The role of trust in consumer acceptance of E-Commerce in Saudi Arabia

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Abstract

this paper reports the results of the study that concerns the adaptation of E-Commerce technologies by customers in the Kingdom of Saudi Arabia. Keeping in mind the Technology Acceptance Model, this framework is used to understand how various e-technologies are used by various categories of people in the Kingdom.

Though various factors are used by the Technology Acceptance Model (TAM) including perceived ease of use, customers' perceptions about the usefulness of the technology, their attitude towards the technology and trust, this paper primarily focuses on the factor of trust and how this significantly has an impact on the customers' attitudes and their intention to adopt e-commerce technologies.

Key Words: *Consumer, E-Commerece in Suaida Arbia*

1.0 Introduction

The increase in the availability of technologies has opened the doors to businesses to sell their products and services online to a larger customer base. The adaptation of such technologies is a global phenomenon. However, there is a huge gap in developing nations coming forward to adapt to these technologies. There are various factors that influence the trust factors in such technologies. For instance, when transacting online, there is an increase in the perceived risks for both the customers and the merchants. The customers are afraid to share payment and personal details online as they do not trust the merchant enough to carry out business transactions. Furthermore, there is a lack of personal touch as provided by traditional commerce channels. Therefore electronic commerce requires that trust is understood and evaluated from the point of view of commercial relationships and its role in the acceptance of the technology. Despite technological advancements and improved security infrastructure, these alone are not enough to create trust in the minds of the customers. This paper aims at investigating the adaptation of e-commerce technologies and developing a trust framework by using the Technology Acceptance Model (TAM) framework for E-Commerce in Saudi Arabia.

The aim of this study is to investigate the main factors that play a role in the adoption of E-Commerce from a consumer's perceptive and, hence, develop an understanding of how the TAM framework could be used to conceptualize the influential factors (enablers and disablers) of E-Commerce. A similar study has been conducted by Gefen et al. (2003). They developed a model that summarised whether or not customers would use a technology based on how they perceive it in terms of its usefulness, ease of use and other such factors that might positively impact trust. This model (TAM) argued that certain variables can hence be used as a good indicator of the behavior and attitudes of customers towards technology.

This research argues that trust should be a precedent to behavioral attitudes of the customers as these perceptions about various aspects determine the trust in e-commerce technologies and this drives their purchase behavior and adaptation decision. Given this argument, this research, therefore, could find out the reasons for slower adaptation of e-commerce technologies which might then help contribute to the existing literature as well as policymakers to strategically plan and implement changes that would help increase e-technology adaptation.

1.1 Background of the study

In an electronic commerce environment, there is a heavy reliance on Information Technology services in order to receive, process and output information and orders to customers. The type of technology used and the way the technology is implemented to receive and process such information also acts as a differentiator between various e-commerce merchants. This, in turn, affects customer retention and loyalty thereby impacting profitability and long-term sustainability in this competitive marketplace (Huffmire, 2001). Similarly, researchers show that loyal customers account for 35-40% of the total sales in e-commerce sites (Rosen, 2001). Researchers argue that in an electronic marketplace, customer retention is an even bigger issue given that more than the traditional retailers, e-retailers expose themselves to an even bigger competition (Mithas, Ramasubbu, Krishnan and Fornell, 2007).

In order to achieve this loyalty, which is a pivotal success factor for an e-retailer, various studies show that it is important to develop a trust-based relationship with the customers. Different studies have empirically shown various factors that affect this trust (Park and Kim, 2003; Cyr, 2008; Kim, Donald, and Rao, 2009). Though different countries have been studied, there is very limited research on the Kingdom of Saudi Arabia (Kassim and Ismail, 2009).

1.2 Research Questions

Given the background of this research, the central question that this research wishes to answer are:

1. To what extent does trust and perception of trust has an influence on an adaptation of e-commerce technologies in Saudi Arabia?
2. What are the other general factors that constitute customer adaptation of e-commerce technologies in Saudi Arabia?

1.3 Structure of the research

The first chapter of this research paper provides an introduction to the research and specifies the research question to be answered. The second chapter provides a brief overview of literature in the relevant areas. The third chapter discusses the methodology adopted by this research to answer the central questions. The fourth chapter provides a detailed analysis of the data that has been collected for the purposes of this research. The fifth and final chapter discusses the results of the analysis and provides a conclusion to this research with directions for future study.

2.0 Literature Review

There are several studies that discuss the relationship between various different attributes and how human beings rationally take decisions based on these attributes. For instance, the theory of reasoned action (TRA) suggests that the information that is available to an individual immediately precedes the decisions that they take (Fishbein and Ajzen, 1975). In a technology-based commercial environment, this shows that the information available about a product or a services determines how customers make purchase decisions. An extension of this TRA approach is the trust model that was developed by Mayer, Davis, and Schoorman (1995) who suggested different factors that impact the trust in an e-commerce environment which acts as the fundamental decision factor for purchase decisions amongst customers. Other studies similarly used factors like ease of use and how customers perceive the usability of the site as a determining factor to purchase decisions and trust in e-commerce (McKnight, Choudhury and Kacmar, 2002). They extended both the TRA approach to decision making and the Technology Acceptance Model (TAM) in order to see how perceived ease of use enhances trust in the e-commerce portal thereby driving purchase decisions. They argue that the perceptions of various aspects determine their behavior and decision choices made.

2.1. Factors influencing Trust

The term customer trust can be defined as how the customers perceive and believe the e-merchant or the e-retailer to possess certain characteristics or attributes that are deemed trustworthy. These characteristics are perceived to determine how legitimate the e-retailer would be at present and also postulate their behavior in the future (Coulter & Coulter, 2002).

There are several factors that determine the trust in an e-commerce relationship. Several researchers (Coulter & Coulter, 2002; Mayer, Davis and Schoorman, 1995; McKnight, Choudhury and Kacmar, 2002) define trust factors from different points of views. The key factors discussed by the researchers are given in the table below:

Authors	Trust Factor	Meaning
Gummerus, Liljander, Pura and Van Riel (2004) and Park and Kim (2003)	Quality of User Interface	The user interface can be defined as a medium through which the buyers and sellers connect. The researchers argue that the sellers' competence can be determined by the quality of the user interface, usability and customer journey provided. This enhances trust in the vendor and also increases sales. It is strongly related to customer satisfaction
McKnight et al. (2002); Park and Kim (2003)	Quality of Information Provided	Acts as an antecedent to the trust relationship. The information about the product or service greatly enhances trust in customers.
Kolsaker and Payne (2002); Dong-Her (2004)	Security and Privacy	Perception of security and privacy enhances the trust. Negative perception represents a risk for the vendors as customers will rethink before making a purchase.
Cyr (2008)	Satisfaction	Enhanced with good information, usable website, high security, and privacy. Satisfaction directly impacts loyalty.

2.2 Demographic Factors – the Kingdom

A recent AC Neilson report shows that 44% of the population of Saudi Arabia uses tablets and large screen devices to make an online purchase. The internet penetration in Saudi Arabia is 49%. Though this is significantly less than the global penetration of 89%, this is still a growing market in the Kingdom (AC Neilson, 2014).

Though the internet penetration and adoption of e-commerce technologies are slow in the Kingdom, there are various advantages that the Kingdom has which can be leveraged by e-commerce providers. These include its strategic geographic positioning; it's population growth which is at 3.7% currently and its free economy that is stable (Chamber of Commerce, 2000).

A survey carried out by the Communication, and IT commission of Saudi Arabia in 2007 showed that only 9% of the organizations in Saudi used e-commerce channels with only 40% of large private organizations having their own domain and websites. With regards to the customers surveyed, most customers were aware of e-commerce options (43%) while only 6% used such services online. These online services were mainly used for airline and ticketing systems. A similar report in 2010 still showed that the adoption of e-commerce technologies in Saudi Arabia was relatively in its early stages. However, there was a significant improvement in customers and vendors trying e-commerce channels (CITC, 2010). Another survey conducted by a non-governmental organization showed that Saudi Arabia ranked 52 amongst the 70 countries studied in terms of Information and Communication Technology (ICT) infrastructure. Though this has been higher than other Middle-East/African countries, it was significantly lower than western countries. However, the research showed that Saudi Arabia has a great potential to grow given its demographics and population (EIU, 2010).

2.3 The research hypothesis

H1: The quality of the user interface and the usability increases the trust in the e-commerce site significantly.

H2: When the website provides adequate information about the product/service sold, it increases the perception of trust in the customers.

H3: When the users feel that their information is secured safely and they have the privacy, it enhances the trust in the e-commerce sites

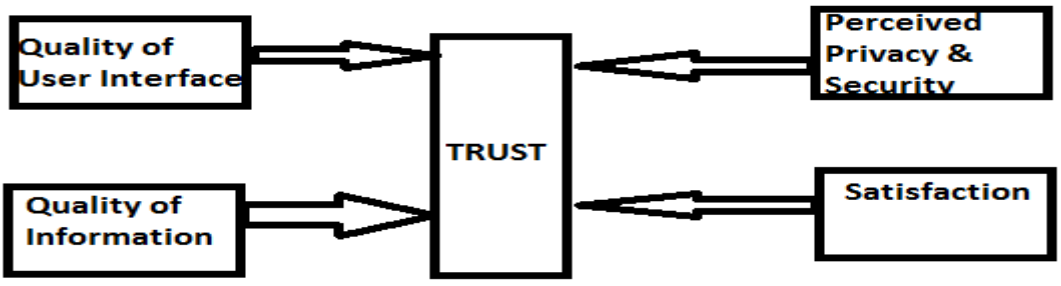
H4: Increase in the satisfaction, and a happy customer journey leads to a good relationship between the merchant and the customer.

3.0 Methodology

This research uses a multi-model approach to understanding the factors that affect trust in e-commerce retailers. This section discusses the methodology in detail

3.1 Research Model

Given the hypothesis of this research and the research questions, the following multi-level model is built:



3.2 Research Methods

There is a collection of primary data for the purposes of this research. A quantitative approach is used in this research. Quantitative methods used in the research enables the researcher to get an objective view of the problem. It helps the researchers to come to a generalized conclusion about a problem with specific data that has been collected and

analyzed using statistical methods. It also provides a structured approach and a scientific method for assessing a problem (Taylor, 2005).

3.2.1 Data Collection

To collect primary data, questionnaire method has been selected as a data collection tool. This was given to a random population who agreed to participate in the survey.

Out of the 453 participants approached, 254 agreed to participate and answer the questions which account for 56% response rate. Out of the 254 respondents, 34 questionnaires were not answered fully thereby giving a final of 220 fully filled and usable questionnaires.

The questionnaire was divided into three parts. The first part consisted of demographic information about the respondents including age divided into four categories, gender, gross income, education and finally job status each divided into four categories.

The descriptive statistics of the data is given in Table 1 below:

Table 1: Descriptive Statistics of the population

Measure	Value	Total	Percentage
Age	Less than 25	130	59.2
	25-35	32	14.5
	35-45	20	9
	Greater than 45	38	17.2
Gender	Male	128	58.19
	Female	92	41.81
Gross Income	Less than 1500 SR	76	34.54
	1500-10000 SR	100	45.45
	10001-15000 SR	33	15
	Greater than 15000 SR	11	5
Education	High School	50	22.72
	College Graduate	98	44.54
	Post Graduate	64	29
	Higher Education/Research/PhD	8	3
Job Status	Student	94	42.72
	Unemployed	16	7
	Full-Time Employment	62	28.18
	Part-Time Employment	48	21.81

Various constructs were used as the determining factor for the trust which could be defined as the confidence the customer has on the merchant websites and its reliability (Merrilles and Fry, 2003). These factors included:

- Quality of Information on the website which referred to the perceived quality of the product's and/or service's description, pricing, terms, and conditions, etc. (DeLone and McLean, 2003)
- Security risks and privacy which referred to the perception of the e-commerce portal security and the privacy rights of the customers (Jones, 2000; Zhang,)
- Quality of the User Interface (UI) which referred to how easy the users perceived the interface to be (Gummerus et al., 2004).
- Customer Satisfaction which referred to the overall satisfaction of the portal as well as the products as perceived by the customers (Giese and Cote, 2000).

The second section of the questionnaire consisted of 15 scale items based on four constructs defined below. Each of these items related to Saudi customers' experience of using e-commerce sites and were measured on a Likert-type five-point scale with 1 being strongly disagreed, 2 being disagreed, 3 being neither agree nor disagree, 4 agreeing, and 5 strongly agree. The second type of Likert-scale questions found out about how important the item was in relation to a construct, and the five-point scale was as follows: 1 is absolutely not important, 2 is not very important, 3 being neither important nor unimportant, 4 being important and 5 being absolutely important.

The constructs of information quality and user interface quality were partly using both these Likert-scale question types while security and privacy concentrated on importance-type questions and customer satisfaction concentrated only on agree/disagree type questions as it related to their experience.

The third section of the questionnaire concentrated on the general usage of internet and e-commerce portal and types of services used. The descriptive statistics for this section are given below in Table 2

Table 2: Descriptive statistics for service usage

Service	Total	Percentage
Online Banking	180	70.8%
Airline Ticketing Systems	150	59%
Online Share Trading	45	17.7%
Auctioning websites	89	35%
General E-commerce sites	96	36.2%

4.0 Data Analysis

For the purposes of analysis, SPSS software has been used, and the Structured Equation Model (SEM) is used to test the research model. This model has been selected given that the research uses a multi-model approach to capture various dependent and variables. This enables the researcher to use a multivariate approach in order to simultaneously validate these related dependent variables and the relationship between them. In order to analyze using the SEM, two models are required. Firstly, a measurement model which defines the key observable items and/or variables followed by a structural model which enables the researcher to evaluate the research model and how these variables are related by doing a hypothesis testing (Hair et al., 1998).

A confirmatory factor analysis (CFA) is done on all the four factors namely Information Quality, Security and Privacy perception, User Interface Quality as well as Customer Satisfaction (Anderson and Gerbing, 1988). The table below (Table 3) shows the factor loadings for each of the construct as well as the scale items of each of the construct.

Table 3: Construct Measures and factor loadings

Construct	Scale Measure	Loading
Quality of Information	Products are up-to-date.	1.0
	Adequate details about the product/services.	0.54
	Pricing information is clear	0.86
	Clear terms and conditions, policies.	0.67
	Product suitability	Deleted
Perceived Risk and Privacy	Good technological measures to ensure the information provided is confidential.	0.87
	Buying from the website will not result in a financial loss or risk	1.0
	The website provides a good security and privacy policy that is understandable and makes you feel safe	0.98
	Good data protection laws are followed by the website	0.87
	Not many unnecessary details are collected by the website	0.85
User Interface Quality	Easy to use with minimal clicks	0.79
	Additional Human-Computer Interaction(HCI) features to assist people with disabilities	Deleted
	The website is appealing and designed well	0.91
Customer Satisfaction	The website has provided good customer service	0.67
	The website allows customers to contact them through various means	0.76
	The overall experience with the website has been good	0.89
	The website offers products that are tailored to the needs of the users	1.0

As can be seen from the above table, where the loading is >.5, it shows the statistical significance of each of the measures. Where there is no statistical significance, those observable items are deleted.

While using the SEM model, it is imperative to use a Goodness of Fit (GOF) test in order to assess how valid the data is. There are several indices that are available to test the GOF, and each of these indices has a specific acceptable level. Where the observable items do not have this acceptable levels, they are removed from the model, and the SEM has remodeled again so as to eliminate low correlation paths. This remodeled SEM now shows only those observable items that have a high correlation with the construct. The goodness-of-fit index (GOI) for the model is 0.92 and the normative index χ^2 for the measurement model = 341.88 (where χ^2/df = 1.32 and df = 259) which as recommended by Bagozzi and Yi (1988) is acceptable. Given the GOI and χ^2 values, it can be said that the model is acceptable.

Composite reliability which is $(\sum\lambda yi)^2 / ((\sum\lambda yi)^2 + Var(\varepsilon i))$. Var(εi) is calculated using the formula $1-\lambda yi^2$. The average variance is calculated as $\sum\lambda yi^2 / (\sum\lambda yi^2 + Var(\varepsilon i))$. The table below, table 4 tabulates the composite reliability and the average variance that has been calculated for each of the constructs in the model.

Table 4: Composite reliability Measure

Construct	Composite Reliability	Average Variance
Quality of User Interface	0.845	0.743
Information Quality	0.961	0.876
Perceived Security & Privacy	0.873	0.734
Customer Satisfaction	0.768	0.678

4.1 Hypothesis Testing

Hypothesis testing was done using multiple regression in order to examine the statistical significance of each of the hypothesis given in the research model. For each of the hypothesis, a dependent and independent variable was chosen and a least square regression applied to find out if the factor had any significant influence on the construct.

The dependent variables, the construct, the β values as well as the t-values are given in the table below. Those variables that are influential and those that are not influential are then found to see if the hypothesis is supported or not.

Table 5: β and t-values for the hypothesis

Hypothesis	Independent variable	Dependent Variable	β and t-values	Result
H1	Quality of User Interface	E-commerce customer Satisfaction	0.16(2.59)	Hypothesis accepted
H2	Information Quality	Perceived Security and Trust	0.32 (3.45)	Hypothesis accepted
H3	Perceived Security and Privacy	Trust	0.43 (4.32)	Hypothesis accepted
H4	Customer Satisfaction	Customer Loyalty	-.013 (-0.87)	Hypothesis rejected

5.0 Conclusion

From the analysis done, it can be said that the trust model that has been presented in the research is in line with the Saudi Arabian customers' perceptions and that trust can be achieved when the User interface, information quality and the perception about security and privacy positively influence the customers. This research substantiates the findings of Park and Kim (2003) and McKnight et al. (2003) whom both showed how important the quality of the information provided in e-commerce sites drives trust. There is a weak link between customer loyalty and satisfaction as shown in the research. This could be attributed to the fact that the e-commerce arena in the KSA is still emerging and that customers are still in the phase of trying out different merchants and sites. This phase will wane out, and the e-commerce arena will reach a maturity stage where customer loyalty can be achieved by businesses.

It can be said that this research has achieved its objectives as it has successfully answered the research questions and identified the factors that have a strong relationship to establishing trust in KSA. This research specifically takes into

account the culture, attitudes, and preferences of the customers of Saudi Arabia and developed the model keeping in mind the local attributes. Though trust and satisfaction can be said as the two key factors that determine the success of e-vendors globally, the ways and means to achieve these vary depending on the geographical setting and various other cultural and socio-economic factors.

From a practical point of view, this research helps merchants to identify areas that could help enhance trust and how each of the factors discussed impacts sales. It helps managers take key managerial decisions based on the data that is available to improve the quality of the user interface, the product description and other factors to gain the trust of the customers and in the long run achieve customer loyalty.

51. Future Research

Though this study used primary data, there is a limitation on the number of participants used for the purposes of this research. Though the sample is a good indicator of the total population with an adequate mix of all age groups, gender, and income, further research is needed with a larger population in order to derive even more specific results with understanding how various demographic factors affect trust.

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