **Shall we adopt the information about firms in Facebook?**

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### **ABSTRACT**

The adoption of information in Facebook is a subject of growing interest for both researchers and managers. Nevertheless, research in this area is still sparse and even core issues, such as the kinds of information available and how that information influence business relationships and partnerships, are not yet fully defined. Therefore, the purpose of this study is to analyse factors that lead consumers to adopt the information about products/brands. Findings show that timeliness, trustworthiness and importance of the SNS are the strongest drivers to information adoption

**KEYWORDS:** information adoption, relevance, accuracy, timeliness, trustworthiness, importance of the Facebook, usage attitude

### **1. Introduction**

Boyd and Ellison (2007) state that SNSs (social networking) allow individuals to build a public or semi-public profile within a bounded system, interact and share a connection with other users on a list, and view and traverse their list of connections and those made by others within the system. Fernback and Thompson (1995) regard virtual communities as social relationships forged in cyberspace through repeated contact within a specified boundary of place (e.g., a conference or chat line) that is symbolically delineated by topic of interest. Virtual communities are groups of people, having common interests and

shared goals, who use computer-mediated communication technology as the basis of communication instead of face-to-face interactions (Wellman, 1997); or groups of people who engage in many-to-many interactions online and form wherever people with common interests are able to interact (Williams & Cothrel, 2000).

A virtual community is also any virtual social space where individuals get together to receive and provide information, to support, to learn or to find company (Preece, 2001); a cyberspace supported by computer-based information technology, centred upon communication and interaction of participants to generate member-driven contents, resulting in a relationship being built up (Lee et al., 2003; Blanchard et al., 2004). Miller et al. (2009) summarize the previous definitions by alluding that these communities encompass a wide range of Internet forums including markets and auction sites, electronic bulletin boards, list servers, SNS, blog hosts or sites, gaming communities, and shared-interest websites.

Recently, we have seen an explosion in popular interest in social networks, due to the popularization of new social networking sites (SNS) (Kwon & Wen, 2010; Nosko, Wood & Molema, 2010; McAndrew & Jeong, 2012). In Portugal 66% of SNS users follow companies or brands online (Marktest, 2013). Most of the SNS users in Portugal (94.6%) have an account on Facebook, which is the SNS with greater penetration in Portugal (Marktest, 2013). Weinberg (2009) cites several studies showing that the presence in SMS may increase the number of sales of the goods or service. Users tend to purchase products based on the recommendation of peers (Baines et al., 2011).

Previous studies started to examine attitudes and behaviours around online information in SNSs (e.g., Bhattacharjee & Sanford, 2006; Walther et al., 2008; Zhao, Grasmuck & Martin, 2008; McAndrew & Jeong, 2012). Nevertheless, research in this area is still sparse and even core issues, such as the kinds of information available and how that information influence business relationships and partnerships, are not yet fully defined. Therefore, the purpose of this study is to analyse factors that lead consumers to adopt the information about products/brands. Following this introduction, we provide the theoretical background and hypotheses for the present study. The next section describes the research methodology of the empirical study, which is followed by the report on the testing of the hypotheses. Finally, we present conclusions, implications, limitations and suggestions for future research.

## **2. Background and hypotheses**

Nonaka (1994) argues that information adoption is an internalization process, in which information is transformed into internal knowledge. Sussman and Siegal (2003) propose a model explaining how people are influenced in adopting information into contexts moderate by a computer (computer-mediated communication). So, information adoption is conditioned by two factors: (i) the information quality (argument quality), as the critical determinant of informational influence, and (ii) the source of credibility, as peripheral influence. Individuals who follow the peripheral route can be influenced by the source's attractiveness, likeability, and credibility. For source of credibility, Wu and Shaffer (1987) and Sussman and Siegal (2003) employ the competence-based (the knowledge and expertise of the person who wrote the message) and the trustworthiness-based (trustworthy and reliable of the person who wrote this message). In this study we use the last one. Regarding argument quality, this critical determinant comprises completeness, consistency and accuracy of the information (Bailey & Pearson, 1983; Sussman & Siegal, 2003).

Later, Bhattacharjee and Sanford (2006, p.811) highlight that argument quality refers to the "persuasive strength of arguments embedded in an informational message, while peripheral cues relate to meta-information about the message (e.g., message source) but not its embedded arguments". Based on the same argumentation proposed by Sussman and Siegal, 2003 and Bhattacharjee and Sanford (2006), in our study we use accuracy, relevance and timeliness to evaluate argument quality of the information in SNS.

Actually, Internet users wish to find the information they seek in a short time (Nah & Davis, 2002) and very rarely read the contents of a webpage in detail, they merely quickly browse the information that interests to them (Madu & Madu, 2002). According to Dunk (2004), relevance is an important element in decision making. For our research, information is relevant only if it is perceived as pertinent (as meaning relevant), appropriate and applicable (Citrin, 2001), that is, the topicality relevance (the way it relates to the subject of interest) (Zimmer, Aarsal, Al-Marzouq & Grover, 2010).

The timeliness of the information is related to its actuality. Madu and Madu (2002) argue that when a website is not updated regularly, it may not perform as expected and, therefore, not provide added value to its users. The information accuracy refers to the degree of confidence. Based on Wixom and Todd (2005), the information accuracy also represents the perception of the users about the veracity of the information.

As previously mentioned, it is impossible to control who puts information on the Internet, and much less, check the credibility of all sources. Eagly and Chaiken (2007) state that

an information is considered credible if the level of trustworthiness is high. Consequently, internet users surfers should be the most appropriated consumers to evaluate whether these sources are safe or not, adopting or rejecting the information.

Online, an individual have access to so many information sources that she/he tend to become overwhelmed if she/he try to use all sources (Keller & Staelin, 1987). Individuals may, therefore, pay more attention to some sources than others and the relative importance of information and the importance given to the SNS may influence the individual' perception of usefulness and the adoption of information (Michaelidou, Siamagka & Christodoulides, 2011). Previous studies had already found that online relative importance of information is especially significant for utilitarian products (e.g., Ward & Ostrom, 2003; Cheema & Papatla, 2010). Nevertheless, these studies do not address comparatively how relevance, timeliness, accuracy, trustworthiness and even importance of online information may influence the perception of usefulness and information adoption.

Previous studies have shown that relevance is an antecedent of information usefulness, influencing positively the usefulness (e.g., Cheung et al., 2008; Madu & Madu, 2002; Nah & Davis, 2002). Daft and Lengel (1986) and Madu and Madu (2002) point out that characteristics of information, such as timeliness, accuracy and trustworthiness, influence positively on information usefulness. Even so, Cheung et al. (2008) found only a small effect. In this study we explore and test the strength of the impact of these characteristics of information and also its importance on information usefulness.

Sussaman and Siegal (2003) and Cheung et al. (2008) suggest that characteristics of information have a positive impact on information adoption, therefore

**H1:** Timeliness (H1a) relevance (H1b), accuracy (H1c), trustworthiness (H1d), and importance (H1e) have a positive influence on information usefulness.

Attitude-formation theories, such as the Elaboration-Likelihood Model (ELM) (Petty & Cacioppo 1986) and the Heuristic-Systematic Processing Model (HSM) (Chaiken, 1980), suggest that consumer experience or knowledge is a core variable in the formation of attitude. According to the ELM and the HSM, both ability and motivation influence an individual's attitude-formation process. The central route (ELM) or systematic process (HSM) is more likely to be used when both ability and motivation levels are high, but when a person lacks either ability or motivation, his or her attitude is formed via the peripheral route (ELM) or the heuristic process (HSM).

Attitude is the result of available sources of information, experience, skills, culture, character, personality, feelings, and others (Chu, 2009). Past studies pointed out that information affect attitude (Chiou & Cheng, 2003; Muniz & O'Guinn, 2001; Pan & Chiou, 2011). In this study we test the effect of information adoption on usage attitude. An individual willing to adopt and follow the online information, have the ability and motivation to elaborate on the content of the message and will be more willing to have a favourable attitude towards SNS. Therefore:

**H2:** Information adoption has a positive influence on usage attitude.

### 3. Methodology

#### 3.1 Sample and data collection

The design of the questionnaire was based on the literature review, and the measurement items were adapted from existing instruments. The original questionnaire was first written in English (since most items are originally in English), then translated to Portuguese, and translated back to English. Back translation was used to ensure that the items in Portuguese communicate similar information as those in English (Brislin, 1970). Then, the questionnaire was pre-tested with the help of ten consumers, who were personally interviewed. After that, a few minor alterations were made to improve the effectiveness of the questionnaire. The revised questionnaire was then administered to a sample of 224 respondents (the assessment of each item was based on a five-point agree/disagree response format).

The target respondents of this study were individuals who use Facebook and who may be influenced by the comments shared within the Facebook about firms and brands. The data were collected using the social network Facebook groups. Respondents were split almost equally in gender. More than 60 percent of the sample fell into the age group 21-30 years and have a bachelor degree. Most are technicians and middle managers (see Table 1).

**Table 1 Sample profile**

Age		Gender		Academic Qualifications		Profession Qualifications	
21-25	32%	Male	45%	Basic education	1%	Senior staff	6%
26-30	42%	Female	55%	High education	14%	Technicians and middle managers	77%
31-35	18%			Bachelor	64%	Factory workers, Craftsmen and related workers	4%
36-40	5%			Master/PhD	22%	Student	11%

>40	3%		Unemployed	3%
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Source: authors' elaboration

### 3.2 Variables and measurement

The items used to measure the constructs were adapted from previous studies. Three items adapted from Citrin (2001) were employed to measure Relevance. Timeliness and Accuracy were measured with two items each based on Wixom and Todd (2005). Source trustworthiness and Information adoption were measured with two items each based on adoption Wu and Shaffer (1987). Information usefulness were measured with three item adapted from Bailey and Pearson (1983). Four items were employed to evaluate Usage attitude Keng and Ting (2009). Finally, six items were employed to measure the importance of the SNS, based on Cheema and Papatla (2010) and Michaelidou, Siamagka and Christodoulides (2011).

### 3.3 Data analysis

A structural equation model approach using PLS was employed to test the hypotheses of this study. PLS is based on an iterative combination of principal component analysis and regression; it aims to explain the variance of the constructs in the model (Chin, 1998). In terms of analysis advantages, PLS simultaneously estimates path coefficients and individual item loadings in the context of a specified model. As a result, it enables researchers to avoid biased and inconsistent parameter estimates. Based on recent developments (Chin et al., 2003), PLS has been found to be an effective analytical tool to test interactions by reducing Type II errors. By creating a latent construct that represents an interaction term, a PLS approach significantly reduces this problem by accounting for error related to the measures (Echambadi et al., 2006). Tenenhaus et al. (2005) propose the geometric mean of the average communality (outer mode) and the average R2 (inner model) as overall goodness of fit (GoF) measures for the PLS (Cross validated PLS GoF), which range from 0 to 1. The model proposed has formative factors and so we choose PLS approach Wold (1985).

## 4. Results

The PLS model is analysed and interpreted in two stages. First, suitability of the measurements is assessed by evaluating the reliability of the individual measures and the discriminant validity of the constructs (Hulland, 1999). Then, the structural model is

appraised. Item reliability is assessed by examining the loading of the measures on their corresponding construct. Items with loadings of 0.707 or more should be accepted, which indicates that more than 50% of the variance in the observed variable is explained by the construct (Carmines & Zeller, 1979). In this study, all items (see Table 2) have item loading equal or above 0.748 and therefore all items were accepted. Composite reliability was used to analyse the reliability of the constructs since it has been considered a more accurate measurement than Cronbach's alpha (Fornell & Larcker, 1981). Table 2 indicates that all constructs are reliable, since the composite reliability values are over 0.7 (Nunnally, 1978).

**Table 2 Measurement results**

<i>Construct</i>	LV mean	Item loading	Composite reliability	AVE
<i>Relevance</i>	3.2		0.911	0.775
The comments in Facebook are relevant		0.877		
The comments in Facebook are appropriate		0.877		
The comments in Facebook are applicable		0.887		
<i>Timeliness</i>	3.5		0.825	0.703
The comments in Facebook are current		0.869		
The comments in Facebook are timely		0.895		
<i>Accuracy</i>	2.7		0.861	0.694
The comments in Facebook are accurate		0.715		
The comments in Facebook are correct		0.936		
Source trustworthiness	2.7		0.935	0.878
People who left comments in Facebook are trustworthy		0.920		
People who left comments in Facebook are reliable		0.954		
<i>Importance of network</i>	3.2		0.890	0.576
I consider important the presence of companies in Facebook		0.728		
When I want to know more information about a specific company I search in Facebook.		0.752		
I consider the Facebook as a way to approach company to customers.		0.844		
I consider the contacts established in Facebook important.		0.730		
Facebook is a good way to establish business partnerships.		0.811		
While considering the Facebook very helpful, I cannot deal without visual contact (r)		0.712		
<i>Information adoption</i>	2.5		0.882	0.789
In general, I closely followed the suggestions of the comments.		0.892		

In general, I agree with the opinion suggested in the comments		0.885		
<i>Usage attitude</i>	3.0		0.869	0.625
Globally, I enjoy being part of the Facebook		0.835		
I have an active role in Facebook		0.829		
I often contribute with relevant information		0.810		
Facebook is something I look upon favourably		0.770		

Notes: AVE Average Variance Extracted.

Source: authors' elaboration

The measures demonstrated that convergent validity as the average variance of manifest variables extracted by constructs (AVE) was at least 0.5, indicating that more variance was explained than unexplained in the variables associated with a given construct. The criterion used to assess discriminant validity was proposed by Fornell and Larcker (1981), and suggests that the square root of AVE should be higher than the correlation between the two constructs in the model. In this study all latent variables have discriminant validity because the above criterion has been met (see Table 3).

**Table 3 Discriminant validity**

Construct	1	2	3	4	5	6	7
1. I. adoption	<b>0.888</b>						
2. U. attitude	0.274	<b>0.791</b>					
3. Trustworthiness	0.388	0.027	<b>0.937</b>				
4. Accuracy	0.407	0.119	0.628	<b>0.833</b>			
5. Importance	0.320	0.436	0.272	0.316	<b>0.759</b>		
6. Timeliness	0.407	0.281	0.236	0.416	0.416	<b>0.838</b>	
7. Relevance	0.315	0.320	0.355	0.471	0.551	0.568	<b>0.880</b>

Note: The figures in the sub-diagonal are correlation coefficients and the italic figures in the diagonal represent square root of AVE

Source: authors' elaboration

In this study a nonparametric approach, known as Bootstrap, was used to estimate the precision of the PLS estimates and supports the hypotheses (Chin, 1998; Fornell & Larcker, 1981). The hypotheses H1 is partially supported and H2 is fully supported. However, as models yielding significant bootstrap statistics can still be invalid in a predictive sense (Chin, 1995), measures of predictive validity (such as  $R^2$  and  $Q^2$ ) for focal endogenous constructs should be employed. All values of  $Q^2$  (chi-squared of the Stone-Geisser Criterion) are positive, so the relations in the model have predictive relevance (Fornell & Cha, 1994). In fact, the good value of GoF and the good level of predictive power ( $R^2$ ) reveal a good overall fit of the structural model (see Table 4).

**Table 4 Structural results**



Path	Beta
trustworthiness -> adoption	0.219**
accuracy -> adoption	0.140 *
importance -> adoption	0.134*
timeliness -> adoption	0.275**
relevance -> adoption	-0.059 ns
adoption -> Usage attitude	0.274**
R <sup>2</sup> adoption	0.279
R <sup>2</sup> Usage attitude	0.075
Q <sup>2</sup> adoption	0.79
Q <sup>2</sup> Usage attitude	0.62
GoF	0.36

Notes: Significant at: \*p<0.05; \*\*p<0.01;; ns: not significant

Source: authors' elaboration

## 5. Conclusions and implications

The findings reveal that timeliness, trustworthiness and importance of the SNS exercise the most significant impact on information adoption. Individuals tend to adopt the information that seems to be trustworthy and timeliness and these two factors are more important than the relevance of the information. Actually, Sussman and Siegal (2003) and Bhattacharjee and Sanford (2006) revealed that argument quality has a stronger effect on perceived usefulness than on source credibility. Aligned with them, this study also found that accuracy and relevance of information are more effective on usefulness than on source trustworthiness.

In sum, the source of credibility is more effective in influencing adoption of information. So, the peripheral cue influence the information adoption process and this study identified source trustworthiness as an important cue to influence information adoption.

In this vein, brand managers should be aware of the importance to give to relevant and accurate information in SNS in order to stimulate consumers or potential consumer to participate in SNS (like Facebook). Consumers will be more likely to buy products/brands whose information, for them, is timeliness and credibility, that is, correct and up-to-dated. This study was subject to a few limitations which may be accomplished in future research. First, the sample size recruited via a convenience sampling of Facebook users. Therefore, the generalizability of these findings must be done with caution and replications using more representative samples must be conducted. Second, the study focused on Facebook users, excluding users of other social networks, therefore in future the same model may

be tested in other SNSs. Third, we propose to test other variables acting as antecedents of information adoption.

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The effect of perceived usefulness on customers' attitude towards using the blogging has been proved to be significant (Shen & Chiou, 2009; Kim, Jeong, & Lee, 2010). Usefulness affects individuals' attitude (Pan & Chiou, 2011). Actually, if users perceived that using the SNS is very beneficial to them, their attitude towards the SNS should be positive, favourable. Therefore, perceive the information as useful will influence attitude towards the SNS.

**H4:** Information usefulness has a positive influence on usage attitude.