
MGI

MESTRADO

Gestão de Informação

Master in Information Management

EMPIRICALLY TESTING THE DIMENSIONS OF CONSUMER TRUST IN E-COMMERCE

Matilde Maia Alhinho

Dissertation submitted as partial requirement for the
degree of Master of Information Management,
Specialization in Marketing Intelligence

Instituto Superior de Estatística e Gestão de Informação
Universidade Nova de Lisboa

EMPIRICALLY TESTING THE DIMENSIONS OF CONSUMER TRUST IN E-COMMERCE

by

Matilde Maia Alinho

Dissertation submitted as partial requirement for the degree of Master of Information Management, Specialization in Marketing Intelligence

Dissertation Advisor: Professor Doutor Tiago Oliveira

Acknowledgements

Every accomplishment in life is only completed when analysed in order to take conscious of the benefits and improvements from that situation.

As so, I would like to use this opportunity to appreciate all the encouragement and patience of my advisor, Professor Tiago Oliveira, who was an excellent mentor during the process of this research.

To the staff and students from ISEGI, I am thankful for all the availability, not only while I was doing my thesis but through the entire master degree.

I appreciate Unilever Jerónimo Martins for allowing me to complete the thesis while working with fantastic colleagues.

Finally, but not least, I am very grateful to my wonderful parents and my amazing brother for supporting me in this journey and in all the other challenges in my life, they are a source of inspiration and strength.

Teste empírico às dimensões da confiança do consumidor no Comércio Electrónico

Resumo

Existem inúmeras contribuições de literatura relacionadas com confiança e comércio electrónico, nos campos de marketing e gestão. A confiança é percebida como uma questão que diz respeito à intenção de compra dos consumidores. Assim, nesta pesquisa é testado empiricamente um modelo de forma a desenvolver soluções para os vendedores na internet lidarem com os consumidores e aumentarem a confiança destes. Este modelo mede como é que as dimensões da confiança, nomeadamente competência, integridade e benevolência influenciam positivamente a confiança geral dos consumidores e, ao mesmo tempo, como é que as fontes de confiança – características do consumidor, características da empresa, infraestrutura do website e interações influenciam as dimensões. Os dados usados para testar o modelo foram recolhidos em Portugal, entre 365 casos válidos. Os resultados revelaram que consumidores com alto nível de confiança no geral são mais propícios a terem intenção de comprar online.

Palavras-chave: Comércio electrónico, Confiança, Competência, Integridade, Benevolência

Empirically testing the Dimensions of Consumer Trust in E-Commerce

Abstract

In the fields of marketing and general management, many are the contributions of literature relating trust and e-commerce. Trust is perceived as an issue that concerns the consumers' intention to purchase. As so, in this research, a path model is empirically tested in order to develop solutions for Internet vendors on how to deal with consumers and increase their trust. The path model measures how the dimensions of trust, named as competence, integrity and benevolence positively influence the overall trust of the consumers and at the same time how the sources of trust – consumer characteristics, firm characteristics, website infrastructure and interactions influence those dimensions. The data used to test the model was collected in Portugal, through 365 valid cases. Findings revealed that consumers, which have high level of overall trust, are more likely to intent to purchase online.

Keywords: E-commerce, Trust, Competence, Integrity, Benevolence

CONTENT INDEX

Acknowledgements.....	iv
Resumo	v
Abstract.....	vi
CONTENT INDEX.....	vii
FIGURE INDEX	viii
TABLE INDEX.....	ix
1. INTRODUCTION	1
2. LITERATURE REVIEW & RESEARCH MODEL.....	2
2.1. Literature review.....	2
2.2. Research model	5
2.2.1. Sources of Consumer Trust.....	6
Consumer Characteristics.....	6
Firm Characteristics	6
Website Infrastructure	7
Interaction.....	7
2.2.2. Dimensions of Trust.....	8
2.2.3. Overall Trust.....	8
3. Methods	9
3.1. Measurement instruments.....	9
3.2. Data Collection.....	9
4. Data Analysis and Results	10
4.1. Measurement model.....	11
4.2. Structural model	14
5. Discussion.....	16
5.1. Theoretical implications	16
5.2. Managerial contributions	18
5.3. Limitations and further research	19
6. Conclusion	20
APPENDIX A - Table with constructs.....	24
APPENDIX B - Table with loadings and cross loadings	26

FIGURE INDEX

Figure 1. Research Model	5
---------------------------------------	----------

TABLE INDEX

Table 1. Literature Review	4
Table 2 Factor loading, composite reliabilities, cronbach alpha and average variance extracted	12
Table 3 Square root of AVE and correlations between constructs.....	13
Table 4. Parameters estimates, Hypotheses, Beta values, T-Values and R2.....	15
Table 5. Hypotheses conclusions	17

LIST OF ABBREVIATIONS

ATOS	Attitude Towards Online Shopping
AVE	Average Variance Extracted
B	Benevolence
BR	Brand Recognition
C	Competence
CA	Cronbach alpha
CC	Consumer Characteristics
CR	Composite Reliabilities
CS	Customer Satisfaction
EDT	Expectation Disconfirmation Theory
FC	Firm Characteristics
I	Integrity
INT	Interactions
IP	Intention to Purchase
L	Likability
LIPS	Lack of Integrity, Privacy and Security
OT	Overall Trust
REP	Reputation
SOR	Stimulus Organism Response
SQ	Service Quality
TAM	Theory Acceptance Model
TBM	Trust Building Model
TPB	Theory of Planned Behaviour
TRA	Theory Reasoned Action
TS	Trust Stance

1. INTRODUCTION

E-commerce transactions are the sales of products and services over the Internet which in the past years have been growing tremendously. However, E-commerce is still a relatively new concept to most people and since trust increases with familiarity, it is important to find ways to encourage consumers to continuously use e-commerce (Jones & Leonard, 2008). A recent Eurostat study reveals that in 2013, 38% of the European Union population (individuals aged 16 to 74 of 28 countries) have ordered or bought goods or services for private use over the Internet. However there are large discrepancies among these 28 countries (OECD, 2013), whilst Germany 60% of the population (with the same characteristics) purchases online and in Sweden 57%, in Portugal the figure stands at 15%. Electronic commerce typically lacks human warmth (Hassanein & Head, 2007) and lack of trust is one of the most frequently cited reasons for consumers not to purchase from Internet vendors (Grabner-Krauter & Kaluscha, 2003). Thus a question arises: Does overall trust significantly influence consumers' intention to purchase online? With this in mind, the present study objective is to focus on the Portuguese scenario and consumers regarding their trust and intent to purchase online. The two main advantages of choosing Portugal and its consumers is the lack of existing literature regarding e-commerce in Portugal and also the big potential on improvement and increasing the Portuguese online market, as the number of internet users, online buyers, average of money spent per purchase and the e-commerce business volume are growing since 2009 and are predicted to continue at least until 2017 (IDC & ACEPI, 2013; Netsonda & ACEPI, 2014).

Chen and Dhillon (2003) presented a conceptual model for instituting consumer trust in internet vendors, which establishes a conceptual basis for undertaking empirical work on consumer trust in e-commerce. However, more than 10 years later, no one has tried to study empirically this conceptual model. Behind this model there are three trust dimensions – Competence, Integrity and Benevolence; and there are four sources of trust: consumer characteristics, firm characteristics, website infrastructure and interactions that represent the dimensions of consumer trust in an Internet vendor. Recent studies empirically tested some of those sources of trust and trust dimensions but in all those researches the focus was always based in only one dimension or in a pair of sources. The uniqueness of this study stands from the empirical test combining all the trust dimensions and sources of trust of the path model together.

The outcome of this research will reveal an evaluative framework to measure the dimensions of consumer trust in e-commerce. It can be applied in further specific researches with

focus on different natures such as geographical regions, certain products or services and industries or markets. Consequently, by pinpointing a guiding framework, this research can be used to develop measures that ensure consumer trust in e-commerce.

This thesis is organized in seven chapters. Starting with this Introduction, the following chapter is the theoretical background, which includes the literature review that support the definition of the hypotheses presented in section 3. The methods are established in section 4, followed by the data analysis and the results discussed in section 5 and finally a conclusion is presented.

2. LITERATURE REVIEW & RESEARCH MODEL

2.1. Literature review

In the field of consumer behaviour, for many years, a vast number of studies have been made developing intention based theories. Oliver (1980) proposed a model – The expectation and disconfirmation theory (EDT), which expresses consumer satisfaction as a function of expectation and expectancy disconfirmation. Satisfaction, in turn, is believed to influence attitude change and purchase intention (Oliver, 1980). From Ajzen & Fishbein (1980) the theory of reasoned action (TRA) was created, which claims that individual's performance are determined by his or her behavioural intentions, which in turn, is determined by the individual's attitude and subjective norms. Building up on TRA, Davis (1985) developed the technology acceptance model (TAM) to explain acceptance of information systems. Empirical studies of TAM have shown that user's attitude towards using an information system impacts actual usage of the system (Hassanein & Head, 2007). Another evolution of the TRA is the theory of planned behaviour (TPB) from I. Ajzen (1991), which focuses on cases where users do not have complete control over the choice but are somehow conditioned by non-motivational factors related to the availability of certain requirements and resources. Just like its predecessor, the TPB considers intention as the best indicator of behaviour, since it captures the motivational factors that influence a behaviour; they are indicators of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform a behaviour (Icek Ajzen, 1991).

Recently, many empirical tests were made linking the above-referred theories with e-commerce and trust, as it is possible to see in Table 1. More precisely Grandón (2011), Palvia (2009), Shih (2004), Teo & Liu (2005), Vijayasarathy (2004) tested models that were grounded on

TRA, while TAM was the base for the researches of Hassanein & Head (2007), Lin (2007), Palvia (2009), Shih (2004), Vijayasathy (2004) and finally developing models of TPB were tested by Crespo & Bosque (2010), Gorge (2004), Grandón et al. (2011), Hsu et al. (2006), Lin (2007), Vijayasathy (Vijayasathy, 2004), Wang et al. (Wang, Chen, & Chang, 2007).

Forward in this section an extensive literature review is presented (summarized in table 1.) that was made in order to contextualize the sources of consumer trust (consumer and firm characteristics, website infrastructure and interactions), to explain in which manner this sources influence the dimensions of consumer trust: competence, integrity and benevolence of an Internet vendor, and finally to examine the existent empirical research on the dimensions and sources of consumer trust in E-Commerce.

Chen and Dhillon (2003) presented a path model combining the dimensions of consumer trust and the sources of trust in order to Internet vendors can built and win consumer trust to survive and realize financial success. The Theory of planned behaviour further proposes that intention to perform a behaviour is the proximal causal of such behaviour, that is, the degree of conscious effort that a person will exert in order to perform that behaviour (Chen & Dhillon, 2003).

Finally, as it is possible to see in table 1, it is reasonable to conclude that since no one has ever tested the path model of Chen and Dhillon (2003) there is a huge opportunity for doing so. Therefore, empirically testing the dimensions of consumer trust as they suggest is a big advancement in e-commerce literature and a major interest for internet vendors, and thus being the purpose of this research.

Table 1.**Literature Review**

Author	Models used	Dependent variable	Constructs															
			TS	ATOS	CC	REP	BR	FC	L	LIPS	SQ	CS	INT	C	I	B	OT	IP
(Dan J. Kim, 2008)	Trust-based consumer decision-making m.	Intention, Purchase								X							X	
(D. Harrison McKnight, 2002)	Trust building m.	Intention to Follow, Intention to Share Personal Information, Intention to Purchase				X				X	X						X	
(Kiku Jones, 2008)	-	C2C E-commerce trust	X				X		X									
(Palvia, 2009)	TAM; TRA	Trustworthiness of web vendor; Intention to Participate in Exchange Relationship with Web Vendor	X								X	X		X	X	X	X	X
(Gefen, 2000)	-	Purchase	X															
(Angel Herrero Crespo, 2010)	TPB	Intention		X														
(Carlos Flavián, 2006)	-	Trust							X			X						
(Ming-Shen Wang, 2007)	TPB	Behavioral Intention		X														
(George, 2004)	TPB	Internet purchasing	X	X		X												
(Lin, 2007)	TAM; TPB	Actual usage		X					X									X
(Kaouther Ben Mansour, 2014)	-	Purchase Intention				X				X	X				X	X		
(Meng-Hsiang Hsu, 2006)	EDT; TPB	Continuance Intention		X								X						
(Vijayarathy, 2004)	TAM; TPB; TRA	Intention		X					X	X								
(Ilyoo B. Hong, 2011)	-	Purchase Intention												X	X	X	X	
(Thompson S. H. Teo, 2005)	TRA	Willingness to buy			X			X									X	
(Regina Connolly, 2007)	-	Perceived Risk	X	X										X	X			
(Jiunn-Woei Lian, 2008)	-	Attitude towards Online Shopping								X								
(Elizabeth E. Grandón, 2011)	TPB; TRA	Intention		X														
(Shih, 2004)	TAM; TRA	User Acceptance		X					X			X						
(Yeung, 2010)	-	Purchase likelihood												X	X	X	X	
(Lin, 2007)	SOR	Purchase Intention	X				X		X	X								
(Norizan Kassim, 2010)	-	Customer Loyalty										X						
(Khaled Hassanein, 2007)	TAM	Attitude															X	
(Steve Muylle, 2004)		Website user satisfaction							X									
(Moshe Zviran, 2006)		User Satisfaction							X									
(Narasimha Paravastu, 2014)	EDT	Satisfaction	X								X	X						

Note: Trust stance (TS); Attitude towards online shopping (ATOS); Consumer characteristics (CC); Reputation (REP); Brand recognition (BR); Firm Characteristics (FC); Likability (L); Lack of integrity, privacy and security (LIPS); Service quality (SQ); Customer satisfaction (CS); Interactions (INT); Competence (C); Integrity (I); Benevolence (B); Overall trust (OT); Intention to purchase (IP)

2.2. Research model

The research model presented in Figure 1 has four sources of consumer trust: consumer characteristics; firm characteristics; website infrastructure – composed by lack of integrity, privacy, and security and likability; and interactions. Below in the model there are three constructs in bold as they are the second order. Consumer characteristics is a second order construct of attitude towards online shopping and trust stance; firm characteristics is a second order construct of reputation and brand recognition; and interactions is a second order construct of service quality and customer satisfactions. The sources of consumer trust influence the dimensions of consumer trust, which are: competence, integrity and benevolence of the internet vendor. These dimensions, in turn, influence the overall trust of a consumer, consequently impacting his intention to purchase online. Hypotheses were created for each source and dimension and there are explained forward in this chapter.

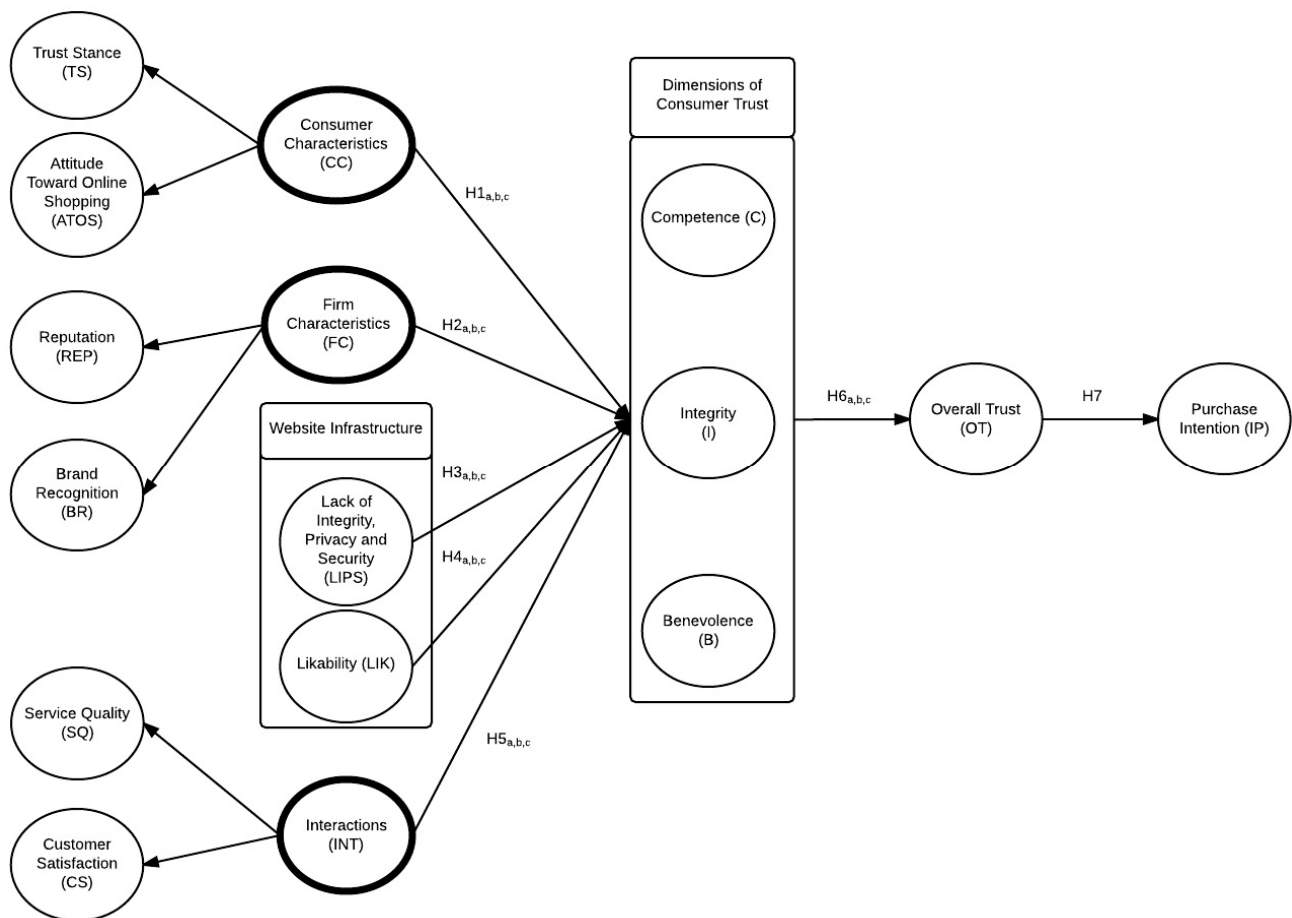


Figure 1. Research model

2.2.1. Sources of Consumer Trust

Consumer Characteristics

First disposition to trust is a general, i.e. not situation specific, inclination to display trusting stance toward others (Gefen, 2000). When explaining individual actions the following elements are considered: attitude towards online shopping - attitude is considered to result from individual beliefs regarding behaviour and its consequences and the importance these beliefs are given, thus consumer's attitudes towards e-commerce is influence by the degree to which they consider online shopping a good experience (Crespo & Bosque, 2010); and trust stance – as consumers are rational and are affected by their perception of trust in a vendor, they only share personal and sensitive information with a web vendor when they trust aspects of the site (Palvia, 2009). With this we postulate the hypotheses:

H1. *Consumer characteristic is a second order construct of trust stance and attitude towards online shopping. The consumer characteristics positively influence perception of competence (a), integrity (b), and benevolence (c) of an Internet vendor.*

Firm Characteristics

In digital storefronts, online transactions involve trust in one-to-one relationships (between a buyer and a seller). Trust is formed when the buyer has a belief that the transaction partner will behave with goodwill and in a favourable way, although the acceptance of trust involves taking certain risks (Hong & Cho, 2011). Different stakeholders may have different views and requirements of online trust (Shankar, Urban, & Sultan, 2002). In Internet shopping, the perceived reputation of a vendor has revealed to be significantly related to consumers' trust in the vendor (Teo & Liu, 2005). At the same time, consumers are exposed to realities created by the firm and may consciously or unconsciously select facts that are compatible with their configuration of attitudes and beliefs and these facts are retained and thereafter retrieved from memory to reconstruct an image when the firm is brought to mind, which reveals brand recognition (Nguyen & Leblanc, 2001). The hypotheses formulated to inquire the influence of firm characteristics on consumers' trust is:

H2. *Firm characteristics is a second order construct of reputation of an Internet vendor and brand recognition. The firm characteristics positively influence perception of competence (a), integrity (b), and benevolence (c) of an Internet vendor.*

Website Infrastructure

On one hand likability of the website involves the ease with which the user can learn to manage the system and memorise the basic functions, the efficiency of the site's design, the degree of error avoidance and the general satisfaction of the user (Flavián, Guinalau, & Gurrea, 2006). General usability of a website has an impact on the establishment of trust (Roy, Dewit, & Aubert, 2001) and if customers are satisfied with the website, their intention to purchase increases (M. K. Chang, Cheung, & Lai, 2005). Since websites serve as the interface to the e-commerce system, likability studies have largely addressed e-commerce website design with a particular focus on ease of use and user-friendliness, while information quality is a key feature influencing user satisfaction and loyalty towards e-commerce (Huang & Benyoucef, 2013). On the other hand, marketing researchers have stated that perceived risk affects purchasing behaviour, because for many people web browsing feels safe, however transacting on the Internet is a vast landmine where there is no integrity among the internet vendors and the web environment has no privacy or security, inviting them to disaster, this results in perceived risk, which means the extent to which a user believes it is unsafe to use the web or that negative consequences are possible, explaining that lack of integrity, privacy and security negatively affects consumer intentions to transact with a web-based vendor (McKnight, Choudhury, & Kacmar, 2002). As the website likability and the need for web security have different ways of affecting consumers' trust, website infrastructure have been divided into two different constructs and two different hypotheses were the formulated:

H3. *Likability of the website infrastructure positively influence perception of competence (a), integrity (b), and benevolence (c) of an Internet vendor.*

H4. *Lack of integrity, privacy and security of the website infrastructure negatively influence perception of competence (a), integrity (b), and benevolence (c) of an Internet vendor.*

Interaction

Participating in an e-commerce relationship results in some consumer dependence in the

web vendor for products and services and it is only through participation in an exchange relationship that customers gain experience, deriving value and satisfaction (Palvia, 2009). Those customer attitudes and interactions are strongly influenced by content quality (Huang & Benyoucef, 2013) and are the reason why satisfaction is an effective consumer condition that results from a global evaluation of all the aspects which make up consumer relationship (Flavián et al., 2006). Furthermore, intention to shop online is related to Internet shopping history and has a direct impact on consumer behaviour. Knowing how past experience affects purchasing behaviour is important given that previous e-commerce consumers behave differently from new consumers (Weisberg, Te'eni, & Arman, 2011). As so, the following hypotheses was defined:

H5. The interaction is a second order construct of service quality and customer satisfaction. The Interactions between the consumer and the firm positively influence perception of competence (a), integrity (b), and benevolence (c) of an Internet vendor.

2.2.2. Dimensions of Trust

Chen & Dhillon (2003) proposed in their research that competence, integrity and benevolence are dimensions of trust in an Internet vendor. Competence refers to companies ability to fulfil promises made to consumers. Integrity suggests that a company acts in a consistent, reliable and honest manner. Benevolence is the ability of a company to hold consumer interests ahead of their own self-interest and indicates sincere concern for the welfare of the customers. These three dimensions of trust vary independently, but are interrelated and jointly contribute to overall consumer trust (Chen & Dhillon, 2003). In order to inquire if a competent, integrate and benevolent are more likely to be trusted by the consumers, we hypothesized that:

H6. Perceived competence (a), integrity (c), and benevolence (c) of an Internet vendor positively influence overall trust of the consumer.

2.2.3. Overall Trust

Trust has been viewed through diverse disciplinary lenses and filters: economic, social/institutional, behavioural/psychological, managerial/organizational and technological (Kim, Ferrin, & Rao, 2008). However, the problem of having trust as a concept is that it still does not have a universal accepted definition and a unified way to estimate trust value (W.-L. Chang, Diaz,

& Hung, 2014). Although many have attempt to conceptual clarify trust (Grabner-Krauter & Kaluscha, 2003). When looking specifically at online trust is defined as ones attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited (Beldad, Jong, & Steehouder, 2010). For e-vendors, it is therefore critical to promote trust in order to transform a potential consumer from curious observer to one who is willing to transact over the site (McKnight et al., 2002) and does not dropout before confirming purchase (Chau, Hu, Lee, & Au, 2007). Based on the arguments above, we postulate the hypotheses:

***H7.** Overall trust in an Internet vendor positively influences the intention of the consumer to purchase online.*

3. Methods

3.1. Measurement instruments

The items for all the constructs are included in Appendix A and were collected from relevant literature, namely: attitude towards online shopping from Crespo & Bosque (2010); reputation from Teo & Liu (2005); brand recognition from Nguyen & Leblanc (2001), likability from Flavián et al. (2006); lack of integrity, privacy and security (LIPS) from McKnight et al. (2002); trust stance, service quality, customer satisfaction, competence, integrity, benevolence, overall trust, and intention to purchase from Palvia (2009). Based on the literature, the questionnaire was developed in English and displayed online at surveymonkey.com. Seven-point Likert scale was used to measure all the items, where 1 was strongly disagree and 7 strongly agree.

3.2. Data Collection

In September 2014, a pilot survey was conducted with 30 answers to gauge the structure and content before deciding the final items to analyse. The data from the pilot survey was included in the main survey and revealed that there was no need to add modifications to the initial pilot survey. In October 2014 the survey was shared through email, where a total of 548

answers were achieved and 365 were considered valid cases, i.e. complete answers, representing a complete response rate of 66%.

The sample was taken solely from people residing in Portugal. It is constituted of 365 individuals, 165 male (45%) and 200 female (55%). The average age is 29, being the youngest respondent 17 and the oldest 62. Despite the wide array of respondents in terms of age, the first quartile has a stronger concentration (from 17 to 27 years old) with 67% of the respondents. Regarding the maximum education level, we verify that 44% of the observations have a Master's degree (or equivalent level), 36% have a Bachelor's degree (or equivalent level) and 12% have an Upper Secondary Education level.

The results show 82% of the population has purchased online in the past 6 months wherein the higher the education degree the higher the percentage of respondents that made an e-purchase. Also noteworthy, women tend to be slightly more willing to purchase online wherein 84% of them have made a purchase over the internet in the past 6 months against 81% of men, although, in one hand, women may be more concerned about online issues like trust, security and confidentiality (Kolsaker & Payne, 2002) and, in other hand, usually women emphasized communication and functionality more than man (Murphy & Tocher, 2011).

4. Data Analysis and Results

In this study, a two-step method was used to test the model: firstly the measurement model and secondly the structural model. The partial least squares (PLS) was used, which is a structural equation model (SEM) technique. It tests and estimates causal relations using a combination of statistical data and qualitative assumptions. More precisely, PLS is a variance-based technique (the other family of techniques is co-variance-based). PLS was considered the most appropriated method for this study due to the early stage of theoretical development, to the path model in question has never been tested before and, simultaneously, it is considered a high complex research model. This method aims to statistically test and estimate causal relations using a combination of statistical data and qualitative causal assumptions (Henseler, Ringle, & Sinkovics, 2009). The software used for applying the method was PLS Smart 2.0 Software (Ringle, Wende, & Will, 2005).

4.1. Measurement model

Table 2 has the loadings, composite reliability, alpha and average variance extracted for all the measured items. As PLS prioritizes indicators due to their individual reliability, it was necessary to measure internal consistency by verifying if all the constructs are above 0.7, in Cronbach's alpha (CA) - based on each indicator intercorrelations (assuming that all are equally reliable); and in Composite Reliability (CR) - based on the quantification of internal consistency and reliability of each construct (assuming that the indicators have different loadings). For indicator reliability it is important that factor loadings are statistically significant and greater than 0.7. Here all the items were retained except for item I1, which it was eliminated due to its low loading. In order for latent variables to explain more than half of the indicators, is important that average variance extracted (AVE) should be above 0.5, guaranteeing convergent validity (Table 2).

For discriminant validity we verified that all loadings (in bolt) had higher values than their cross loadings (see Appendix B), this is an important criterion for accessing discriminant validity. The other criteria was that the square root of AVE which needs to be greater than the correlations between the constructs, which can be seen in Table 3 (Henseler et al., 2009). The unique exceptions, as expected, are for second order constructs, which are in Table 3 in grey. We can conclude that the instrument present discriminant validity.

Table 2

Factor loading, composite reliabilities, cronbach alpha and average variance extracted (n=365)

Constructs	Loadings	CR	CA	AVE	Constructs	Loadings	CR	CA	AVE
Trust Stance		0.923	0.874	0.799	Customer Satisfaction		0.976	0.963	0.932
TS1	0.900				CS1	0.964			
TS2	0.903				CS2	0.968			
TS3	0.878				CS3	0.964			
Attitude Toward Online Shopping		0.968	0.956	0.884	Competence		0.966	0.930	0.935
ATOS1	0.929				C1	0.967			
ATOS2	0.909				C2	0.967			
ATOS3	0.968				Integrity		0.963	0.953	0.811
ATOS4	0.953				I2	0.928			
Reputation		0.901	0.835	0.752	I3	0.935			
Rep1	0.842				I4	0.854			
Rep2	0.896				I5	0.943			
Rep3	0.862				I6	0.898			
Brand Recognition		0.923	0.875	0.800	I7	0.840			
BR1	0.907				Benevolence		0.915	0.814	0.843
BR2	0.904				B1	0.914			
BR3	0.872				B2	0.923			
Likability		0.968	0.961	0.812	Overall Trust		0.950	0.928	0.825
L1	0.904				OT1	0.885			
L2	0.921				OT2	0.954			
L3	0.919				OT3	0.950			
L4	0.935				OT4	0.839			
L5	0.914				Intention to Purchase		0.899	0.863	0.642
L6	0.911				IP1	0.857			
L7	0.797				IP2	0.862			
Lack of integrity, Privacy and Security		0.931	0.913	0.694	IP3	0.754			
LIPS1	0.843				IP4	0.747			
LIPS2	0.886				IP5	0.779			
LIPS3	0.840								
LIPS4	0.830								
LIPS5	0.833								
LIPS6	0.763								
Service Quality		0.940	0.915	0.797					
SQ1	0.863								
SQ2	0.916								
SQ3	0.897								
SQ4	0.895								

Note: Trust stance (TS); Attitude towards online shopping (ATOS); Consumer characteristics (CC); Reputation (REP), Brand recognition (BR); Firm Characteristics (FC); Likability (L); Lack of integrity, privacy and security (LIPS); Service quality (SQ); Customer satisfaction (CS); Interactions (INT); Competence (C); Integrity (I); Benevolence (B); Overall trust (OT); Intention to purchase (IP)

Table 3

Square root of AVE and correlations between constructs

	TS	ATOS	CC	REP	BR	FC	L	LIPS	SQ	CS	INT	C	I	B	OT	IP
TS	0.894															
ATOS	0.606	0.940														
CC	0.860	0.927	0.829													
REP	0.595	0.501	0.603	0.867												
BR	0.690	0.599	0.710	0.747	0.894											
FC	0.691	0.592	0.706	0.926	0.943	0.823										
L	0.691	0.503	0.649	0.555	0.679	0.664	0.901									
LIPS	-0.130	-0.09	-0.119	-0.071	-0.063	-0.071	-0.078	0.833								
SQ	0.654	0.57	0.675	0.592	0.722	0.707	0.706	-0.047	0.893							
CS	0.677	0.582	0.693	0.649	0.799	0.780	0.727	-0.057	0.834	0.965						
INT	0.695	0.601	0.714	0.647	0.793	0.775	0.748	-0.054	0.961	0.954	0.885					
C	0.695	0.598	0.711	0.634	0.708	0.721	0.587	-0.129	0.619	0.717	0.696	0.967				
I	0.692	0.572	0.694	0.639	0.762	0.753	0.665	-0.139	0.654	0.755	0.734	0.763	0.918			
B	0.588	0.410	0.540	0.558	0.602	0.622	0.583	-0.087	0.564	0.603	0.608	0.521	0.690	0.901		
OT	0.693	0.576	0.696	0.630	0.713	0.722	0.647	-0.125	0.651	0.731	0.720	0.815	0.793	0.620	0.908	
IP	0.651	0.555	0.663	0.560	0.623	0.635	0.591	-0.112	0.601	0.630	0.643	0.711	0.707	0.572	0.759	0.801

Note: Trust stance (TS); Attitude towards online shopping (ATOS); Consumer characteristics (CC); Reputation (REP), Brand recognition (BR); Firm Characteristics (FC); Likability (L); Lack of integrity, privacy and security (LIPS); Service quality (SQ); Customer satisfaction (CS); Interactions (INT); Competence (C); Integrity (I); Benevolence (B); Overall trust (OT); Intention to purchase (IP)

As the results indicate the measure model verifies all of these requisites, which can be confirmed in tables 2 and 3. It is now possible to state that the measure model has good internal consistency, indicator reliability, convergent validity and discriminant validity, and all the constructs are usable to test the structural model as they are all statistically distinct.

4.2. Structural model

A bootstrapping with 500 resamples was used to estimate the path significance levels based on t-statistic values to test the research model, the results are presented in Table 4. The research model explains 61.8% of variation in competence. The hypotheses of consumers characteristics ($\hat{\beta} = 0.328$; $p < 0.01$), firm characteristics ($\hat{\beta} = 0.326$; $p < 0.01$), lack of Integrity, privacy and security ($\hat{\beta} = -0.056$; $p < 0.10$), and interactions ($\hat{\beta} = 0.207$; $p < 0.05$) are statistical significant to explain competence. Thus hypotheses H1a, H2a, H4a, and H5a are supported. Only hypothesis H3a, i.e. likability ($\hat{\beta} = -0.001$; $p > 0.10$), is not supported to explain competence.

66.0% of variation in integrity is explained in the research model. The hypotheses of consumers characteristics ($\hat{\beta} = 0.192$; $p < 0.01$), firm characteristics ($\hat{\beta} = 0.354$; $p < 0.01$), likability ($\hat{\beta} = 0.140$; $p < 0.05$), lack of integrity, privacy and security ($\hat{\beta} = -0.068$; $p < 0.05$), and interactions ($\hat{\beta} = 0.214$; $p < 0.01$) are statistical significant to explain competence. Consequently all the hypotheses H1b, H2b, H3b, H4b, and H5b are supported to explain integrity.

This research model explains 45.2% of variation in benevolence. The hypotheses of firm characteristics ($\hat{\beta} = 0.304$; $p < 0.01$), likability ($\hat{\beta} = 0.213$; $p > 0.05$) and interactions ($\hat{\beta} = 0.165$; $p < 0.1$) are statistical significant to explain competence. As so, hypotheses H2c, H3c and H5b are supported. While both hypothesis H1c and H4c, i.e. consumer characteristics (0.066 ; $p > 0.10$) and lack of integrity, privacy and security ($\hat{\beta} = -0.032$; $p > 0.10$), are not supported to explain benevolence.

74.5% of variation in overall trust is explained in this research model. The hypotheses of competence ($\hat{\beta} = 0.504$; $p < 0.01$), integrity ($\hat{\beta} = 0.308$; $p < 0.01$) and benevolence ($\hat{\beta} = 0.145$; $p < 0.01$) are statistical significant to explain overall trust, where H6a, H6b, H6c are supported, which is a satisfactory result as it means that competence, integrity and benevolence of a vendor explain almost 3/4 of consumer trust.

Finally, the model explains 57.5% of variance in intention to purchase. The hypotheses of

overall trust ($\hat{\beta} = 0.759$; $p < 0.01$) is statistical significant to explain intention to purchase, thus H7 is also supported.

This means that in 19 hypotheses presented in the model, 16 hypotheses are supported and only 3 are not, yielding a 84% acceptance rate.

Table 4

Parameters estimates, Hypotheses, Beta values, T-Values and R^2

Independent constructs	Hypothesis(supported)	Beta	T-Statistics	R^2
Competence				61.8%
Consumers Characteristics	H1a(✓)	0.328	5.440***	
Firm Characteristics	H2a(✓)	0.326	5.810***	
Likability	H3a(X)	-0.001	0.013	
Lack of Integrity, Privacy and Security	H4a(✓)	-0.056	1.820*	
Interactions	H5a(✓)	0.207	2.325**	
Integrity				66.0%
Consumers Characteristics	H1b(✓)	0.192	3.621***	
Firm Characteristics	H2b(✓)	0.354	5.984***	
Likability	H3b(✓)	0.140	2.142**	
Lack of Integrity, Privacy and Security	H4b(✓)	-0.068	2.171**	
Interactions	H5b(✓)	0.214	2.854***	
Benevolence				45.2%
Consumers Characteristics	H1c(X)	0.066	1.061	
Firm Characteristics	H2c(✓)	0.304	4.000***	
Likability	H3c(✓)	0.213	2.655**	
Lack of Integrity, Privacy and Security	H4c(X)	-0.032	0.737	
Interactions	H5c(✓)	0.165	1.851*	
Overall Trust				74.5%
Competence	H6a(✓)	0.504	7.868***	
Integrity	H6b(✓)	0.308	4.319***	
Benevolence	H6c(✓)	0.145	3.519***	
Intention to Purchase				57.5%
Overall Trust	H7(✓)	0.759	20.220***	
Second order constructs	First order constructs	Beta	T-Statistics	R^2
Consumer Characteristics	Trust Stance	0.860	51.179***	74.0%
	ATOS	0.927	99.654***	85.9%
Firm Characteristics	Reputation	0.926	77.433***	85.7%
	Brand Recognition	0.943	130.739***	88.9%
Interactions	Service quality	0.961	159.066***	92.3%
	Customer Satisfaction	0.954	185.335***	91.1%

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Relatively to the second order constructs the findings were that consumer characteristics is statistical significant to explain 74% of variance in trust stance (0.860; $p < 0.01$) and 85.9% of variation in attitude towards online shopping (0.927; $p < 0.01$); firm characteristics is statistically

significant to explain 85.7% of variance in reputation (0.926; $p < 0.01$) and 88.9% of variance in brand recognition (0.943; $p < 0.01$); and interactions is statistically significant to explain 92.3% of variance in service quality (0.961; $p < 0.01$) and 91.1% of variance in customer satisfaction (0.954; $p < 0.01$).

5. Discussion

5.1. Theoretical implications

The primary contribution and strength of this research lies on the path model which combines the sources and dimensions of trust in order to the explain overall trust on consumer's intention to purchase online.

Previous studies like Gefen (2000) identified that primarily people's disposition to trust affects their trust in the vendor and McKnight et al. (2002) postulate that structural assurance, perceived web vendor reputation and website quality are powerful levers that vendors can use to build consumer trust. A study on the effect of trust and risk in consumers' electronic commerce purchasing decisions Kim et al. (2008) found that consumer disposition to trust, reputation, privacy concerns, security concerns, information quality of the website and company reputation have strong effect on consumers' trust in the website. At the same moment, Chang (2008) measured the importance of web site brand and website quality on influencing purchase intention. Lately in his research Crespo & Bosque (2010) conclude that attitude towards e-commerce, subjective norm and perceived risk are the main factors that affect the decision to purchase from electronic retailers, thus confirming that greater usability and website satisfaction increases consumers' trust and loyalty (Flavián et al., 2006) and that website quality and third party institutions improve consumers' trust (Jones & Leonard, 2008).

Consistent with the above referenced studies, the results show, that consumer characteristics is explained by trust stance in 74.0% and attitude towards online shopping in 85.9% (Flavián et al., 2006; Palvia, 2009). Firm characteristics is explained by reputation in 85.7% (Teo & Liu, 2005) and by brand recognition in 88.9% (Nguyen & Leblanc, 2001) Website infrastructure is formed by likability (Flavián et al., 2006) and lack of integrity, privacy and security (McKnight et al., 2002). Interactions is explained by service quality, 92.3% and consumer satisfaction, 91.1% (Palvia, 2009). As expected, the sources of trust ($H1_{a,b,,}$, $H2_{a,b,c,}$, $H3_{b,c,}$, $H4_{a,b}$ and $H5_{a,b,c}$) explain the

dimensions of consumer trust in competence in 61.8%, integrity in 66.0% and benevolence in 45.2%. Interestingly, in the literature review there were no indications that consumer characteristics and lack of integrity, privacy and security, influenced benevolence (H1_c and H4_c). In addition, there were also no indications that likability influenced competence (H3_a). Theoretically, the results achieved suggest that overall trust is explained in 74.5% by competence, benevolence and integrity (H6_{a,b,c}). The overall trust explains 57.5% of online purchase intention (H7), according to Palvia (2009) previous study which concluded that firms need to develop and nurture consumer trust by addressing its specific components (competence, benevolence and integrity), so the customer engage in a transaction and create a long-term relationships. Table 4 summarizes the results demonstrated above in this section with a hypotheses conclusion analyses:

Table 5
Hypotheses conclusions

Hypotheses	Independent Variables	Dependent Variables	Findings	Conclusion
H1a	Consumer Characteristics	Competence	Positive and statistically significant ($\hat{\beta}=0,328$; $p<0,001$)	Supported
H1b		Integrity	Positive and statistically significant ($\hat{\beta}=0,192$; $p<0,001$)	Supported
H1c		Benevolence	Non-significant effect ($\hat{\beta}=0,066$; $p>0,1$)	Not Supported
H2a	Firm Characteristics	Competence	Positive and statistically significant ($\hat{\beta}=0,326$; $p<0,001$)	Supported
H2b		Integrity	Positive and statistically significant ($\hat{\beta}=0,354$; $p<0,001$)	Supported
H2c		Benevolence	Positive and statistically significant ($\hat{\beta}=0,304$; $p<0,001$)	Supported
H3a	Likability	Competence	Non-significant effect ($\hat{\beta}=-0,001$; $p>0,1$)	Not Supported
H3b		Integrity	Positive and statistically significant ($\hat{\beta}=0,140$; $p<0,05$)	Supported
H3c		Benevolence	Positive and statistically significant ($\hat{\beta}=0,213$; $p<0,05$)	Supported
H4a	Lack of Integrity Privacy, Security,	Competence	Negative and statistically significant ($\hat{\beta}=-0,056$; $p<0,1$)	Supported
H4b		Integrity	Negative and statistically significant ($\hat{\beta}=-0,068$; $p<0,05$)	Supported
H4c		Benevolence	Non-significant effect ($\hat{\beta}=-0,032$; $p>0,1$)	Not Supported
H5a	Interactions	Competence	Positive and statistically significant ($\hat{\beta}=0,207$; $p<0,05$)	Supported
H5b		Integrity	Positive and statistically significant ($\hat{\beta}=0,214$; $p<0,001$)	Supported

H5c		Benevolence	Positive and statistically significant ($\beta=0,165$; $p<0,1$)	Supported
H6a	Competence		Positive and statistically significant ($\beta=0,504$; $p<0,001$)	Supported
H6b	Integrity	Overall Trust	Positive and statistically significant ($\beta=0,308$; $p<0,001$)	Supported
H6c	Benevolence		Positive and statistically significant ($\beta=0,145$; $p<0,001$)	Supported
H7	Overall Trust	Purchase Intention	Positive and statistically significant ($\beta=0,759$; $p<0,001$)	Supported

5.2. Managerial contributions

Studies on the different approaches to implement e-business are emerging (Torres, Gomes, & Yasin, 2014) and based in this study Internet vendors should consider the following aspects on their way of doing business. The overall trust that a consumer has on an Internet vendor depends on the trustworthiness of the vendors, if they are reliable and consumers like to trust them, this will significantly influence their intention to purchase online. As transactions through the internet develop and mature, success will largely be dependent on gaining and maintaining trust (Roy et al., 2001). This depends in one hand on the comfort that consumers feels when buying and seeking products from the Internet vendors, on receiving free products and information by the vendors and in the other hand in providing information to the vendor in order to develop a valuable relationship with him. In order to increase the overall trust of the consumers on their business, Internet vendors should relate to the consumers perceived competence, integrity and benevolence of them. Firstly, perceived competence is achieved when the consumer believes that the online vendor has the ability to handle sales transactions, gained from expertise on doing business. Secondly, there is perceived integrity when the consumer believes that the internet vendor is honest and acts sincerely, without overcharging during sales transactions and keeping its commitments by being genuine. Lastly, perceived benevolence happens when the consumer believes that the internet vendor acts in their best interest and in case of need the vendor would do his best to help.

As so, to improve this image and then increase online sales performance, Internet vendors should be aware that, although nowadays' consumers are becoming more receptive towards online shopping than before, it is important that the consumer enjoys visiting its website in order to develop trust stance. Having a good reputation in the market, by being honest and

consumer-oriented, helps create a good image in the consumers' eyes that need to believe that the Internet vendor will always fulfil their promises. This might result in the consumer encouraging their friends and relatives to do business with these internet vendors. A website infrastructure that is easy to understand, locate information and use from the first time could improve internet vendors performance (Janda, Trocchia, & Gwinner, 2002). I.e. is structured and organized in a way which gives consumers the feeling that they are in control while navigating on the website, along with the notion that it is safe to provide personal information, such as credit card details, facilitating the process of buying online and excluding the usual hesitation of the consumers. Finally, it is essential to increase the interactions with a quality service in which consumers can find significant value on shopping on an Internet vendor website with reduced effort and passes a worthwhile experience where the time spent feels reasonable whilst, simultaneously, is vital to guarantee that customers are satisfied with the vendor by feeling pleased that they did the right thing on making purchases from them.

5.3. Limitations and further research

During the study the limitations found were mainly concerned with the constructs that we wanted to measure because, although the amount of literature related with trust, e-commerce and purchase intention is vast, empirical data combining these three subjects were not easy to find. Then, whereas there was a suggestion on the survey for the respondents to consider only one Internet vendor while answering the questionnaire, this self-selection of the website could influence the results. This could originate from the fact that we do not know if the answers would differ if the answers were limited to only one industry sector (such as internet banking, travelling agencies or supermarkets), or if the study had consider the effect of companies size or business strategies

Relating to further research, this study represents a significant improvement in the literature. In future researches the path model could be adapted so demographic characteristics of the consumers would count to the results such as the geographic location. This study can also be used to carry out empirical researches in specific fields, for example the role of brands (Carlson & O'Cass, 2011) or multi-channel distribution (Agatz, Fleischmann, & Nunen, 2008). Further research can also consider the classification of the service or the product (Lee & Park, 2009), or the different e-shoppers typologies (Jaishankar Ganesh, 2010).

6. Conclusion

E-commerce and trust fields are both very rich in terms of literature, increasing everyday, mainly in an independent level and in very specific factor analyses. However, studying these two fields together, and considering all the dimensions and sources of consumer trust, has received limited effort which represented an opportunity for improvement. This study formulates and empirically tests a path model to explain how consumers' overall trust influences their online purchase intention. Based on a sample of 365 individuals from Portugal, the path model proposed is substantial in explanatory power and it is robust under several circumstances. The results from the research suggest that consumer characteristics (trust stance and attitude towards online shopping), firm characteristics (reputation and brand recognition), lack of integrity, privacy and security and likability (website infrastructure) and interactions (service quality and customer satisfaction), are the sources of trust that influence the dimensions of consumer trust: competence, integrity and benevolence; which explains that overall trust has a direct effect on intention to purchase online.

References

- Agatz, N. A. H., Fleischmann, M., & Nunen, J. A. E. E. v. (2008). E-fulfillment and multi-channel distribution - A review. *European Journal of Operational Research*, 187, 339-356.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. doi: doi:10.1016/0749-5978(91)90020-T
- Ajzen, I., & Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behavior. *Englewood Cliffs : Prentice-Hall*, 278.
- Beldad, A., Jong, M. d., & Steehouder, M. (2010). How shall I trust the faceless and the intangible? a literature review on the antecedents of online trust. *Computers in Human Behavior*, 26, 857-869.
- Carlson, J., & O'Cass, A. (2011). Managing web site performance taking account contingency role of branding in multi-channel retailing. *Journal of Consumer Marketing*, 28(7), 524-531.
- Chang, H. H., & Chen, S. W. (2008). The impact of online store environment cues on purchase intention - Trust and perceived risk as a mediator. *Online Information Review*, 32(6), 818-839.
- Chang, M. K., Cheung, W., & Lai, V. S. (2005). Literature derived reference models for the adoption of online shopping. *Information & Management*, 42, 543-559.
- Chang, W.-L., Diaz, A. N., & Hung, P. C. K. (2014). Estimating trust value: A social network perspective. *Springer Science+Media Mass New York 2014*. doi: 10.1007/s10796-014-9519-0
- Chau, P. Y. K., Hu, P. J. H., Lee, B. L. P., & Au, A. K. K. (2007). Examining customers' trust in online vendors and their dropout decisions: An empirical study. *Electronic Commerce Research and Applications*, 6, 171-182.
- Chen, S. C., & Dhillon, G. (2003). Interpreting Dimensions of Consumer Trust in E-Commerce. *Information Technology and Management*, 4, 303-318.
- Crespo, A. H., & Bosque, I. R. d. (2010). The influence of the comercial features of the Internet on the adoption of e-commerce by consumers. *Electronic Commerce Research and Applications*, 9, 562-575.
- Davis, F. D. (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results. *Doctoral dissertation, Massachusetts Institute of Technology*.
- Flavián, C., Guinalau, M., & Gurrea, R. (2006). The role played by perceived usability, satisfaction, and consumer trust on website loyalty. *Information & Management*, 43, 1-14.
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *The International Journal of Management Science*, 28, 725-737.
- George, J. F. (2004). The theory of planned behavior and Internet purchasing. *Internet Research*, 14, 198-212.
- Grabner-Krauter, S., & Kaluscha, E. A. (2003). Empirical research in online trust: a review and critical assessment. *International Journal of Human-Computer Studies*, 58, 783-812.
- Grandón, E. E., Nasco, S. A., & Jr., P. P. M. (2011). Comparing theories to explain e-commerce adoption. *Journal of Business Research*, 64, 292-298.
- Hassanein, K., & Head, M. (2007). Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping. *Int. J. Human-Computer Studies*, 65, 689-708.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). *The use of partial leaste squares path modeling in international marketing* (P. N. G. Rudolf R. Sinkovics Ed. New Challenges to

- International Marketing ed. Vol. 20). Advances in International Marketing: Emerald Group Publishing Limited,.
- Hong, I. B., & Cho, H. (2011). The impact of consumer trust on attitudinal loyalty and purchase intentions in B2C e-marketplaces: Intermediary trust vs. seller trust. *International Journal of Information Management*, 31, 469-479.
- Hsu, M.-H., Yen, C.-H., Chiu, C.-M., & Chang, C.-M. (2006). A longitudinal investigation of continued online shopping behavior: An extension of the theory of planned behavior. *Int. J. Human-Computer Studies*, 64, 889-904.
- Huang, Z., & Benyoucef, M. (2013). From e-commerce to social commerce: A close look at design features. *Electronic Commerce Research and Applications*, 12, 246-259.
- IDC, & ACEPI. (2013). Economia Digital em Portugal 2009-2017. <http://www.acepi.pt/>.
- Jaishankar Ganesh, K. E. R., Michael Luckett, Nadia Pomirleanu. (2010). Online Shopper Motivations, and e-Store Attributes: An Examination of Online Patronage Behavior and Shopper Typologies. *Journal of Retailing*, 86, 106-115.
- Janda, S., Trocchia, P. J., & Gwinner, K. P. (2002). Consumer perceptions of Internet retail service quality. *International Journal of Service Industry Management*, 13(5), 412-431.
- Jones, K., & Leonard, L. N. K. (2008). Trust in consumer-to-consumer electronic commerce. *Information & Management*, 45, 88-95.
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44, 544-564.
- Kolsaker, A., & Payne, C. (2002). Engendering trust in e-commerce: a study of gender-based concerns. *Marketing Intelligence & Planning*, 20(4), 206-214.
- Lee, S., & Park, Y. (2009). The classification and strategic management of services in e-commerce: Development of service taxonomy based on customer perception. *Expert Systems with Applications*, 36, 9618-9624.
- Lin, H.-F. (2007). Predicting consumer intentions to shop online: An empirical test of competing theories. *Electronic Commerce Research and Applications*, 6, 433-442.
- McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). The impact of initial consumer trust on intentions to transact with a web site: a trust building model. *Journal of Strategic Systems*, 11, 297-323.
- Murphy, G. B., & Tocher, N. (2011). Gender differences in the effectiveness of online trust building information cues: An empirical examination. *Journal of High Technology Management Research*, 22, 26-35.
- Netsonda, & ACEPI. (2014). Barómetro do Comércio Electrónico em Portugal 2º Trimestre 2014. <http://www.acepi.pt/>.
- Nguyen, N., & Leblanc, G. (2001). Corporate image and corporate reputation in customers' retention decisions in services. *Journal of Retailing and Customer Services*, 8, 227-236.
- OECD. (2013). Electronic and Mobile Commerce. *OECD Digital Economy Papers*, 228.
- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17, 460-469.
- Palvia, P. (2009). The role of trust in e-commerce relational exchange: A unified model. *Information & Management*, 46, 213-220.
- Ringle, C. M., Wende, S., & Will, A. (2005). SmartPLS 2.0. <http://www.smartpls.de>.
- Roy, M. C., Dewit, O., & Aubert, B. A. (2001). The impact of interface usability on trust in Web retailers. *Internet Research: Electronic Networking Applications and Policy*, 11, 388-398.
- Shankar, V., Urban, G. L., & Sultan, F. (2002). Online trust: a stakeholder perspective, concepts, implications, and future directions. *Journal of Strategic Information Systems*, 11, 325-344.
- Shih, H.-P. (2004). An empirical study on predicting user acceptance of e-shopping on the Web. *Information & Management*, 41, 351-368.

- Teo, T. S. H., & Liu, J. (2005). Consumer trust in e-commerce in the United States, Singapore and China. *Omega The International Journal of Management Science*, 35, 22-38.
- Torres, P. M., Gomes, C. F., & Yasin, M. M. (2014). The perception of Portugues Executives of Satisfaction Factors Associated with the E-business Ecounter. *World Review of Business Research*, 4(2), 123-133.
- Vijayasarathy, L. R. (2004). Predicting consumer intentions to use online shopping: the case for an augmented technology acceptance model. *Information & Management*, 41, 747-762.
- Wang, M.-S., Chen, C.-C., & Chang, S.-C. (2007). Effects of online shopping attitudes, subjective norms and control beliefs on online shopping intentions: A test of the theory of planned behaviour. *International Journal of Management*, 24(2), 296-302.
- Weisberg, J., Te'eni, D., & Arman, L. (2011). Past purchase and intention to purchase in e-commerce The mediation of social presence and trust. *Internet Research*, 21, 82-96.

APPENDIX A - Table with constructs

Constructs	Description	Items	Source
Trust Stance (TS)	I like to use the web site of this online vendor.	TS1	(Palvia, 2009)
	I like the layout of the web site of this online vendor.	TS2	
	I like to visit the web site of this online vendor.	TS3	
Attitude Toward Online Shopping (ATOS)	I like the idea of (...using the Internet to purchase in the next 6 months...)	ATOS1	(Crespo & Bosque, 2010)
	(Using the Internet to purchase in the next 6 months...) is a wise idea	ATOS2	
	(Using the Internet to purchase in the next 6 months...) is a good idea	ATOS3	
	(Using the Internet to purchase in the next 6 months...) is a positive idea	ATOS4	
Reputation (REP)	Has a good reputation in the market	REP1	(Teo & Liu, 2005)
	Has a reputation for being honest	REP2	
	Has a reputation for being consumer-oriented	REP3	
Brand Recognition (BR)	In my opinion, ABC has a good image in the minds of consumers.	BR1	(Nguyen & Leblanc, 2001)
	In general, I believe that ABC always fulfills the promises that it makes to its customers.	BR2	
	I would encourage friends and relatives to do business with ABC	BR3	
Likability (L)	In this website everything is easy to understand	L1	(Flavián et al., 2006)
	This website is simple to use, even when using it for the first time	L2	
	It is easy to find the information I need from this website	L3	
	The structure and contents of this website are easy to understand	L4	
	It is easy to move within this website	L5	
	The organization of the contents of this site makes it easy for me to know where I am when navigating it	L6	
	When I am navigating this site, I feel that I am in control of what I can do	L7	
Lack of Integrity, Privacy and Security (LIPS)	Entering credit card information over the Web is unsafe	LIPS1	(McKnight et al., 2002)
	I think it is risky to provide one's credit card information to web-based vendors	LIPS2	
	I hesitate to enter my credit card information on the web	LIPS3	
	Entering personal information over the web is unsafe	LIPS4	
	I think it is risky to provide one's social security number to web-based vendors	LIPS5	
	I would hesitate to enter personal information like my name, address and phone number on the web	LIPS6	
Service Quality	The time I spend in order to shop at this online vendor's site is highly reasonable.	SQ1	(Palvia, 2009)
	The effort involved in shopping at this online vendor's site is worthwhile.	SQ2	
	The shopping experience at this online vendor's site is excellent.	SQ3	
	I found significant value by shopping at this online vendor's site.	SQ4	
Customer Satisfaction (CS)	Overall, I am satisfied with this online vendor.	CS1	(Palvia, 2009)
	I did the right thing when I decided to use this online vendor.	CS2	
	I am very pleased with making purchases from this online vendor.	CS3	
Competence (C)	I believe this online vendor has the ability to handle sales transactions on the Internet.	C1	(Palvia, 2009)
	I believe this online vendor has sufficient expertise to do business on the Internet.	C2	
Integrity (I)	I believe this online vendor will not charge more for Internet shopping.	I1*	(Palvia, 2009)
	I believe this online vendor is honest to its customers.	I2	
	I believe this online vendor acts sincerely in dealing with customers.	I3	

Constructs	Description	Items	Source
	I believe this online vendor will not overcharge me during sales transactions.	I4	
	I believe this online vendor is truthful in its dealings with me.	I5	
	I believe this online vendor would keep its commitments.	I6	
	I believe this online vendor is genuine.	I7	
Benevolence (B)	I believe this online vendor would act in my best interest.	B1	(Palvia, 2009)
	If I required help, I believe this online vendor would do its best to help me.	B2	
Overall Trust (OT)	I like to trust this online vendor.	OT1	(Palvia, 2009)
	I find this online vendor trustworthy.	OT2	
	I like the reliability of this online vendor.	OT3	
	I value the trustworthy characteristics of this online vendor.	OT4	
Intention to Purchase (IP)	I would feel comfortable buying products from this online vendor.	IP1	(Palvia, 2009)
	I would feel comfortable seeking product/service information from this online vendor.	IP2	
	I would feel comfortable receiving free product/service information from this online vendor.	IP3	
	I would feel comfortable providing information to this online vendor in order to receive customized service.	IP4	
	I would feel comfortable developing a valuable relationship with this online vendor.	IP5	

Note1: Trust stance (TS); Attitude towards online shopping (ATOS); Consumer characteristics (CC); Reputation (REP), Brand recognition (BR); Firm Characteristics (FC); Likability (L); Lack of integrity, privacy and security (LIPS); Service quality (SQ); Customer satisfaction (CS); Interactions (INT) Competence (C); Integrity (I); Benevolence (B); Overall trust (OT); Intention to purchase (IP)

* I1 was excluded due to low loadings

APPENDIX B – Table with loadings and cross loadings

Table

Cross loadings

	TS	ATOS	CC	Rep	BR	FR	L	LIPS	SQ	CS	INT	C	I	B	OT	IT
TS1	0.900	0.611	0.817	0.596	0.650	0.669	0.654	-0.167	0.670	0.685	0.707	0.689	0.676	0.571	0.679	0.624
TS2	0.903	0.502	0.748	0.497	0.607	0.595	0.641	-0.100	0.541	0.569	0.579	0.595	0.627	0.519	0.581	0.569
TS3	0.878	0.505	0.736	0.497	0.590	0.585	0.556	-0.076	0.535	0.552	0.567	0.572	0.547	0.481	0.592	0.549
ATOS1	0.571	0.929	0.865	0.501	0.583	0.583	0.491	-0.123	0.566	0.569	0.593	0.594	0.557	0.387	0.584	0.554
ATOS2	0.532	0.909	0.834	0.422	0.511	0.502	0.443	-0.088	0.483	0.507	0.516	0.517	0.514	0.374	0.491	0.470
ATOS3	0.593	0.968	0.900	0.492	0.589	0.582	0.489	-0.075	0.556	0.566	0.586	0.573	0.547	0.404	0.552	0.535
ATOS4	0.581	0.953	0.885	0.469	0.567	0.558	0.469	-0.053	0.537	0.545	0.564	0.561	0.533	0.377	0.536	0.527
Rep1	0.577	0.476	0.578	0.842	0.641	0.787	0.476	-0.072	0.476	0.569	0.544	0.619	0.543	0.384	0.577	0.540
Rep2	0.480	0.408	0.488	0.896	0.658	0.823	0.482	-0.071	0.498	0.549	0.546	0.508	0.566	0.547	0.522	0.446
Rep3	0.494	0.422	0.504	0.862	0.644	0.799	0.486	-0.042	0.566	0.571	0.594	0.526	0.554	0.518	0.543	0.473
BR1	0.634	0.545	0.649	0.739	0.907	0.885	0.667	-0.078	0.647	0.712	0.708	0.650	0.691	0.547	0.665	0.578
BR2	0.571	0.510	0.596	0.666	0.904	0.847	0.558	-0.032	0.633	0.684	0.687	0.614	0.669	0.536	0.591	0.515
BR3	0.649	0.553	0.661	0.592	0.872	0.794	0.595	-0.057	0.659	0.753	0.735	0.636	0.684	0.533	0.657	0.579
Lik1	0.622	0.430	0.569	0.470	0.564	0.556	0.904	-0.049	0.646	0.644	0.674	0.503	0.572	0.487	0.554	0.519
Lik2	0.621	0.438	0.574	0.473	0.586	0.571	0.921	-0.087	0.620	0.634	0.655	0.506	0.587	0.522	0.569	0.527
Lik3	0.649	0.467	0.606	0.522	0.630	0.619	0.919	-0.052	0.649	0.667	0.687	0.537	0.612	0.533	0.603	0.529
Lik4	0.622	0.475	0.598	0.505	0.643	0.619	0.935	-0.093	0.655	0.670	0.692	0.536	0.618	0.549	0.596	0.516
Lik5	0.599	0.474	0.586	0.478	0.635	0.601	0.914	-0.074	0.641	0.657	0.678	0.556	0.588	0.507	0.583	0.520
Lik6	0.650	0.464	0.604	0.536	0.629	0.627	0.911	-0.052	0.653	0.693	0.702	0.568	0.629	0.540	0.602	0.555
Lik7	0.593	0.423	0.551	0.511	0.588	0.590	0.797	-0.083	0.584	0.612	0.624	0.493	0.583	0.536	0.568	0.561
LIPS1	-0.151	-0.133	-0.157	-0.097	-0.092	-0.101	-0.082	0.843	-0.090	-0.086	-0.092	-0.148	-0.134	-0.063	-0.144	-0.114
LIPS2	-0.126	-0.069	-0.104	-0.078	-0.083	-0.086	-0.041	0.886	-0.037	-0.029	-0.035	-0.117	-0.130	-0.061	-0.104	-0.081
LIPS3	-0.094	-0.077	-0.093	-0.054	-0.011	-0.033	-0.052	0.840	-0.006	-0.012	-0.009	-0.103	-0.116	-0.037	-0.097	-0.080
LIPS4	-0.053	-0.028	-0.044	-0.049	-0.021	-0.036	-0.042	0.830	0.003	-0.031	-0.014	-0.061	-0.046	-0.035	-0.087	-0.098
LIPS5	-0.094	-0.041	-0.071	-0.058	-0.043	-0.053	-0.117	0.833	-0.080	-0.086	-0.086	-0.099	-0.133	-0.125	-0.093	-0.082

LIPS6	-0.094	-0.073	-0.091	0.000	-0.034	-0.019	-0.026	0.763	0.024	-0.015	0.005	-0.086	-0.091	-0.088	-0.084	-0.108
	TS	ATOS	CC	Rep	BR	FR	L	LIPS	SQ	CS	INT	C	I	B	OT	IT
SQ1	0.520	0.457	0.539	0.465	0.563	0.553	0.567	-0.053	0.863	0.659	0.797	0.491	0.512	0.405	0.503	0.465
SQ2	0.626	0.551	0.649	0.542	0.682	0.660	0.653	-0.036	0.916	0.789	0.893	0.610	0.634	0.502	0.633	0.577
SQ3	0.592	0.487	0.592	0.567	0.651	0.654	0.681	-0.045	0.897	0.752	0.864	0.535	0.609	0.577	0.586	0.542
SQ4	0.594	0.536	0.624	0.536	0.676	0.654	0.617	-0.036	0.895	0.773	0.873	0.569	0.576	0.522	0.595	0.558
CS1	0.655	0.567	0.673	0.651	0.787	0.774	0.711	-0.064	0.803	0.964	0.920	0.697	0.752	0.598	0.715	0.627
CS2	0.649	0.570	0.672	0.610	0.774	0.746	0.697	-0.056	0.795	0.968	0.917	0.701	0.714	0.561	0.712	0.607
CS3	0.654	0.548	0.660	0.617	0.753	0.738	0.695	-0.046	0.816	0.964	0.927	0.678	0.719	0.585	0.691	0.592
C1	0.662	0.580	0.684	0.601	0.679	0.687	0.580	-0.118	0.589	0.693	0.668	0.967	0.740	0.509	0.801	0.705
C2	0.682	0.576	0.691	0.626	0.690	0.706	0.556	-0.133	0.608	0.693	0.678	0.967	0.736	0.498	0.774	0.669
I2	0.647	0.524	0.641	0.592	0.694	0.692	0.613	-0.105	0.600	0.706	0.680	0.722	0.928	0.612	0.730	0.641
I3	0.648	0.541	0.653	0.583	0.707	0.694	0.622	-0.113	0.598	0.695	0.674	0.729	0.935	0.630	0.728	0.655
I4	0.561	0.447	0.552	0.503	0.609	0.599	0.549	-0.122	0.540	0.605	0.597	0.577	0.854	0.569	0.598	0.554
I5	0.633	0.541	0.646	0.612	0.722	0.717	0.645	-0.142	0.633	0.720	0.705	0.714	0.943	0.667	0.771	0.667
I6	0.641	0.531	0.643	0.603	0.716	0.709	0.619	-0.162	0.629	0.725	0.705	0.747	0.898	0.637	0.772	0.672
I7	0.604	0.501	0.606	0.551	0.655	0.648	0.537	-0.105	0.525	0.613	0.592	0.615	0.840	0.605	0.667	0.621
B1	0.541	0.359	0.485	0.493	0.521	0.543	0.556	-0.101	0.524	0.525	0.548	0.435	0.617	0.914	0.545	0.493
B2	0.539	0.393	0.506	0.531	0.584	0.598	0.516	-0.061	0.511	0.580	0.569	0.519	0.649	0.923	0.593	0.556
OT1	0.632	0.528	0.637	0.547	0.624	0.629	0.583	-0.086	0.557	0.622	0.614	0.712	0.711	0.565	0.885	0.671
OT2	0.659	0.544	0.660	0.594	0.667	0.677	0.611	-0.140	0.616	0.707	0.689	0.797	0.771	0.588	0.954	0.739
OT3	0.649	0.567	0.670	0.610	0.687	0.696	0.618	-0.125	0.636	0.718	0.706	0.791	0.766	0.561	0.950	0.725
OT4	0.575	0.443	0.556	0.537	0.610	0.617	0.535	-0.101	0.550	0.603	0.601	0.649	0.622	0.540	0.839	0.613
IP1	0.640	0.572	0.669	0.547	0.655	0.647	0.581	-0.131	0.632	0.684	0.686	0.714	0.702	0.483	0.756	0.857
IP2	0.579	0.499	0.593	0.521	0.545	0.571	0.556	-0.081	0.530	0.572	0.575	0.710	0.636	0.435	0.713	0.862
IP3	0.425	0.348	0.423	0.347	0.377	0.389	0.381	-0.019	0.395	0.377	0.404	0.424	0.448	0.442	0.463	0.754
IP4	0.429	0.340	0.420	0.355	0.375	0.392	0.397	-0.114	0.392	0.379	0.402	0.407	0.451	0.476	0.484	0.747
IP5	0.477	0.399	0.480	0.411	0.465	0.471	0.391	-0.088	0.390	0.418	0.421	0.485	0.524	0.480	0.532	0.779

Note: Trust stance (TS); Attitude towards online shopping (ATOS); Consumer characteristics (CC); Reputation (REP); Brand recognition (BR); Firm Characteristics (FC); Likability (L); Lack of integrity, privacy and security (LIPS); Service quality (SQ); Customer satisfaction (CS); INT (Interactions); Competence (C); Integrity (I); Benevolence (B); Overall trust (OT); Intention to purchase (IP)