Social Networking Sites as Business Tool: A Study of User Behavior

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Abstract. Social Networking Sites (SNS) are second generation web applications allowing the creation of personal online networks; the social networking domain has become one of the fastest growing online environments connecting hundreds of millions of people worldwide. Businesses are increasingly interested in SNS as sources of customer voice and market information but are also increasingly interested in the SNS as the domain where promising marketing tactics can be applied; SNS can be also used as business process management (BPM) tools due to powerful synergies between BPM and SNS. Marketers have various options: SNS can be engaged as tools of customer engagement, social interaction, and relationship building but also as channels of information, collaboration and promotion. Understanding the adoption motives and adoption process of these applications is an essential step in engaging the SNS as part of the marketing toolbox.

In order to analyze the factors influencing the acceptance and use of SNS in The Netherlands a Technology Acceptance Model (TAM) was developed and tested. The findings indicate that there is a significant positive effect of the ease of use of SNS on perceived usefulness. Both variables have a direct effect on the intention to use the SNS and an indirect effect on the attitude towards the applications. Moreover the study has shown that intention to use SNS has a direct and positive effect on the degree of final use of SNS. Results demonstrate empirically that the TAM can explain and predict the acceptance of SNS by users as new communication system connecting them to peers and businesses.

This study presents an overview of the SNS user behavior and underlines the importance of using these applications as new communication technology.

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1 Introduction

Social Networking Sites (SNS) belong to the second generation of Internet applications commonly known as Web 2.0 of Social Web. SNS are a relatively recent Internet phenomenon, the first examples appeared at the end of the 20th Century. Today hundreds of millions of web users are connected through SNS worldwide, many of them having fully integrated SNS into their everyday life (Boyd and Ellison 2007; Subrahmanyam et al. 2008). According to data from ComScore Media Metrix (2011) about digital trends in the European market, Europe shows the highest growth in SNS reach from December 2009 until December 2010 (up 10.9 percentage points), compared with North America (up 6.6 points), Latin America (up 5.5 points) and Middle East-Africa (up 2.7 points). North America has the highest number of Internet users who are SNS users (89.8%), followed by Latin America (87.7%) and Europe (84.4%). According to the same source The Netherlands is worldwide the country with the highest penetration in SNS like LinkedIn and Twitter.

SNS are considered of great importance for individuals and businesses, since they support the maintenance of existing social ties and the establishment of new connections between users (Donath and Boyd 2004; Ellison et al. 2006; Ellison et al. 2007; Boyd and Ellison 2007). These connections can be vital for facilitating various group tasks (Sproull and Kiesler 1991; Preece and Maloney-Krichmar 2003), controlling and decreasing bad online behavior or efforts to manipulate co-users (Reid 1999; Donath 1998), and allow the build-up of different types of social capital (Resnick 2001; Ramayah 2006). These are some of the potential benefits of social networking (Wellman 2001).

The objective of this study is to explain the essence of SNS and develop a Technology Acceptance Model (TAM) (Davis 1989) enabling the analysis the factors that influence the level of acceptance and use of SNS. In this research line, Chiu et al. (2006) integrate a model for investigating the motivations behind people's knowledge sharing in virtual communities. We drew from the basic perceptions of the TAM and applied it to the adoption of SNS as new communication system based on web technology. The study focuses on the SNS adoption in a mature Internet market specific market, The Netherlands. This country has a leading position in the use of the Internet in Europe. 83% of the population is regular Internet users –connecting to the Internet at least once a week– and 74% of the population has broadband connection. In both aspects The Netherlands is ranking nº 1 in Europe (European Commission 2010). Moreover, within Europe, 85.1% of Internet users from The Netherlands are SNS users (ComScore Media Metrix 2011).

The study is a step towards better understanding the mechanisms of adoption of SNS by users; this is a vital step for strategists willing to exploit the possibilities of using SNS as part of the corporate strategy.

2 Theoretical Review

2.1 Social Networking Sites for Business Process Management

SNS act as an extension of face-to-face interaction (Kujatch 2011). Boyd and Ellison (2007) define SNS as "services based on Internet that allow individuals to build a public or semi-public profile within a system, create a list of other users that share a connection, and see and navigate through their list of connections and of those created by others within the system". A more recent definition is proposed by Kwon and Wen who define SNS as "websites that allow building relationships online between persons by means of collecting useful information and sharing it with people. Also, they can create groups which allow interacting amongst users with similar interests" (Kwon and Wen 2010). SNS specifically offer the users a space where they can maintain and create new relationships, as well as share information (Kolbitsch and Maurer 2006). According to O'Dell (2010), SNS are becoming more popular than search engines in some countries. In fact, the role of SNS as marketing instruments is a subject attracting also substantial research attention (Constantinides and Fountain 2008; Waters et al. 2009; Hogg 2010; Spaulding 2010).

Next to the networking possibilities SNS can also empower their users as participants in the marketing process; this because online networks offer users the possibility to obtain more information about companies, brands and products (often in the form of user reviews) and make better buying decisions (Lorenzo et al. 2009). SNS can therefore become a useful input for the business process management (BPM).

BPM is defined as all efforts in an organization to analyze and continually improve fundamental activities such as manufacturing, marketing, communications and other major elements of company's operations (Zairi 1997; Trkman 2010). A business process is a complete, dynamically coordinated set of activities or logically related tasks that must be performed to deliver value to customers or to fulfill other strategic goals (Guha and Kettinger 1993; Strnadl 2006; Trkman 2010). BPM has received considerable attention recently by business administration because companies are interested in increasing customer satisfaction, reducing cost of doing business and launching new products and services at low cost (Trkman, 2010).

Distributed work and virtual teams are getting more important and most business processes involve several collaborating individuals (Ho et al. 2009). Social Media-based collaborative tools, such as SNS, blogs or forums, can be used to support the design, execution, and management of business processes (Richter et al. 2009, 2010; Vom Brocke et al. 2011).

According to Vom Brocke et al. (2011) an emergent application area of BPM can be identified at the intersection between Social Media and business process. Both traditional BPM and Social Media can address the management of work activities (Hammel and Breen 2007). According to Erol et al. (2010, pp. 453-454), social software provides a number of new tools and options, that should be considered when designing business processes:

- Self identification. Any individual who would like to contribute to an activity may do so and thus identifies themselves as competent to carry out such activity.
- Transparency. All work results are openly available to anyone.
- Signing. The performing individual signs all work activities upon completion.
- Logging. All activities are logged to provide a history of work activities.
- Open modification. Anyone can modify contributions by other individuals.
- Discussion. Comments on work results and suggestions for modifications can be discussed an even directly linked to content pieces.
- Banning. Actors exhibiting inappropriate behaviour may be banned.

Bruno et al. (2011) explain that the social software, the basis of the Social Media, offers four very valuable features: Weak ties, egalitarianism, social production and mutual service provisioning. Using these features it is possible to achieve integration and responsiveness as required by BPM. According to these authors, the Social Media:

- Facilitate the motivation to participate by consumers and workers and thus supports the organizational integration.
- Allow the social production which facilitates sharing knowledge and empowering human agents at the micro level and thus supports the organizational integration.
- The egalitarianism feature of Social Media facilitating knowledge sharing, participates also in the organizational integration.

According to Khoshafian (2008), there is a powerful synergy between BPM and SNS. BPM continuous improvement has different phases: model development, execution, and performance monitoring. SNS and collaboration can be organized along both time and place dimensions. A BPM user community spans across functional units, cross departmental value chains, trading partners and other BPM communities. Each community and each option of networking in the taxonomy of BPM undergoes continuous improvement phases and the BPM societies can leverage SNS solutions. SNS are often void of process context; BPM provides the process context of the collaboration and networking. So while business processes provide the context of the collaboration, SNS support and augments the various activities of the BPM continuous improvement lifecycle.

Due to the importance of SNS in the BPM, Bruno et al. (2011) affirm that companies should investigate how to run social processes on SNS by taking advantage of the dynamic teams and the informal interactions they provide. Traditional BPM life cycles are based on the assumption that it is possible to predefine the control and information flows needed during the BPM life cycle. Social Media breaks with this assumption and replaces the *a priori* control of quality by an *a posteriori* one. In Social Media in general, and SNS in particular, individuals are allowed to contribute; therefore, end users are included more in the BPM life cycle and play an active part of the BPM life cycle. Furthermore, there is no strict separation between contributor and consumer. Instead there is an

exchange of contributions and each contribution to the BPM life cycle can be seen as a service provided by an end user or an involved stakeholder. Bruno et al. (2011) argue that SNS present some risk for companies. In an environment where everybody may provide information, some information or activities could damage the reputation of the company.

Regarding the potential of SNS as business tools, these can play different roles a part of marketing strategy (Constantinides and Fountain 2008; Waters et al. 2009; Tikkanen et al. 2009; Hogg 2010; Spaulding 2010); there are various ways that SNS can provide business value:

- SNS allow the creation of a corporate profile with information about the company, its products and/or services that could be used to create an interest group within these websites.
- SNS may be used as a tool for customer service and relationship marketing, thanks to the possibility of keeping customers informed about updates made by the company, and as a direct, quick and simple communication channel.
- They can also reinforce brand strength, as they enable companies to communicate with their target customers, enhancing brand loyalty and trust. They also create an innovative brand image by participating in these media.
- They can mean net savings in marketing expenses, as participating in a social network is relatively cheap, and certain marketing campaigns may no longer be needed. Furthermore, "worth-of-mouth" communication is much more effective.
- It is possible to advertise in SNS, using banners, buying keywords, creating events, sponsoring contents, etc.
- Professional social networks enable employee recruitment and management of business contacts.
- Customer information available in SNS voluntarily uploaded by the users allows companies to obtain a great amount of information about their customers, their personality and lifestyle as well as information on their trust in the Internet, perceived ease of use, perceived risk, attitudes to SNS, and so on.
- Companies can use SNS as source of customer voice for the development or testing of new products or services.
- Finally, based on user analysis and segmentation companies could selectively inform their customers even on personalized level, about their products or services, provide them with useful and interesting information or use the SNS as customer service channels.

2.3 Research Hypotheses

In this study the TAM framework was used to explain the adoption of SNS by Dutch users; this because of the efficacy of this model to predict the adoption of any technology (Mathieson 1991; Venkatesh and Davis 1996; Gefen et al. 2003a,

b; Vijayasarathy 2004; Shih and Fang 2004; Ha and Stoel 2009). Stam and Stanton (2010), based on models related to acceptance of technology such as TAM and UTAUT, examine acceptance of workplace technology changes from the viewpoint of popular psychological theories. Pelling and White (2009) examine the theory of planned behavior (TPB) applied to analyze the young people's use of SNS.

Regarding the online technologies in particular, the TAM can explain certain models of e-collaboration between users (Dasgupta et al. 2002); e-collaboration is one of the central features of SNS. According to the reasoning behind the use of models based on the TAM for technology adoption, there is a direct and positive effect between attitude, intention to use, and final use of a technology that an individual chooses to adopt; the TAM has been studied with a variety of populations and technology, but there is not much research about the use of this model to explain and predict acceptance of social technologies (e.g. Willis (2008) found that the TAM explains social networking technology).

The relationship between attitude and intention to use of an online system is common and essential in many behavioral models. This relationship has been demonstrated by several researchers in different contexts: Adoption of information technology and information systems (Davis 1989; Mathieson 1991; Davis et al. 1992; Taylor and Todd 1994, 1995a, b; Bernadette 1996; Harrison et al. 1997; Karahanna et al. 1999; Bhattacherjee 2000; Chen et al. 2002; Van Der Heijden 2003), adoption of the Web (Fenech 1998; Lederer et al. 2000; Lin and Lu 2000; Moon and Kim 2001; Porter and Donthu 2006), embracing of e-commerce (Gefen and Straub 1997, 2000; Bhattacherjee 2000; Chen et al. 2002; Pavlou 2002; Pavlou and Fygenson, 2006), and the use of Web 2.0 in general (Mo and Coulson, 2008; Shin and Kim 2008), and some 2.0 tools such as virtual communities (Papadopoulou 2007; Shin 2008), and SNS (Willis 2008). In this line, Sicilia and Ruiz (2010) propose that the amount of information has differential effects on consumers' information processing and attitudes. As results they obtained that while information processing diminishes under high levels of information, attitudes remain favorable.

Therefore, it is evident that the attitude towards a given technology has a positive effect on the intention to use this technology, which leads us to propose the following hypothesis:

H1. The attitude towards SNS has a positive and significant effect on the intention to use these websites.

Some of the TAM-based studies have included the current use of technology (Davis et al. 1992; Henderson and Divett 2003; Shang et al. 2005) and the intention to use as response variables (Mathieson 1991; Lin and Lu 2000; Luarn and Li 2005). Other studies included both concepts and observed a causal relationship between them (Taylor and Todd 1994, 1995b; Igbaria et al. 1997; Horton et al. 2001; Wu and Wang 2005; Shang et al. 2005). In this line, we have introduced both final variables, as we believe that the variable "Intention to Use" acts as intermediary between the effect exerted by the perceptions (ease of use and perceived usefulness) and final use of the individual. Therefore, we propose the following hypothesis:

H2. The intention to use SNS has a positive and significant effect on the final use of these websites.

In the TAM the perceived usefulness directly affects the use through the intention to use. Davis et al. (1989) argue that although the direct effect of a belief (i.e. the perceived usefulness) on the intention to use is contrary to the premises of the Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen (Fishbein and Ajzen 1975), studies provide the theoretical justification, as well as empirical evidence of direct links between perceived usefulness and intention to use (Triandis 1977; Brinberg 1979; Bagozzi 1982; Davis et al. 1989; Mathieson 1991; Igbaria 1993; Taylor and Todd 1995a, b; Chuan-Chuand and Lu 2000; Liaw and Huang 2003; Wang et al. 2003; Bhattacherjee and Premkumar 2004). Furthermore, Lee et al. (2003) indicate that the relationship between the perceived usefulness and intention to use in the context of the TAM is statistically supported since there are 74 studies that show a significant relationship between both variables. Willis (2008) found a positive and significant relation between both constructs within SNS. Therefore, we propose the third hypothesis:

H3. The perceived usefulness of SNS has a positive and significant effect on the intention to use them.

Davis et al. (1992) suggests an indirect relationship between perceived ease of use and the intention to use, mediated by the perceived usefulness. In addition other studies confirm this indirect relationship (Davis et al. 1989; Karahanna and Straub 1999). More recent empirical studies have found that perceived ease of use has a positive and significant effect on the intention to use, defined as wish to use (Lee et al. 2003; Ramayah 2006; Wise et al. 2010). When the interaction with the technology is easier, the feeling of efficiency by the user should be greater and hence the intention to use it should be greater (Chung 2005). Willis (2008) obtained significant and positive effects between both variables after the empirical analysis applied to SNS. Based on the theoretical assumption, we propose the following hypothesis:

H4. The perceived ease of use of SNS has a positive and significant effect on the intention to use them.

According to Castañeda et al. (2007), the ease of use has a double impact on the attitude, because of self-efficacy and instrumentality. The efficiency or effectiveness (self-efficacy) is one of the factors of intrinsic motivation for a person (Bandura 1982; Young et al. 2009), therefore this effect is directly related to the attitude. On the other hand the ease of use can also be instrumental (instrumentality), contributing to increase of performance. This increase means less effort, thanks to the ease of use, allowing getting more work done with the same effort (Taylor and Todd 1994). This instrumental effect on the attitude occurs via perceived usefulness as the original TAM postulates (Castañeda et al. 2008). Pelling and White (2009) reveal that high-level SNS use is influenced by attitudinal, normative, and self-identity factors. Furthermore, this effect has been amply demonstrated in empirical studies about adoption of new technologies

(Davis et al. 1989, 1992; Venkatesh and Davis 1996, 2000; Agarwal and Prasad 1999; Venkatesh 2000; O'Cass and Fenech 2003; Liaw and Huang 2003; Shih 2004; Shang et al. 2005; Barker 2009; Wilson et al. 2010). On the basis of the above we propose the following hypotheses:

H5. The perceived ease of use of SNS has a positive and significant effect on the attitude toward these sites.
H6. The perceived ease of use of SNS has a positive and significant effect on the perceived usefulness of using them.

In the TAM, the ease of use and the perceived usefulness are considered beliefs that are postulated a priori and are considered constructs which determine the attitude (Davis, 1993). This assertion is based on a pillar of the TRA arguing that attitudes toward a behavior are influenced by relevant beliefs (Fishbein and Ajzen 1975; Davis et al. 1989, 1992). Furthermore, there is empirical evidence of these relationships (Davis 1993; Venkatesh and Davis 2000). Therefore, we propose the following hypothesis:

H7. The perceived usefulness of SNS has a positive and significant effect on the attitude toward these sites.

Following the assumptions explained in the previous section, we obtain an initial model (Fig. 1) illustrating the adoption of SNS.

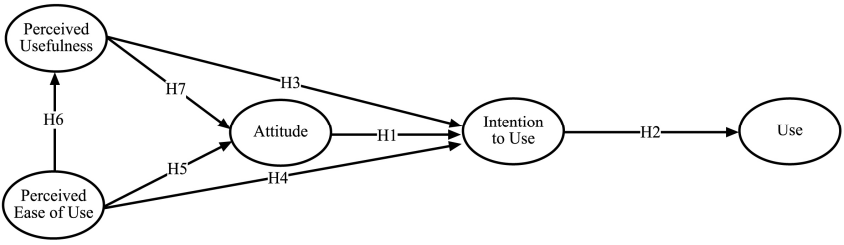

Fig. 1 Proposal of a model to explain the SNS acceptance

3 Materials and Methods

For this study we used an online survey presented to a panel of SNS users in October 2010.

The final sample consisted of 400 Dutch SNS users from 16 to 74 years old; it was drawn using a non-probability method by quota sampling to ensure that various subgroups of the target population are proportionally represented in the sample with regard to gender, age and region of residence.

Table 1 shows the constructs used in our study adapted from previous studies and were all measured by multiple items five-points Likert-type scales, with the exception of the use construct.

Table 1 Final items included in the model (content validity)

Construct	Indicator	Description	Measurement	Source (Content validity)
Use (USE)	USE1	How often do you participate in Social Networking Sites?	Five-points scale: Less than once a week - Several times a day	Moon and Kim (2001) Legris et al. (2003) Shih and Fang (2004)
	USE2	On average, how many hours do you access Social Networking Sites per week?	Five-points scale: Less than 1 hour - More than 25 hours	
Perceived Usefulness (PU)	PU1	I consider that the functions of SNS are useful for me	Five-points Likert-scale: Strongly disagree-Strongly agree	Moon and Kim (2001) Sánchez et al. (2007) Willis (2008) Rodríguez et al. (2009)
	PU2	Using the SNS contributes to interaction with others people		
	PU3	Using SNS enables me to access a lot of information		
	UP4	Overall, the SNS are useful		
Perceived Ease of Use (PEU)	PEU2	Learning to work with SNS is easy for me		Venkatesh (2000) Moon and Kim (2001) Pikkarainen et al. (2004) Muñoz (2008) Shin (2008) Willis (2008) Rodríguez et al. (2009)
	PEU4	I find it easy to get a SNS to do what I want it to do		
	PEU6	It is easy to remember how to use SNS		
	PEU7	My interaction with SNS is clear and understandable		
	PEU9	Everyone can easily use SNS		
	PEU11	Overall, I think that SNS are easy to use		
Attitude (A)	A1	Using SNS is a good idea		Moon and Kim (2001) Rodríguez et al. (2009) Sicilia and Ruiz (2010)
	A2	It is fun to participate in SNS		
	A3	I agree with the existence of SNS		
	A4	It is nice to connect to SNS		
	A5	Using SNS seems to me a positive idea		
Intention to Use (IU)	IU1	It is probable that I will participate or continue participating in SNS		Moon and Kim (2001) Mathwick (2002) Chan and Lu (2004) Castañeda (2005) Muñoz (2008) Willis (2008) Rodríguez et al. (2009)
	IU2	It is true that I will share or continue sharing information on SNS		
	IU3	I intend to begin or continue using SNS		
	IU4	I will recommend others to use SNS		

4 Results

4.1 Reliability and Validity Assessment

A confirmatory factor analysis (CFA) was conducted jointly for all the constructs making up the model, with the aim of assessing the measurement reliability and validity. The structural equation modeling (SEM) techniques were applied using the statistics package EQS 6.1.b.

Reliability of the constructs is presented in Table 2 and demonstrates high-internal consistency of the constructs. With an exploratory analysis, we found that the item-total correlation, which measures the correlation of each item with the sum of the remaining items that constitute the scale, is above the minimum of 0.3 recommended by Nurosis (1993). In each case, Cronbach's Alpha exceeded Nunnally and Bernstein's (1994) recommendation of 0.70, except in the USE scale. Composite reliability (CR) represents the shared variance among a set of observed variables measuring an underlying construct (Fornell and Larcker 1981). Generally a CR of at least 0.60 is considered desirable (Bagozzi 1994). This requirement is met for each factor. Average variance extracted (AVE) was also calculated for each construct, resulting in AVEs greater than 0.50 (Fornell and Larcker 1981).

Table 2 Internal consistency and convergent validity

Variable	Indicator	Factor Loading	Robust *t*-value[a]	Cronbach's alpha	Composite reliability (CR)	Average Variance Extracted (AVE)
Use (USE)	USE1	0.891	11.834	0.580	0.71	0.56
	USE2	0.574	6.946			
Perceived Usefulness (PU)	PU1	0.775	14.706	0.846	0.90	0.60
	PU2	0.738	14.478			
	PU3	0.701	13.589			
	UP4	0.844	18.474			
Perceived Ease of Use (PEU)	PEU2	0.741	14.224	0.9	0.91	0.62
	PEU4	0.783	18.279			
	PEU6	0.918	20.608			
	PEU7	0.870	18.829			
	PEU9	0.589	10.896			
	PEU11	0.794	14.724			
Attitude (A)	A1	0.774	14.032	0.912	0.91	0.67
	A2	0.845	15.088			
	A3	0.812	14.244			
	A4	0.831	17.098			
	A5	0.842	16.820			
Intention to Use (IU)	IU1	0.875	16.718	0,885	0.89	0.66
	IU2	0.792	17.938			
	IU3	0.850	17.101			
	IU4	0.735	14.940			

[a]=p<0,01

Robust goodness of fit indices: χ^2 (179 degree of freedom, df) = 311.59; χ^2/df=1,74; NFI= 0,912; NNFI= 0,953; CFI=0,960; RMSEA=0,043.

Regarding content validity all the items included in the scale have been tested in the academic literature on the Internet (Cronbach 1971; Vila et al. 2000). Due to lack of valid scales adapted to SNS adoption, it was necessary to adapt the initial scales (Table 1).

Convergent validity is verified by analyzing the factor loadings and their significance. The t scores obtained for the coefficients in Table 2 indicate that all factor loadings were significant ($p<.001$). Also the size of all standardized loadings is higher than 0.50 (Sanzo et al. 2003; Steenkamp and Geyskens 2006), and the averages of the item-to-factor loadings are higher than 0.70 (Hair et al. 2006). This finding provides evidence supporting the convergent validity of the indicators (Anderson and Gerbing 1988).

Evidence for discriminant validity of the measures was provided in three ways (Table 3). First, none of the 95 per cent confidence intervals of the individual elements of the latent factor correlation matrix contained a value of 1.0 (Anderson and Gerbing 1988). Second, the shared variance between pairs of constructs was always less than the corresponding AVE (Fornell and Larcker 1981), except for scales related to attitude and intention to use, whose AVE is lower and equal, respectively to the squared correlation (0.714). Third, Bagozzi argues that existing discriminant validity is acceptable if the correlations between the variables in the confirmatory model are not much higher than 0.8 points and in our study this argument is supported (Bagozzi 1994).

Therefore, construct validity was verified by assessing the convergent validity and discriminant validity of the scale (Vila et al. 2000).

Table 3 Discriminant validity of the theoretical construct measures

	USE	PU	PEU	A	IU
USE	**0.56**[a]	[0.215 , 0.471]	[0.144 , 0.376]	[0.343 , 0.559]	[0.325 , 0.565]
PU	0.118	**0.60**[a]	[0.161 , 0.397]	[0.527 , 0.739]	[0.496 , 0.716]
PEU	0.068	0.078	**0.62**[a]	[0.336 , 0.560]	[0.461 , 0.641]
A	0.203	0.401	0.201	**0.67**[a]	[0.795 , 0.895]
IU	0.198	0.367	0.304	0.714	**0.66**[a]

[a] The diagonal represents the AVE, while above the diagonal de 95 per cent confidence interval for the estimated factors correlations is provided, below the diagonal, the shared variance (squared correlations) is represented.

4.2 Results of Causal Model

The proposed conceptual model was tested using structural equation modeling. The overall fit of the model is acceptable because the goodness of statistics shows values greater than the commonly accepted. In the next paragraphs, each hypothesis will be justified according to results obtained; these can be observed in Table 4 and Fig. 2.

Table 4 Structural model results

Hypothesis	Path	Standardized path coefficients	Confidence level[a]	Robust *t*-value[b]
H1	Attitude → Intention to Use	0.676	**	9.805
H2	Intention to Use → Use	0.459	**	7.353
H3	Perceived Usefulness → Intention to Use	0.122	*	2.144
H4	Perceived Ease of Use → Intention to Use	0.215	**	5.355
H5	Perceived Ease of Use → Attitude	0.295	**	4.784
H6	Perceived Ease of Use → Perceived Usefulness	0.278	**	4.445
H7	Perceived Usefulness → Attitude	0.551	**	7.516

[a] Confidence level: **=p<0,01; *=p<0,05
[b] Robust goodness of fit indices: χ^2 (182 df) = 317,11; χ^2/df=1,74; NFI= 0,910; NNFI= 0,953; CFI=0,959; RMSEA=0,043

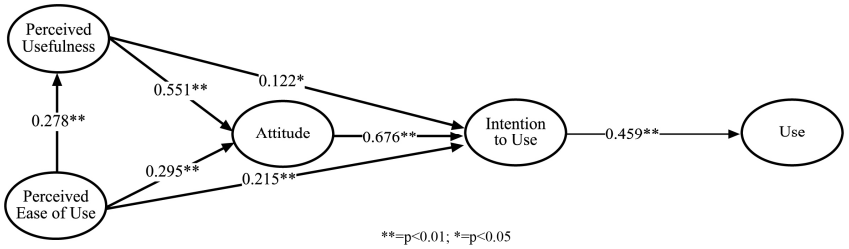

Fig. 2 Estimation of research model

The results show that attitude towards social networks sites has a significant positive effect on intention to use (β=0.676, p<0.01) and therefore hypothesis 1 was supported.

At the same time, intention to use has a significant positive effect on final use of social networks sites (β=0.459, p<0.01), and thus, hypothesis 2 was supported also.

Perceived ease of use has a significant positive effect on intention to use (β=0.215, p<0.01), attitude (β=0.295, p<0.01) and perceived usefulness (β=0.278, p<0.01); thus, hypotheses 4, 5 and 6 were supported.

Perceived usefulness has a significant positive effect on attitude (β=0.551, p<0.01) and intention to use (β=0.122, p<0.05); thus, hypotheses 3 and 7 were also supported.

Summarizing we can confirm that all relationships between constructs analyzed in the TAM are translated and tested positively in the SNS context. In consequence, the typical adoption behavior of new technologies seems to be applicable to the adoption behavior of users of SNS.

5 Conclusions and Practical Implications for Business Process Management

The adoption and use of SNS by users and companies has dramatically increased in last years. SNS offer to people new ways to build and maintain social networks, share information, generate and edit content, participate in social activities online. They also allow the locating of individuals sharing the same backgrounds and interests based on the characteristics published in personal profiles. SNS have contributed to increasing the number of contacts maintained by the individuals, as well as facilitating the strengthening of links between them. Next to the social effects the SNS have allowed individuals to build up a strong position against businesses. This emerging customer empowerment is having its roots in increasing access to information sources but also in the increasing ability of customers to participate to commercial processes. As Riegner (2007) explains, user participation has far reaching commercial implications: Consumers exercise great and increasing influence on product offerings and on the strategies used to sell them.

There is a powerful synergy between BPM and SNS. While business processes provide the context of the collaboration, SNS supports and augments the various activities of the BPM applications' continuous improvement. SNS allow the integration of users into business process management. The benefits of combining BPM and SNS are facilitated by the completely new approach for putting together the inputs of different people (Erol et al. 2010). Therefore, introducing SNS provides several opportunities for the BPM, mainly when the process demands a high level of communication and collaboration among performing actors. The basic principles of openness and ease of usage of SNS are the pillars of the wide acceptance of SNS. However, these new ways of working may require considerable time for acceptance (Erol et al. 2010).

All these possibilities have led to an increasing professional and academic interest in the study of the Social Web in general and the SNS in particular. Researchers are interested in the potential of SNS as part of the marketing strategy and as new interaction environments between consumers and business. Several businesses are already successfully testing ways of utilizing these environments by tapping customer generated information relevant to their brands and products or create their own SNS where customers can participate and interact with the company and their peers. Many businesses already invest substantial marketing resources in SNS where customers are expressing and communicating their ideas, tastes, preferences, worries, etc. (Constantinides and Fountain 2008; Peres et al. 2010).

This research has confirmed that the new technology adoption process as stipulated by the TAM approach applies to the adoption process of SNS; the perceived ease of use of SNS in The Netherlands has a positive effect on the perceived usefulness of these websites and both variables have a positive and direct influence on the intention to use the SNS and an indirect effect on the intention to use through the attitude towards the website. Moreover, it has shown that intention to use SNS has a direct and positive effect on the degree of adoption and use of SNS.

The findings of this study reveal that the attitudes of SNS users are important in predicting intention to use. To attract the participation in the SNS, online businesses and SNS providers need to develop strategies to cultivate positive attitudes toward the use of SNS. The results indicate that providing user-friendly and useful websites are very important preconditions for generating positive attitudes.

The changes in attitudes occur rapidly and in less time than the sense of usefulness or perceived ease of use (Thompson and Hunt 1996). As Yang and Yoo (2004) stated, many theories and programs have been developed for the change to positive attitudes, such as the direct influence of individuals (e.g. improving people's motivations, abilities, memories or mood states), the improvement of contextual clues (e.g. classical conditioning), or the consideration of persuasive messages (e.g. the credibility of the message, memory message, two face communication, etc.).

Although attitudes can change more quickly, continuous efforts should also be given to maintain the attitude, which is temporary, unstable, and malleable (Thompson and Hunt 1996). The motivations, skills, experience and education, all influence the development and maintenance of attitude. Therefore, maintenance and change of attitude should be considered as a complementary tool to traditional application techniques that can be used to improve user acceptance of new technologies (Yang and Yoo 2004).

This work complements the Willis study demonstrating empirically that the TAM could explain and predict the acceptance of SNS as new connection and communication technology when businesses integrate such tools into their marketing strategy (Willis 2008). In this line, SNS marketers must offer useful and simple social networking applications a positive attitude of users towards the applications, something that will improve their intention to use them. Customers experience the interactivity, the functionality and the access to information as factors enhancing their perception of usefulness. Simplicity and user friendliness of SNS seem to be important elements of the Perceived ease of Use as influencer of the customer attitudes and intention to use the application.

In sum, this study has supported all hypotheses and in this sense it could be useful for businesses eager to introduce these new interactive support systems in their websites and obtain better results in various areas: branding, customer advocacy and trust, customer engagement etc.

As a main limitation of this study we can mention the fact that the survey was answered exclusively by Dutch people. In order to be able to generalize the results of this research the study must be repeated using sample populations from different countries or geographic territories. A second limitation is that the model used is quite simple; however this study is an explorative one aiming at testing the suitability of original TAM in the adoption process of SNS in by demographically diverse populations.

As future research, it is possible that we could improve the results obtained in this study by using a more complex model including other variables like trust, satisfaction, and psychological variables (Wilson et al. 2010; Wise et al. 2010), in order to analyze the influence of the internal variables on the adoption level of the SNS by users. Other directions for further research are the execution of this study in several countries and conduct cross-cultural comparative analyses related to the adoption and use of SNS by users according to their cultural differences.

References

Agarwal, R., Prasad, J.: Are Individual Differences Germane to the Acceptance of New Information Technologies? Decision Sciences 30(2), 361–391 (1999)

Anderson, E., Gerbing, D.W.: Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin 103, 411–423 (1988)

Baggozzi, R.P.: A field investigation of causal relations among cognition, affect, intentions and behaviour. Journal of Marketing Research 19, 562–584 (1982)

Bagozzi, R.P.: Structural Equation Model in Marketing Research. Basic Principles. Blackwell Publishers, MA (1994)

Bandura, A.: Self-Efficacy mechanism in Human Agency. American Psychologist 37(2), 122–147 (1982)

Barker, V.: Older adolescents' motivations for social network site use: The influence of gender, group identity, and collective self-esteem. CyberPsychology, Behavior, and Social Networking 12, 209–213 (2009)

Bernadette, S.: Empirical evaluation of the revised technology acceptance model. Management Science 42(1), 85–93 (1996)

Bhattacherjee, A.: Acceptance of e-commerce services: The case of electronic rokerages. IEEE Transactions on Systems, Man, and Cybernetics – Part A: Systems and Humans 30(4), 411–420 (2000)

Bhattacherjee, A., Premkumar, G.: Understanding changes in beliefs and attitude toward Information Technology usage: A theoretical model and longitudinal test. MIS Quarterly 28(2), 229–254 (2004)

Boyd, D.M., Ellison, N.B.: Social network sites: Definition, history, and scholarship. Journal of Computer-Mediated Communication 13(1), Article 11 (2007), http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html

Brinberg, D.: An examination of the determinants of intention and behavior: A comparison of two models. Journal of Applied Social Psychology 6, 560–575 (1979)

Bruno, G., Dengler, F., Jennings, B., Khalaf, R., Nurcan, S., Prilla, M., Sarini, M., Schmidt, R., Silva, R.: Key challenges for enabling agile BPM with social software. Journal of Software Process: Improvement and Practice 23, 297–326 (2011)

Castañeda, J.A.: El comportamiento del usuario de Internet: Análisis de los antecedentes y consecuencias de la fidelidad [The Internet user behavior: An analysis of the antecedents and consequences of fidelity]. Doctoral Thesis. Marketing Department. University of Granada (2005)

Castañeda, J.A., Muñoz-Leiva, F., Luque, T.: Web Acceptance Model (WAM): Moderating effects of user experience. Information & Management 44, 384–396 (2007)

Chan, S., Lu, M.: Understanding internet banking adoption and use behavior: A hong kong perspective. Journal of Global Information Management 12(3), 21–43 (2004)

Chen, L., Gillenson, M., Sherrel, D.: Enticing online consumers: an extended technology acceptance perspective. Information and Management 39, 705–719 (2002)

Chiu, C.M., Hsu, M.H., Wang, E.T.G.: Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. Decision Support Systems 42, 1872–1888 (2006)

Chuan-Chuan, J., Lu, H.: Towards an understanding of the behavioural intention to use a web site. International Journal of Information Management 20(3), 197–208 (2000)

Chung, D.: Something for nothing: understanding purchasing behaviors in social virtual environments. CyberPsychology & Behavior 8(6), 538–554 (2005)

ComScore Media Metrix (2011), The 2010 Europe digital year in review, http://www.comscore.com/esl/Press_Events/Presentations_Whitepapers/2011/2010_Europe_Digital_Year_in_Review (accessed March 20, 2011)

Constantinides, E., Fountain, S.: Web 2.0: Conceptual foundations and Marketing Issues. Journal of Direct, Data and Digital Marketing Practice 9(3), 231–244 (2008)

Cronbach, L.J.: Test validation, educational measurement. In: Thorndike, R.L. (ed.) American Council on Education, Washington, pp. 443–507 (1971)

Dasgupta, S., Granger, M., McGarry, N.: User acceptance of ecollaboration technology: An extension of the technology acceptance model. Group Decision Negotiation 11, 87–100 (2002)

Davis, F.D.: Perceived usefulness, perceived ease of use and user acceptance of Information Technology. MIS Quarterly 13(3), 319–340 (1989)

Davis, F.D.: User Acceptance of Information Technology: System Characteristics, User Perceptions and Behavioral Impacts. International Journal of Man-Machine Studies 38, 475–487 (1993)

Davis, F.D., Bagozzi, R.P., Warsaw, P.R.: Extrinsic and Intrinsic Motivation to use Computers in The Workplace. Journal of Applied Social Psychology 22(14), 1111–1132 (1992)

Davis, F.D., Bagozzi, R.P., Warshaw, P.R.: User acceptance of computer technology: A comparison of two theoretical models. Management Science 35(8), 982–1003 (1989)

Donath, J., Boyd, D.: Public displays of connection. Technology Journal 22(4), 71–82 (2004)

Donath, J.S.: Identity and deception in the virtual community. In: Kollock, P., Smith, M. (eds.) Communities in Cyberspace. Routledge, London (1998)

Ellison, N.B., Steinfield, C., Lampe, C.: The benefits of Facebook "friends": Social capital and college students' use of online social network sites. Journal of Computer-Mediated Communication 12, 1143–1168 (2007)

Ellison, N.B., Heino, R., Gibbs, J.: Managing impressions online: Self-presentation processes in the online dating environment. Journal of Computer-Mediated Communication 11 (2006), http://jcmc.indiana.edu/vol11/issue2/ellison.html (accessed March 20, 2011)

Erol, S., Granitzer, M., Happ, S., Jantunen, S., Jennings, B., Johannesson, P., Koschmider, A., Nurcan, S., Rossi, D., Schmidt, R.: Comgining BPM and social software: Contradiction or chance? Journal of Software Maintenance and Evolution: Research and Practice 22, 449–476 (2010)

Fenech, T.: Using perceived ease of use and perceived usefulness to predict acceptance of the World Wide Web. Computer Networks & ISDN Systems 30, 629–630 (1998)

Fishbein, M., Ajzen, I.: Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research. Addison-Wesley, Reading (1975)

Fornell, C., Larcker, D.F.: Evaluating structural equations models with unobservable variables and measurement error. Journal of Marketing Research 18, 39–50 (1981)

Gefen, D., Straub, D.W.: Gender differences in the perception and use of E-mail: An extension to the technology acceptance model. MIS Quarterly 21(4), 389–400 (1997)

Gefen, D., Straub, D.W.: The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption. Journal of Association for Information Systems 1(8), 1–28 (2000)

Gefen, D., Karahanna, E., Straub, D.W.: Inexperience and experience with online Stores: The importance of TAM and Trust. IEE Transactions on Engineering Management 50(3), 307–321 (2003a)

Gefen, D., Karahanna, E., Straub, D.W.: Trust and TAM in online shopping: An integrated Model. MIS Quarterly 27(1), 51–90 (2003b)

Guha, S., Kettinger, W.J.: Business process reengineering. Information Systems Management 10(3), 13–22 (1993)
Ha, S., Stoel, L.: Consumer e-shopping acceptance: Antecedents in a technology acceptance model. Journal of Business Research 62, 565–571 (2009)
Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L.: Multivariate data analysis. Prentice-Hall, New York (2006)
Hamel, G., Breen, B.: The Future of Management. Harvard Business School Press (2007)
Harrison, D.A., Mykytyn, P.P., Riemenschneider, C.K.: Executive decisions about adoption of information technology in small business: Theory and empirical tests. Information Systems Research 8(2), 171–195 (1997)
Henderson, R., Divett, M.: Perceived uselfulness, ease of use and electronic supermarket use. International Journal of Computer Studies 59, 383–395 (2003)
Ho, D.T.Y., Jin, Y., Dwivedi, R.: Business process management: A research overview and analysis. In: Proceedings of the 15th Americas Conference on Information Systems, San Francisco, CA (2009)
Hogg, T.: Inferring preference correlations from social networks. Electronic Commerce Research and Applications 9, 29–37 (2010)
Horton, R., Buck, T., Waterson, P.E., Clegg, C.: Explaining intranet use with the technology acceptance model. Journal of Information Technology 16, 237–249 (2001)
Igbaria, M.: User acceptance of microcomputer technology. An empirical test. International Journal of Management Science 21(1), 73–90 (1993)
Igbaria, M., Zinatelli, N., Cragg, P., Cavaye, A.L.M.: Personal computing acceptance factors in small firms: a structural equation model. MIS Quarterly 21(3), 279–302 (1997)
Karahanna, E., Straub, D.W.: The psychological origins of perceived usefulness and ease of-use. Information & Management 35(4), 237–250 (1999)
Karahanna, E., Straub, D.W., Chervany, N.L.: Information Technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. MIS Quarterly 23(2), 183–213 (1999)
Khoshafian, S.: MyBPM: Social Networking for Business Process Management. In: Fischer, L. (ed.) BPM and Workflow Handbook Spotlight on Human-Centric BPM, pp. 187–196. Future Strategies, Inc., Florida (2008)
Kolbitsch, J., Maurer, H.: The transformation of the Web: How emerging communities shape the information we consume. Journal of Universal Computer Science 2(12), 187–213 (2006)
Kwon, O., Wen, Y.: An empirical study of the factors affecting social network service use. Computers in Human Behavior 26(2), 254–263 (2010)
Lederer, A.L., Maupin, D.J., Sens, M.P., Zhuang, Y.: The technology acceptance model and the World Wide Web. Decision Support Systems 29, 269–282 (2000)
Lee, Y., Kozar, K.A., Larsen, K.R.T.: The Technology Acceptance Model: Past, present, and Future. Communications of the Association for Information Systems 12, 752–780 (2003)
Legris, P., Ingham, J., Collerette, P.: Why do people use information technology? A critical review of the technology acceptance model. Information and Management 40(3), 191–204 (2003)
Liaw, S.S., Huang, H.-M.: An investigation of user attitudes toward search engines as an information retrieval tool. Computers in Human Behavior 19(6), 751–765 (2003)
Lin, C.C., Lu, H.: Towards an Understanding of the Behavioral Intention to Use a Web site. International Journal of Information Management 20, 197–208 (2000)
Lorenzo, C., Constantinides, E., Gómez-Borja, M.A.: Effects of Web Experience on virtual retail purchase preferences. International Retail and Marketing Review 5(1), 1–15 (2009)

Luarn, P., Li, H.-H.: Toward an understanding of the behavioural intention to use mobile banking. Computers in Human Behavior 21(6), 873–891 (2005)

Mathieson, K.: Predicting user intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior. Information Systems Research 2(3), 173–191 (1991)

Mathwick, C.: Understanding the online consumer: A typology of online relational norms and behaviour. Journal of Interactive Marketing 16(1), 40–55 (2002)

Mo, P.K.H., Coulson, N.S.: Exploring the communication of social support within virtual communities: a content analysis of messages posted to an online HIV/AIDS support group. CyberPsychology, Behavior, and Social Networking 11, 371–374 (2008)

Moon, J., Kim, Y.: Extending the TAM for a World-Wide-Web context. Information and Management 38, 217–230 (2001)

Muñoz, F.: La adopción de una innovación basada en la Web. Análisis y modelización de los mecanismos generadores de confianza [The adoption of a Web-based innovation. Analysis and modeling of the mechanisms that generate trust]. Doctoral Thesis, Marketing Department, University of Granada (2008)

Nunnally, J., Bernstein, I.H.: Psychometric Theory. McGraw-Hill, New York (1994)

Nurosis, M.J.: SPSS. Statistical Data Analysis. Spss Inc. (1993)

O'Cass, A., Fenech, T.: Web retailing adoption: exploring the nature of Internet users web retailing behaviour. Journal of Retailing and Consumer Services 10, 81–94 (2003)

O'Dell: Is Facebook getting bigger than Google? (2010), http://mashable.com/2010/06/08/social-network-stats/ (accesed March, 2011)

Papadopoulou, P.: Applying virtual reality for trust-building ecommerce environments. Virtual Reality 11(2), 107–127 (2007)

Pavlou, P.: A theory of Planned Behavior Perspective to the Consumer Adoption of Electronic Commerce. MIS Quarterly, 1–51 (2002)

Pavlou, P.A., Fygenson, M.: Understanding and predicting electronic commerce adoption: An extension of the Theory of Planned Behavior. MIS Quarterly 30(1), 115–144 (2006)

Pelling, E.L., White, K.M.: The theory of planned behavior applied to young people's use of social networking web sites. CyberPsychology, Behavior, and Social Networking 12, 755–759 (2009)

Peres, R., Muller, E., Mahajan, V.: Innovation diffusion and new product growth models: A critical review and research directions. International Journal of Research in Marketing 27, 91–106 (2010)

Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., Pahnila, S.: Consumer acceptance of online banking: An extension of the Technology Acceptance Model. Internet Research: Electronic Networking Applications and Policy 14(3), 224–235 (2004)

Porter, C.E., Donthu, N.: Using the technology acceptance model to explain how attitudes determine Internet usage: The role of perceived access barriers and demographics. Journal of Business Research 59, 999–1007 (2006)

Preece, J., Maloney-Krichmar, D.: Online Communities. In: Jacko, J., Sears, A. (eds.) Handbook of Human-Computer Interaction, pp. 596–620. Lawrence Erlbaum Associates Inc., Mahwah (2003)

Ramayah, T.: Interface characteristics, perceived ease of use and intention to use an online library in Malaysia. Information Development 22(2), 123–133 (2006)

Reid, E.: Hierarchy and power: Social control in cyberspace. In: Smith, M.A., Kollock, P. (eds.) Communities in Cyberspace, pp. 107–133. Routledge, London (1999)

Resnick, P.: Beyond bowling together: Sociotechnical capital. In: Carroll, J. (ed.) HCI in the New Millennium, pp. 247–272. Addison-Wesley, Boston (2001)

Richter, D., Riemer, K., vom Brocke, J.: Internet social networking – Distinguishing the phenomenon from its manifestations. In: Proceedings of the 17th European Conference on Information Systems, Verona, Italy (2009)

Richter, D., Riemer, K., vom Brocke, J.: Social transactions on social network sites: Can transaction cost theory contribute to a better understanding of Internet social networking. In: Proceedings of th 23rd Bled eConference, Bled, Slovenia (2010)

Riegner, C.: Word of mouth on the Web: The impact of Web 2.0 on consumer purchase decisions. Journal of Advertising Research 47, 436–447 (2007)

Rodríquez, N., Liñares, S., De la Llana, M.: The Main Determinants of Web 2.0 Acceptance: The Case of Youtube. In: 8th International Marketing Trends Congress, Paris (2009)

Sánchez, M.J., Rondán, F.J., Villarejo, A.F.: Un modelo empírico de adaptación y uso de la Web. Utilidad, facilidad de uso y flujo percibidos [An empirical model of adaptation and use of the Web. Usefulness, ease of use and perceived flow]. Cuadernos de Economía y Dirección de Empresa 30, 153–179 (2007)

Sanzo, M., Santos, M., Vázquez, R., Álvarez, L.: The Effect of Market Orientation on Buyer-Seller Relationship Satisfaction. Industrial Marketing Management 32(4), 327–345 (2003)

Shang, R., Chen, Y., Shen, L.: Extrinsic versus intrinsic motivations for consumers to shop on-line. Information and Management 42(3), 401–413 (2005)

Shih, H.P.: Extended Technology Acceptance Model of Internet utilization behaviour. Information & Management 41(6), 719–729 (2004)

Shih, Y., Fang, K.: The use of a decomposed Theory of Planned Behavior to study Internet banking in Taiwan. Internet Research: Electronic Networking Applications and Policy 14(3), 213–223 (2004)

Shin, D.H.: Understanding purchasing behaviors in a virtual economy: Consumer behavior involving virtual currency in Web 2.0 communities. Interacting with Computers 20, 433–446 (2008)

Shin, D.H., Kim, W.Y.: Applying the technology acceptance model and flow theory to cyworld user behavior: implication of the web 2.0 user acceptance. CyberPsychology, Behavior, and Social Networking 11, 378–382 (2008)

Sicilia, M., Ruiz, S.: The Effect of Web-Based information availability on consumers' processing and attitudes. Journal of Interactive Marketing 24, 31–41 (2010)

Spaulding, T.J.: How can virtual communities create value for business. Electronic Commerce Research and Applications 9, 38–49 (2010)

Sproull, L., Kiesler, S.: Connections: New ways of working in the networked organization. MIT Press, Cambridge (1991)

Stam, K.R., Stanton, J.M.: Events, emotions, and technology: examining acceptance of workplace technology changes. Information Technology & People 23, 23–53 (2010)

Steenkamp, J.E.B.M., Geyskens, I.: What drives the perceived value of web sites? A cross-national investigation. Journal of Marketing 70(3), 136–150 (2006)

Strnadl, C.F.: Aligning business and it: The process-driven architecture model. Information Systems Management 23(4), 67–77 (2006)

Subrahmanyam, K., Reich, S., Waechter, N., Espinoza, G.: Online and offline social networks: Use of social networking sites by emerging adults. Journal of Applied Development Psychology 29, 420–433 (2008)

Taylor, S., Todd, P.A.: Descomposition and crossover effects in the theory of planned behavior: A study of consumer adoption intentions. International Journal of Research in Marketing 12, 137–155 (1994)

Taylor, S., Todd, P.A.: Understanding Information Technology usage: A test of competing models. Information Systems Research 6(2), 144–176 (1995a)

Taylor, S., Todd, P.A.: Assessing IT usage: The role of prior experience. MIS Quarterly 19(4), 561–570 (1995b)

Thompson, R.C., Hunt, J.G.J.: In the black box of alpha, beta, and gamma change: using a cognitive-processing model to assess attitude structure. Academy of Management Review 21, 3 (1996)

Tikkanen, H., Hietanen, J., Henttonen, T., Rokka, J.: Exploring virtual worlds: success factors in virtual world marketing. Management Decision 47(8), 1357–1381 (2009)

Triandis, H.C.: Interpersonal behavior Monterey. Brooks/Cole, CA (1977)

Trkman, P.: The critical success factors of business process management. International Journal of Information Management 30(2), 125–134 (2010)

Van Der Heijden, H.: Factors Influencing the Usage of Websites: The Case of a Generic Portal in the Netherlands. Information & Management 40(6), 541–549 (2003)

Venkatesh, V.: Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. Information Systems Research 11(4), 342–365 (2000)

Venkatesh, V., Davis, F.D.: A Model of the Antecedents of Perceived Ease of Use: Development and Test. Decision Sciences 27(3), 451–481 (1996)

Venkatesh, V., Davis, F.D.: A theoretical extension of the Technology Acceptance Model: Four Longitudinal Field Studies. Management Science 46(2), 186–204 (2000)

Vijayasarathy, L.R.: Predicting consumer intentions to use online shopping: The case for an augmented technology acceptance model. Information & Management 41(6), 747–762 (2004)

Vila, N., Küster, I., Aldás, J.: Desarrollo y validación de escalas de medida en marketing [Development and validation of measurement scales in marketing]. In: Quaderns de Treball, vol. 104. University of Valencia, Spain (2000)

Vom Brocke, J., Becker, J., Maria Braccini, A., Butleris, R., Hofreiter, B., Kapocius, K., De Marco, M., Schmidt, G., Seidel, S., Simons, A., Skpal, T., Stein, A., Stieglitz, S., Suomi, R., Vossen, G., Winter, R., Wrycza, S.: Current and future issues in BPM research: A European perspective from the ERCIS Meeting 2010. Communications of the Association for Information System 28(25), 393–414 (2011)

Wang, Y.S., Wang, Y.M., Lin, H.H., Tang, T.I.: Determinants of user acceptance of internet banking: An empirical study. International Journal of Service Industry Management 14(5), 501–519 (2003)

Waters, R., Burnett, E., Lamm, A., Lucas, J.: Engaging stakeholders through social networking: How nonprofit organizations are using Facebook. Public Relations Review 35, 102–106 (2009)

Wellman, B.: Physical place and cyberplace: The rise of personalized networking. International Journal of Urban and Regional Research 25(2), 227–252 (2001)

Willis, T.: An evaluation of the technology acceptance model as a means of understanding online social networking behavior. Dissertation Abstracts International, 69 (2008)

Wilson, K., Fornasier, S., White, K.: Psychological predictors of young adults' use of social networking sites. Cyberpsychology, Behavior, and Social Networking 13, 173–177 (2010)

Wise, K., Alhabash, S., Park, H.: Emotional responses during social information seeking on Facebook. CyberPsychology, Behavior, and Social Networking 13, 555–562 (2010)

Wu, J.C., Wang, S.C.: What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. Information and Management 42(5), 719–729 (2005)

Yang, H.-D., Yoo, Y.: It's all about attitude: revisiting the technology acceptance model. Decision Support Systems 38, 19–31 (2004)

Young, S., Dutta, D., Dommety, G.: Extrapolating psychological insights from facebook profiles: A study of religion and relationship status. CyberPsychology, Behavior, and Social Networking 12, 347–350 (2009)

Zairi, M.: Business process management: A boundaryless approach to modern competitiveness. Business Process Management Journal 3(1), 64–80 (1997)