

# Modeling the effects of the three dimensions of trust towards the e-vendor on online consumer behavior

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## ABSTRACT

*Studies that integrate online consumers' trust toward the e-vendor with key constructs from technology acceptance models draw on one-dimensional or second-order conceptualizations of trust to explain shopping behavior. However, marketing and consumer research supports that a richer understanding of relational behavior is gained when trust is decomposed into three dimensions. Using Gefen, Karabann and Straub's (2003) integrated website response model as a theoretical foundation, this research investigate the relationships between three dimensions of trust (consumers' beliefs about the e-vendor's integrity, benevolence and competence) and two key constructs from technology acceptance models (perceived ease of use and perceived usefulness of commercial websites) to explain online consumers' intentions to engage in a business relationship with an e-vendor. Empirical results demonstrate the superiority of the tri-dimensional trust model over the one-dimensional one.*

**Keywords:** Trust, benevolence, competence, integrity, technology acceptance, e-commerce.

## RÉSUMÉ

*Les recherches qui intègrent la confiance dans les modèles d'acceptation de la technologie traitent la confiance comme un concept unidimensionnel ou de second ordre pour expliquer le comportement des consommateurs vis-à-vis des services en ligne. Cependant, les recherches en Marketing et en comportement du consommateur montrent que traiter la confiance comme un concept tri-dimensionnel permet de mieux comprendre les relations des consommateurs avec les marques. En nous fondant sur le modèle de Gefen, Karabann et Straub (2003), cette recherche met en évidence les relations entre les trois dimensions de la confiance (intégrité, bienveillance et compétence) et deux concepts clés utilisés en systèmes d'information (l'utilité perçue et la facilité d'utilisation perçue) pour expliquer l'intention de développer des relations avec un vendeur en ligne. Les résultats empiriques montrent la supériorité du modèle tri-dimensionnel de la confiance par rapport au modèle uni-dimensionnel.*

**Mots-clés :** Confiance, bienveillance, compétence, intégrité, acceptation de la technologie, commerce électronique.

## INTRODUCTION

Building consumer trust is crucial to e-commerce success as exemplified by the keynote slogan of CEBIT 2012, the world's largest trade fair for digital IT: "*Managing Trust*" ([www.cebitt.com](http://www.cebitt.com)). The consequences are abundantly clear: managers require in-depth understanding of how trust and its correlates inform consumers' online shopping behavior. An identifiable stream of research therefore integrates trust with key constructs from well known technology acceptance models, such as the TAM (Davis, Bagozzi and Warshaw, 1989) or the more recent UTAUT model (Venkatesh *et al.*, 2003). These studies use one-dimensional- or second-order conceptualizations of trust. However, a more granular understanding of how trust and technological website acceptance drive behavior may be gained when trust is decomposed into its dimensions (e.g., McKnight, Choudhury and Kacmar, 2002). Indeed, prominent IS researchers such as Gefen, Benbasat and Pavlou (2008, p. 276) urge authors to "examine the dimensionality of trust and perhaps reconsider the construct of trust in the context of online environments." Similarly, based on their extensive meta-analysis on the impact of trust on the TAM, Wu *et al.* (2011) call for more research to clarify the differential role of the dimensions of trust as antecedents of behavior.

To heed these calls, we partially replicate and extend Gefen, Karahanna and Straub's (2003) seminal analysis of structural relationships between trust and two key constructs of technological website acceptance in terms of per-

ceived website ease of use (PEOU) and perceived website usefulness (PU). We decompose trust into its three dimensions (consumers' beliefs about the e-vendor's integrity, benevolence and competence) and explore how these dimensions interact with the two key constructs of technology acceptance to ultimately explain consumers' intentions to engage into a business relationship with the e-vendor.

Research in marketing and consumer behavior in particular recognizes trust as a major determinant of relational constructs, such as relationship commitment and loyalty (e.g. Chaudhuri and Holbrook, 2001; Morgan and Hunt, 1994; Sirdeshmukh, Singh and Sabol, 2002). This function is well reflected in the definition of trust as the "willingness to rely on an exchange partner in whom one has confidence" (cf., Moorman, Zaltman, and Deshpandé, 1992, p. 83). Accordingly, Morgan and Hunt (1994) argue that relationship commitment entails vulnerability, which is why parties rely on trustworthy partners. Studies in this vein also emphasize that decomposing trust into its dimensions is theoretically advantageous particularly to explain relational behaviors. For example, Ganesan (1994) notes two dimensions of trust—credibility and benevolence—as antecedents of long-term orientation in buyer-seller relationships. Similarly, Hess and Story (1995) study consumer-brand relationships based on a conceptualization of trust that differentiates benevolence and integrity.

The well-established duality of functional and affective goals that motivate relational behavior supports the impor-

tance of decomposing trust into its dimensions (e.g., Gutman, 1982; Sirgy, Johar, Samli and Claiborne, 1991). While the two key dimensions of technology acceptance are utilitarian website appraisals (e.g., Davis, Bagozzi and Warshaw, 1989; Venkatesh *et al.*, 2003), the three trust dimensions cover utilitarian- and affective appraisals to different degrees (e.g., Chaudhuri and Holbrook, 2001; Delgado-Ballester and Hernandez-Espallardo, 2008). Utilitarian appraisals should inform relational behavior because they convey functional value. In contrast, affective appraisals should inform relational behavior because they fulfill higher order goals and generate commitment or attachment to the website (e.g., Dwyer, Schurr and Oh, 1987; Hennig-Thurau, Gwinner and Gremler, 2002). By theoretically separating the utilitarian and affective antecedents of relational behavior, we expect to uncover the independence structure of the dimensions of trust and technological website acceptance as drivers of relational behavior. Therefore, an original contribution of the present research resides in the crossing of the IS and marketing literature to enable a fuller understanding of how utilitarian and affective trust components may drive relational behavior. Our empirical study with survey data gathered from 415 online shoppers of consumer electronics contrasts the one-dimensional trust model with a model in which trust is decomposed into its three underlying dimensions. Results clearly support the superiority of the model with differentiated trust dimensions and suggest a number of important theoretical and practical implications.

## 1. PREVIOUS RESEARCH

### 1.1. Dimensions of Online Trust

IS and marketing literature increasingly claim that consumers' trust toward the e-vendor is best defined in terms of three related but conceptually distinct dimensions, namely consumers' beliefs about the e-vendor's integrity, benevolence, and competence (e.g., Komiak and Benbasat, 2006; McKnight *et al.*, 2002; Pavlou and Dimoka, 2006). The first dimension of trust, *integrity*, is the consumer's beliefs about the sincerity of the e-vendor and its promises. It reflects the extent to which a truster believes (s)he can count on the firm to follow a set of moral principles, such as truth-telling, honesty and fairness (Flavián and Guinalú, 2006; McFall, 1987). Integrity overlaps conceptually with beliefs about ethicality and credibility (Koufaris and Hampton-Sosa, 2004; McKnight *et al.*, 2002). Second, *benevolence* reflects beliefs about qualities of the trustee that demonstrate a genuine concern and care for the partner, such as responsiveness and goodwill (Ganesan and Hess, 1997; Koufaris and Hampton-Sosa, 2004). Higher levels of benevolence suggest that the e-vendor is motivated to act in the consumer's best interest and will not take unwarranted advantage, which implies altruism and motives to seek joint gains (Doney, Cannon and Mullen, 1998; McKnight *et al.*, 2002). Finally, the *competence* (or ability) dimension reflects the consumer's beliefs about the e-vendor's knowledge and skills that are necessary to meet expected performance levels (Flavián and

Guinalíu, 2006; Koufaris and Hampton-Sosa, 2004).

Although the multi-dimensional character of the trust concept is well recognized both in the IT and marketing literature, few IT studies consider the differential role of the trust dimensions in studying either trust antecedents such as security protection or privacy concerns or consequences of trust such as willingness to purchase or loyalty. In a special issue of the *Journal of Management Systems* devoted to the role of trust in online environments (Benbasat, Gefen and Pavlou, 2008), while most articles refer conceptually to different trust dimensions, trust is almost exclusively modeled as a one-dimensional construct (e.g. Awad and Ragowsky, 2008, Cyr, 2008, Kim, 2008, Lowry, Vance, Moody, Beckman and Read, 2008, Vance, Elie-Dit-Cosaque and Straub, 2008).

The three dimensions of trust embrace utilitarian and affective elements to different degrees, which arguably is crucial for understanding how trust informs relational behaviors. Utilitarian elements reflect the consumer's perception that the object of trust will meet functional goals, such as the ability to perform as expected. Affective elements instead reflect perceptions that the object of trust is appropriate to meet relational goals, such as honesty, altruism or other pleasing characteristics of a good friend (e.g., Chaudhuri and Holbrook, 2001; Delgado-Ballester and Hernández-Espallardo, 2008). While integrity covers mainly affective or emotional evaluations (rather than utilitarian), the competence dimension reflects utilitarian assessments of the e-

vendor. Finally, benevolence covers both utilitarian and affective evaluations (cf., Hwang and Kim, 2007; McKnight et al., 2002).

## 1.2. Technology Acceptance and Trust

The extensively researched TAM (Davis *et al.*, 1989) as well as the more recent UTAUT model (Venkatesh *et al.*, 2003) are powerful theoretical frameworks for studying individuals' technology acceptance in general, and online shoppers' website acceptance and buying behavior in particular. These models draw on the key constructs of perceived ease of use (PEOU) and perceived usefulness (PU) as indicators of technology acceptance or predictors of website usage behavior. PEOU is the degree to which one believes that using a website is free of effort, and PU is the belief that using a website increases shopping performance. In the UTAUT, these key constructs are called performance- and effort expectancy and are defined in a similar manner. Effort expectancy is "the degree of ease associated with the use of the system" and performance expectancy is the "degree to which an individual believes that using the system will help him or her to attain gains" (Venkatesh *et al.*, 2003, p. 447 and 450). The theoretical premise of the TAM is, in short, that PEOU affects PU, which in turn affects attitudes toward the system and ultimately usage intentions. The UTAUT extends the TAM in several ways, notably by adding social influence and facilitating conditions as explanatory variables to the model. Social influence is the degree to which an

individual perceives that important others believe that (s)he should use the system. Facilitating conditions are beliefs that an organizational and technical infrastructure support system use (Venkatesh *et al.*, 2003). Despite the advancements offered by the UTAUT, the present study relies on PEOU and PU as key constructs of technological website acceptance. This aligns with previous studies that integrate trust with technology acceptance constructs to explain online shopping behavior (cf. Table 1), although these studies use trust as a one-dimensional construct. Moreover, the UTAUT predicts that when the two key constructs of technology acceptance are considered, facilitating conditions will not be significant in predicting intentional behavior, but will directly trigger usage behavior. Because we attempt to explain intentional behavior, facilitating conditions are not considered in the present research.

Gefen *et al.* (2003) note that IS researchers studied technology acceptance and trust independently and that integrating the two perspectives “advances our understanding of these constructs and their linkages to behavior” (p. 51). Their initial theoretical discussion and empirical findings inspired a surge of subsequent studies (Table 1). These studies show some inconsistent conceptualizations and results regarding the cause-and-effect relationships between technology acceptance constructs, trust and online shopping behavior. At times, trust and technology acceptance constructs are treated as independent (Van der Heijden, Verhaagen and Creemers, 2003), or inter-linked such that PEOU informs trust

(e.g., Liao, Palvia and Lina, 2006), which then increases perceptions of website PU or website usability and ultimately behavior. Trust has also been either related or not related to perceived benefits or PU, which may then transfer effects of trust on behavior. Finally trust has been either directly linked to behavior or indirectly through other constructs. Apart from these inconsistencies, it is surprising that none of these studies differentiates the dimensions of trust. Arguably, one-dimensional conceptualizations of trust blend the differential role of the dimensions of trust in relation to both, technology acceptance and relationship intentions.

## 2. CONCEPTUAL DEVELOPMENTS

The conceptual model that guides the development of the study’s hypotheses appears in Figure 1. Relationship intentions which serve as the dependent variable is the consumer’s willingness to engage in a business relationship with an e-vendor. This construct entails the greater profitability of consumers with higher relationship intentions. Relationship intentions is considered in both IS and Marketing literature a central variable to predict the long-term success of firms (e.g., Kumar, Bohling and Ladda, 2003; Wang and Head, 2007).

We particularly build on Gefen *et al.*’s (2003) conceptual model and empirical findings that show how the two key constructs of technological website acceptance (PEOU and PU) may be integrated with (one-dimensional)

Author(s)	Investigated relationships	Comments
Gefen <i>et al.</i> (2003)	PEOU → PU → Intended Use PEOU → Intended Use PEOU → Trust → PU and Intended Use	<ul style="list-style-type: none"> <li>All variables are causally interrelated</li> </ul>
Van der Heijden <i>et al.</i> (2003)	PEOU → PU → Attitude towards purchasing PEOU → Attitude towards purchasing Trust → Attitude towards purchasing Attitude towards purchasing → Purchasing intent	<ul style="list-style-type: none"> <li>No links between TAM constructs and trust</li> <li>No direct links between trust and intentions (only attitude links to intentions)</li> </ul>
Flavián <i>et al.</i> (2006)	Usability → Trust → Consumer loyalty Usability → Consumer loyalty	<ul style="list-style-type: none"> <li>Usability (PEOU &amp; PU) is a determinant of trust</li> </ul>
Liao <i>et al.</i> (2006)	PEOU → Trust → Continuance Intention Trust → PU → Continuance Intention PEOU → PU → Continuance Intention	<ul style="list-style-type: none"> <li>All variables are causally interrelated</li> <li>No direct link of PEOU on continuance intention</li> </ul>
Kim <i>et al.</i> (2006)	Trust → Willingness to Purchase Trust → PU (Benefit) → Willingness to Purchase	<ul style="list-style-type: none"> <li>PEOU not included</li> <li>All variables are causally interrelated</li> </ul>
Qureshi <i>et al.</i> (2009)	PEOU → Trust → Repurchase Intention PEOU → Repurchase Intention	<ul style="list-style-type: none"> <li>PU not included</li> <li>Trust is a partial mediator</li> </ul>
Rotchanakitumnuai and Speece (2009)	PEOU → PU → Intended Use Trust → PU → Intended Use	<ul style="list-style-type: none"> <li>No links between PEOU and trust</li> <li>No direct link between trust and intended use</li> </ul>
Wu <i>et al.</i> (2011)	PEOU → PU → Attitude and Behavioral Intent. PEOU → Trust → Attitude and Behavioral Intent. Trust → PU → Attitude and Behavioral Intent. PEOU → Attitude and Behavioral Intent.	<ul style="list-style-type: none"> <li>Meta-analysis</li> <li>All variables are causally interrelated</li> </ul>

Notes: PEOU: Perceived Ease of Use; PU: Perceived Usefulness

**Table 1 : Studies that Integrate Trust with TAM Constructs to predict Online Shopping Behavior**

trust to explain consumers' website usage intentions. In extension, we decompose trust into its dimensions and investigate how these dimensions inform online shoppers' relationship intentions. Given their utilitarian and/or

affective nature, we expect that the two dimensions of technology acceptance and the three dimensions of trust affect relationship intentions through different routes, either in concert or independently one from another.

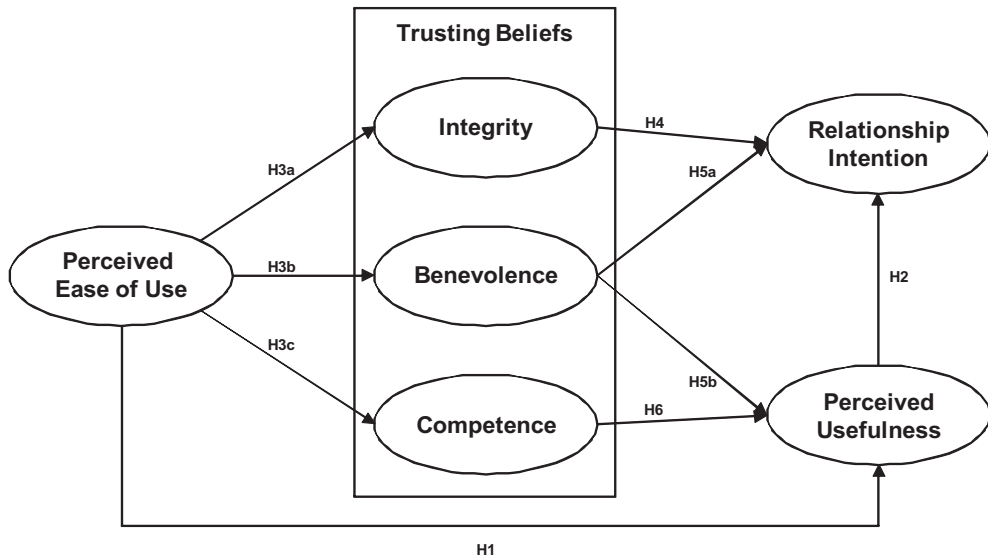


Figure 1: Conceptual Model

In line with Gefen et al. (2003) and the original formulation of the TAM (Davis, 1989), our conceptual model postulates positive relationships between PEOU and PU (*H1*) and between PU and relationship intentions (*H2*). The missing link between PEOU and relationship intentions reflects the notion that functional benefits gained from greater PEOU (such as saving time and effort when surfing on a website) must be *de facto* perceived as useful (PU) in order to trigger behavioral intent (cf., Davis, 1989).

**H1:** *Perceived Ease of use (PEOU) is positively related to perceived usefulness (PU).*

**H2:** *Perceived usefulness (PU) is positively related to relationship intentions.*

Gefen et al. (2003), as well as subsequent studies that integrate trust with

website acceptance demonstrate that PEOU acts as an antecedent of online trust (Flavián et al., 2006; Koufaris and Hampton-Sosa, 2004; Wang, Lin and Luarn, 2006). We therefore predict positive relationships between PEOU and trust for all three dimensions of online trust. A website that is well structured and easy to use arguably evokes feelings of familiarity, situational normality (i.e. perceiving that the online environment is in proper order) or structural assurance (i.e. regulations or legal structures are in place to promote success). In particular, such feelings should increase consumers' beliefs about the e-vendor's integrity (*H3a*) and benevolence (*H3b*). In addition, an easy to use website suggests to consumers that the company is capable of serving its customers successfully, and that errors will be avoided, thereby enhancing consumers' beliefs about the company's competence (*H3c*).

**H3:** *Perceived Ease of use (PEOU) is positively related to (a) integrity beliefs, (b) benevolence beliefs and (c) competence beliefs.*

Gefen *et al.* (2003) as well as later studies (e.g., Kim and Benbasat, 2006; Liao *et al.*, 2006) also suggest that (one-dimensional) trust is positively related to both PU and website usage intentions (cf., Table 1). We presume that these relationships differ for the three dimensions of trust, because these dimensions embrace utilitarian and affective elements to different degrees.

Perceptions of ethical traits of firms improve consumer–company identification and loyalty intentions (Lichtenstein, Drumwright and Braig, 2004; Marin, Ruiz and Rubio, 2009), possibly due to consumers' affiliate motivations. Affiliate motivations stem from a relational goal or the innate human need to belong (Baumeister and Leary 1995; O'Connor and Rosenblood, 1996; Zimbardo and Formica, 1963). Such psychological attachment is not utilitarian and therefore unlikely to be related to the PU of the website. However, a company that earns a good reputation because consumers believe in its integrity may increase consumers' psychological attachment and relationship intentions (Thomson, McInnis and Park, 2005).

**H4:** *Integrity beliefs relate positively and directly to relationship intentions.*

Sen, Bhattacharya and Korschun (2006) show that consumers who are aware of a company's benevolent efforts, such as social engagements, display higher levels of identification with the company. Higher levels of identification may enhance self-esteem and

satisfy relational goals (cf., Fournier, 1998; Sirgy, 1985). Hence, just as with integrity, we anticipate that beliefs about the firm's benevolence improve relationship intentions. In contrast to integrity, consumers' beliefs about the firm's benevolence may also satisfy functional goals. When consumers perceive a firm as benevolent, they will likely infer that the firm takes care to deliver expected performance levels. Indeed, based on social exchange theory, Gefen *et al.* (2003) argue that greater levels of trust increase the perceived certainty about a company's expected behavior, in particular in relation to the PU of the website. In this sense, benevolence is the subjective assessment that the e-vendor provides ultimate benefits that the consumer searches for and that s(he) does not need to invest resources in monitoring if the expected benefits can be gained, making the website more useful (Gefen *et al.*, 2003). In combination, we expect that increased perceptions of the e-vendor's benevolence are positively related to both the PU of the website and to online consumers' relationship intentions.

**H5:** *Benevolence beliefs relate positively to (a) relationship intentions and (b) perceived usefulness (PU).*

Finally, with the competence dimension of trust, consumers assess the firm's capability to conduct transactions in a way that enhances efficiency and effectiveness. These aspects are purely utilitarian. For example, Komik and Benbasat (2006) argue that a trustee may be highly competent without having integrity, which illustrates the crucial differences between these two dimensions of trust. When con-

sumers perceive lower levels of competence, they must pay closer attention to all aspects of the transaction process, which increases their time and effort expenditures and reduces the PU of the website. We therefore expect that beliefs about the e-vendor's competence are positively related to PU.

**H6:** *Competence beliefs relate positively to perceived usefulness (PU).*

### 3. METHOD

#### 3.1. Measures and data collection

To test the study's hypotheses, we collected survey data from graduate students from two French business schools who evaluated the websites of eight pure online retailers of consumer electronics. Students constitute a well-defined target group for consumer electronics and are frequently used as informants in online retailing research (Walczuch and Lundgren, 2004; Wang and Head, 2007). Electronics is one of the most popular product categories that consumers purchase online (Ecommerce Europe, 2014) and is thus appropriate for this study (Flavian Blanco, Gurrea Sarasa and Orús Sanclemente, 2010). The websites that served as stimuli offer a wide range of products (audio, computers, games, phones, TV, video) (see Appendix 1).

We borrowed the measures for the constructs of interest from previous studies and adapted them to the context of the present study. The PEOU and PU scales come from Gefen *et al.* (2003); measures for the three dimensions of trusting beliefs came from McKnight *et al.* (2002), and the items

that measure relationship intentions came from Kumar *et al.* (2003) and Wang and Head (2007). All items appear in Appendix 2. The measures underwent a translation/ back-translation procedure with two bilingual (English/French) speakers. Inconsistencies in the translations were resolved through subsequent discussions with the authors. We pretested and refined the scales with data gathered from a convenience sample of 53 graduate students. The participants sat at a computer and were asked to imagine that they were in a phase of planned acquisition of a piece of electronic equipment (digital camera, digital media player, LCD TV or mobile phone; randomly assigned). They browsed, for approximately ten minutes, the website of one of the online retailers (randomly assigned) to gather relevant product and purchasing information. After completing the information gathering task, the participants completed an online questionnaire that measured the constructs of interest on five-point Likert scales (*1 = strongly disagree; 5 = strongly agree*).

Questionnaire length can affect the quality of survey data, such that longer questionnaires cause respondent fatigue and decrease effort invested in answering questions (Galesic and Bosnjak, 2009). We therefore performed a scale purification process in order to minimize the questionnaire length in the main study. We subjected the data gathered in the preliminary study to factor analysis. Items with poor factor loadings on their target factor were dropped. We also analyzed the internal consistency of each scale and dropped items when doing so in-

creased the Cronbach's  $\alpha$ . The final measurement scales thus contained three items per construct (Appendix 2), and Cronbach  $\alpha$  values were greater than .8 for all scales.

To encourage participation in the main study, we offered a raffle for five 30€ Amazon gift certificates. As in the preliminary study, participants in the main study evaluated the websites of one of the eight online retailers (Appendix 1), randomly assigned. We also asked the participants if they ever purchased something from the site to which they were assigned. Participants who responded positively ( $n=19$ ) were excluded from the analysis to avoid response bias related to prior experience with the site evaluated. The final sample of 415 respondents had a mean age of 22.2 years ( $SD = 2.3$ ), and 56.4% were women.

### 3.2. Evaluation of the measurement model

Before testing the hypothesized relationships, we evaluated the psychome-

tric properties of the measurement model in terms of reliability, convergent and discriminant validity (Fornell and Larcker, 1981). The confirmatory factor analysis showed a good model fit, with a root mean square error of approximation (RMSEA) = 0.037, confirmatory fit index (CFI) = 0.981 and  $\chi^2/df = 1.559$ . The chi-square statistic was significant ( $\chi^2 = 187.12$ ;  $df = 120$ ;  $p < 0.01$ ), and the measurement items loaded strongly ( $\lambda > 0.70$ ) and significantly ( $p < 0.01$ ) on their respective target factors. The results also indicate high levels of construct reliability, with  $\rho_{\eta}$  exceeding 0.8 for all latent constructs (Fornell and Larcker, 1981). The convergent validity of all constructs also received support, because the average variances extracted (AVE) were consistently greater than 0.5 and greater than the squared correlation between any constructs, in support of discriminant validity (Table 2).

We also performed Harman's single-factor test to account for the possibility of common method bias (Podsakoff et al., 2003). If common method bias

		1	2	3	4	5	6	$\rho_{\eta}$
1	Ease of use	0.68						0.86
2	Usefulness	0.42	0.64					0.84
3	Integrity	0.02	0.01	0.68				0.86
4	Benevolence	0.09	0.11	0.13	0.58			0.80
5	Competence	0.04	0.10	0.01	0.04	0.62		0.83
6	Relationship intentions	0.12	0.18	0.17	0.16	0.03	0.64	0.84

Notes: Values on the main diagonal are the average variance extracted (AVE); values below the diagonal are squared correlations.

**Table 2: Squared Correlations, AVEs and Scale Reliabilities**

poses a threat, a single latent factor should yield an adequate fit. However, the single-factor model showed significantly worse and unacceptable fit (RMSEA = 0.186, CFI = 0.465,  $\chi^2/df$  = 15.37) compared with our six-factor model, suggesting that common method bias is not a serious threat in the present study.

### 3.3. Hypothesis testing

We estimated the conceptual model (Figure 1) using structural equation modeling (SEM) in AMOS. The fit indices again suggested an excellent model fit, with RMSEA = 0.044, CFI = 0.972 and  $\chi^2/df$  = 1.807 (Table 3, baseline model A). The squared multiple correlations was 0.62 for PU and 0.48 for relationship intentions, indicating the high relevance of the three trust dimensions and PEOU as predictors of these variables.

As suggested in *H1*, PEOU had a significant positive effect on PU. With *H2*, we proposed a positive effect of PU on relationship intentions, which was empirically confirmed. The results showed no significant effect of PEOU on integrity, but positive effects of PEOU on benevolence and competence, thereby supporting *H3b* and *H3c*, but not *H3a*. With *H4* we anticipated a positive effect of integrity on relationship intentions, and the results confirmed this prediction. As predicted in *H5a* and *H5b*, benevolence showed significant positive effects on both relationship intentions and PU. Finally competence was positively related to PU in support of *H6*. Therefore all of our hypotheses, with the exception of

*H3a*, received confirmation from the data.

It is important in SEM to test alternative models before concluding that a proposed model is supported (Bollen and Long, 1992). Therefore, we specified three rival models (models B, C and D) that we compared against our theoretically assumed baseline model A (Figure 1). We compared the rival models statistically based on chi-square differences (Bentler and Bonett, 1980), and along two goodness of fit measures: Akaike's Information Criterion (AIC) and the Bayesian Information Criteria (BIC). Lower values of AIC and BIC indicate a better fit and suggest the model that should be retained. The results from our empirical model comparisons appear in Table 3 and are discussed next.

First, in recognition of the lack of support of *H3a* which predicted a positive relationship between PEOU and the integrity dimension of trust, we specified a rival model B from which we removed this relationship. Model B attained good fit to the data and a non-significant chi-square difference, compared with the baseline model A (Table 3). AIC and BIC are slightly inferior for model B than for model A (Table 3). The principle of parsimony suggests preferring the simpler model with fewer estimated parameters (Bentler and Mooijaart, 1989). Accordingly, we advocate model B.

Second, our theoretical model A suggested no relations between PEOU and relationship intentions, between integrity and PU, and between competence and relationship intentions (Figure 1). A possible rival model relates

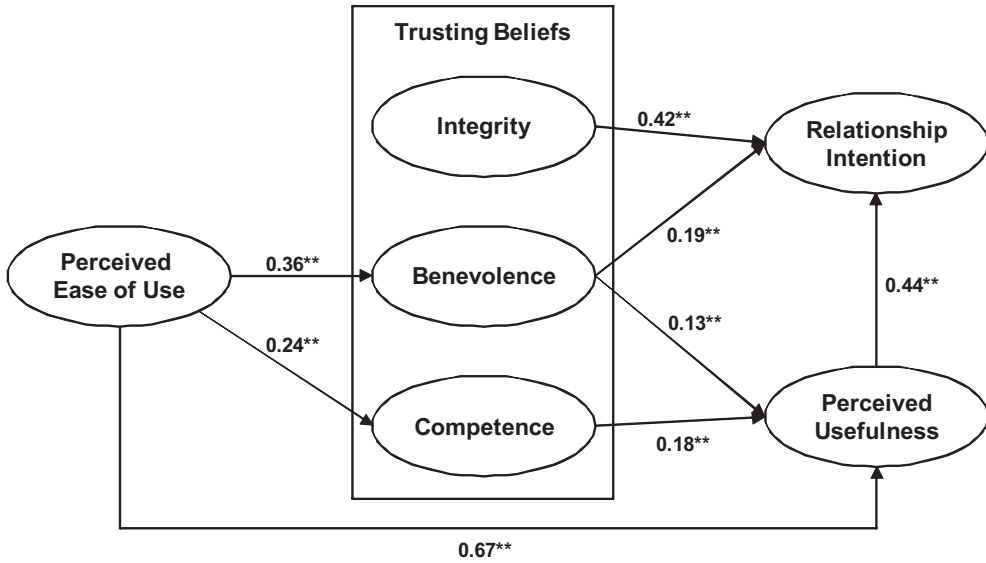
	$\chi^2/df$	RMSEA	$\chi^2(df)$	$\chi^2(df)$	sig. of $\chi^2$	CFI	AIC	BIC
Baseline model A	1.81	0.04	227.64** (126)	–	–	0.97	317.64	498.91
<b>Rival model B (preferred model)</b>	<b>1.81</b>	<b>0.04</b>	<b>229.40** (127)</b>	<b>1.76 (1)</b>	<b>no</b>	<b>0.97</b>	<b>317.40</b>	<b>494.65</b>
Rival model C	1.83	0.05	225.14** (123)	2.50 (3)	no	0.97	321.14	514.50
Rival model D	1.99	0.05	251.39 126	–	–	.97	342.32	531.65

Notes: RMSEA = root mean squared error of approximation; CFI = confirmatory fit index. \*  $p < 0.05$ . \*\*  $p < 0.01$ .

**Table 3: Model Comparisons**

these constructs. Some studies report positive relationships between PEOU and behavior while others do not find any relationships between these constructs (e.g., Flavián and Guinalú, 2006; Gefen et al., 2003; King and He, 2006; Schepers and Wetzels, 2007). Hence, with rival model C we specified additional positive relationships between PEOU and relationship intentions, between integrity and PU, as well as between competence and relationship intentions. The results show a model fit similar to that of the previously tested models, but the chi-square difference between model C and model A is non-significant. The goodness of fit measures suggest that model B should be preferred over model C, since both AIC and BIC are superior in model C (Table 3). Moreover, in examining the newly added paths in model C, we find that the theoretically assumed zero relations are indeed non-significant. We therefore reject rival model C. In summary, the model trimming procedures lend support to model B, which we display for visual clarity in Figure 2.

Finally, to contrast our findings with previous studies that drew on trust as a one-dimensional construct, we tested another rival model in which trust was conceptualized as a second-order construct (model D). Model D specifies relations as suggested by Gefen et al. (2003) and adopted in subsequent studies. Hence, this model links PEOU to PU, trust and behavioral intentions; PU, in turn, is linked to intentions, and trust is expected to exert direct positive effects on both PU and intentions (Figure 3). The empirical results show again excellent fit to the data (Table 3). As in Gefen et al. (2003), all of the specified relationships are significant, with the exception of a direct path between PEOU and relationship intentions. This may be because Gefen et al. (2003) study effects of technological website acceptance and trust on “intended use,” whereas the present research uses “relationship intentions” as the dependent variable. Arguably, relationship intentions is a more involving or higher-order type of behavior (cf., Butcher, Sparks and O’Callaghan,

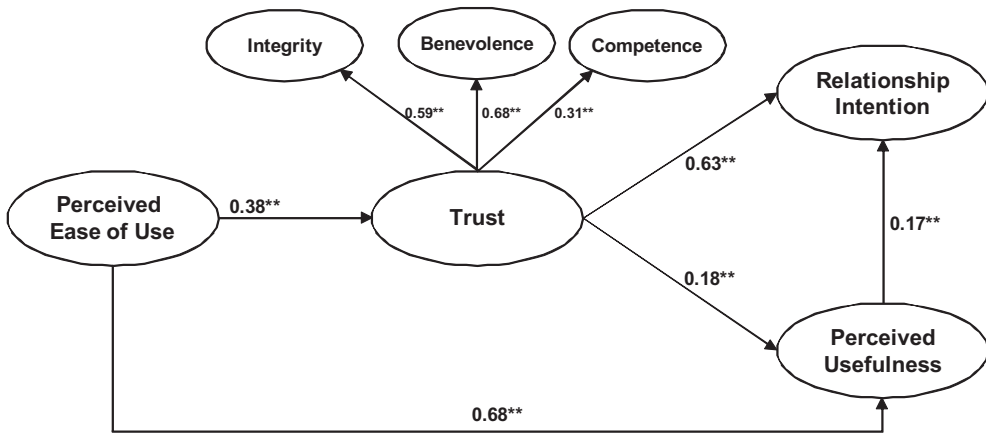


Notes: Values are standardized regression coefficients

**Figure 2: First-Order Model (Model B)**

2003) in which people may not engage based on the PEOU alone. These results suggest again the importance of differentiating utilitarian and affective antecedents of relational behaviors, and thus the importance of decomposing trust into its dimensions. The AIC

value for model D was 342.32 and BIC was 531.65, hence considerably higher than for the model B (Table 3), suggesting that model B is empirically preferable. In summary, the empirical results clearly support model B with the separated trust dimensions.



Notes: Values are standardized regression coefficients

**Figure 3: Second-Order Model (Model D)**

## 4. DISCUSSION AND CONCLUSION

Although the concept of trust is at the center of online marketing practice and research, we still know little about how the dimensions of trust relate to online consumers' website assessments and ultimately their intentions to engage in a relationship with the website. Guided by theoretical developments from both IS and marketing literature, this research proposes and empirically specifies a model that links three dimensions of trust (integrity, benevolence and competence) to two key constructs of technological website acceptance in terms of PEOU and PU as a means to predict online consumers' relationship intentions. Our survey data, from a large sample of online shoppers of consumer electronics, supports most of the hypotheses. Results offer some important theoretical and practical implications.

### 4.1. Theoretical implications

Drawing on literature from both the IS and the marketing fields, we developed theoretical rationales that explain the interactions between three dimensions of trust with key constructs of technological website acceptance (PEOU, PU) in an attempt to ultimately explain relationship intentions. Findings therefore extend models integrating PEOU and PU with a one-dimensional conceptualization of trust. They clearly advocate that decomposing trust into its dimensions enables a more granular and richer understanding of the driving forces of relationship intentions.

The study's findings are consistent with predictions made by widely accepted consumer theories suggesting that two sets of goals motivate relational behaviors—functional and affective. The derived theoretical evidence and our empirical results suggest that integrity and benevolence relate directly to relationship intentions, while benevolence and competence relate directly to website PU, which in turn informs relationship intentions. Integrity does not predict website PU, perhaps because this dimension helps consumers to fulfill relational but not functional goals. In contrast, competence does not directly affect relationship intentions arguably because this dimension helps consumers to fulfill functional, but not directly, relational goals. Contrary to our predictions, we find that website PEOU is not related to integrity, but only to the other dimensions of trust. Integrity may have different antecedents than PEOU, such as transparent information linked to guarantees and refund policies. For example, third-party peer-to-peer payment systems such as PayPal may help generating integrity-based trust through co-branding effects. However, it should be recognized that in our study participants did not face any real risk linked to purchase; hence, our study setting might explain the missing relationship between PEOU and the integrity dimension. This finding demands further research.

### 4.2. Managerial implications

To be successful, online marketers must recognize that the battle for marketing supremacy happens in the

minds of consumers. A recent large scale study by Accenture Consulting Company, with more than 10,000 consumers surveyed, shows that the consumer electronics industry is concerned by low levels of customer loyalty. For these products, high levels of quality appear to be taken for granted (Accenture, 2012). Particularly in this industry, low cost and product differentiation strategies provide only marginal or short term advantages, and marketers are challenged to find ways for building profitable consumer relationships. Our study suggests that one possibility for doing so is to create websites that effectively communicate an affective higher purpose. By enhancing consumer trust marketers can enjoy long lasting differentiation and relevance in the mind of consumers. Advantages of functional or utilitarian website attributes or website functionalities fade away quickly as they can be easily replicated by competitors while trust-based bonds will not.

Marketing actions aimed at enhancing trust may affect relational behaviors through different routes, depending on whether these actions improve consumers' beliefs about the firm's integrity, benevolence or competence. For example, after facing accusations that it was violating users' privacy in the pursuit of profit, Facebook backpedalled in 2010 and changed its policy that now allows users to manage themselves their information privacy. Despite these improvements, Facebook's invasive policies left users with mistrust and reluctance. As this example suggests, Facebook suffers more from possible lack of integrity and benevolence than from competence,

and should make corrections accordingly. Detailed insights into how the three dimensions of trust drive user behavior can help marketers at Facebook to define key performance indicators along which they may fine-tune their marketing actions. We therefore recommend that online marketers identify how actions directed at improving trust in general do affect the single dimensions of trust to improve their understanding of the perceptual and behavioral consequences of these actions.

In particular we recommend that companies implement online trust monitoring programs in order to improve their understanding of how trust is built and how changes in trust affect critical downstream variables. Developing and running an online trust monitoring program requires assigning responsibilities for program implementation, but more importantly, it requires continuous tracking of trust and the ability to act upon the results. Presumably, one step to ensuring the effectiveness of an online trust monitoring program is to provide answers to the following three simple questions. First, "*Why are we caring for consumers' online trust?*" Companies need to clarify the objectives of a trust monitoring program and be able to explain how consumer trust may affect firm performance. Second, "*What are we measuring and how?*" Companies need to define the trust measurement instruments and that of relevant key performance indicators such as consumers' relationship intentions, loyalty intentions, share-of-wallet or price acceptance. The conceptual model proposed in this research and related measures may guide firms to answer

these first two questions effectively. Third, companies also must also clarify “*How do our actions affect consumer trust?*” Obviously, answers to this question require trust assessments to be completed and the results will presumably vary from one company to another. Accordingly, the present study’s results suggest that a firm’s actions may be aimed at enhancing some of the three dimensions of trust as we exemplify next.

Higher levels of *integrity* may be achieved when a company signals its corporate social responsibility (‘being a good corporate citizen’) and behaves consistently. For example, Patagonia launched the “1% For The Planet Program” ([www.onepercentfortheplanet.org](http://www.onepercentfortheplanet.org)) and emphasizes its concern for environmental issues. The website states that Patagonia devotes 1% of their sales to the preservation and restoration of the natural environment. Such engagements suggest high levels of integrity which may increase consumers’ relationship intentions independently from utilitarian website assessments.

To increase perceptions of *benevolence*, online firms should underline their genuine interest in consumers. For example, many online retailers now inform their customers about dispatch and delivery statuses. Even if a delivery takes longer than expected, these companies show benevolence to act in the shopper’s best interest. Higher levels of benevolence may also be achieved through relationship programs that create joint gains (e.g. rewarding customers for their loyalty) or through the provision of timely information about purchase-relevant issues,

which likely improves benevolence for functional and affective reasons.

Finally ensuring *competence*-based trust is important because companies’ abilities to provide a smooth technical environment and security mechanism enable to meet commitments (Sirdeshmukh *et al.*, 2002). Flavian and Guinalíu (2006) argue that online vendors should highlight competencies for completing transactions, because the success of their business depends not only on integrity and benevolence, but also on the ability or competence to ensure that these intentions materialize. Competence may be displayed through up-to-date website functionalities, website efficiency, efficient search facilities, and relevant product information. These aspects are functional in nature and may enhance relationships intentions when they are perceived as useful (PEOU).

### 4.3. Limitations and further research propositions

We recognize several limitations to this study which also offer avenues for future research. First, our conceptual model is theory based and not informed by qualitative fieldwork. We essentially drew on Gefen *et al.*’s (2003) model of structural relationships between trust and technological website acceptance, which arguably serves as a reliable and theoretically sound framework. However, given that our empirical study relies on consumers’ perceptions and cross-sectional data, we cannot empirically confirm the theoretically postulated cause-and-effect relationships. Future studies should manipulate PEOU and PU ex-

perimentally for possible confirmation. Additional insights about cause-and-effect relationships may be gained from qualitative interviews with online consumers and website managers. Furthermore, our model considers only one outcome variable, relationship intentions. Future studies may contrast the present study's findings with short-term indicators of firm performance, such as consumers' immediate purchasing intentions, their price acceptance or actual purchasing behavior.

Relationship intentions may be affected by consumers' past experiences with a website, but also by the experiences or the relationships they have with competitors. Despite our control for the former by excluding respondents who had already purchased on the site they evaluated, we did not control for the latter. An interesting question for future research is to explore whether consumers who are highly loyal to one supplier tend to switch more easily to another supplier for reasons related to technological website acceptance, or for reasons that are grounded in their feelings of trust.

Student samples are well-suited to study relationships between theoretical constructs (Lynch, 1999), and they are particularly appropriate to study online purchasing given that most students are highly experienced Internet users (Danaher and Mullarkey, 2003). Nonetheless, we recognize that student data might result in artificially high correlations between the dimensions of trust and technology acceptance constructs (cf., Wu *et al.* 2011). We therefore recommend that future studies validate the present study's findings for other consumer populations.

We also presume that individual factors such as gender, age or the level of online shopping experience shape some of the relationships investigated in the present study (cf., King and He, 2006). In addition, the results may differ across categories, particularly when functional and relational goals have different significance. For example, online consumers may evaluate search engines mainly based on their functional or utilitarian qualities, whereas emotional assessments may be more important for fashion websites or online games. Thus some of the postulated relationships between the dimensions of trust and technology acceptance and in turn with relationship intentions may be moderated by the website category, as well as by individual consumer characteristics. Presumably, some boundary conditions may not be detected when trust is conceptualized as one-dimensional but become visible only for single dimensions of trust, which points to fruitful areas for future research.

Finally, in agreement with research integrating trust with technology acceptance models, we studied the dimensions of trust only in relation to PEOU and PU. Future studies should extend the model considering other relevant technology acceptance constructs, in particular social influence and facilitating conditions as suggested by the UTAUT model.

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## APPENDIXES

### APPENDIX A: INVESTIGATED WEBSITES

<http://www.ubaldi.com/>  
<http://www.mistergooddeal.com>  
<http://www.lamaisondevalerie.fr/>  
<http://www.cdiscount.com>  
<http://www.numeriworld.com>  
<http://www.priceminister.com/cart>  
<http://www.pixmania.fr>  
<http://www.misco.fr>

### APPENDIX B: – CONSTRUCTS AND MEASUREMENTS

Construct and Measures	Source
<p><b>Perceived Ease of Use</b>            This website is easy to use.            It is easy to interact with this website.            It is easy to find information I need in this website.            It is easy to become skillful at using this website.<sup>a</sup></p> <p><b>Perceived Usefulness</b>            This website is useful for searching product and purchase information.            This website enhances my effectiveness in searching for product and purchase information.            Overall, I find this retailer's website useful.            I think the retailer's website is valuable to me.<sup>a</sup></p>	Gefen & Straub (2003)
<p><b>Integrity Beliefs</b>            This company appears to try hard to be fair in dealings with others.            This company appears to be honest with its customers.            Sound principles appear to guide this company's behavior.            This company would keep its commitments.<sup>a</sup></p> <p><b>Benevolence Beliefs</b>            This company seems to really look out for what is important to me.            This company appears to go out of its way to help me.            My needs and desires appear to be important to this company.            This company would act in my best interest.<sup>a</sup></p> <p><b>Competence Beliefs</b>            This company is very capable of performing online transactions.            I feel very confident about this company's online skills.            This company appears to be very competent in the area of e-commerce.            This company performs its role as an online retailer very well.<sup>a</sup></p>	McKnight <i>et al.</i> (2002)
<p><b>Relationship Intentions</b>            I would like to build a positive long-term relationship with this company.            I would like to purchase from this retailer the next time I shop online with similar needs.            I would agree to fill a online questionnaire to provide the company with feedback.            I would like to register for a newsletter at this website<sup>a</sup></p>	Kumar <i>et al.</i> (2003); Wang & Head (2007)

<sup>a</sup>Item dropped during the scale purification process.