

An-Najah National University
Faculty of Graduate Studies

**Factors Affecting Buyers' Trust in Electronic
Commerce in Palestine**

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**This Thesis is Submitted in Partial Fulfillment of the Requirements for
the Degree of Master of Engineering Management, Faculty of
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Dedication

To all of my family members with love

Acknowledgement

First and foremost



For enabling me to accomplish this work.

My deep gratitude to my family for their patience, encourage and support.

My sincere appreciation to my supervisor Dr. Yahya Saleh for his efforts in supervising and guidance.

A special thanks for Dr. Manal Sharabati for her help and support in words as well as deeds.

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الإقرار

أنا الموقع أدناه، مقدم الرسالة التي تحمل العنوان:

Factors Affecting Buyers' Trust in Electronic Commerce in Palestine

أقر بأن ما شملت عليه هذه الرسالة إنما هو نتاج جهدي الخاص، باستثناء ما تمّت الإشارة إليه
حيثما ورد، وأنّ هذه الرسالة ككل، أو أيّ جزء منها لم يقدّم من قبل لنيل أيّ درجة أو لقب علمي
لدى أيّ مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

Student Name:

الاسم:

Signature:

التوقيع:

Date:

التاريخ:

Abbreviations

<u>Construct/Variable</u>	<u>Abbreviation</u>	<u>Construct/Variable</u>	<u>Abbreviation</u>
Web Design Attitudes	WSDA	Privacy	PRI
Reliability Fulfillment	RLI	Adaptation	ADAP
Security And Privacy Attitudes	SPA	Commitment	COMT
Customer Satisfaction Fulfillment	CSF	Network	NW
Perception of Governmental Factors	PGF	Assortment	ASRT
Trust In E-Retailer	TRST	ICT Infrastructure	ICT
Content	CONT	Regulations	REGU
Structure	STRUC	Integrity	INTG
Interaction	INTER	Benevolence	BEN
Presentation	PREST	Ability	ABL
Security	SEC	Electronic Commerce	E-commerce

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Factors Affecting Buyers' Trust in Electronic Commerce in Palestine
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Abstract

Electronic commerce is relatively a new concept in developing countries like Palestine. This paper aims to determine the potential factors affecting buyers' trust in e-commerce through conducting a quantitative approach research. Five potential factors were considered including website design attitudes, reliability fulfillment, security and privacy attitudes, customer satisfaction fulfillment and perception of governmental factors. The study population was the Palestinian employees in public and private sector. Data was collected through paper and electronic forms of the research questionnaire, 358 questionnaire were valid for analysis. The findings revealed that security/privacy attitudes, customer satisfaction fulfillment, and perception of governmental factors had significant influence on trusting e-commerce. A main regression model was built as well as three regression models for trust' sub factors integrity, benevolence and ability. These findings are useful for practitioners who plan to enter the e-commerce environment, and researchers interested in trust in e-commerce as well. Some recommendations were suggested to the official authorities, as well as to the owners of electronic shops or those who maintain them, thus increasing the level of trust among buyers in Palestine.

Chapter One

Introduction

1.1 Background

In the business environment, online transactions represent the new form of transactions that emerged as a consequence of the development in the information technology and the internet applications. This form of transactions became common in the developed countries by the time of using the internet for commercial and marketing purposes (Shergill and Chen, 2005).

E- Commerce is relatively a new concept that has changed the traditional business and has its great influence on the economy (Varela et al., 2017; Nanekaran, 2013). Globalization and the boom in communication sector are the motivators for the adoption of e-commerce (Katic and Pusara, 2004). In countries with high internet penetration, a dramatic increase in the shopping habits of customers is noticed. The percentage of online customers increased from 45% to 85% over the years 2011 to 2015 (Kwarteng and Pilik, 2016). On the other hand, despite the evolution in communication, wireless technology and the high potential of Business to Customer (B2C) commerce, and compared to the offline commerce the percentage of people using online purchases is low in the developing countries. A report by Pew Research Center released in March, 2015, indicated that in the Middle East the percentage of internet users who conducted online purchases ranged from 2%-27% only.

Palestine is one of those countries that have recently experienced the benefits of the adoption of e-commerce. According to the statistics

published by the Palestinian Bureau of Statistics on its official website, the percentage of internet users in Palestine reached 51.4% of the population in 2014, though; only 0.5% used the internet for online shopping as shown in Figure 1

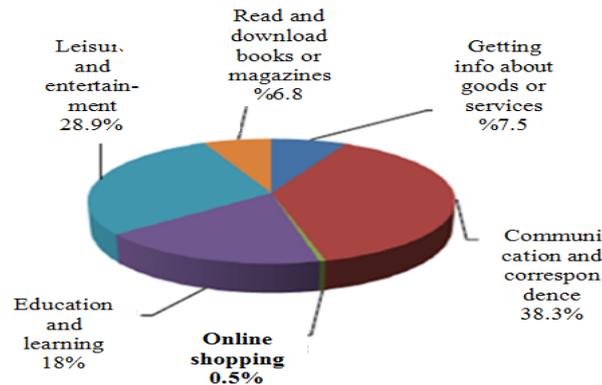


Figure 1: Percentage Distribution of Internet users based on purpose of use, 2014
Source: Palestinian Central Bureau of Statistics

This small percentage could be attributed to various factors; cultural factors, lack of required skills to conduct an online transactions among Palestinian people, and one of those factors that have been studied in a wide scale in the developed countries is "Trust".

A repeated factor for not purchasing from internet vendors is the lack of trust in e-commerce websites (Huang and Chang ,2017; Najafi and Kahani, 2016; Kim et al, 2009,b; Zhang, 2009; Nefti et al., 2005; Pennanen, 2005; Patton and Josang, 2004). People are willing to take risk when they trust the other parties, the lack of trust is a result of the absence of physical interactions. Customer services applications are more important in online environment to overcome the lack of face-to-face interaction. Thus, there is a need to promote trustful e-commerce environment (Cazier et al, 2006).

Trust building process is gradual and evolve over time, usually people tend to trust others based on their personal past experience with them or based on other parties' recommendations. The same rule applies in online environment, a customer start with a single transaction in a website, then based on his experience he judges the e-vendor trustworthiness. Or a website is recommended by another person (third party) as a trusted site which encourages him to try it.

Judging the trustworthiness of the e-vendor depends to several factors; factors related to the website itself, environmental factors, and personality and nature of the customers. The aim of this study is to assess the potential factors that are responsible for promoting buyers' trust on e-commerce in Palestine.

1.2 Problem Statement

In Palestine, traditional commerce is the common form. Palestinians are used to go to the shopping centers, see the product, and examine it before buying.

Recently, e-commerce started to emerge. Many businesses these days have been established online without having a physical presence, others have their traditional commerce presence in parallel with their online website. As a result, buyers as well as business owners started to experience the benefits of e-commerce. Among the benefits for buyers are time saving, ease of use, and conducting transactions anytime, anywhere (Turban et al.,

2015; Shafiyah et al, 2013). On the other hand, some of the benefits for businesses include cost reduction since no actual presence is necessary (Turban et al., 2015; Shafiyah et al, 2013), increased profits and revenues (Shafiyah et al, 2013), and wider market expansion (Turban et al., 2015)

In e-commerce the shopping context is different, the customers order the products after seeing it on a screen only. People in Palestine are not familiar with online shopping as the statistics above showed. Familiarity with an Internet vendor and its processes and trust in the vendor influence the customers (Akhter et al., 2005; Gefen, 2000). In addition, Many scholars emphasized the effect of culture on societies and individual. Palestinian society in general avoids uncertainty (Jaber, 2015). Therefore, due to the recency of the e-commerce in Palestine compared to developed countries, and the absence of physical interactions between the customers and the online vendors some ambiguity might be created, as a result, it is difficult to establish trust with customers.

Online trust is key antecedent for achieving business success (Hong and Cho, 2011; Awad and Ragowsky, 2008)

Thus, it is important to identify the potential factors that may influence and promote buyers' trust in e-commerce.

1.3 Research Objective

The main objective of this study is to identify and assess the factors that may help in establishing trust in e-commerce environment from customers'

perspective and to investigate the importance of each factor in promoting customers' trust on online purchases.

1.4 Research Questions

The research questions are mainly the following two questions:

Q1: What are the important potential factors for enhancing buyers trust in e-commerce?

Q2: What is the relative significance of each factor in promoting buyers' trust in online purchases?

1.5 Significance of the study

Although that the traditional commerce is the common form in Palestine, the technological developments in the information technology field and the wide spread of the internet these days help in transforming the commerce into its electronic form (e-commerce). According to the Palestinian Central Bureau of Statistics, the percentages of males and females internet users in Palestine have dramatically increased over the years from 2000 to 2014. Males percentage increased from 7.9% to 59.6%, where as females percentage from 2.8% to 47.5%. Therefore, to maintain business growth and prosperity, the owners should cope with these technological advancement in an attractive and trustworthy way. This study will help in identifying the factors influencing buyers trust in e-commerce, thus offering business owners the chance to benefit from the study findings in gaining buyers trust and eventually improving their businesses.

1.6 Scope of the study

Due to the difficulty of applying the study to the whole Palestinian society, the study population is limited to the Palestinian employees in public and private sector who have experienced online shopping in Palestine as a representative sample of the Palestinian society. Hence, the study population is well defined.

In addition, the current study covers different types of products and services that buyers may buy online from local or international online stores. The only restriction is that they should conduct the purchase from Palestine.

1.7 Thesis structure

This study consists of five chapters. The first chapter is the introduction where the background, problem statement, research objectives, research questions and the scope of the study are introduced. Chapter two defines the concept of electronic commerce and its different types, as well as introducing the literature review and summarizing the previous studies about trust in electronic commerce.

The third chapter presents the research methodology and identify the research population, sample, data collection tool as well as the data analysis software package to be used in analyzing the gathered data. Chapter four presents data analysis and discussion. Finally, chapter five derives conclusions and presents some recommendations.

Chapter Two

Literature Review

2.1 Overview

In this chapter, the theoretical background of the research is to be discussed in addition to literature review of the previous studies. Furthermore, the proposed research model and hypotheses are presented.

2.2 E-commerce Definition

E-commerce in its broad sense is using computer networks to increase profitability, improve the performance of organizations, attaining market share and enhance customers' satisfaction level (Watson et al, 2013). E-commerce is the internet and intranet usage to buy, sell, or merchandise services, goods or data (Turban et al., 2015). On the other hand, Vladimir (1996) emphasized that e-commerce is not only selling or buying goods or services, but also all the processes required to achieve the goals within a company or firm. He defined e-commerce as the sharing of business-related information, preserving business relationships and doing business deals and transactions through telecommunication networks.

According to World Trade Organization (WTO) e-commerce is defined as "The production, distribution, marketing, sale or delivery of goods and services by electronic means". This definition of e-commerce is adopted in this research.

The term e-commerce is not a replacement nor analogous to the term e-business. E-business is wider in scope than e-commerce (Chaffey, 2004). E-business encompasses other activities like collaboration with business partners, servicing customers, and conducting electronic processes (Turban

et al., 2003; Van der Vorst et al., 2002). Rayport, and Jaworski (2002) contradict this view, they argued that e-commerce covers all of the organization's electronic activities.

An e-commerce vendor interact with his customers through a website. The website represents a "full representation of the shopping" (Qin, 2007). An online vendor website is defined as a mediated tool of interaction that implements a marketing strategy that is used in an intelligent way by a player in the buying process (Bezes, 2009 referring to Reix, 2003 work in French). Therefore, a website for any e-commerce business represents the front face of the business through which different transactions are conducted. In short, it is the channel between the two parties; sellers and buyers, whether these are businesses or individuals.

Many researchers studied the pros and cons of e-commerce. Turban et al. (2015) emphasized the benefits of e-commerce and classified them into three main categories; organizational; consumers' benefits; and societal. Whereas Pires and Aisbett (2003) Classified the Implications for business from adopting e-commerce into three categories: internal factors; market factors; and competitive. Table (1) summarizes the most common advantages and disadvantages of e-commerce adoption:

Table 1: Advantages and disadvantages of e-commerce

Advantages	Disadvantages
Buyers can conduct business any time, anywhere. (Alsharif, 2013)	Lack of standardized specifications that are applicable in all countries (Alsharif, 2013)
Increased profits and revenues (Mirani et al., 2001; Kalakota and Whinston, 1996; Shafiyah et al, 2013).	More powerful in large businesses (Hodkinson and Keil ,1996).
Cost Reduction (Garicano and Kaplan, 2001;Turban et al., 2015; Mirani et al., 2001; Kalakota and Whinston, 1996; Evans and King,1999;Shafiyah et al, 2013)	Recruiting skilled employees. (Shafiyah et al, 2013; Lee, 2001; Hodkinson and Keil ,1996; Evans and King,1999)
Better control over industry supply chains (Kalakota and Whinston,1996; Segev et al.,1998; Turban et al., 2015; Kothandaraman and Wilson,2001)	Security problems (Udo,2001;Hodkinson and Keil, 1996; Honeycutt and Flaherty, 1998; Evans and King,1999)
Market expansion (Global reach) (Turban et al.,2015; Honeycutt and Flaherty, 1998; Evans and King,1999)	Cultural impediments (Shafiyah et al, 2013; Evans and King,1999)
Better customer service (Evans and King,1999; Turban et al.,2015,Katic and Pusara,2004;Shafiyah et al, 2013)	Benefits and costs are hard to quantify (Haltiwanger and Jarmin, 1999; Shafiyah et al, 2013; Evans and King,1999)
Ease of use and accessibility (Katic and Pusara,2004; Turban et al.,2015; Shafiyah et al, 2013)	Delays in deliveries, lack of physical interaction, and technical failures may affect the process (Alsharif,, 2013, Gould et al.,1998)

2.3 E-commerce types

Scholars identified different types of e-commerce. Shim et al. (2000) stated that there are two major types of e-commerce; Business-to-Business (B2B) and Business-to-Customers (B2C). Turban et al. (2015) and Katic and Pusara (2004) defined various types of e-commerce including; B2B; B2C; Consumer-to-consumer (C2C); Collaborative commerce (c-commerce); Consumers to businesses (C2B); B2E (business to its employees); Government-to-citizens (G2C); Business-to-Business-to-Consumer (B2B2C); and Mobile commerce (m-commerce). Others like (Shafiyah et al, 2013) classified e-commerce into five main types, all of which are contained in Turban et al.(2015) types. The most popular forms of e-commerce are defined next.

- **Business-to-Consumer (B2C):**

It is the type of e-commerce between a company and its customers in which organizations are the sellers and individuals are the buyers (Chugh and Grandhi, 2012; Katic and Pusara, 2004). The transactions between the two parties take place at the vendor website. Most of B2C websites create a virtual community that consists of all customers sharing their opinions about the vendors; products and services. Web sites owners provide customers with web searching tools and other services like emails, chatting rooms, and rental of advertising areas in order to make enough profit needed for the free services expenditures (Shafiyah et al, 2013). B2C e-commerce encompasses various sectors such as retailing, travel booking,

banking, real estate, trading of securities (stocks, bonds), job matching, travel, and other services (Nemat ,2011; Turban et al., 2003).The various future benefits of B2C are constrained by different factors. These factors include; the ability to communicate with a wider audience, the ability to present a variety of distinguished products that differ from those of offline commerce products; the ability of adaptation to customer needs and interactions; and reducing the cost of intermediaries (Ginsburg, 2000). B2C e-commerce is ranked second after B2B e-commerce (Alsharif, 2013).

B2C type of e-commerce is the focus of this study.

- **Business-to-Business (B2B):**

In this type, both parties are businesses, that is, a business sells products or services to another business. The relationship between manufacturer and wholesalers, between wholesalers and retailers are examples of B2B transactions. Thus, the expected volume of the business can be very large (Shafiyah et al, 2013;Nemat, 2011; Lucking–Reiley and Spulber, 2001, Turban et al., 2003).

According To Turban et al. (2015), 85% of the e-commerce today is in B2B. They mentioned that all of Dell's wholesales is B2B. Garicano and Kaplan (2001) studied the reduction in transaction costs that results from using the internet as a transaction median for doing business. Their findings proved potentially large process improvement and marketplace benefits, and little support that informational asymmetric is more important in the

electronic marketplace compared to the traditional one. Shafiyah et al. (2013) pointed out other benefits of B2B including the efficiency of managing payments between a business and its partners, reduced number of clerical errors, and the shorter time in processing invoices. They also mentioned that this type of e-commerce requires high security needs. One of the major challenges that face companies in B2B e-commerce is the development of software and communications standards (Lucking–Reiley and Spulber, 2001).

- **Consumer to Consumer (C2C):**

In C2C e-commerce, individuals sell products or services to other individuals. In this type, the transactions take place through online auctions, chatting rooms, third party consumer listing, and web forums (Jones and Leonard, 2008). The owners of the websites are working as intermediaries only, the customers themselves are responsible for organizing the deliveries between them, and that C2C e-commerce is more popular than B2C (Wang et al 2002). Jones and Leonard (2006) argued that C2C e-commerce encompasses a lot more than auctions; they conducted a study to determine the factors influencing customer satisfaction in C2C e-commerce. The findings revealed that Reliability, responsiveness, and empathy have a significant influence on customer satisfaction in e-commerce. One of the most popular sites in this type of e-commerce is eBay.com that offers different features to its users. Ebay promotes for

virtual communities as well by offering "About Me" Feature that allow users to create their own homepages (Subramani and Walden, 2001).

- **Mobile Commerce (M-Commerce):**

Is e-commerce carried out in a wireless environment such as using cell phones. GSMA (2013) reported that the number of mobile phone users is more than half of the world's population. A variety of transactions could be conducted using m-commerce including B2C, B2B, money transfer, mobile learning and others. M-commerce positively affects organizations and individual. Organizational benefits include increased revenues since sales are higher due to the fact that customers can do their orders anytime and anywhere; improved customer loyalty and satisfaction; and m-commerce represents an opportunity for organizations to reach a wider scope of customers (Venkatesh et al.,2003); For individuals m-commerce offers flexibility, expediting banking services; and saves time and effort.

2.4 Trust Definition

Trust is a complex concept to define. There are dozens of definitions in literature. The reason for the multi-definitions is that each discipline defines trust from its own perspective. However, all of these definitions are similar to some extent, every discipline added new features to the concept.

Pavlou and Fygenson (2006) defined trust as the belief that the trusted party actions will be toward full filling the trusting party needs without misusing its vulnerability.

Scholars defined trust from three primary perspectives: psychology, sociology and economic (organizational).

- **Psychological Perspective**

Psychologists view trust as a psychological state of an individual in which s/he is willing to risk the action of others (Tyler, 1990). Rousseau et al (1998) distinguished between three facets of trust; Cognitive, Emotive and Behavioral. The cognitive facet involves taking a decision to trust others based on the evaluation of the trustee. The emotive facet reflects the emotional drive to trust a trustee. On the other hand, behavioral trust involves conducting an action that show trust in a trustee.

In general, psychologists conceptualize trust as feelings, beliefs, and expectations that are deeply rooted in the personality of an individual. Personal attributes of trusting party and trustees are the basics for trustworthiness evaluation (Rotter 1967; Tyler 1990).

- **Sociological Perspective**

Sociologists view trust as a dynamic element between and within groups (Granovetter 1985) or institutions (Zucker, 1986). Lewis and Weigent (1985) argued that trust is an attribute of the social groups in which the members of the group act accordingly, they also distinguished between interpersonal and system trust. A system trust is essential in the modern society as it is impractical to depend on interpersonal trust.

- **Economic Perspective**

In economy, trust is viewed as either calculative (Williamson, 1993), or institutional (North, 1990). In the calculative trust, how human actors are described and the perception of contracting processes are both vital to the development of a science of organization. That is, it is necessary to examine the systems' context within which contracts are established. On the other hand, the institutional trust refers to the organizational and social environment surrounding contracting processes. Although that institutional trust seems non-calculative, contracts and transactions are governed according to the institutional environment. Kenneth (1997) in his review of Fukuyama's book revealed that Fukuyama's view states that cooperative economic behavior is stimulated principally by culture specifically, by a culture of trust. Fukuyama suggests that trust is important primarily because it enables the formation of large privately owned corporations.

Therefore, by integrating the various definitions of trust in various disciplines, we come out with a comprehensive definition of trust (Rousseau et al., 1998).

2.5 Trust Framework and Theories

The theoretical ground for this study is based on three elements; Social Exchange Theory; Global evaluation theory and signaling theory.

2.5.1 Social Exchange Theory

Transactions' exchanges in online environments between the buyers and online vendors have similar components to that of social exchange, using social exchange theory helps in understanding trust (Chang et al, 2013).

Argün (2012) referring to Thibaut and Kelley, 1959 book, stated that "individuals get exchange relationships on the ground of trust. Out of these exchange relationships, the ones which probably cost greater than the probable reward will be prevented".

In social exchange theory, individuals are motivated by rewards they expect to get to establish voluntary interaction with others Blau (1964). In e-commerce environment, the first party is the buyer, while the other party is the vendor website, buyers have to measure the benefits they are expecting to gain and compare it to the risk level their privacy is exposed to (Gurung, 2006). According Chang et al. (2013), in social exchange theory, the process of building trust is gradual; it starts with minor transactions that involves a small level of risk and consequently requires a small level of trust. Each time the customers voluntarily provide some personal information to the e-vendor, he should be rewarded with more customized products and richer experience (Dayal et al., 2003). The outcome of trust is a long term exchange relationship between the two parties (Ganesan, 1994; Doney and Cannon 1997). Similarly, Morgan and Hunt (1994) believed that cooperation is the expected outcome of trust.

2.5.2 Global Evaluation Theory

Chen (2007) proposed Global Evaluation Theory. It is based on previous studies (Czepiel et al., 1974; Garbarino and Johnson 1999; Ostrom and Iacobucci 1995) in marketing field. The core of this theory is that in order to evaluate a specific construct, evaluations of component attributes or processes "component attitudes" are prerequisites (Garbarino and Johnson, 1999). In other words, global evaluations are influenced by component attitudes (Chen, 2007). For example, overall customer satisfaction is a construct (Czepiel et al., 1974; Westbrook, 1981), in order to evaluate customer satisfaction, evaluations of its components (i.e component attitudes toward price, quality, friendliness, and customization (Ostrom and Iacobucci, 1995); component attitudes toward life insurance (Crosby and Stephens ; 1987)) are necessary.

Garbarino and Johnson (1999) indicated that for marketing organizations, consumer decision-making process is guided by global evaluations. Regarding the current study, global evaluation theory is a key player in identifying factors affecting buyers trust in e-commerce since each construct is evaluated depending on the evaluation of its components.

2.5.3 Signaling theory

Information economics under certain circumstances in which both parties vendors and consumers possess different level of information about a specific transaction forms the basis of signaling theory (Spence 1974). In e-commerce, the sellers of the products have full information about the characteristics of the product before selling it, whereas consumers usually

don't have such information before buying the product and actually start using it. Therefore, the level of information that both parties have is asymmetric before the transaction takes place, in most cases, this asymmetry is an advantage for the selling party (Mishra et al., 1998). Internet buyers are placed in a situation in which they have to take their decision of whether to conduct a transaction or not based on inferential information (signals) which involves a certain level of risk. Signals are "perceivable indicators of otherwise hidden qualities", the purpose of using signals is to deliver a certain unobservable quality or feature to the customer in order to trigger behavior Donath (2007).

In their attempts to gain customers' trust, online vendors have to provide their customers with the necessary information regarding their products, capabilities and intentions toward the personal information of their customers. Porter (1980) considered any piece of information or action from the vendor's side regarding its products and abilities to be a signal. Consumers would like to have pre-purchase signals that help them distinguish between the trustworthy vendors and those who are not.

In e-commerce environment various types of trustworthiness' signals have been investigated in literature. Wang et al. (2004) studied five signals including seals of approval, return policy, awards from neutral sources, security disclosures, and privacy disclosures. The result showed that security disclosures and awards from neutral sources enhanced cue-based trust, seals of approval and privacy disclosures encouraged customers to provide personal information, and awards from neutral sources were found

to directly encourage bookmarking intentions. On the other hand, Biswas and Biswas (2004) conducted experimental studies to analyze the effect of perceived advertising expenses, vendor reputation, and warranties as signals; the outcome of the studies revealed that these signals are stronger in reducing risk for the non-digital products (e.g jeans, shirts), but have a limited if no effect for digital products as music CD's. Aiken and Boush (2006) focused on three signals: objective-source rating (i.e., a review from Consumer Reports magazine), a third-party certification (i.e., a "trustmark"), and an implication of investment in advertising, trustmarks were found to possess the largest influence on vendors' trustworthiness.

In this study signaling theory concepts are involved. Different signals for trust worthiness of the e-vendors have been examined including return policy of the vendor, availability of trustmarks on e-vendor website, security attitudes of the website, ad privacy policy and attitudes towards the shared customers' personal information.

As a summary for the theoretical basis, (1) Just like the case of offline commerce, the relationship between the online buyer and online vendor is an example of exchange relationships. Buyers expect the web vendor to provide them with products that match their expectations, whereas web vendor is eager to win buyer's trust and loyalty. Buyers are willing to share their information, and make themselves vulnerable to risks if they trust the online vendor, and expect that the benefits be worth it. (2) Chen (2007) Global Evaluation Theory is adopted for analyzing and measuring component attitudes of the construct "buyers' trust in e-vendors" in order to

attain an overall evaluation of it. This analysis depends on reviewing previous research papers and articles to choose the most significant attitudes to be included in the proposed model. (3) The availability of trustworthiness signals on the e-vendor website are examined as motivators for customers to trust online vendors.

2.6 Previous Trust Model

Several researchers studied the factors that have an impact on buyers' trust in e-vendors. Table (2) shows some of these models.

Table 2: Some previous trust models

Researchers	Dimensions
Kim and Prabhakar (2000)	<ul style="list-style-type: none"> - Trusting party propensity to trust - Word-of-mouth referrals - Institutional characteristics
Shankar et al. (2002)	<ul style="list-style-type: none"> - Website characteristics (e.g., navigation; friendliness) - User characteristics - Other characteristics (e.g., firm size; firm trustworthiness)
Yoon (2002)	<ul style="list-style-type: none"> - Technical aspects: web searching, technology and presentation - Transactions' uncertainty and security: security assurance - Competency aspects: fulfilment, reputation, and interactions.
Flavia'n et al. (2006)	<ul style="list-style-type: none"> - Usability - Satisfaction - Loyalty
Lowry et al. (2008)	<ul style="list-style-type: none"> - Brand alliances - Website quality
Karimov et al. (2011)	<ul style="list-style-type: none"> - Visual design (graphic, structure) - Social cue design (human-like features, assistive interface, social media) - Content design (informativeness, brand alliances, e-assurances)
Ganguly et al. (2011)	<ul style="list-style-type: none"> - Communication - Social presence - Security

	<ul style="list-style-type: none"> - Privacy - Self efficacy
Kumari and Kumari (2012)	<ul style="list-style-type: none"> - Professionalism (Professional Graphics (Web Design), Usability, Proper Branding) - Trustworthiness of Company Reputation - Technologic Incentives (Security , User's Information Privacy, Payment Systems)
Matthew and Turban (2014)	<ul style="list-style-type: none"> - Trustworthiness of Internet Merchant - Trustworthiness of Internet Shopping Medium - Technical competence - Reliability - Medium understanding - Contextual Factors - Effectiveness of third party certification - Effectiveness of security infrastructure
Riquelme and Román (2014)	<ul style="list-style-type: none"> - Perceived privacy - Perceived security
Ajmal and Yasin (2015)	<ul style="list-style-type: none"> - Security factors - Privacy factors - Ethical and legal issues factors - Intellectual property rights factors - Loyalty factors
Agag and El-Masry (2016)	<ul style="list-style-type: none"> - Consumer based (experience, propensity to trust) - Company based (reputation of website, perceived size of website) - Website based (perceived ease of use, perceived usefulness, perceived quality)
Najafi and Kahani (2016)	<ul style="list-style-type: none"> -Firms Readiness (E-Service,Quality of Website/Web Portal, Information, EC System) -Information Security Readiness -Interpersonal or Humans Readiness -Technical and Infrastructure Readiness -Legal and Laws Readiness -Live Chats, Forums, EC in Social Networks
Toufaily and Pons (2017)	<ul style="list-style-type: none"> - Functional characteristics of the website (design, ease of use, security, interactivity) - Relational characteristics of the website (personalization, support quality, social presence and virtual community)

Corbitt et al (2003) investigated a number of key factors that may have an impact on trust in the B2C context. The findings revealed that customers are more likely to buy from an online vendor "if they perceive a higher

degree of trust in e-commerce and have more experience in using the web". The trust level of the customers is affected by the level of perceived market orientation, site quality, technical trustworthiness and user web experience. The study suggested three main tactics for reducing risk level among customers including: Money back warranty, positive 'word of mouth', and partnerships with well-known business partners.

Akhter et al. (2005) visualized trust as a function of security, and familiarity. The results indicated that trust is maximized when familiarity is moderate, and security is moderate to high. This implies that when customers are familiar with the e-vendor website, a small increase in the security level will dramatically enhance their trust level.

Chen (2007) proposed an integrative model of consumer trust in an e-vendor. The model used five independent variables; website design attitudes, fulfillment reliability satisfaction, security/privacy attitudes customer service satisfaction, and offline experience satisfaction. The findings of this research revealed that website design attitudes, fulfillment reliability satisfaction, privacy/security attitudes and customer service satisfaction are the key factors of customer trust.

Cyr (2008) studied the relationship of trust, satisfaction, and loyalty across cultures in three countries Canada, Germany, and China. In this study trust was a function of navigation design, visual design, information design and used as a moderating factor. The results of the overall model of all countries showed that three predictors of trust were highly significant.

Kim et al. (2009,a) conducted a longitudinal approach study. The study focused on the three stages of the purchase process: pre-purchase; purchase; and post-purchase. The proposed model took into account two points; the first is how consumers formulate their pre-purchase decisions, and the second is the formation of a long-term relationship with the same e-vendor based on the comparison results' between their pre-purchase expectations and the post-purchase outcome. The findings revealed that trust affects buyer's purchase decision along with perceived risk and perceived benefits, and that that trust affects long term buyers' loyalty and satisfaction.

Kumari and Kumari (2012) constructed a four stage model for B2C including professionalism, reputation, trustworthiness, and technological incentives. In electronic world and due to the lack of physical existence the professionalism is presented by the web interface factors, according to Karvonen (2000) professionalism composed of professional graphic (web design), usability, and proper branding. Trustworthiness exists when the consumer has the confidence that the vendor has the ability and motivation to deliver the required item as expected by the consumer. Reputation is an essential factor for trust in e-commerce, which is built through the feedback that the customers receive from others who have previously interacted with the vendor. Technological incentives refer to the existence of security, users information privacy, and the payment systems.

Another study by Chang et al (2013) showed that three trust-building mechanisms (third-party certification, reputation, and return policy) have a significant effect on trust of the online vendor.

Bartikowski and Singh (2014) investigated the customers' trust drivers in France. The study included 15 trust drivers: advice capabilities, brand equity, content quality, community features, expertise, French cultural markers, ease of contact, fulfillment capabilities, layout design, trustworthy partnerships, personalization, navigation, privacy protection, security and usefulness. The most influencing factors were brand equity 19.1%, layout design 12.8%, content 12.6%, expertise 9%, and navigation 8.2%.

Yousefi and Nasiripour (2015) investigated the factors influencing customers' trust in e-banking services. The results showed that the quality of electronic services such as ease of use, privacy and security, individual characteristics of customers such as disposition to trust and features of the bank such as reputation, size and dependence on government have a positive impact on customers' trust in enhancing e-banking services.

Gu et al. (2016) found that five factors (privacy concerns, trust propensity, performance expectancy, facilitating conditions and hedonic motivation) have significant influence on initial trust in wearable commerce.

In Arab world context, studies in this field are few. A study by Eid (2011) investigated the determinants of customers' loyalty, in this study trust was used as a moderating variable whose predictors were user interface quality,

information quality, perceived security and perceived privacy. The results revealed that trust' determinants included the four factors except information quality.

Another study by Yahya and Dahlan (2015) proposed a model that suggests that trust factors that affect the B2C e-commerce in Saudi Arabia are divided into two categories; governmental and non-governmental variables. The non-governmental variables composed of trustworthy, privacy and secure online Payment Options. The model suggest that flexible governmental policies, legislation rules, protection of customer rights, and banking network systems with less internet fees are prerequisite for e-commerce expansion.

A third study by Al-dweeri et al., (2017) examined trust as moderating factor of behavioral and attitudinal loyalty. The determinants of trust were efficiency of the website, privacy attitudes and customer service.

2.7 The Proposed Research Model

Based on the above discussion, the model shown in the Figure 2 is proposed. This model has been constructed depending mainly on Chen (2007) model and Yahya and Dahlan model (2015). The dependent variable of this study is trust in e-commerce, and the independent variables are five variables; website design attitudes, reliability fulfillment, security/privacy attitudes and customer satisfaction fulfillment taken from Chen model (2007) and the fifth independent variable is governmental policies taken from Yahya and Dahlan (2015).

The justification for using Chen model in this study is that the factors used in it contain most of the variables that have been studied in the other models. While the adoption of the fifth independent factor from Yahya and Dahlan (2015) is that their study was conducted in Arab World context. The current research model consists of five main constructs, which will be delineated into 15 measurable variables.

In traditional commerce it is easy to build an opinion (belief) about the vendor trustworthiness due to the physical interaction (face-face) between the vendor and the customer. In e-commerce, the context is different, trustworthiness is built on technical aspects as website design; networks; privacy and security rather than personal characteristics. The vendor in e-commerce is the selling party represented by its website through which transactions are conducted (Kim et al., 2009,b).

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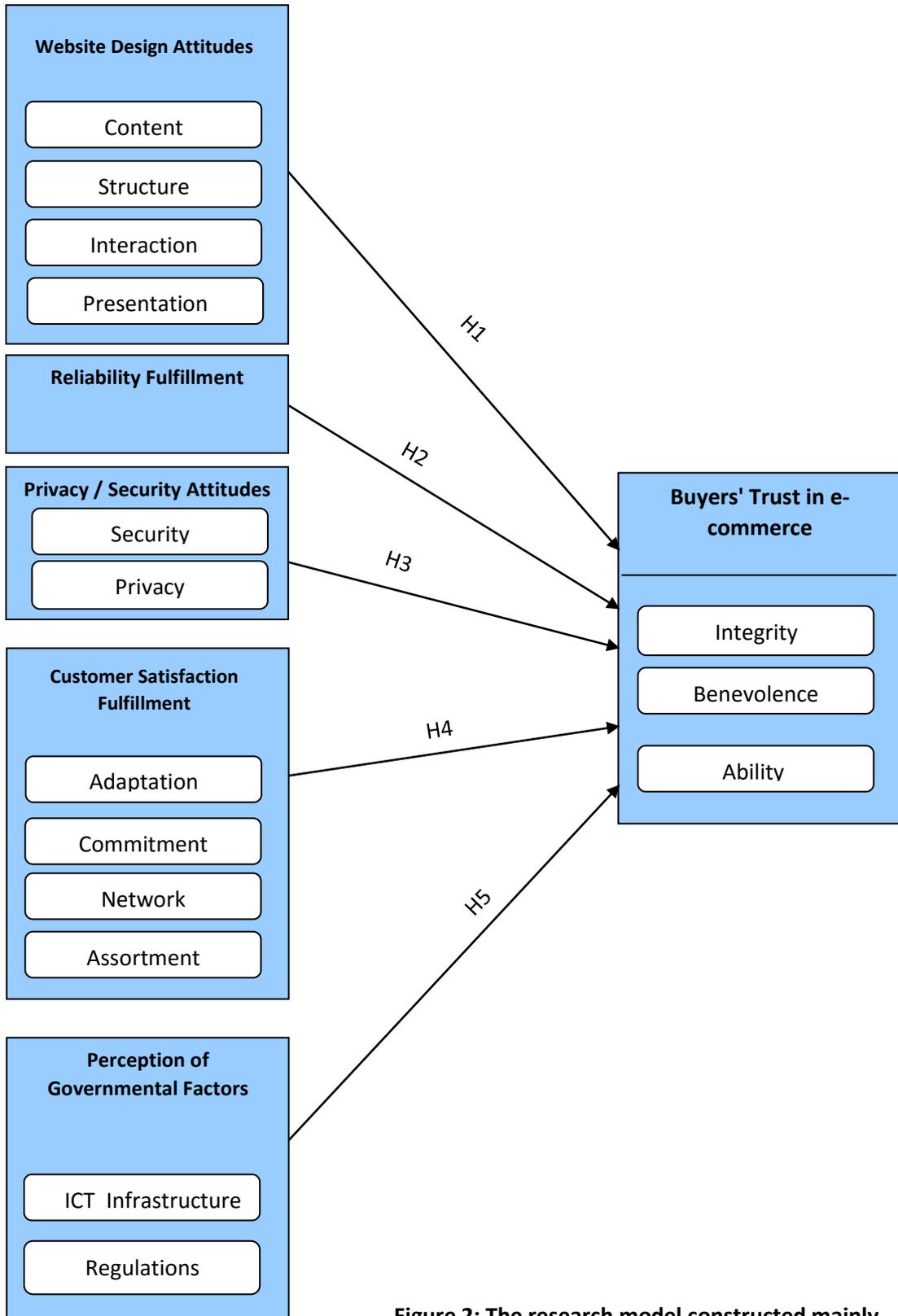


Figure 2: The research model constructed mainly from Chen (2007) model and Yahya and Dahlan (2015) model

2.8 Operational Definitions

2.8.1 Website Design Attitudes (WSDA)

The quality of website design is one of the most important factors for enhancing trust in online purchases. Sillence et al., (2004) found that content and design features were prominent building trust in e-commerce. Unfortunately, there is no agreement among the researchers about the factors that constitute the website design. This could be attributed to the fact that website design construct is a multidimensional one (Kim and Stoel 2004). For example, Ranganathan and Grandon (2002) argued that the way in which the content of the website is arranged is the crucial factor for the website design. Kim and Lee (2002) suggested two approaches for investigating the website design: process and architecture; the process approach views the system as a sequence of processes, while architectural approach views the system as a collection of documents.

According to Ganguly et al. (2010) the architecture perspective for website design is composed of four components: content, structure, interaction and presentation. Content refers to the information on the website, structure refers to the arrangement of the information (grids, menus, hierarchical). Interaction represents the way the customer can access the website in the easiest way. Presentation refers to the way how the information is presented on the web site, it deals with aesthetic aspects like color, size, images, audio-visual aids and a like.

In this study, the researcher will follow the architecture perspective since several studies found a significant influence of the four dimensions of the

architecture perspective. For example, a study by Rahimnia and Hassanzadeh (2013) showed a positive influence of website content on e-trust.

De Angeli et al (2006) investigated the impact of interactivity of the website, the results of their study revealed that the interactive style implemented on the website affect the customer's perception of information quality. Anderson and Swaminathan (2011) used an alternative term for interactivity which is transaction ease, they defined it as the degree to which the customer is convinced that the website is simple and easy to use. Flavia'n et al (2006) defined it as "perceived ease of navigating the site or making purchases through the Internet". Similarly, Chen and Tan (2004) findings supported the hypothesis a customer's perceived ease of use of an online store has a positive influence on his or her behavior toward this online store.

On the other hand, presentation contributes in enhancing the usability of the website (Phillips and Chaparro, 2009; Thüring and Mahlke, 2007). Anderson and Swaminathan (2011) used the term engagement that is analogues in meaning to presentation. Engagement can be defined as the pleasing and enjoyable overall image that the website is offering to the customers via using different data types including text, audio, video, colors, and graphics.

2.8.2 Reliability Fulfillment (RLI)

Berry et al. (1988) argued that reliability is the ability to deliver the required service accurately and dependably. Wolfinbarger and Gilly (2003)

suggested that reliability should involve technical reliability as well as functional reliability, and defined reliability as the delivery of the right product in the right time promised with the right information that have been displayed on the website, so it matches the customers' expectations. They also suggest that fulfillment/reliability is the most important factor that affects trust in e-commerce. Omar et al. (2015) in their study of the influence of reliability dimension of e-commerce on Libyan customers satisfaction suggested that there are 8 attributes of reliability; accurate delivery service, website always available, complete order service, keeping promotion promise, the online service always correct, keeping service promise, company being truthful about its offering, and accurate online booking records.

In this study, the researcher will adopt the Wolfinbarger and Gilly (2003) explanation of the fulfillment/reliability. This is because this definition is comprehensive as it encompasses most of the aspects that the customers' need for reliability fulfillment. Besides that, most of fulfillment/reliability definitions found in the literature are similar in meaning to this definition. In addition to this, the number of citation of this paper is more than 1750, which reflects its significance.

2.8.3 Security / Privacy Attitudes (SPA)

Although most of the time the two words are enormously interchanged, they are not the same.

Data Privacy is the customers' possession of control over the use of their personal information for other purposes beyond the current transaction's need (Hoffman et al., 1999); in other words, when online customers provide a vendor's website with data, they expect them to use it according to the agreed purposes. On the other hand, **Data Security** can be defined as all the mechanisms and practices used to protect the information from any possible threat (Belanger 2002). Threat means an event or context that may cause harm, modification or destruction of data or network (Kalakota and Whinston, 1996). That is, ensuring that unauthorized individuals are not accessing the data.

In literature, despite of the different meaning of each term, some studies merged them in one construct (Lee and Turban 2001; Zeithaml et al.2002; Flavián and Guinalú 2006; Corbitt et al. 2003; Schlosser et al. 2006); whereas other studies treated them as two different constructs (Miyazaki and Fernandez 2000; Belanger et al. 2002; Román 2007; Román and Cuestas 2008). In the current study, although that these two variables are included in one construct, each of them is measured using separate items.

- **Privacy (PRI)**

Belanger (2002) pointed out that many studies suggested that many individuals have serious privacy concerns, and gaining the public trust is the major obstacle faces the growth of the business. Li et al. (2011) studied the role of affect and cognition on online consumers' decision to disclose personal information to unfamiliar online vendors. The study emphasized

the importance of customer's awareness of the privacy statement on the website, it defined awareness of privacy statement as "An individual's awareness of the content in the privacy statement of a Web site".

Besides that, it is not only the availability of a privacy policy is necessary, but also the readability of the privacy statement as well. Readability is the ease of understanding and comprehension based on writing style (Klare, 1963). Many privacy policies remain unread due to their poor readability (Cadogan, 2011; Ermakova et al., 2015; Sunyaev et al., 2014), therefore websites should make sure that their privacy policies are formulated in an easy language to guarantee the full understanding and awareness of the customer about its contents.

Privacy issues have been studied in wearable technologies as well. McCann and Bryson (2009) defined Wearable technology as devices that have a double-usage as aesthetic accessories and computer processors in some capacity. Gu et al (2016) studied the factors influencing consumers initial trust in wearable commerce, the findings of the study showed that privacy concern is one of the most important factors that have significant effect in consumers' trust in wearable commerce.

Chen and Zheng (2015) stated that trust is improved when the customers have confidence that the vendor will use their personal information properly.

- **Security (SEC)**

Udo (2001) argued that the main challenge faces consumers in online transaction is security. Chen and Tan (2004) believes that "Consumers'

lack of trust is also partly due to their data security concerns". The study of Miyazaki and Fernandez (2001) provided evidence that higher levels of Internet experience may lead to lower risk perceptions regarding online shopping and fewer specific concerns regarding system security and online vendor fraud yet more concerns regarding online privacy.

Niranjanamurthy and Chahar(2013) presented a list of e-commerce security tools including Firewalls (Software and Hardware), Public Key infrastructure, Digital certificates, Digital Signatures, Biometrics (retinal scan, fingerprints, voice etc), Passwords, and Locks and bars (network operations centers). Although that the availability of security features do not guarantee a completely secured system, they are vital to build a secure system and thus gain customers' trust. The study classified security features into several categories as follows:

- Authentication: Verifies who you say you are.
- Authorization: Allows only you to manipulate your resources in specific ways.
- Encryption: Deals with information hiding.
- Auditing: Keeps a record of operations.
- Integrity: prevention against unauthorized data modification
- Nonrepudiation: prevention against any one party from renegeing on an agreement after the fact
- Availability: prevention against data delays or removal

In this study, the researcher will adopt the definition of Li et al., (2011) for privacy because most of the reviewed studies confirmed that the

availability of a privacy policy on the website enhances customer's trust in the website thus s/he will provide the website with the required data. Regarding security, the researcher will measure website security level through examining the availability of different security tools suggested by scholars like Niranjnamurthy and Chahar (2013) and Miyazaki and Fernandez (2001) since most of the reviewed literature contain similar tools.

2.8.4 Customer Satisfaction Fulfillment (CSF)

Johnson and Fornell(1991) referred to customer satisfaction as the overall judgment of the customer on the performance of an offering to date. Not very far Westbrook and Oliver (1991) defined customer satisfaction as "the feelings of the benefit that customers may experience after the purchase of the product or service". Similarly, Zeithmal and Bitner (2000) defined customer satisfaction as the perception of the customer that the product or service has matched their expectations.

The researchers have investigated different determinants of customer satisfaction in e-commerce. Kim et al. (2011) suggested that navigational functionality, perceived security and transaction cost are the main determinants of customer satisfaction. Cyr (2008) stated that navigation, visual design and information design are considered as determinants of customer satisfaction.

Anderson and Swaminathan (2011) conducted a research that investigated the factors that drive customer satisfaction and loyalty in e- markets. Eight factors were studied including: Adaptation, Commitment, Network,

Assortment, Transaction ease, Engagement, Nurturing, and interactivity. The finding of the research proved that all factors were significant except Nurturing and Interactivity.

Pilelienė and Grigaliūnaite (2016) concluded that most of the determinants of e-commerce satisfaction that have been constructed in various studies are connected to each other and that the determinants of Anderson and Swaminathan(2011) are the most comprehensive model.

In this study, the researcher will adopt four determinants of Anderson and Swaminathan (2011) model. This is because this model includes most of the variables that have been studied by other researchers. The adopted determinants are: Adaptation, Commitment, Network, and Assortment. The reason for not adopting the other four variables is that two variables, precisely nurturing and interactivity were not significant, whereas the other two variables transaction ease, and engagement are covered in the elements of the first independent variable of the research model (ie, website design). Although that they are studied as determinants of website design attitudes, they can lead as well to customer satisfaction since website quality has a direct and positive impact on customer satisfaction (Bai et al., 2008, Tandon et al., 2016).

- Adaptation : available literature refers to adaptation and customization of products as a same concept (Beldad et al., 2010), which is the degree to which the e-vendor distinguishes the customer from others and customizes the services and products for this customer Anderson and Swaminathan (2011). In offline commerce,

the customization of products has shown a positive influence on customers' trust Doney and Cannon (1997). Customization is an implication for customers that the company cares about them and saves no effort in providing them with the products they want (Kufaris and Hampton-Sosa, 2004), through offering personalization of products customers are more willing to give up some privacy and trust the e-vendor for the corresponding benefits (Chellappa and Sin 2005).

- Commitment: refers to the strength of the relationship between the customers and the business Anderson and Swaminathan (2011). E-business commitment towards its customers conveys responsiveness to customers' complaints, no breakdown in customer services, and when a problem happens, the e-business cares for customers and ask them how they like it to be resolved instead of imposing a solution on them. Good customer services have a positive influence on customer satisfaction (Hanif et al., 2010).
- Network: refers to the availability of a network through which customers can share their experiences, opinions about the products and services provided by the website Anderson and Swaminathan (2011). Networks or virtual communities supported by technologies with high security and convenience offer a supportive environment for the customers, hence would impact customers' trust (Sun and Yang, 2009; Casaló et al., 2008; Bart et al., 2005). Many e-businesses are adopting these networks for their potential role in

increasing customer satisfaction and loyalty (Conhaim, 1998 cited in Anderson and Swaminathan (2011)).

- Assortment :refers to the website ability to offer a variety of products or services to the customers so they do not have to browse many website to get what they are looking for, in other words, it is a one-stop-shop Anderson and Swaminathan (2011). The advantage of the e-business over the traditional business in this area is that it is not constrained by the limited physical location; rather, it is only few mouse clicks to show it all. Szymanski and Hise (2000) emphasized the importance of products assortment for several reasons, first, the increased probability of meeting customer's needs. Second, the wider assortment of products, the wider range of items of better quality to be included thus, the customers are more attractive to the website. Finally, the availability of information online can lead to better decision making and consequently higher level of satisfaction (Peterson et al, 1997).

2.8.5 Perception of Governmental Factors(PGF)

The lack of clean policy and regulations to guide the promotion of e-commerce expansion in developing countries is the major obstacle to the adoption of e-commerce (Lawrence and Tar, 2010).

AlGhamdi et al. (2011) argued that the governmental support is a crucial factor for the success of e-commerce. Government intervention takes different forms including construction of regulatory framework for e-commerce, promotion and ICT and educational level.

Yahya and Dahlan(2015) in their model suggested seven governmental facilities for enhancing trust in e-commerce including: Monitoring and supervision of website , Creating ICT Infrastructure, Issuance and regulations, Owing home address , Payment options, Consumer protection, and Clarifying marketplace rules.

This study will adopt two variables of Yahya and Dahlan (2015) model to measure the governmental variables these are creating ICT Infrastructure, issuance and regulations since these are the most applicable in Palestine. The context of Saudi Arabia is similar to large extent to the context of Palestine in respect to cultural background and regulations of communication sector. In 2013, the Palestinian Legislative Council passed the Electronic Transactions Act prepared by the Ministry of Communications and Information Technology in the first reading in preparation for the final approval and the work done as the first law of its kind in Palestine. This act matches the legislation of the neighboring countries such as (Jordan, Egypt, UAE, Tunisia, Saudi Arabia, and Lebanon). Under this act, the electronic transaction environments are similar in aforementioned countries, thus justifying the adoption of the variables. But for now, since the legislation council is not active the law has not been approved yet.

On the other hand, the other factors were excluded since no home addressing is available in Palestine; customers' protection legislations and marketplace rules could be included in the regulation determinant. Finally, payment options availability is considered as part of the ICT infrastructure

readiness whereas the security of using electronic payment methods is covered in the security components of security and privacy construct.

2.8.6 Trust in e-commerce (e-vendor)

Trust can be defined in terms of ability, integrity and benevolence of the trustee (McKnight et al., 2002; Bhattacharjee, 2000; Pavlou, 2003; Pavlou and Fygenson, 2006 ; Blau, 1964). In offline commerce, Integrity concerns if the trustee follows moral and ethical principles that are deemed acceptable by the trusting party, benevolence concerns the degree to which the trustee has good will or empathy towards the trusting party, ability is related to skills and competencies of the trustee in a specific context (Mayer et al., 1995; McKnight et al.,1998; Jarvenpaa et al.,1998; Gefen and Silver,1999; Jarvenpaa and Tractinsky,1999; Ridings and Gefen, 2002; Gefen, 2003).

The three dimensions of trust in the electronic environment have similar meaning to their counterparts in offline commerce. Integrity in online environment is the degree to which an e-vendor keeps his promises towards the customers (Pavlou and Fygenson, 2006), whereas benevolence in online context is that the e-vendor will support and stand behind his products and act in a fair way even if he has the chance to act otherwise (Wu and Tsang, 2008). Finally, ability in online context refers to customers' perception that the e-vendor has the required capabilities to do deliver, exchange and support the products (Wu and Tsang, 2008).

Perceptions of these elements will affect the trusting party to have trust towards the trustee.

2.9 Research Hypotheses:

This study aims to test five main hypotheses (H1..H5). These hypotheses test the influence of the five main independent constructs on the dependent variable. Each of these hypotheses is divided into several sub hypotheses, which in turn test the influence of the sub-factors of the independent variables respectively, on the sub-factors of the dependent variable. Ultimately, thirty six sub hypothesis are derived from the main hypotheses.

First hypothesis:

E-vendor website is like a mirror that gives gestures and semantics for trustworthiness of the e-vendors for its visitors and precisely the first time shoppers. Therefore, e-vendor web design attitudes are either a major contributor for building trust with customers or undermining it. Riegelsberger and Sasse (2002) considered all elements available on the e-vendor website as 'trust qualifiers', they classified these elements into two groups: (1) elements that help in building trust (trust builders) and (2) elements that help in destroying trust (trust busters). These trust qualifiers were mainly related to the user interface elements and some other factors including brand, reputation and others. Among the trust destroying element were inconsistent design, poor usability, long system response time and others. On the other hand; the trust building elements included status indicators, order tracking, displaying data already entered and others.

The concept of website design is multidimensional construct. Different scholars have studied the effect of website design attitudes on trust. Each of these studies considered some dimensions of the website design attitudes and their impact on trust. For instance, Interactivity or Ease of use attribute (Belanger et al., 2002; Corritore et al., 2003; Koufaris and Hampton-Sosa, 2004); Informational content attribute or usefulness (Lee and Chung, 2009; Wang and Emurian, 2005; Koufaris and Hampton-Sosa, 2004). Structural design attribute (Wang and Emurian, 2005) ; Presentation of professional looking attribute (Belanger et al., 2002; Corritore et al., 2003; Akhter et al., 2005). External certification of trust (Nah and Davis, 2002). Trustworthiness cues (Corritore et al., 2003;). Social cues (Wang and Emurian, 2005).

Thus, In order to examine the influence of web design attitudes as defined in this study on trust, first hypothesis reads:

H1: Website design attitudes have no significant influence on buyers' trust in e-commerce in Palestine at 5% significance level.

In addition to testing the main hypothesis, several sub hypotheses are formulated to examine whether each of the four variables comprising the website design attitude construct influence each component of trust. Hence, the sub hypotheses read:

H1a: The content of the website is not significantly related to the integrity of the e-vendor at 5% significance level.

H1b: The structure of the website is not significantly related to the integrity of the e-vendor at 5% significance level.

H1c: The interaction of the website is not significantly related to the integrity of the e-vendor at 5% significance level.

H1d: The presentation of the website is not significantly related to the integrity of the e-vendor at 5% significance level.

H1e: The content of the website is not significantly related to the benevolence of the e-vendor at 5% significance level.

H1f: The structure of the website is not significantly related to the benevolence of the e-vendor at 5% significance level.

H1g: The interaction of the website is not significantly related to the benevolence of the e-vendor at 5% significance level.

H1h: The presentation of the website is not significantly related to the benevolence of the e-vendor at 5% significance level.

H1i: The content of the website is not significantly related to the ability of the e-vendor at 5% significance level.

H1j: The structure of the website is not significantly related to the ability of the e-vendor at 5% significance level.

H1k: The interaction of the website is not significantly related to the ability of the e-vendor at 5% significance level.

H11: The presentation of the website is not significantly related to the ability of the e-vendor at 5% significance level.

Second Hypothesis:

In online shopping, customers don't receive their purchases immediately when the transaction takes place, they have to wait a couple of days or even more before actually have their purchase in hand depending on the website delivery procedures. Thus, delivery, handling and shipping of customers' products are vital processes for any e-vendor. It is necessary for e-vendors to keep their promises and fulfill their customers' expectations to establish trust (Urban et al., 2000). Reliability fulfillment have been studied as a major predictor of trustworthiness of the e-vendors in several studies. Order fulfillment was among the most significant predictors of trust for sites with high level of information risk and involvement (Bart et al.,2005). Reliability of the website enhances customer trust (Ridings and Gefen, 2002), site quality positively related to trust (Corbitt and Thanasankit , 2003).

Hence, the second hypothesis is:

H2: Reliability fulfillment has no significant influence on buyers' trust in e-commerce in Palestine at 5% significance level.

This hypothesis does not encompass any sub hypotheses.

Third Hypothesis:

Privacy and Security are predictive factors of customer judgments on the website trust worthiness (Wolfenbarger and Gilly,2003; Eid 2011, Najafi and Kahani, 2016). This judgment depends on: the availability of adequate security features, feeling secure giving out credit card information at this site, the company behind the site is reputable ,the company is well-established , and trusting that this site will not misuse my personal information. Privacy and order fulfillment were the most significant predictors of trust for sites with high level of information risk and involvement (Bart et al., 2005). The content of the privacy policy influences trust (Pan and Zinkhan,2006; Wu et al., 2012). Therefore, to measure the influence of privacy and security on trust on e-commerce in the current research, the next hypothesis is formulated:

H3: Security and privacy attitudes have no significant influence buyers' trust in e-commerce in Palestine at 5% significance level.

The separate impact of security and privacy on each component of trust is tested using the following six hypotheses.

H3a: Security attitudes of the website are not significantly related to the integrity of the e-vendor at 5% significance level.

H3b: Privacy attitudes of the website are not significantly related to the integrity of the e-vendor at 5% significance level.

H3c: Security attitudes of the website are not significantly related to the benevolence of the e-vendor at 5% significance level.

H3d: Privacy attitudes of the website are not significantly related to the benevolence of the e-vendor at 5% significance level.

H3e: Security attitudes of the website are not significantly related to the ability of the e-vendor at 5% significance level.

H3f: Privacy attitudes of the website are not significantly related to the ability of the e-vendor at 5% significance level.

Fourth Hypothesis:

Customer satisfaction is necessary for attracting customers in the first place, and secondly, maintaining them. No business can survive without meeting customers' expectations. Customer satisfaction has been studied as an antecedent for loyalty (Kim et al., 2009,b; Anderson and Swaminathan, 2011; Cyr, 2008; Eid, 2011) ; as outcome of trust (Kim et al., 2009,b; Lin, 2007) and as a determinant for trust in e-commerce environment as well. Chen (2007) tested the influence of customer satisfaction fulfillment on trust, the results indicated that there is a positive influence of customer satisfaction fulfillment on trust. Others studied some specific aspects of customer satisfaction as determinants of trust including: Adaptation or customization of products to match customers' needs (Koufaris and Hampton-Sosa, 2004). Service quality, customer satisfaction and meeting expectations (Jones and Sasser, 1995; Heskett et al., 1994). Network and

social interaction availability (Brenngman and Karimov, 2012; Najafi and Kahani, 2016). In the light of these studies, the fourth hypothesis is presented to examine the influence of customer satisfaction fulfillment on customer's trust in e-commerce:

H4: Customer satisfaction fulfillment has no significant influence on buyers' trust in e-commerce in Palestine at 5% significance level.

This hypothesis is divided into 12 sub hypotheses that relate between each variable in the customer satisfaction construct and the three components of the trust construct

H4a: The adaptation of products and services in the website is not significantly related to the integrity of the e-vendor at 5% significance level.

H4b: E-vendor commitment to the customers is not significantly related to the integrity of the e-vendor at 5% significance level.

H4c: Network availability in the website is not significantly related to the integrity of the e-vendor at 5% significance level.

H4d: Products assortment is not significantly related to the integrity of the e-vendor at 5% significance level.

H4e: The adaptation of products and services in the website is not significantly related to the benevolence of the e-vendor at 5% significance level.

H4f: E-vendor commitment to the customers is not significantly related to the benevolence of the e-vendor at 5% significance level.

H4g: Network availability in the website is not significantly related to the benevolence of the e-vendor at 5% significance level.

H4h: Products assortment is not significantly related to the benevolence of the e-vendor at 5% significance level.

H4i: The adaptation of products and services in the website is not significantly related to the ability of the e-vendor at 5% significance level.

H4j: E-vendor commitment to the customers is not significantly related to the ability of the e-vendor at 5% significance level.

H4k: Network availability in the website is not significantly related to the ability of the e-vendor at 5% significance level.

H4l: Products assortment is not significantly related to the ability of the e-vendor at 5% significance level.

Fifth Hypothesis:

Aghdaie et al., (2011) found governmental factors to be an influencing factor on customers trust attitudes. Similarly, Najafi and Kahani (2016) indicated that technical and infrastructure readiness, and legal and laws readiness were among the factors affecting e-trust level by 12%, and 16% respectively. Therefore, to assess the impact of governmental factors on consumers trust in e-commerce, the following hypothesis is presented:

H5: Perception of governmental factors has no significant influence buyers' trust in e-commerce in Palestine at 5% significance level.

Similar to the previous hypotheses, in order to measure the separate effect of each governmental factor on each component of trust, the hereafter hypotheses are formulated:

H5a: Perception of ICT infrastructure readiness is not significantly related to the integrity of the e-vendor at 5% significance level.

H5b: Perception of e-commerce regulations is not significantly related to the integrity of the e-vendor at 5% significance level.

H5c: Perception of ICT infrastructure readiness is not significantly related to the benevolence of the e-vendor at 5% significance level.

H5d: Perception of e-commerce regulations is not significantly related to the benevolence of the e-vendor at 5% significance level.

H5e: Perception of ICT infrastructure readiness is not significantly related to the ability of the e-vendor at 5% significance level.

H5f: Perception of e-commerce regulations is not significantly related to the ability of the e-vendor at 5% significance level.

Chapter Three

Methodology

3.1 Overview

In this chapter, the research approach, sample identification, data collection and analysis methods are presented.

This research aims to study, explain and analyze the factors influencing online buyers' trust in e-commerce in Palestine using a quantitative approach to measure the influence of independent variables on dependent variable. The reason for selecting the quantitative approach is that this study is deductive in its nature. Saunders et al. (2009) argued that deduction possesses several important features; First, the possibility of explaining causal relationships between variables. Second, controls to allow the testing of hypotheses. Third, concepts have to be operationalized, and the final feature is the generalization. Because of these features, there is a need for a quantitative approach to analyze the collected data.

Independent variables in this study are as follows:

- Website design attitudes
- Reliability fulfillment
- Security and privacy fulfillment
- Customer satisfaction fulfillment
- Perception of governmental factors

Dependent variables is:

- Trust in e-commerce.

3.2 Nature of the study

This study is an explanatory research. Explanatory studies look for explanations of the nature of certain relationships between the independent variables and the dependent variables. It is a study of a phenomenon in an organized manner to explain the relations between the different variables using statistical methods, and through which we can get to explain the reasons between the variables to reach the cause and effect (Saunders, 2011).

In this study, the researcher tries to explain the relationships between the five pre mentioned independent variables and the dependent variable trust in e-commerce, and to assess the effect of each of these variables on the dependent variable.

3.3 Study Population

The population of this research is the employees in Palestine **who have experienced the online shopping, or who have interest in online purchasing**. This interest is seen by their purchases through the interne.

According to the Press Release on the Results of the Labor Force Survey (April - June, 2016) published by Palestinian Central Bureau of Statistics, the number of employees (workers in labor force) in Palestine is **845,700**.

Due to the lack of formal reliable statistics or studies about the percentage of online shoppers among the employees, and considering that the employees are a representative sample of the whole Palestinian community,

the population size could be calculated by multiplying the previously mentioned percentage of the Palestinian society internet users who use the internet for shopping on page 3 (0.5%) by the total number of employees in the Palestinian workforce, that is:

$$\text{Population Size} = 0.5\% * 845,700 = 4429$$

Due to the shortage in reliable formal statistics about the numbers of employees who shop online in the different provinces, stratified sampling technique could not be used. Therefore, the study sample will be selected randomly from employees in various provinces. In order to determine the required sample size three elements should be identified first:

- **Population size:** the size of the whole population.
- **Confidence level:** the level of certainty that the gathered sample characteristics represent the population characteristics.
- **Confidence interval (precision level):** the margin of error that can be tolerated.

In the current study, a confidence level of 95% is chosen, and a confidence interval of 5 (error margin is 0.05) is selected.

3.4 Study Sample Calculations

The required sample size needed to be drawn from this population so that the results could be generalized on the population at a level of confidence of 95%, and error margin of 5% can be calculated using equation (1) adopted from Daniel and Cross (2013):

$$n = \frac{Nz^2pq}{d^2(N-1)+z^2pq} \dots \dots \dots (1)$$

Where:

n : is the sample size

N : is the population size

$z=1.96$ corresponding to a 95% confidence level

p is the percentage picking a choice from the population, when $p=0.5$ the largest possible sample size is produced.

$q=1-p=0.5$

d is the acceptable error margin (5%).

Substituting all of these values in the equation yields $n = 354$. Therefore, based on these values, the researcher has to collect at least 354 survey items so that the results can be generalized on the population.

3.5 Data collection method

In order to collect the necessary data, two methods were used: questionnaire survey and interviews.

A questionnaire survey was conducted (see appendix 1 and 2 for English and Arabic version respectively). Questionnaire survey has the advantages of collecting a large amount of data from a large size population, simplicity and speed Saunders et al. (2009). Oates (2006) considered the survey that is used to obtain data from a large size population as a systematic and standardized method.

The designed questionnaire used closed questions including Likert scale, nominal, and ordinal in which the respondents can choose from a given set

of alternatives. The researcher used a five point Likert scale with anchors defined as (1) strongly disagree , (2) disagree, (3) neutral, (4) agree and (5) strongly agree.

The weighted average for each survey item is calculated using the appropriate tools in Minitab. Then, in order to interpret the results of the survey items, the scale shown in Table 3 was used (Smadi, 2013):

Table 3: The weighted averages and their interpretation

Weighted Average	Level (interpretation)
1-1.8	Strongly disagree
1.81-2.6	Disagree
2.61-3.4	Moderately agree
3.41-4.2	Agree
4.21-5.0	Strongly agree

The questionnaire consisted of two main divisions: demographic characteristics and the study factors. Demographic characteristics included gender, age, educational level, ownership or access to electronic shopping card and the length of online shopping experience. On the other hand, the second division consisted of six sections; five sections for each of the five independent variables and the sixth for the dependent variable. The number of questions for each item was 3-5 questions yielding a total of 64 questions which in turn generated a long questionnaire. Despite of the

researcher' attempts to reduce this number, none of the questions was excluded as it covered a certain dimension of the procedural definition of the variable. The questionnaire was designed based on the measurements of different scholars available in literature as well as experts' suggestions. Table (4) illustrates the references for each item

Table 4: The questionnaire items

Variable	Variable' measure	Adopted from
	1. Website Design Attitudes	
	I think that the website content should:	
CONT1	Be useful for getting information about the products	Pavlou and Fygenon 2006; Wolfinbarger and Gilly 2003; Cao 2005; Szymanski and Hise, 2000;
CONT2	Help in decision making	Chen and Barnes 2007; Bart et al. 2005;
CONT3	Contain information about the company	Gu et al. 2016; Karimov et al. 2011; Kim and Eom 2002;
CONT4	Update Products' information regularly	Cao 2005; Kim and EOM 2002; Bart et al. 2005;
STRUC1	Provide effective search capabilities	Cao 2005; Kim and Eom 2002; Bartikowski and Singh 2014; Bart et al. 2005; Wolfinbarger and Gilly 2003;
INTER1	Be easy to get around and find what I want	Wolfinbarger and Gilly 2003; Anderson and Swaminathan 2011; Chen and Barnes 2007; Kim and Lee, 2002; Pavlou and Fygenon 2006; Szymanski and Hise, 2000; Cao 2005;
INTER2	Provide a contact address	Kim and Eom 2002;
STRUC2	Allow to compare with other products you choose	Kim and Eom 2002; Kim and Lee 2002;
PREST1	Use multimedia elements (audio, video, animation) properly	Cao 2005; Bart et al. 2005;
PREST2	Has a professional appearance	Bart et al. 2005; Wolfinbarger and Gilly 2003; Cao 2005;
PREST3	Use legible colors	Bart et al. 2005; Bartikowski and Singh

	and texts	2014;
PREST4	Provide a site map	Cao 2005; Bart et al. 2005;
STRUC3	Provide "add to cart" option	New measure suggested by the researcher
INTER3	Has Pictures of good quality and proper size (display from different angles)	Kim and Eom 2002; Kim and Lee 2002; Wolfinbarger and Gilly 2003;
PREST5	Few clicks to get to end product from home page	Wolfinbarger and Gilly 2003; Kim and Eom 2002; Bart et al. 2005;
STRUC4	Complete a transaction should be quick and easy	Wolfinbarger and Gilly 2003; Anderson and Swaminathan 2011; Chen and Barnes 2007; Flavián 2006;
INTER4	A first time buyer can make a purchase without much help	Anderson and Swaminathan 2011; Flavián 2006; Cao 2005;
INTER5	2. Reliability Fulfillment	
	The delivered product should:	
REL1	Be represented accurately in the website	Wolfinbarger and Gilly 2003; Kim and Eom 2002;
REL2	Be delivered by the time promised by the website	Wolfinbarger and Gilly 2003; Kim and Eom 2002;
REL3	In my opinion, it is important that	
REL4	Returning items is relatively straightforward	Wolfinbarger and Gilly 2003; Kim and Eom 2002;
REL5	The website has reasonable shipping and handling costs	Wolfinbarger and Gilly 2003;
REL6	Shipping and handling costs are known upfront	Kim and Eom 2002; Bart et al. 2005;
REL7	Cancellation Policy of orders is relatively straightforward	Kim and Eom 2002; Bartikowski and Singh 2014;
REL8	Error free transactions at the website is necessary	Wolfinbarger and Gilly 2003; Bart et al. 2005;
	3. Privacy/Security Fulfillmen	
SEC1	The website has adequate security	Bart et al. 2005; Bartikowski and Singh 2014; Wolfinbarger and Gilly 2003; Kim

	features	and Eom 2002; Wu et al. 2012;
SEC2	I feel secured when using electronic payment system of the website	Koufaris and Hampton-Sosa 2004; Chen and Barnes 2007; Wolfinbarger and Gilly 2003; Bartikowski and Singh 2014;
SEC3	The website usually ensures that transactional information is "virus free approved"	New measure suggested by the researcher
SEC4	There were seals form companies stating that my information on this site is secured (e.g verisign)	Bart et al. 2005; Bartikowski and Singh 2014;
	The general privacy policy should	
PRI1	Be easy to find on the site	Wu et al. 2012; Bart et al. 2005; Bartikowski and Singh 2014;
PRI2	Has an easy to understand text	Bart et al. 2005; Kim and Eom 2002;
	The website should explain	
PRI3	What personal information is going to be collected	Wu et al. 2012;
PRI4	Why personal information is going to be collected	Wu et al. 2012;
PRI5	How the collected data is going to be used	Wu et al. 2012; Bart et al. 2005;
4. Customer Satisfaction Fulfillment		
COMT1	I believe that the e-commerce websites take good care of its customers	Anderson and Swaminathan 2011;
COMT2	My positive experiment with e-commerce websites enhances my relationship with it	Kumar et al. (1995);
COMT3	Gives me attention	New measure suggested by the researcher
NW1	I am interested in other customers opinions	Kim and Eom 2002; Bartikowski and Singh 2014; Bart et al. 2005; Chen and Barnes 2007.
NW2	I am interested in other customers experiences about	Bartikowski and Singh 2014; Bart et al. 2005; Anderson and Swaminathan 2011;

	their product purchases and use at the website	
NW3	I am not interested in other customers experiences and I depend on my own judgment	New measure suggested by the researcher
NW4	I visit chat rooms available in e-commerce websites	Bart et al. 2005; Chen and Barnes 2007
	In my opinion, it is important that	
ADAP1	Respond to the customer's individual needs and desires	Anderson and Swaminathan 2011; Chen and Barnes 2007; Wolfinbarger and Gilly 2003;
ADAP2	Be willing to provide customized services to its customers	Anderson and Swaminathan 2011; Chen and Barnes 2007; Wolfinbarger and Gilly 2003;
ADAP3	Send advertisements and promotions that are designed to fit in my situation	Anderson and Swaminathan 2011;
	I prefer to deal with websites	
ASRT1	with broad variety of products	Kim and Eom 2002; Wolfinbarger and Gilly 2003;
ASRT2	with unexpected items you may find (seldom items)	Wolfinbarger and Gilly 2003;
ASRT3	that have products I can't easily find in traditional stores	Wolfinbarger and Gilly 2003;
ASRT4	The website does satisfy majority of my online shopping needs	Anderson and Swaminathan 2011;
	5. Perception of Governmental Factors	
ICT1	Access to network services or infrastructure to support Web and Internet Technologies is satisfactory	Wymer and Regan 2005;
ICT2	The telecommunication infrastructure is reliable and efficient	Molla and Licker 2005;

	to support e-commerce and e-business	
ICT3	We feel that there is efficient and affordable support from the local IT industry to support our move on the Internet	Molla and Licker 2005;
ICT4	Secure electronic transaction (SET) services are easily available and affordable	Molla and Licker 2005;
REGU1	There are effective laws to combat cyber crime	Molla and Licker 2005;
REGU2	The legal environment is conducive to conduct business on the Internet	Molla and Licker 2005;
REGU3	There are effective laws to protect consumer privacy	Molla and Licker 2005;
REGU4	There is no lack of developed legal and regulatory systems	New measure suggested by the researcher
6. Customer Trust in e-vendors		
	I think	
INTG1	That the website usually fulfils the commitments it assumes	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
INTG2	That the information offered by the site is sincere and honest	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
INTG3	I can have confidence in the promises that the website makes	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
BEN1	That the advice and recommendations given on website are made in search of mutual benefit	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
BEN2	That the website is concerned with the present and future interests of its users	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
BEN3	That the website	Doney and Cannon 1997;Kumar et al.

	would not do anything intentional that would prejudice the user	1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
ABL1	That the website has the necessary abilities to carry out its work	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
ABL2	That the website has sufficient experience in the marketing of the products and services that it offers	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
ABL3	That the website has the necessary resources to successfully carry out its activities	Doney and Cannon 1997;Kumar et al. 1995; Christine et al. 2001; Siguaw et al. 1998; Flavián et al 2006;
CONT: Content ; STRUC: Structure ; INTER: Interaction; PREST: Presentation; RLI: Reliability; SEC: Security; PRI: Privacy; COMT: Commitment; NW: Network; ADAP: Adaptation; ASRT: Assortment; ICT: ICT infrastructure; REGU: Regulation-; INTG: Integrity; BEN: Benevolence; ABL: Ability;		

The questionnaire was distributed in two forms: electronic questionnaire and paper questionnaire. Google Forms service provided by google was used to design the electronic questionnaire, this service requires the participant to enter his/her Gmail which helped (to some extent) in preventing any attempts to fill the questionnaire by the same participant more than once. The use of this method for data collection has the advantage of ensuring that the participants who answer the survey are also internet users.

On the other hand, paper questionnaire was distributed through various provinces including. Different means were used to distribute the paper questionnaire including post offices where online shoppers receive their purchases, and personal contact with participants in the different areas.

The researcher distributed about 500 copies of the paper questionnaire. Three hundred and thirty eight (338) copies have been received. The response rate of the paper questionnaire was 67.6%. This rate would have been higher if the questionnaire was shorter. Some respondents complained about the length of the questionnaire, others apologized for not having time to fill the questionnaire. Out of this number, 106 questionnaires have been excluded because they were invalid. The number of the filled electronic questionnaires was 195. Sixty nine questionnaire were excluded due to their invalidity. Thus, the total number of the valid questionnaire was 358 questionnaires which were used in data analysis.

Regarding the second data collection method, interviews, the researcher conducted interviews with three parties; a police officer; employees in different banks in Palestine, and a lawyer. A phone interview with a police officer regarding the available regulations, legislations, and laws related to the online environment in Palestine, as well as the penalties for people who conduct cybercrimes. In addition, the researcher visited some banks and interviewed the employees in charge of issuing and following up the electronic payment cards and gathered the required information. Finally, a lawyer was interviewed and asked about the availability of relevant laws governing electronic trade and transactions in Palestine. The content of these interviews was relevant enquiries regarding the topic in questions. The answers were not included in the data analysis, but were taking into consideration when deriving conclusions and suggesting recommendations.

3.6. Reliability and validity

Reliability and validity were among the goals of the research while collecting the required data.

3.6.1 Reliability

Reliability is the consistency of measurements with repeated trails (Carmines and Zeller, 1979). Cronbach Alpha is a common approach for measuring the internal consistency of the measures. Its value ranges from 0 to 1, with the closer to 1 value indicated a higher level of internal consistency. Different schools indicated different cut off values for Cronbach Alpha, a value of 0.7 is acceptable although a lower value is found in literature (Nunnaly, 1978). A value of Cronbach Alpha equals to 0.6 or higher is considered to be acceptable (George and Mallery, 2003, Corbitt et al., 2003; Malhotra and Grover, 1998). In this research, reliability was tested using Cronbach Alpha. The overall Cronbach Alpha for the whole questionnaire was 88.91% which is considered to be acceptable. Cronbach Alpha for each construct ranged from 0.5868-0.9308, whereas all subscales demonstrated acceptable internal consistency except for interaction (0.5508) which is low but still acceptable to some extent, and network with the lowest value (0.3332). The reason behind this low value is that the majority of participants are with relatively short online shopping experience; 73.22% of the participants have been shopping online for at most 1-2 years, consequently, they might have not yet experienced the importance of reading other customers opinions' and testimonials, or the

number of their purchases is few and limited so that they did not bother to read about customers opinions.

Table (5) illustrates the Cronbach Alpha of each variable, construct, and the overall value of the measurements.

An overall Cronbach Alpha of 0.8891 indicates that if the survey is to be distributed to another sample, the probability of achieving the same results would be 88.91%.

Table 5: Cronbach Alpha values

Construct	Sub factor	Cronbach's Alpha for sub factor	Overall Cronbach's Alpha for the factor
Website design attitudes	Content	0.61	0.7064
	Structure	0.6058	
	Interaction	0.5508	
	Presentation	0.7326	
Reliability		0.7807	0.7807
Security and privacy attitudes	Security	0.726	0.5932
	Privacy	0.7957	
Customer satisfaction fulfillment	Adaptation	0.7314	0.5868
	Commitment	0.6374	
	Network	0.3332	
	Assortment	0.7313	
Perception of governmental factors	ICT Infrastructure	0.88	0.9308
	Regulations	0.9106	
Trust	Integrity	0.8403	0.8121
	Benevolence	0.769	
	Ability	0.8391	
Overall Cronbach			0.8891

3.6.2 Validity

Joppe (2000) defined validity in quantitative research as whether the research instrument measures what it is intended to be measuring. In this research, the validity was tested by showing the questionnaire to seven different arbitrators (see appendix who evaluated the survey items, the judges' comments were taken into consideration through the process of designing the survey.

In addition, most of the measures used in the questionnaire were adopted from previous studies available in literature which in turn used them and proved their validity, therefore the current measures are considered valid.

3.7. Data analysis method

In order to analyze the gathered data, Minitab 16.1 software product was used. Among the reasons for choosing Minitab are its user-friendly interface, huge capabilities in statistical analyses, and its ability to do data transformation as well as building regression models for the quantitative research.

Data analysis was conducted according to the following procedure:

1. Descriptive statistics of the research sample was conducted.
2. Hypotheses testing using Pearson correlation coefficient.
3. Normality checks for the variables.
4. Regression models (4 regression models).
5. Comparisons based on demographic factors.

Different statistical techniques were used to analyze the data depending on its characteristics. For data that didn't follow normal distribution, Box-Cox transformation was conducted to convert it into normal distribution so that regression model can be used. Besides that, if it was not possible to convert the data into normal distribution, non-parametric tests were used. Namely, when statistical differences according to demographic factors were conducted, Kruskal-Wallis and Mann-Whitney tests were used.

Chapter Four

Data Analysis and Discussion

4.1 Overview

This chapter presents the analysis of the gathered data in addition to discussing these results. The analysis starts with sample characteristics which are classified into two categories: demographic and survey items. Then the hypotheses are tested using Pearson correlation coefficients. The significant factors for the dependent factors are then used in building four regression models. A main regression model between independent constructs and dependent construct, and three regression models for the three sub factors of the dependent construct trust.

4.2 Sample Characteristics

4.2.1 Demographic characteristics

The respondents' identities have been kept anonymous, as no coding have been used. Five demographic characteristics were considered in the study: gender, age, educational level, ownership or access to credit cards or accounts and shopping experience duration. Age was classified into five categories (18-23 Y, 24-30 Y, 31-40 Y, 41-50 Y and more than 50 years). On the other hand, educational level included (less than high school, high school, diploma, bachelor, and higher education).

Regarding accessibility to Electronic payment cards, the question was a (yes/no) question, participants who answered no and yet experienced e-shopping usually pay when they receive their purchases via delivery services, whereas those who answered yes pay by providing their electronic

payment card information. Finally, shopping experience was classified as (Never ,less than a year, 1-2 years, 3-5 years, more than five years), if the answer was "Never", the questionnaire was excluded as the participant lack the required experience to answer the survey questions.

Out of the three hundred and fifty eight valid surveys, there were 208 (58.10%) males and 150 (41.9%) females. Regarding age, the distribution of participants was as illustrated in Figure 3. The largest number of participants according to age was in the age category of 24-30 years with 113 participants, forming 31.57% of the participants, followed by 18-23 years category with 107 participants (29.88%). The number of participants in the age category of 31-40 years was 97 participants (27.09%), and the age category of 41-50 years has 30 participants (8.37%), finally, the smallest age category was for the participants aged more than 50 years with only 11 participants (3.0%).

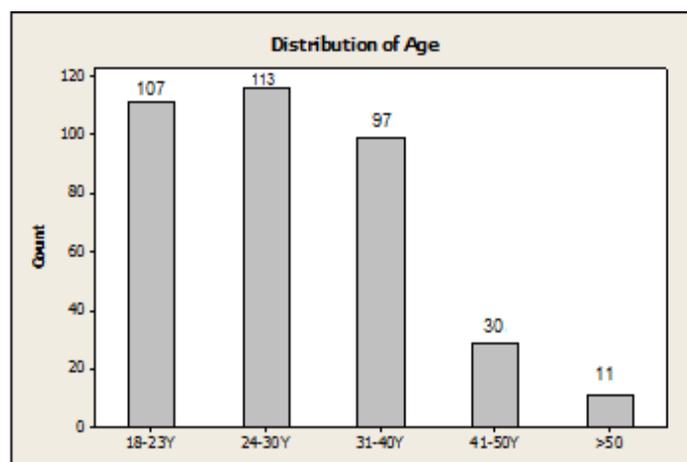


Figure 3: Respondents distribution according to age

The Palestinian Central Bureau of Statistics PCBS released on the International Youth Day dated 12/8/2016 a statistical review on Palestinian youth status. In this review the percentage of the Palestinian youth was 30% of the total population (4.82 Million). Out of this 30%; 63% aged 20-29 years and the remaining 37% aged 15-19 years. Furthermore, the percentage of males to females among youth was 104.1 males to 100 females. The results of the demographic analysis of this study comply with these statistics; these results showed that the largest percentages of participants were from age categories 24-30 years and 18-23 years which represent youth age. Besides that, the percentage of male participants was higher than that of female participants, this is also consistent with the data released by PCBS in 2015 about knowledge and the use of the internet among Palestinians which showed that 75% of the youth in Palestine know and use the internet, out of this 75%, males were 75% and females were 65%.

On the other hand, relating education the bachelor degree holders were the largest sector with 193 participants (53.91%), next was the category of participants with higher education certificate of 100 participants (27.93%), followed by diploma holders with 49 participants (13.68%), high school degree holders were 12 participants (3.35%), and finally participants with less than high school degree were the smallest sector with 4 participants (1.1%). Figure 4 illustrates these results.

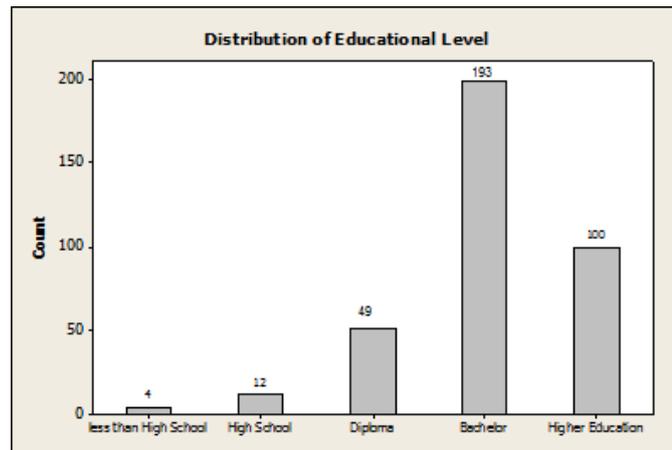


Figure 4: Respondents' distribution according to educational level

The findings showed that the highest sector was for the Bachelor degree holder with 193 participants forming 53.9%, followed by Postgraduate degree holders with 100 participants (27.9%), then Diploma Degree holders with 49 participants (13.68%), followed by High School Degree holders with 12 participants with (3.3%) and finally less than high school degree with only 4 participants (1.1%).

With regard to shopping experience, the respondents with experience less than one year were the highest sector with 128 participants forming (35.75%), followed by respondents with 1-2 years shopping experience with 121 participants (33.8%); the participants with experience of 3-5 years were 65 participants forming (18.16%), whereas the smallest sector was for the participants whom shopping experience is more than 5 years with only 44 participants (12.29%). This could be attributed to the recency of the e-commerce in Palestine in general, and because of the young age of most participants.

The number of participants who owned or had access to credit card account was 271, forming 75.69% of the sample, and 87 (24.31 %) participants did not own or have the access and pay directly when they receive their purchases. In Palestine, the electronic payment cards are offered by different banks to their customers. The types of these cards may differ from one bank to another. The researcher conducted phone interviews and personal interviews with some employees in the Palestinian banks in order to obtain accurate information about these types. The employees were asked about the cards offered by their banks, the differences between them, the preferred type among Palestinian employees for online shopping purposes, and about the percentages of Palestinian employees who own or already issued these cards, unfortunately for privacy issues such percentages were not provided to the researcher.

According to the interviewed employees, the most common types available for the Palestinian citizens include:

1. Debit Cards

In this type, the amount of money the owner can spend is limited by the balance available in the account. Debit cards are two types:

- **Cash Cards:** This type can be issued for savings and running accounts and can be used in online shopping from different websites either local website inside Palestine or from websites all over the world. It has a dedicated separate account from the main account of the customer. This

feature provides security to the main account in case of losing the card or being stolen. Besides that, a monthly and daily upper limit of purchasing for the card can be assigned. This type of cards can be charged at any branch of the issuing bank. The interviewed employees believed that this type is the preferred among customers for online shopping purposes, the reasons behind this preference are its convenience and ease of use. Besides that, Kniberg (2002) stated that this kind of electronic payment cards are the preferable even for merchants because it allows customers to shop and spend more freely. The drawbacks here is that there are some fees that should be paid to issue this card including issuing fees, and a commission on each recharge of the card.

- **Classic Debt Cards**

This card is issued for current accounts only and it can be used for purchases and cash withdrawals from the Automated Teller Machines (ATM's) locally and internationally. It has smart chip is protected with a password in a special four-digit. A yearly commission on the cards is owed plus a monthly commission for managing the account, and a commission on each recharge.

2. Credit Cards

These cards are issued in cooperation with the global cards companies. These cards are linked to a bank account, and can be used in shopping from shops inside or outside Palestine within a fixed roof of credit even if the account has no cash at the time of purchasing, as well as withdrawals from

ATM's. There are different classifications of this type based on the privileges offered from the company as well as the average monthly transactions of the account. These classifications include Classic, Golden and Signature.

Although that the majority have the accessibility to electronic payment cards, 23.8 % of the participants don't have this accessibility, still they shop online and pay directly for their purchases when they receive them. Many people prefer to pay in cash instead of being exposed to risk by providing their electronic payment cards information to the selling party over the internet, especially if they are shopping from a local website in Palestine since most of these local websites provide their customers with delivery services and in most cases it is free of charge.

This type of payment is encouraged by the increasing number of delivery services in Palestine. Currently according to PCBS report on transport and storage activities in 2015, there are 20 postal and courier activities enterprises in Palestine. This number is relatively high compared to a small country like Palestine.

Table (6) summarizes these results.

Table 6: A summary of the respondents' numbers and percentages according to demographic factors

Shopping Experience	Educational Level	Males					Females					Totals (educational level)		Totals (shopping experience)	
		18-23 Y	24-30 Y	31-40 Y	41-50 Y	>50 Y	18-23 Y	24-30 Y	31-40 Y	41-50 Y	>50 Y	N	%	N	%
less than 1 year	Less than high schools	0	0	0	0	0	0	0	0	0	0	0	0.00%	128	35.75 %
	High Schools	3	1	1	0	0	3	0	0	0	0	8	2.23%		
	Diploma	4	2	1	0	0	5	2	1	0	0	15	4.19%		
	Bachelor	14	12	11	0	1	16	13	4	1	0	72	20.11%		
	Higher education	1	2	12	4	1	3	6	4	0	0	33	9.22%		
1-2 Years	Less than high schools	0	0	1	0	0	0	0	0	0	0	1	0.28%	121	33.80 %
	High Schools	1	1	0	0	0	0	0	0	0	0	2	0.56%		
	Diploma	3	4	3	0	0	4	0	0	1	0	15	4.19%		
	Bachelor	5	17	12	0	0	13	13	8	3	2	73	20.39%		
	Higher education	2	4	7	4	0	0	8	4	1	0	30	8.38%		
3-5 Years	Less than high schools	0	1	0	0	0	1	0	1	0	0	3	0.84%	65	18.16 %
	High Schools	0	0	0	0	0	0	0	1	1	0	2	0.56%		
	Diploma	3	4	1	0	0	1	1	0	0	0	10	2.79%		
	Bachelor	7	2	2	2	1	4	4	4	1	1	28	7.82%		
	Higher education	1	5	6	3	1	2	1	1	1	1	22	6.15%		

more than 5 years	Less than high schools	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	44	12.29%
	High Schools	0	0	0	0	0	0	0	0	0	0	0	0	0.00%		
	Diploma	5	1	0	0	1	1	1	0	0	0	0	9	2.51%		
	Bachelor	4	3	5	1	2	1	2	1	1	0	0	20	5.59%		
	Higher education	0	3	4	6	0	0	0	2	0	0	0	15	4.19%		
Totals (age)		53	62	66	20	7	54	51	31	10	4	358				
%		25.4 8%	29.8 1%	31.7 3%	9.62 %	3.3 7%	36.0 0%	34.0 0%	20.6 7%	6.67 %	2.6 7%		100%			
Totals (gender)		208					150							358		
%		58.10%					41.90%								100.00%	

4.2.2 Survey items' results

The second section of the questionnaire contained the actual measures used to measure the effect of each variable. For a smoother display of results, this section has been divided into six subsection, one for each construct; the mean and standard deviation for each construct as a whole were calculated and illustrated in tabular form, as well as the mean and standard deviation of each variable in the construct and displayed in a graphical form.

- **Website Design Construct:**

The variables of this construct were measured using the measures illustrated in Table (7) along with the mean and the standard deviation of each item.

Table 7: Mean and standards deviation of website design attitudes items

	Variable' measure	Mean	St. Dev.
	Website Design Attitudes		
	I think that the website content should:		
1.	Be useful for getting information about the products	4.65	0.628
2.	Help in decision making	4.27	0.796
3.	Contain information about the company	4.23	0.882
4.	Update Products' information regularly	4.56	0.692
5.	Provide effective search capabilities	4.71	2.213
6.	Be easy to get around and find what I want	4.71	2.665
7.	Provide a contact address	4.41	0.780
8.	Allow to compare with other products you choose	4.09	0.912

9.	Use multimedia elements (audio, video, animation) properly	4.07	1.002
10.	Has a professional appearance	4.29	0.781
11.	Use legible colors and texts	4.54	0.653
12.	Provide a site map	4.39	0.698
13.	Provide "add to cart" option	4.17	0.901
14.	Has Pictures of good quality and proper size (display from different angles)	4.41	0.789
15.	Few clicks to get to end product from home page	4.53	0.681
16.	Complete a transaction should be quick and easy	4.31	0.829
17.	A first time buyer can make a purchase without much help	4.46	0.643
	The Average of the Construct	4.40	0.973

In this section of the survey, the respondents were asked to give their opinions about the importance of website design attitudes of the e-vendor. WSDA consisted of four variables: content, structure, interaction and presentation. Each of these variables was measured using at least 4 items. The averages of the mean and standard deviation of these variables are as illustrated in Figure 5. Most respondents ranked content, presentation and interaction of the website in a higher level of importance than structure which had the lowest mean among the four variables.

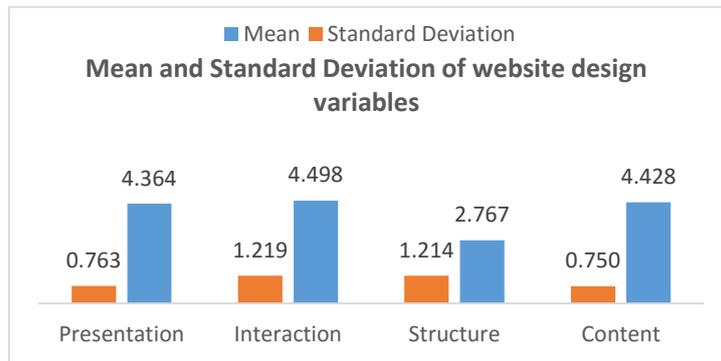


Figure 5: The mean and standard deviation of each variable in website design attitudes

Reliability is a standalone construct that has no sub variables. The mean of all questions was 4.45 and standard deviation of 0.746. The mean is very high, meaning that most respondents strongly agreed that these items to be important in judging the e-vendor reliability. Seven items were used to measure this construct, the mean and the standard deviation of each item are illustrated in Table (8).

Table 8: Mean and standards deviation reliability fulfillment measures

	Reliability	Mean	St. Dev.
	The delivered product should:		
18	Be represented accurately in the website	3.74	1.273
19	Be delivered by the time promised by the website	4.75	0.591
	In my opinion, it is important that		
20	Returning items is relatively straightforward	4.61	0.645
21	The website has reasonable shipping and handling costs	4.32	0.871
22	Shipping and handling costs are known upfront	4.59	0.580
23	Cancellation Policy of orders is relatively	4.73	0.493

	straightforward		
24	Error free transactions at the website is necessary	4.42	0.771
	The Average of the Construct	4.45	0.746

The third construct is Security/Privacy Attitudes. The measures that were used for this construct as well as the mean and standard deviation of each item are shown in Table(9):

Table 9: Mean and standard deviation of security and privacy attitudes items

	Privacy/Security Fulfillment	Mean	St. Dev.
25	The website has adequate security features	4.43	0.855
26	I feel secured when using electronic payment system of the website	4.77	0.489
27	The website usually ensures that transactional information is "virus free approved"	4.05	1.005
28	There were seals form companies stating that my information on this site is secured (e.g verisign)	4.36	0.803
	The general privacy policy should		
29	Be easy to find on the site	4.44	0.767
30	Has an easy to understand text	4.36	0.753
	The website should explain		
31	What personal information is going to be collected	4.48	0.674
32	Why personal information is going to be collected	4.33	0.831
33	How the collected data is going to be used	4.32	0.805
	The Average of the Construct	4.39	0.776

This construct was divided into two variables: security and privacy. The mean and standard deviation of these variables are illustrated in Figure 6.

Security was measured using four measure, whereas privacy using five measures. Apparently, the means of both variables were high and their values were close to each other, reflecting respondents' awareness about the importance of security and privacy issues when dealing in electronic environment.

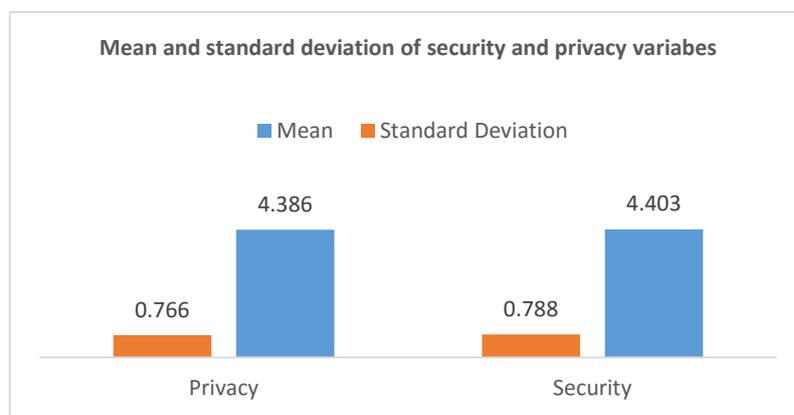


Figure 6: The mean and standard deviation of each variable in security/privacy attitudes

The forth construct, customer satisfaction fulfillment consists of four variables adaptation, commitment, network and assortment. The measures that were used for this construct as well as the mean and standard deviation of each item are shown in Table (10).

Table 10: Mean and standard deviation of customer satisfaction fulfillment items

	Customer Satisfaction Fulfillment	Mean	St. Dev.
34	I believe that the e-commerce websites take good care of its customers	4.18	0.857
35	My positive experient with e-commerce websites enhances my relationship with it	3.82	0.950

36	Gives me attention	4.07	0.939
37	I am interested in other customers opinions	3.78	1.159
38	I am interested in other customers experiences about their product purchases and use at the website	4.19	0.875
39	I am not interested in other customers experiences and I depend on my own judgment	4.34	2.299
40	I visit chat rooms available in e-commerce websites	2.71	1.341
	In my opinion, it is important that		
41	Respond to the customer's individual needs and desires	2.94	1.246
42	Be willing to provide customized services to its customers	4.34	0.753
43	Send advertisements and promotions that are designed to fit in my situation	4.26	0.806
	I prefer to deal with websites		
44	with broad variety of products	4.03	0.960
45	with unexpected items you may find (seldom items)	4.29	0.821
46	that have products I can't easily find in traditional stores	4.16	0.923
47	The website does satisfy majority of my online shopping needs	4.23	0.927
	The Average of the Construct	3.96	1.05

The overall mean and standard deviation of the construct items were 3.96 and 1.05 respectively. The mean and standard deviation for each of these variables are illustrated in Figure 7. Respondents considered product assortment to be the most important variable as it had the highest mean among the four variables, followed by commitment with a small difference, adaptation came third whereas network had the lowest value among the four variables. As discussed before, this could be attributed to the short

shopping experience of most of the respondents, thus they did not realize the importance of reading other customers' opinions and experiences about the e-vendor and the level of services.

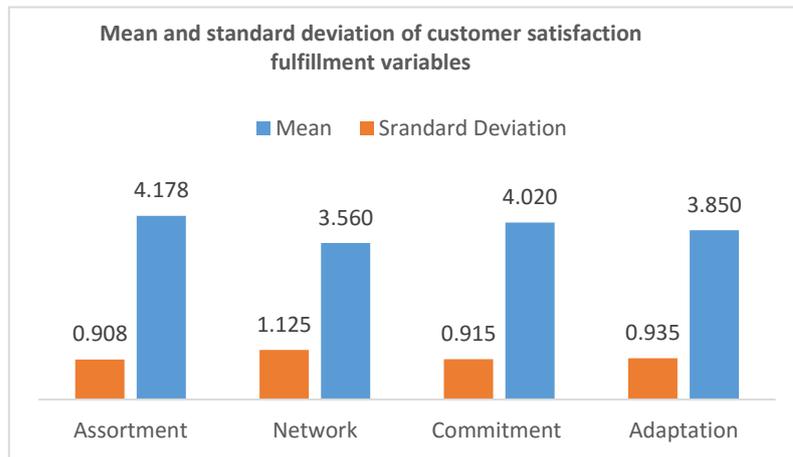


Figure 7: The mean and standard deviation of each variable in customer satisfaction fulfillment

The fifth construct was the perception of governmental factors. The measures that were used for this construct as well as the mean and standard deviation of each item are shown in Table (11). The overall mean of this construct was the lowest among all constructs. The mean was 2.97, whereas the standard deviation was 1.09. This means that most respondents' satisfaction of governmental factors was poor. The governmental factors were two variables: ICT infrastructure and regulations. The mean and standard deviation for each of these variables are illustrated in Figure 8. In this Figure, regulations had the lowest mean (2.685), which reflect that most respondents believed that the regulations and laws related to e-commerce were not satisfactory nor effective enough to prevent cybercrimes and protect customers' privacy and rights.

Regarding ICT infrastructure, the moderate mean of the variable could be explained that the respondents think that the readiness of ICT infrastructure is not enough to keep up with the continuing evolution of e-commerce.

Table 11: Mean and standard deviation of perception of governmental factors items

	Perception of Governmental Factors	Mean	St. Dev.
48	Access to network services or infrastructure to support Web and Internet Technologies is satisfactory	4.37	0.847
49	The telecommunication infrastructure is reliable and efficient to support e-commerce and e-business	2.91	1.265
50	We feel that there is efficient and affordable support from the local IT industry to support our move on the Internet	2.96	1.166
51	Secure electronic transaction (SET) services are easily available and affordable	2.75	1.098
52	There are effective laws to combat cyber crime	2.73	1.093
53	The legal environment is conducive to conduct business on the Internet	2.59	1.151
54	There are effective laws to protect consumer privacy	2.77	1.109
55	There is no lack of developed legal and regulatory systems	2.65	1.051
	The Average of the Construct	2.97	1.09

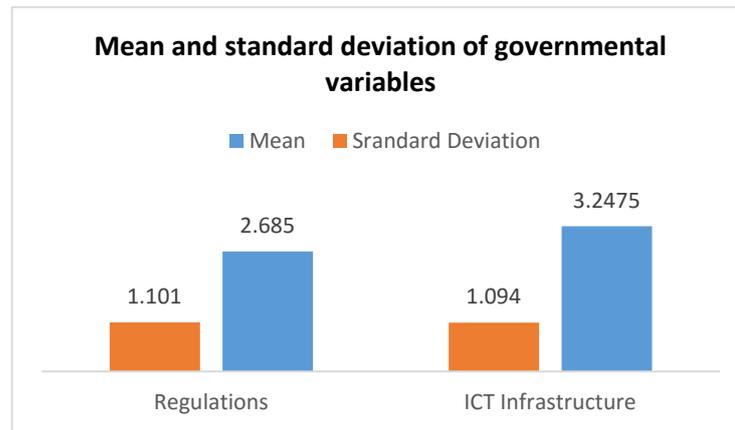


Figure 8: The mean and standard deviation of each variable in perception of governmental factors

The last construct was the construct of the dependent variable, trust in e-commerce. The measures that were used for this construct as well as the mean and standard deviation of each item are shown in Table (12).

Table 12: Mean and standard deviation of trust items

	Customer Trust in e-vendors	Mean	St. Dev.
	I think		
56	That the website usually fulfils the commitments it assumes	2.99	1.091
57	That the information offered by the site is sincere and honest	3.74	0.915
58	I can have confidence in the promises that the website makes	3.55	0.989
59	That the advice and recommendations given on website are made in search of mutual benefit	3.40	0.957
60	That the website is concerned with the present and future interests of its users	3.52	1.021
61	That the website would not do anything intentional that would prejudice the user	3.56	0.977
62	That the website has the necessary abilities to carry out its work	3.75	0.891
63	That the website has sufficient experience in the marketing of the products and services that	3.68	0.863

	it offers		
64	That the website has the necessary resources to successfully carry out its activities	3.69	0.952
	The Average of the Construct	3.54	0.962

The mean and standard deviation of the construct were 3.54 and 0.962 respectively. This means that the about 60% of respondents tend to trust in e-commerce. This construct consisted of three variables, integrity, benevolence and ability.

The mean and standard deviation for each of these variables are shown in Figure 9. Respondents believed that e-vendors have integrity and benevolence when dealing with customers at about the same degree; but their belief in vendors' abilities was higher than integrity and benevolence.

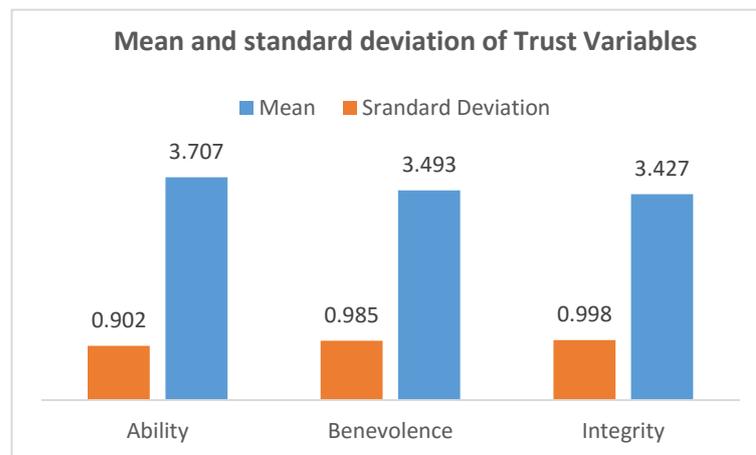


Figure 9: The mean and standard deviation of each variable in trust construct

As a summary of all constructs, Figure 10 illustrates the mean and Standard deviation of each construct as a whole.

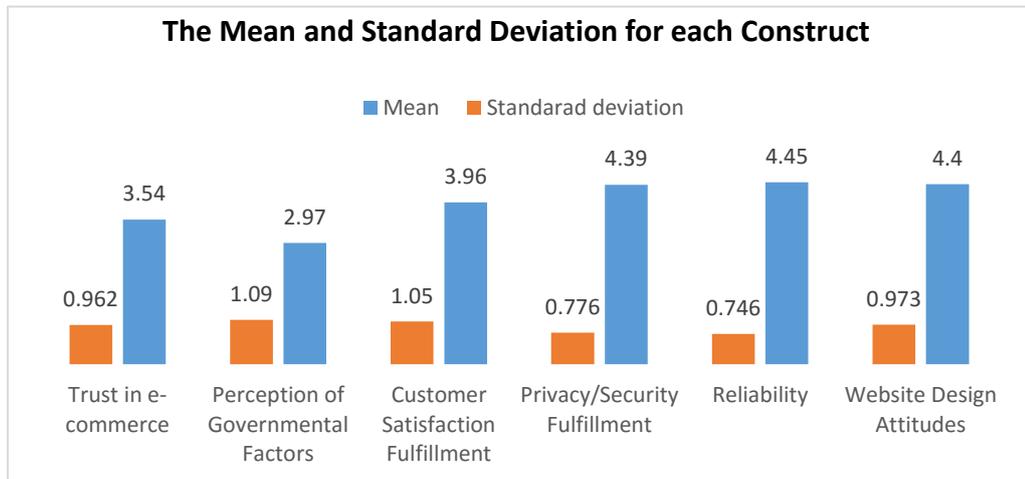


Figure 10: The mean and standard deviation of each construct as a whole

4.3 Hypotheses' Testing

4.3.1 Main Hypotheses

This study aims to test five main hypotheses relating each of the independent constructs with the dependent construct. The correlation coefficients of these hypotheses are illustrated Table (13):

Table 13: Correlation coefficients between independent constructs and dependent construct

	Trust Average	
	R	P-value
Website Design Attitudes	0.127	0.016
Reliability Fulfillment	0.009	0.87
Security and Privacy	0.131	0.013

Attitudes		
Customer Satisfaction Fulfillment	0.341	0
Perception of Governmental Factors	0.433	0
$\alpha=0.05$		

The results of hypotheses testing showed that the four main constructs; website design attitudes, security and privacy attitudes, customer satisfaction attitudes, and perception of governmental factors were significant. This implies that the better WSDA, SPA, CSF, and PGF the better the trust level in e-vendors. On the other hand, reliability fulfillment was not found to be significant. Further discussion on each of these hypotheses hereunder.

H1: Website design attitudes have no significant influence on buyers' trust in e-commerce in Palestine

The current study found that website design attitudes has a significant influence buyers' on trust in e-commerce. This result comply with the findings of many studies available in literature including (Hoffman et al., 1999; Shankar et al., 2002; Chen, 2007; Cyr, 2008; Karimov et al., 2011; Eid,2011, Najafi and Kahani, 2016; Al-dweeri et al., 2017). E-vendors web site represents the interface through which the customer can make a first impression about the website's trustworthiness (Akhter et al., 2005). Wakefield et al., (2004) considered website attributes and design as

predictors for gaining customers' trust in e-commerce. Furthermore, Lumsden and MacKay (2006) classified trust triggers into two types: immediate and interaction-based trust. Immediate trust triggers are those a customer can feel as soon as he enters the website including professional website design; whereas interaction-based triggers are those triggers created as the customer dynamically interact with the website like Ease of navigation. Both of these triggers are based on the website design which reflects its significance in gaining customers' trust. On the other hand, these findings contradicts the findings of Toufaily and Pons (2017) we which revealed that website was not a significant antecedent of trust.

H2: Reliability fulfillment have no significant influence on buyers' trust in e-commerce in Palestine

The findings of the current research concerning this hypothesis failed to reject it; although that the overall mean of the items used to measure this construct was relatively high, this construct is not a significant factor in buyers' trust in e-commerce, this result is bizarre!! It contradicts most if not all of the previous studies in literature. Previous literature emphasizes on the importance of the reliability of the website. Wolfinbarger and Gilly (2003) and Bart et al. (2005) found that reliability fulfillment is correlated to website quality. Similarly, fulfillment reliability was found to have a positive effect on consumers' trust in e-commerce (Chen, 2007; Corritore et al., 2003), and e-satisfaction and e-trust (Kim et al, 2009,b).

Several reasons may cause this insignificance. These reasons encompass:

- Lack of awareness among buyers in Palestine about the importance of reliability of the online vendors.
- Shopping experience has two components, duration and frequency (Miyazaki and Fernandez, 2001), The majority of respondents in this study have relatively short online shopping experience, thus are either unfamiliar enough with the importance of the reliability of e-vendor, or the number of their purchases is relatively small which in turn was not sufficient to measure the reliability of the e-vendor. In addition, familiarity with the vendor and purchasing experience enhances the buyer's trust in e-vendors (Akhter et al., 2005; Shergill and Chen, 2005), the Palestinian buyers' unfamiliarity with e-commerce negatively affected their trust level in the e-vendors' reliability.
- Some may attribute the delay in delivering the purchases to other causes like the difficulties in transport instead relating it to online vendor reliability.

H3: Security and privacy attitudes have no significant influence buyers' trust in e-commerce in Palestine.

This hypothesis was rejected in this research as the analysis of the data found a statistical evidence that privacy and security has a positive influence on buyers' trust in e-commerce. These findings are similar to those of Chen, 2007; Riquelme and Román 2014; Bart et al., 2005; Chellappa and Sin 2005; Román 2007; and Ganguly et al., 2011; Al-dweeri

et al., 2017; Eid, 2011; Bartikowski and Singh, 2014. Furthermore, Belanger (2002) found that security features are the most important for enhancing trust in e-commerce. Karimov et al. (2011) found that internal electronic assurance security and privacy policies are effective as much as external (paid) electronic assurance like third party seals. Likewise, Wu et al. (2012) study results showed a significant relationship between the content of privacy policies and privacy concern/trust; willingness to provide personal information and privacy concern/trust; privacy concern and trust.

H4: Customer satisfaction fulfillment has no significant influence on buyers' trust in e-commerce in Palestine.

This hypothesis was not supported, meaning that customer satisfaction fulfillment has a positive significant influence on buyers' trust in e-commerce in Palestine with a value of 0.341. This result is reasonable, customers tend to trust the vendors who satisfy their requirements. These findings match the findings of prior studies including (Wang et al., 2016; Chen, 2007; Flavián et al., 2006); and Gustafsson et al. (2005) who found it significant for customers' retention. The previous studies linked satisfaction to trust, when e-vendors websites operators save no effort in satisfying their customers by customizing the products, being committed to their service, offering a network to ease communications among them and offer them various kinds of products, it expect that their satisfaction level will

increase, hence their trust increases since trust is a consequence of the customers' level of satisfaction (Al-dweeri et al., 2017). The more satisfied the customers are, the more their desire to get engaged in long-term relationship with the e-vendors (Shao Yeh and Li 2009).

H5: Perception of governmental factors has no significant influence buyers' trust in e-commerce in Palestine

This hypothesis was not supported in this study. The effect of the perception of the Palestinian buyers of governmental factors on trust was significant with a positive influence and the highest correlation coefficient of 0.433. These results match the results of (Aghdaie et al., 2011; Najafi and Kahani, 2016, Huang and Chang, 2017). The two governmental factors considered here were ICT infrastructure, and regulations form the elementary needs for trading online. The ICT Infrastructure is a key player in any economy, the more developed the ICT infrastructure, the more prosperous the economy. Lawrence and Tar (2010) indicated that ICT infrastructure, and government policies are the major barriers for the adoption and evolution of e-commerce in developing countries. Therefore, in Palestine, the ICT infrastructure should be capable of keeping up with this evolution. The current situation of the ICT infrastructure in Palestine according to the joint press release of the Ministry of Telecommunications and information Technology and PCBS on International Day for Information Society 17/5/2016 is:

- The percentage of ICT establishment of the total economic establishments in the private sector was 0.5%. ICT sector participation to GDP was 5.9% in 2014 and 2015.
- The percentage of Palestinian households with Internet connection was 48.3%.
- About 4.5% of internet users have purchase or sell over the internet.
- The Ministry of Communications and Information Technology announced that in 2015 there was 57.0% increase in the international receipt mail compared to the previous year. They attributed this increase to e-commerce activities.
- According to the acting general manager of the Palestinian post interview published in *AlAyyam* newspaper on 28/2/2016, the Palestinian postal services might not be capable of keeping up with this increase since its capacity was not design to accommodate these quantities. He indicated that the post has one transmission vehicle with 0.5 ton capacity, and the size of the received parcels is about 20 tons a month, which is cumbersome.

Regulations are the second governmental factor. Government role in this issue is vital since government is the party responsible for establishing the safe legal environment that protects customers' rights by issuing regulations, guarantees, and laws which will facilitates customers' beliefs that the e-vendors will keep their promises (Aghadie et al., 2011). For customer to conduct transactions over the internet they have to feel secure

and safe while doing so, this security and safety are the results of the availability of rigid online transaction laws and legislations. Unfortunately, up to the date of writing this research no laws neither legislations for online environment transactions are approved. Although there is a draft law ready for discussion since 15 years in the legislation council, none of these are agreed upon nor activated due to the political situation in Palestine and the disabled legislation council. Besides that, according to an interviewed police officer, when some cybercrimes happen, or some users violate others privacy and threat them, there are no strict laws to prevent others from repeating these violations, the offenders of these acts are hold accountable based on telephone hazing law, which does not contain enough strict penalties.

Therefore, due to the lack of convenient regulations some citizens may hesitate to buy from online vendors' websites, others may actually buy from certain local websites that deliver the purchases, thus customers pay for these purchases when delivered directly without being exposed to the risk associated with electronic payment methods.

4.3.2 Sub Hypotheses

In this research there are 36 sub hypotheses relating the sub factors of independent constructs and the three sub factors of the dependent construct. In order to test these hypotheses, the correlation between each of the sub factors of the independent variables and the sub factors of the dependent factors has been calculated. Table (14) summarizes the results where the significant correlations are in Bold face:

Table 14: Correlation coefficients between independent sub factors and dependent sub factors

		Trust Sub Factors					
		Integrity		Benevolence		Ability	
		r	P value	r	P value	r	p-value
Website Design Attitudes H1	Content (H1a, H1e, H1i)	0.104	0.049	0.172	0.001	0.126	0.017
	Structure (H1b, H1f, H1j)	0.06	0.252	0.079	0.133	0.007	0.88
	Interaction (H1c, H1g, H1k)	0.013	0.799	0.007	0.901	0.129	0.014
	Presentation (H1d, H1h, H1k)	0.083	0.114	0.158	0.003	0.157	0.003
Security and Privacy H3	Security (H3a, H3c, H3e)	0.137	0.009	0.2	0	0.252	0
	Privacy (H3b, H3d, H3f)	0.059	0.261	0.122	0.021	0.167	0.001
Customer Satisfaction Fulfillment H4	Adaptation (H4a, H4e, H4i)	0.21	0	0.259	0	0.177	0
	Commitment (H4b, H4f, H4j)	0.257	0	0.311	0	0.188	0
	Network (H4c, H4g, H4k)	0.1	0.057	0.158	0.003	0.18	0.001

	Assortment (H4d,H4h, H4k)	0.177	0.001	0.188	0	0.302	0
Perception of govern- mental Factors H5	ICT Infrastruct-ure (H5a,H5c, H5e)	0.401	0	0.299	0	0.254	0
	Regulations (H5b,H5d, H5f)	0.432	0	0.359	0	0.331	0
$\alpha=0.05$							

Sub hypotheses for website design attitudes (H1a..H1l)

The four variables that formulate the web design attitudes have varying results , the structure component of the web design attitudes is not significant for any subcomponent of trust which in turn supports hypotheses (H1b, H1f, H1j), whereas the content of the web site is significant for all subcomponents , this result contradicts hypotheses (H1a, H1e, H1i). Regarding presentation, it was significant for benevolence and ability only contradicting (H1h, H1l) and supporting (H1d), finally, interaction subcomponent of the web site attitudes is only significant for the ability subcomponent opposing to (H1k) and supporting (H1c, H1g).

The findings revealed that content has a significant influence on the three components of trust: integrity, benevolence and ability. This result emphasizes that the quality of the information provided in the website enhances trust level in the e-vendor among customers precisely in online environment, where customers prefer websites that offer comprehensive information about the product to overcome the lack of tangibility (Demangeot and Broderick, 2010). The information presented on the

website is diverse, it includes information about the company behind the site; about the products in details; and about website policies regarding security issues, customer help or services (Chang and Chen, 2008). This comprehensive diversification carries a lot of information that will help assesses the integrity, benevolence and ability of the trustee. Hence, the information on the website regarding delivering mechanism, products' exchange rules and the overall working system of the website have a positive influence on the three dimensions of trust.

On the other hand, the second component, structure which is the way of organizing the information on the website, did not influence any component of trust in the current research. This result contradicts other studies that found it influencing like (Bartikowski and Singh, 2014; Nielsen, 1999; Cyr, 2008, Lowry et al., 2008). Structure had the lowest mean among website design attitudes. This reflects that respondents believed that the way of organizing information on the website has no effect on the trustworthiness of the e-vendor, the quality of the information rather than the way in presenting it is more influential for the Palestinian buyers. One of the underlying reasons behind this could be the short experience of the buyers in online shopping. By time, as they shop online more, their experience is enriched via browsing and using different website structures, ultimately they gain the skills to tradeoff between different structures and sense the importance of this component.

The third component of web site design attitudes is interaction. As defined earlier, interaction is the ease of use of the website. It has a positive

influence on the ability component of trust only, whereas Oliveira et al. (2017) found that the interaction between customers and the firm positively influence the three components. The result of the current study means that respondents believed that the degree to which the website is easy to use is an indicator for the capabilities of the e-vendor, but not for the integrity and benevolence. When the web site is easy to navigate and use this allow users to know where they are now and where they have been on the site, and this ease of navigation and use may result in keeping them on the site and not leave it to another one (Nielson, 1999). Therefore, if the e-vendor has the capabilities to manage the site this way, then it is a clue for his competence in managing other responsibilities.

The last component of web design attitudes is presentation, which is the overall appearance of the site. This factor has a positive influence on the benevolence and ability of the e-vendor. Respondents considered that the presentation of the website is a signal for its ability, users in general can distinguish between a well-designed website and the one that is not (Kirmani and Wright, 1989), therefore investing in the design of the website is a signal for showing the underlying competencies and abilities of the e-vendors. Customers can make inferences that an e-vendor who invested in the design of the website can manage successfully online transactions and fulfill orders (Schlosser et al., 2006). Similarly, web site presentation has a significant influence on the benevolence of the e-vendor. Customers believed that the e-vendor who spent time and money in designing the website in such a way the make their shopping experience

easy and enjoyable will have the good will for them and put their interests first. Hwang and Kim (2007) studied the effect of enjoyment on the three components of trust, their finding showed that enjoyment has a positive influence on the integrity and ability only; these results support the current study results regarding ability, but contradict it regarding integrity and benevolence. Among the features that influences trust are human images (Cyr et al., 2009; Wang and Emurian, 2005; Karimov et al., 2011); color (Kim and Moon, 1998; Skulmowski et al., 2016); and design clarity (Liu and Goodhue, 2012; Li and Yeh, 2010). Thus, employing such elements in website design can enhance trust level in e-vendors.

As a conclusion e-vendors can signal their integrity, benevolence and abilities through investing in website design, especially that website design elements do act like cues for trustworthiness (Schlosser et al., 2006). In addition, internet users usually make judgements about websites credibility very fast, thus the appearance of the websites is the major player in giving the first impression about the site's trustworthiness (Fogg et al., 2002; Lindgaard et al., 2006; Tuch et al., 2012).

Sub hypotheses for security and privacy attitudes (H3a..H3f)

Both security and privacy factors are significant for benevolence and ability, this don't agree with the proposed hypotheses (H3c, H3d, H3e, H3f); regarding integrity, security alone is significant for integrity which is opposed to (H3a), privacy has no effect on the integrity of the e-vendor supporting (H3b).

Security attitudes of the website have a positive influence on the three components of trust. Oliveira et al., (2017) found that lack of integrity, security and privacy in a website negatively affects only the integrity and ability of the trustee, but has no negative effect on the benevolence. Whereas Schlosser et al., (2006) found that the presence and the strength of the security/privacy statement together signal and have a positive influence on the benevolence and integrity of the e-vendor but not ability. Therefore the current study findings related to security are supported by the findings of these two studies, the mean of the security measures is about 4.4 out of five, which is relatively high, this reflects the importance of security issues to the respondents when dealing with online shopping. On the other hand, the current study revealed that privacy is positively related to the benevolence and the ability of the e-vendor, but no significance was found with integrity. These results partially agree with the findings of Wu and Tsang (2008) which revealed that the privacy policies on the website have a significant positive effect on the integrity and benevolence of the e-vendor and has a positive but not significant influence on the e-vendor's ability. This result indicates that respondents believed that the availability of the privacy statement and the assurances from the e-vendor about the protection of their personal information have increased their trust levels. Websites owners and operators have to work on minimizing the uncertainties related to the customers' information misuse and try to enhance the protection mechanisms on their website which will eventually increase trust level among customers.

Sub hypotheses of customer satisfaction fulfillment (H4a..H4l)

Customer satisfaction fulfillment consists of four variables: Adaptation, Commitment, Network, and Assortment. Adaptation, commitment and assortment have significant positive effects on the three components of trust, thus contradicting (H4a, H4b, H4d, H4e, H4f, H4g, H4h, H4i, H4j, H4k, H4l), except for network which is not significant for integrity which support the proposed hypothesis (H4c).

Adaptation to customers' needs through customizing products may enhance customers' beliefs in the benevolence of the firm (Sirdeshmukh et al., 2002). Customization of products has a positive significant impact on initial trust (Koufaris and Hampton-Sosa, 2004, Coelho and Henseler, 2012; Toufaily and Pons, 2017) and in mobile trust as well (Li and Yeh, 2010). Based on these studies, adaptation to customers' needs by offering products that are tailored for them, reflect the good will, the care and attention the e-vendor is paying for them, as well as reflecting the e-vendor abilities and competencies, consequently, this could be explained by them as signals for integrity, benevolence and ability.

The second factor in customer satisfaction is the commitment. E-vendor commitment towards customers has a significant positive influence on the three components of trust. When the e-vendor satisfies the needs of its customers and have a high level of commitment towards them, this could be understood by them as cues for the integrity, benevolence and ability of the e-vendor since the analysis of website users' needs is not an easy task,

therefore it is expected that their believe in the e-vendor's integrity, benevolence and ability increase.

The third component is Network. This variable has an influence one benevolence and ability of the e-vendor only. One of the major development in the information age is the virtual communities or networks (Sridhar Balasubramanian, 2001). It is known in literature that social communities can increase trust (Özer and Zheng, 2017; Shadkam and O'Hara, 2011; Urban, 2005; Schubert and Ginsburg, 2000). Sociologists believe that personal relationships' networks have a major role in establishing trust (Özer and Zheng, 2017). Therefore, network availability in an e-vendor website can enhance trust for several reasons; first , the ability of customers to exchange opinions and experiences reflects that the e-vendor is not hiding any of other customers' experiences which could be explained as a cue of confidence of his services, transactions and abilities; second, when customers read other customers' comments about the products they already received and to what level do these purchases match the prescribed features of the products on the website, they can judge the benevolence and the honesty of the e-vendor; third, beside the fact that these network can help in creating a wider base of customers, the e-vendor can benefit from the discussions among the members as well, the e-vendor can reinforce actions that derive satisfaction and avoid actions that derive dissatisfaction (Schubert and Ginsburg, 2000), thus trust level is enhanced. Sharing these experiences can reinforce purchasing decisions and trust level especially for first time customers. Customers in general appreciate

the sites that provide such communities or network (Hagel, 1997; Frank, 1997).

The last component of customer satisfaction fulfillment construct is the assortment of products. This factor has a positive significant influence on the three components of trust. Customers trust the e-vendor to the extent they have a satisfactory image of products assortment (Guenzi et al., 2009), thus uncertainty level decreases while shopping in the site (Chiou and Droge 2006). Product assortment has a positive significant influence on trusting e-vendor (Rubio et al., 2017). Customers judge a company's trustworthiness based on their perception of the abilities of the company in conducting its activities and tasks (Morgan and Hunt, 1999). The abilities and competencies of the e-vendors are two types: observable and unobservable competencies. The observable competencies are cues for the unobservable competencies. Therefore, when they are satisfied with observable competencies as product assortment, this represents a cue for the unobservable competencies. Ultimately, they are satisfied with and trusting his abilities.

Sub hypotheses for perception of governmental factors (H5a..H5f)

The perception of governmental factors components (ICT infrastructure, Regulations) are significant for the three subcomponents of trust; indicating that governmental factors have an influence on each component of trust which contradicts the proposed hypotheses (H5a, H5b, H5c, H5d, H5e, H5f).

Having a reliable and supportive ICT infrastructure is the corner stone for establishing trust in e-environment; in order to keep his promises towards the customers, the e-vendor rely on the ICT infrastructure in delivering the purchases, having the website functioning all the time with no breakdowns, and for offering a broader coverage of internet services to reach more customers. Thus, obviously the ICT infrastructure directly impact e-vendor integrity, benevolence and ability. On the other hand, regulations are as important as the ICT infrastructure in reinforcing trust. The availability of regulations protects the rights of all parties involved in e-transactions, hence encouraging customers to deal more freely in online shopping and trusting the e-vendors. This is because they know that the e-vendors have to do business with them honestly under the umbrella of law and keep his promises and held agreement with the customers, otherwise, the e-vendors are subjected to legal accountability.

The results of the five main hypotheses testing as well as the decision of failing to reject or rejecting the hypotheses are illustrated in Table (15):

Table 15: Main hypotheses testing results

Main Hypothesis	P value	Decision
H1: Website design attitudes have no significant influence on buyers' trust in e-commerce in Palestine.	0.016	Not Supported (reject null hypothesis)
H2: Reliability fulfillment has no significant influence buyers' trust in e-commerce in Palestine.	0.87	Supported (fail to reject null hypothesis)
H3: Security and privacy attitudes have no	0.013	Not Supported

significant influence buyers' trust in e-commerce in Palestine.		(reject null hypothesis)
H4: Customer satisfaction fulfillment has no significant influence on buyers' trust in e-commerce in Palestine.	0	Not Supported (reject null hypothesis)
H5: Perception of governmental factors has no significant influence buyers' trust in e-commerce in Palestine.	0	Not Supported (reject null hypothesis)
$\alpha=0.05$		

Based on the correlation results the following Table (16) illustrates sub hypotheses testing results.

Table 16: Sub hypotheses testing results

Main Hypothesis	Sub Hypothesis	Correlation coefficient	P-value	Decision
	H1a	0.104*	0.049	Not Supported
	H1b	0.06	0.252	Supported
	H1c	0.013	0.799	Supported
	H1d	0.083	0.114	Supported
	H1e	0.172*	0.001	Not Supported
	H1f	0.079	0.133	Supported
	H1g	0.007	0.901	Supported
	H1h	0.158*	0.003	Not Supported
	H1i	0.126*	0.017	Not Supported
	H1j	0.007	0.88	Supported
	H1k	0.129*	0.014	Not Supported
	H1l	0.157*	0.003	Not Supported
	H3	H3a	0.137*	0.009
H3b		0.059	0.261	Supported

	H3c	0.2*	0	Not Supported
	H3d	0.122*	0.021	Not Supported
	H3e	0.252*	0	Not Supported
	H3f	0.167*	0.001	Not Supported
H4	H4a	0.21*	0	Not Supported
	H4b	0.257*	0	Not Supported
	H4c	0.1	0.057	Supported
	H4d	0.177*	0.001	Not Supported
	H4e	0.259*	0	Not Supported
	H4f	0.311*	0	Not Supported
	H4g	0.158*	0.003	Not Supported
	H4h	0.188*	0	Not Supported
	H4i	0.177*	0	Not Supported
	H4j	0.188*	0	Not Supported
	H4k	0.18*	0.001	Not Supported
	H4l	0.302*	0	Not Supported
H5	H5a	0.401*	0	Not Supported
	H5b	0.432*	0	Not Supported
	H5c	0.299*	0	Not Supported
	H5d	0.359*	0	Not Supported
	H5e	0.254*	0	Not Supported

	H5f	0.331*	0	Not Supported
$\alpha = 0.05$				

Figure 11 illustrates the research model with the hypotheses' correlation coefficients:

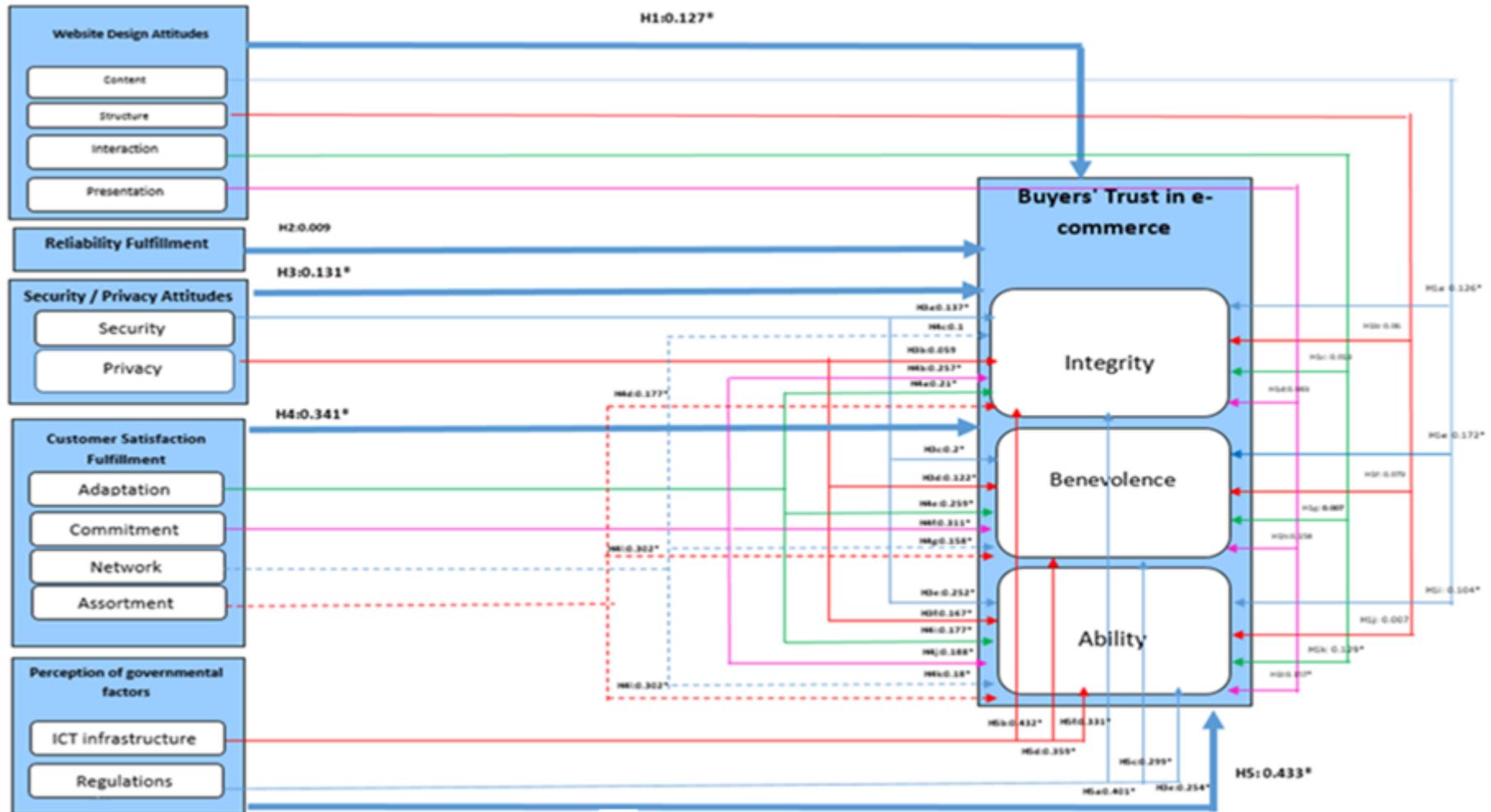


Figure 11: Research Model and Hypotheses Correlations

4.4 Normality Checks of the variables

Before pursuing the statistical tests, normality tests of the dependent variables were conducted using Anderson-Darling test, the results showed that the data was not normal. Therefore, since normality is a prerequisite for many statistical tests including regressions, ANOVA and other tests, the researcher had to tradeoff between two options; (1) using nonparametric methods to analyze the data, and (2) using data transformation techniques in order to transform the data into normal distribution and use parametric tests. According to Minitab Support Website, the statistical power of the parametric tests is higher than that of the non-parametric tests, consequently, the detection of a significant effect is higher. Similarly, in most cases, it is not only the significance of the test that matters, but also the population from which the sample is drawn is important and its characteristics are best described through the estimation of parameters and confidence intervals. Based on this, data was transformed into normal distribution using Box Cox transformation with optimal lambda (λ) in order to produce the best-fitting model. Box Cox transformation is a technique that is used to reduce anomalies in the data as non-normalities, this technique was introduced by Box and Cox in 1964 (Sakia,1992), it aims to make sure that all the necessary assumptions for a linear model exist Li (2005). The main idea of Box Cox transformation is to use a set of mathematical functions to transform the original non

normal data into a normally distributed data. The mathematical function of this transformation is illustrated in equation (2):

$$y(\lambda) = \begin{cases} \frac{y^\lambda - 1}{\lambda}, & \text{if } \lambda \neq 0; \\ \log y, & \text{if } \lambda = 0. \end{cases} \quad (2)$$

Where λ is the parameter of this transformation that can take any value that make the transformation of the variable maximally effective Osborne (2010). Usually, the best estimate of λ is $-5 \leq \lambda \leq 5$ (Minitab support). Although that this power transformation does not work for all data, in the cases where data can't be transformed into normal distribution the estimated value λ will lead to a distribution that will be symmetric Li (2005).

4.5 Regression Models

Multiple regression model in general describes the relationship between a dependent variable (response) and a number of independent variables (predictors) (Montogemry and Runger, 2010). This study aims to build four regression models. A main regression model between trust as a response, and the four main significant constructs; website design attitudes, security and privacy, customer satisfaction attitudes and perception of governmental factors as predictors. In addition, three regression models for each component of trust; integrity, benevolence and ability have been built. In these models, the

response factor is a component of trust, and the predictors are the significant factors for this component.

Before exploring these models some basic concepts need to be clarified (Montogemry and Runger, 2010).

- **R-squared value (R^2):** R^2 is the coefficient of determination. It is a common measure for checking the adequacy of a regression model. R^2 is referred to as the amount of variability in the data explained by the proposed regression model. Its value is between 0 and 1 ($0 \leq R^2 \leq 1$). In general, the higher value of R^2 is the better, but there are situations where R^2 is relatively high even though the linear approximation is weak; besides, the value of R^2 increases whenever new predictors or variables are added to the model even though this addition does not add any actual improvement to the model.
- **Adjusted R-squared:** it is another measure for the adequacy of the regression model. It is preferred over R^2 since its value increases only when the addition of new variables actually improves the model. It is usually used as a measure for choosing among competing models precisely in multiple regression models.
- **Residuals' analysis:** residuals' analysis in regression model helps in checking that the errors are normally distributed with a constant variance and consequently measures the accuracy of model's prediction. That is, it is used to examine the goodness

of fit in regression models and consequently to what degree we can trust the results. In this study, the residuals are analyzed by using:

A normality test of residuals, and examining the resulting p-value.

The null hypothesis for residuals' distribution is

H_0 : distribution is normal;

whereas the alternative hypothesis is

H_1 : distribution is not normal.

Therefore, at a level of significance of 5%, if the p-value is higher than 5%, then the distribution is normal, and the regression model is a good fit for the data.

Besides testing the normality of the residuals, the independence and consistency of the residuals and multicollinearity between the variables are necessary.

❖ **Residuals independence:**

The null hypothesis is:

H_0 : the residuals are independent

H_1 : the residuals are not independent

This hypothesis test could be done using Durbin Watson test, the value of Durbin Watson appear in the output of the regression model in Minitab. The value of this statistics ranges from 0 to 4. A value closer to zero indicates positive autocorrelation, a value closer to 4

indicates negative autocorrelations, and a value near 2 indicates no autocorrelation (Tonnang et al., 2009).

❖ **Residuals' consistency (variance is constant)**

This test is done by plotting the residuals against fitted values. If the distribution of the residuals does not have any patterns and the values of the positive and negative values are distributed above and under the middle line in the graph.

❖ **Multicollinearity (inner correlation between the predictors)**

Multicollinearity is the correlations between the predictors in multiple regression models. Multicollinearity existence in regression models is problematic since coefficient variances in the model tend to increase, hence cause them to be hard to interpret and unstable and may adversely impact the regression statistics. Multicollinearity could be measured by examining the values of Variance Inflation Factor (VIF) column in the output of regression models. Higher VIF values indicate higher level of multicollinearity. Researchers agree that the lower VIF values the better, but there is no agreement about the acceptable values of VIF. Some considered a value of 10 to be the maximum acceptable value (Kennedy, 1992; Hair et al., 1995), or a value of 5 (Rogerson, 2001).

In this study, a maximum value of 5 for VIF is used to evaluate regression models since it works for both groups.

4.5.1 Main Regression Model

In order to achieve the optimal regression model that fit the data most, different alternatives of regression models were examined. At first, simple regression model between individual constructs and trust construct were conducted to examine the significance of the construct alone on trust. Then, a multiple regression model of first degree polynomial was created between trust as a response (y) and the significant constructs website design attitudes, security and privacy, customer satisfaction attitudes and governmental factors (x's). After that, a multiple regression model of second degree polynomial was tested.

1. Testing the significance of each construct

Four simple regression models between the four significant constructs and trust were conducted. Table (17) summarizes the results of these models:

Table 17: Simple regression model between independent constructs and trust

Construct	Regression equation	P-value	R ²	Adj-R ²	Decision
WSDA	TRST = 2.75 + 0.200 WSDA	0.01	1.9%	1.6%	Significant
SPA	TRST = 2.27 + 0.310 SPA	0	4.8%	4.5%	Significant
CSF	TRST = 1.76 + 0.458 CSF	0	11.9%	11.7%	Significant
PGF	TRST = 2.63 + 0.354 PGF	0	20.9%	20.7%	Significant
Level of significance $\alpha=0.05$					

The p-value of each construct is lower than the significance level of 0.05, indicating that each separate independent construct is significant, in fact, the p-values of three of these models are even lower than 0.01 thus the addition of these constructs to the model is meaningful because any changes in the predictor' value are translated as changes in the response variable. Therefore, the next multiple regression model uses all of these predictors together.

2. Main regression model between trust construct and significant independent construct

2.1 First degree polynomial between independent constructs and trust construct

The standardized form of this model was:

(3)

$$y = \beta_0 + \sum_{i=0}^4 \beta_i x_i \dots\dots\dots$$

The resulted regression equation was:

$$\begin{aligned} TRST^2 = & -5.35955 + 0.0177498 WSDA + 1.25065 SPA \\ & + 1.74788CSF \\ & + 2.2589 PGF \dots\dots\dots \end{aligned} \quad (4)$$

- **Testing model significance (F-test of overall significance of the model)**

This test is to check whether a linear relationship exists between dependent variable trust and the set of the independent variables:

The null hypothesis here is:

$$H_0: \beta_1 = \beta_2 = \dots = \beta_k = 0$$

$$H_1: \beta_j \neq 0 \text{ for at least one } j$$

Form the ANOVA Table, we notice that the significance of the regression model is 0.0 with F test equals 35.2373, indicating that at least on coefficients is not equal to zero. Which means that a linear relationship exists.

- **Testing individual regression model coefficients**

The null hypothesis here:

$$H_0: \beta_j = 0; j=1,2,\dots,k \quad k: \text{ number of repressors}$$

$$H_1: \beta_j \neq 0; j=1,2,\dots,k \quad k: \text{ number of repressors}$$

The values of the slope coefficients β 's are illustrated in Table (18):

Table 18: Slope coefficients of first degree polynomial main

Predictor	Coefficient	Value	Standard Error of the coefficient	p-value	regression model predictors
WSDA	β_1	0.0177	0.54861	0.974	
SPA	β_2	1.250	0.56351	0.027	
CSF	β_3	1.747	0.54043	0.001	
PGF	β_4	2.25	0.25862	0	
Level of significance $\alpha=0.05$					

In equation (4), slope coefficients (β 's) for the four factors are positive values indicating a positive influence on customers' trust. SPA, CSF and PGF values are higher than that of coefficient of WSDA, which means that the significance of these three predictors are higher than that of WSDA. The highest influence was for perceived governmental factors with 2.2589, then customer satisfaction fulfillment with a value of 1.74 and finally security and privacy attitudes with a value of 1.025.

The value of R^2 of this model was 28.54%, R^2 adjusted was 27.73%. This means the amount of variability in customers trust in e-commerce explained by the model is around 28%.

- **Residuals Check**

Checking the model residuals indicated that the residuals were distributed normally with p-value is 0.132, the independency test of residuals showed that the residuals are independent since DW

statistics is 1.91633 which is close to 2, residuals were with constant variance as illustrated in Figure 12, and finally no multicollinearity exists as VIF values in regression model were between 1.0 and 1.6 (below 5). Thus, the model represents a good fit for the data.

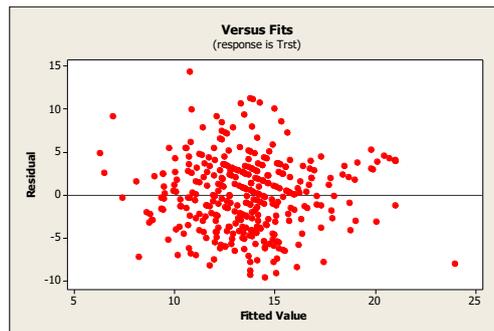


Figure 12: Residuals versus fits for the first degree polynomial of trust

2.2 First degree polynomial modification

Although that WSDA was significant when tested alone in part 1, in the multiple regression model this significance was undermined by the effect of other constructs.

The three most significant factors depending on their p-values were security and privacy attitudes, customer satisfaction fulfillment, and perception of governmental factors, whereas website design attitudes was not significant therefore removing it from the regression model should be considered. The model's equation after removing the WSDA was:

$$TRST^2 = -5.32301 + 1.25611 SPA + 1.7524 CSF + 2.25845 PGF \dots \dots \dots (5)$$

- **Testing model significance (F-test of overall significance of the model)**

Form the ANOVA table, we notice that the significance of the regression model is 0.0 with an F test value of 47.11, indicating that at least on coefficients is not equal to zero. Which means that a linear relationship exists.

- **Testing individual regression model coefficients**

The values of the slope coefficients β 's are illustrated in Table (19):

Table 19: Slope coefficients of modified first degree polynomial main regression model predictors

Predictor	Coefficient	Value	Standard Error of the coefficient	p-value
SPA	β_1	1.25611	0.53695	0.02
CSF	β_2	1.7524	0.52133	0.001
PGF	β_3	2.25845	0.25790	0
Level of significance $\alpha=0.05$				

In the above equation, slope coefficients (β 's) for the three factors are positive values indicating a positive influence on customers' trust. The most influencing predictor is the perception of governmental factors, followed by customer satisfaction fulfillment and finally security and privacy attitudes.

The value of the R^2 of this model was 28.53%, R^2 adjusted was 27.93%. These values are almost the same as those of the original model, meaning that these three factors alone contribute

approximately 100% of the values of R^2 and adjusted R^2 , and the addition or removal of the website design attitudes does not have a significant contribution in these values.

- **Residuals Check**

Checking the model residuals indicated that the residuals were distributed normally with p-value is 0.132, the independency test of residuals showed that Durbin Watson statistics is 1.91 indicating that the residuals are independent, residuals were with constant variance as illustrated in Figure 13, and finally no multicollinearity exists as VIF values in regression model were between 1.08 and 1.51 (below 5). Thus, the model fits the data.

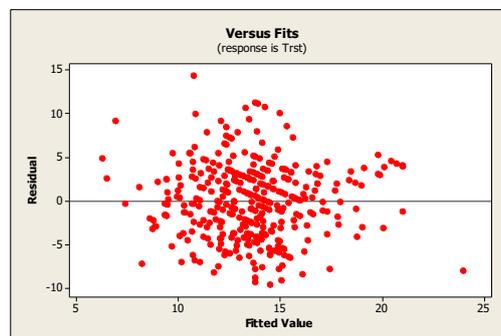


Figure 13: Residuals versus fits for the modified first degree polynomial of trust

To support these findings, stepwise regression was used between trust and four significant factors. Stepwise regression is an automated tool available in Minitab that is used to build a set of regression models from the significant independent variables (predictors). Building regression models could be either by starting with all predictors and removing one of them each time (backward method), or starting by one

predictor and adding new predictor each time (forward method), each of these regression models has its own R^2 and Adjusted R^2 value and a Mallows' CP value. This value is used to choose the best model among the suggested models. The rule here is to choose the model that has the closest Mallows' CP value to the number of significant predictors plus the constant, for example, if the number of significant variables was 3 then choose the model that has a Mallows' CP value closest to 4 (3 variables + 1 constant). According to Minitab support website, by choosing the model with the closest value then this model has a small variance and is relatively precise (unbiased) in estimating coefficients of the regression model. Despite of the advantages of stepwise regression as ease of use, speed and flexibility, many researchers and statisticians suspect the findings regarding coefficients, collinearity and bias (Flom and Cassell, 2007; Whittingham et al., 2006). The justification for using it in this study is that the researcher is not using it for building the regression model completely, rather it is used as a supportive tool and not necessarily that the suggested models by stepwise are approved. In this study, the suggested model by Stepwise regression was:

$$TRST^2 = 1.083 + 0.153 SPA + 0.244 CSF + 0.315 PGF \dots\dots(6)$$

With an R^2 value of 27.34%, and Adjusted R^2 of 26.72% and a Mallows' CP of 3.1. These results are very close to those of the original model.

Therefore, these findings support that the previous model of three predictors only for trust represent a good model.

2.2 Second degree polynomial between trust construct and independent constructs

In statistics, it is a fact that R^2 value increases whenever new factors are increased to the model and adjusted R^2 increases only in the addition is a meaningful and add value to the model (Montogemry and Runger, 2010). Therefore, in an attempt to increase the R^2 value of the previous model, a second degree polynomial was examined, the standardized form was:

$$y = \beta_0 + \sum_{i=1}^4 \beta_i x_i + \sum_{i=1}^4 \beta_{(4+i)} x_i^2 \dots\dots\dots(7)$$

In this model, the same four significant factors are squared and added to the previous model, the coe-fficients values were:

***TRST*² =**

$$\begin{aligned} & \mathbf{7.82524 + 1.6768 WSDA - 9.21968 SPA +} \\ & \mathbf{6.64877 CSF - 0.989193 PGF - 0.22081 WSDA *} \\ & \mathbf{WSDA + 1.23861 SPA * SPA - 0.59845 CSF *} \\ & \mathbf{CSF + 0.562208 PGF *} \\ & \mathbf{PGF \dots\dots\dots(8)} \end{aligned}$$

Although that the shape generated by this model is quadratic, it is considered a linear regression model since it is linear in parameters (Montgomery and Runger, 2010).

- **Testing model significance**

From the ANOVA table, we notice that the significance of the regression model is 0.0, indicating that at least one coefficient is not equal to zero. Which means that a linear relationship exists.

- **Testing individual regression model coefficient**

The values of the slope coefficients β 's are illustrated in Table (20):

Table 20: Slope coefficients of second degree polynomial main regression model predictors

Predictor	Coefficient	Value	Standard Error of the coefficient	p-value
WSDA	β_1	1.67680	3.8307	0.662
SPA	β_2	-9.21968	5.2477	0.080
CSF	β_3	6.64884	2.8418	0.020
PGF	β_4	-0.98919	1.2639	0.434
WSDA ²	β_5	-0.22081	0.4206	0.600
SPA ²	β_6	1.23861	0.6340	0.052
CSF ²	β_7	-0.59845	0.3246	0.066
PGF ²	β_8	0.56221	0.2103	0.008
Level of significance $\alpha=0.05$				

In the above equation, slope coefficients (β 's) for four factors are positive values indicating a positive influence on customers' trust these are β_1 , β_3 , β_6 , β_8 for web site design attitudes, customer

satisfaction fulfillment, the squared of security and privacy attitudes and perceived governmental factors respectively . The other coefficients are negative values indicating a negative influence on the response variable, these are β_2 , β_4 , β_5 , β_7 for security and privacy attitudes, governmental factors, the squared of web site design attitudes, and the squared of customer satisfaction fulfillment respectively.

The value of the R^2 of this model was 31.36%, R^2 adjusted was 29.79%, although that the value of R^2 and R^2 adjusted increased, this increase is about 2% which is not enough to justify the use of a more complex model with extra factors and extra administrative efforts.

- **Residuals check**

Despite the fact the normality plot of the residuals of this model showed that the residuals are normally distributed with p-value of 0.331, the VIF values for the predictors were higher than 5 which indicates that multicollinearity exists. Multicollinearity could be avoided by adding the interactions between the predictors to the model which will eventually makes it even more complex. Therefore, the researcher believes that this model can't be considered as a good fit for the data.

Table (21) summarizes the three regression models:

Table 21: Summary of main regression models

	Regression Type	R ²	Adj. R ²	P-value of the model	P-value of residuals	F test	Notes
Main regression between trust and sig. constructs	First degree polynomial of 4 variables shown in equation 4	28.54 %	27.73 %	0	0.132	35.24	Good fit
	First degree polynomial of 3 variables shown in equation 5	28.53 %	27.93 %	0	0.132	47.11	Best fit
	First degree polynomial (stepwise) shown in equation 6	27.34 %	26.72 %	0	Mallow' CP = 3.1		Good fit
	Second degree polynomial shown in equation 8	31.36 %	29.79 %	0	0.331	19.93	High VIF

The researcher believed that the best model among the four models is the second one for several reasons. First, it has the highest f value which is a measure of the overall model significance compared to the intercept-only model. Second, although that it has a lower value of Adjusted R² than the fourth one, but the latter has been excluded since

it did not meet the conditions required for residuals' checking since multicollinearity existed between the variables. Its R^2 value is as equal as the original model of four predictors and higher than that of the stepwise regression model. Third, it is easier to manage a 3 predictors' model than a four predictors' model.

The detailed Minitab results of this model are shown in appendix 4.

4.5.2 Sub factors regression models

In addition to the main regression model, three regression models for each of the subcomponents of trust are examined. The first regression model was for integrity, the second for benevolence and the third for ability.

- ***Regression model for integrity:***

In order to build the regression model for integrity, the researcher started with a first degree polynomial multiple regression model, next a second degree polynomial was tested to examine whether it produces better results.

1. First degree polynomial

In this model, integrity was the independent variable, whereas the significant factors for integrity were the dependent variables. These include seven factors; content, security, adaptation, commitment, assortment, ICT infrastructure, regulations. The notation for this model was:

$$y = \beta_0 + \sum_{i=1}^7 \beta_i x_i \dots \dots \dots (9)$$

The regression model was:

$$\begin{aligned} INTG^{1.46663} = & -0.534747 + 0.20146 CONT + 0.225683 SEC + \\ & 0.0135526 ADAP + 0.382328 COMT + 0.23415 ASRT + \\ & 0.304014 ICT + 0.66841 REGU \dots \dots \dots (10) \end{aligned}$$

- **Testing model significance**

Form the ANOVA table, we notice that the significance of the regression model is 0.0 with F test value of 16.76, indicating that at least on coefficients is not equal to zero. Which means that a linear relationship exists.

- **Testing individual regression model coefficient**

The values of the slope coefficients β 's are illustrated in Table (22):

Table 22: Slope coefficients of integrity first degree polynomial regression model

Predictor	Coefficient	Value	Standard Error of the coefficient	p-value
CONT	β_1	0.20146	0.21956	0.359476
SEC	β_2	0.225683	0.19109	0.238392
ADAP	β_3	0.0135526	0.19426	0.944421
COMT	β_4	0.382328	0.17040	0.025478
ASRT	β_5	0.23415	0.18099	0.196603
ICT	β_6	0.304014	0.16170	0.060920
REGU	β_7	0.668417	0.16503	0.000063
Level of significance $\alpha=0.05$				

In the above equation, slope coefficients (β 's) are positive for all predictors, which means that all of these variables have a positive influence on the integrity of the e-vendor. The highest value is for regulations followed by COMT. The third highest value is for ICT, this indicates that the governmental factors have the highest influence of the e-vendor integrity and the p-values for these two variables are the significant as well as that of COMT. Next, are the values of CONT, SEC and ASRT with almost equal values and insignificance level, and finally is the coefficient of ADAP with the lowest value and effect.

The value of the R^2 of this model was 25.11%, R^2 adjusted was 23.62%,

This means that about 25% of the variability in customers trust in the integrity of the e-vendor is attributed to the model.

- **Residuals check**

Checking the model residuals showed that the residuals were distributed normally with p-value is 0.195, the independency test of residuals showed that the residuals are independent since DW statistics is 1.93058 which is close to 2, residuals were with constant variance as illustrated in Figure 14, and finally no multicollinearity exists as VIF values in regression model were below 5. Thus, the model adequacy conditions are met.

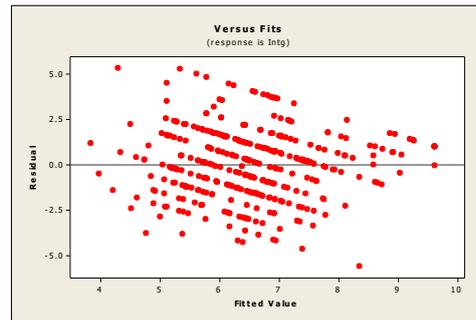


Figure 14: Residuals versus fits for the first degree polynomial of integrity

- **First degree polynomial modification**

The three significant predictors were regulations, commitment, and ICT infrastructure (very close to significance level). Keeping only these factors as predictors of integrity and use them in a multiple regression model to see their relative contribution in the model yield the following equation:

$$INTG^{1.44203} = 1.67474 + 0.549659 COMT + 0.272571 ICT + 0.644997 REGU \dots\dots\dots(11)$$

The value of the R^2 of this model was 23.70%, R^2 adjusted was 22.06%,

This mean that these three factors contribute about 94.38% to the model significance. The p-value of residuals was 0.320 indicating that they are distributed normally. Durbin Watson statistics was 1.92 and VIF values were less than 5, so all conditions for model adequacy are met.

To support these findings, stepwise regression was used. The best regression model among the suggested models by stepwise regression is:

$$INTG = 1.69 + 0.22 COMT + 0.116 ICT + 0.249 REGU \dots\dots\dots(12)$$

This model suggests that three factors are the most significant factors for integrity. The R^2 for this model equals 23.13% and Adjusted R^2 22.48%. The closest Mallow' CP to the number of predictors was 5. This result supports that the previous model of three factors include the most significant factors influencing integrity.

Therefore, the researcher believes that the modification of the first degree polynomial model is the best fit since it has only three variables instead of seven which is easier to control, and the amount of increase in R^2 and adjusted R^2 value is not big enough to justify the use of three more predictors.

2. Second degree polynomial for integrity

A second degree model for integrity was tested in an attempt to increase the value of R^2 . The notation of this model was:

$$y = \beta_0 + \sum_{i=1}^7 \beta_i x_i + \sum_{i=1}^7 \beta_{(7+i)} x_i^2 \dots\dots\dots(13)$$

The regression equation was:

$$INTG^{1.55} = 7.29579 - 0.360865 CONT - 5.84007 +$$

$$\begin{aligned}
& 2.68669 ADAP + 0.948753 COMT + \\
& 0.521999 ASRT + 0.00531747 ICT + \\
& 0.118529 REGU + 0.0730233 CONT * CONT - \\
& 0.0272766 ASRT * ASRT + 0.0645174 ICT * \\
& ICT 0.116347 REGU * \\
& REGU \dots\dots\dots(14)
\end{aligned}$$

Although that the value of R^2 in this model increased to 27.59% and R^2 adjusted to 24.63%, and the residuals' distribution was normal with p value 0.255, this model is not recommended by the researcher since the VIF values were high indicating multicollinearity problem.

These models are summarized in Table (23):

Table 23: Summary of integrity regression models

	Regression Type	R^2	Adj. R^2	P-value of the model	P-value of residuals	F test	Notes
Regression btw Integrity with its sig. sub factor	First degree polynomial of 7predictors shown in equation (10)	25.11 %	23.62 %	0	0.195	16.7672	Good fit

s	First degree polynomial of 3 predictors shown in equation (11)	23.70 %	22.06 %	0	0.320	36.6 575	Best fit
	Stepwise regression of 3 predictors shown in equation (12)	23.13 %	22.48 %	0	Mallo w' CP = 5		Good fit
	Second degree polynomial of seven predictors shown in equation (14)	27.59 %	24.63 %	0	0.255	9.33 41	High VIF

The detailed Minitab results for this model are shown in appendix 5:

- ***Regression model for Benevolence:***

Similar to the regression models of integrity, two regression models for benevolence were tested, these are first and second degree polynomials. The dependent variable this time is benevolence, and

the independent variables are the significant factors of benevolence including 10 variables; content, presentation, security, privacy, adaptation, commitment, network, assortment, ICT infrastructure, and regulations.

1. First degree polynomial

The standardized form for this model was

$$y = \beta_0 + \sum_{i=1}^{10} \beta_i x_i \dots \dots \dots (15)$$

That is:

$$\begin{aligned} \mathbf{BEN} = & \mathbf{0.67956} + \mathbf{0.115256} \mathbf{CONT} + \mathbf{0.0728545} \mathbf{PREST} \\ & + \mathbf{0.136531} \mathbf{SEC} - \mathbf{0.126784} \mathbf{PRI} + \mathbf{0.0808874} \mathbf{ADAP} \\ & + \mathbf{0.120815} \mathbf{COMT} + \mathbf{0.00854} \mathbf{NW} + \mathbf{0.03957} \mathbf{ASRT} \\ & + \mathbf{0.0024085} \mathbf{ICT} \\ & + \mathbf{0.251877} \mathbf{REGU} \dots \dots \dots (16) \end{aligned}$$

- **Testing model significance**

Form the ANOVA table, we notice that the significance of the regression model is 0.0 with F test value of 9.96, indicating that at least on coefficients is not equal to zero. Which means that a linear relationship exists.

- **Testing individual regression model coefficient**

The values of the slope coefficients β 's are illustrated in Table (24):

Table 24: Slope coefficients of benevolence first degree polynomial regression model

Predictor	Coefficient	Value	Standard Error of the coefficient	p-value
CONT	β_1	0.115256	0.090219	0.202
PREST	β_2	0.0728545	0.088986	0.414
SEC	β_3	0.136531	0.075129	0.070
PRI	β_4	0.126784	0.084051	0.132
ADAP	β_5	0.0808874	0.076376	0.290
COMT	β_6	0.210815	0.064880	0.001
NW	β_7	0.00854843	0.038384	0.824
ASRT	B_8	0.0395701	0.069373	0.569
ICT	B_9	0.0024084	0.062410	0.969
REGU	B_{10}	0.251877	0.064255	0.000
Level of significance $\alpha=0.05$				

In the above equation, slope coefficients (β 's) are positive for all predictors except for privacy which was negative. This means that all of the positive variables have a positive influence on the integrity of the e-vendor. The highest value is for regulations followed by COMT. The third highest values are for security, privacy and content respectively with approximately equal values. Then the values of adaptation, presentation and assortment are almost equal, and finally the effect of network and ICT are the lowest values.

The value of the R^2 of this model was 22.31%, R^2 adjusted was 20.07%,

This means that about 22% of the variability in customers trust in the integrity benevolence of the e-vendor is attributed to the model.

- **Residuals check**

Checking the model residuals showed that the residuals were distributed normally with p-value is 0.096, the independency test of residuals showed that the residuals are independent since DW statistics is 1.95139 which is close to 2, residuals were with constant variance as illustrated in Figure 15, and finally no multicollinearity exists as VIF values in regression model were below 5. Thus, the model adequacy conditions are met.

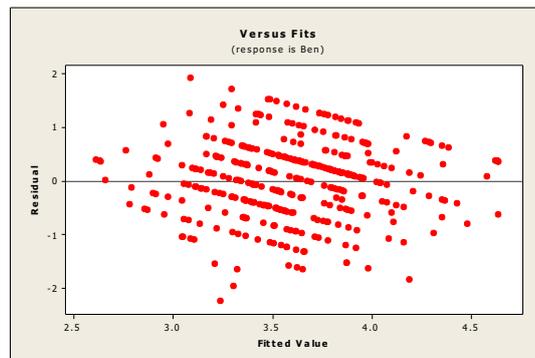


Figure 15: Residuals versus fits for the first degree polynomial of benevolence

Since all of the required conditions for model adequacy are met, this model is considered a good fit for the data.

First degree polynomial modification

The three most significant predictors were security (very close to significance level), commitment and regulations. Keeping only these factors as predictors of benevolence and use them in a multiple regression model to see their relative contribution in the model yield the following equation:

$$\mathbf{BEN = 1.16302 + 0.169948 SEC + 0.254866 COMT + 0.257208 REGU..... (17)}$$

The value of the R^2 of this model was 20.72%, R^2 adjusted was 20.05%, p-value of the model was

This mean that these three factors contribute about 92.8 % to the model significance.

The p-value of the residuals was 0.226 indicating normal distribution of residuals, Durbin Watson was 1.95 and VIF values were less than 5 so all conditions for model adequacy were met.

Similar to integrity, stepwise regression was used to determine the best model of the significant factor that fit the data most. The best model among the suggested models was the model that used the previous three variables, the model equation was:

$$\mathbf{BEN = 1.163 + 0.142 SEC + 0.255 COMT + 0.257 REGU.....(18)}$$

The R^2 for this model equals 20.72% and Adjusted R^2 20.05%. Mallow' CP for this model was 4 which indicated unbiased model. The findings of the stepwise regression supported the previous model, therefore, the researcher believes that the previous modified first degree polynomial regression model is the best model to fir the data fit since it has only three variables instead of seven which is easier to control, and the amount of increase in R^2 and adjusted R^2 value is not big enough to justify the use of four more predictors.

2. Second degree polynomial

A second degree model for benevolence was tested. The notation of this model was:

$$y = \beta_0 + \sum_{i=1}^{10} \beta_i x_i + \sum_{i=1}^{10} \beta_{(10+i)} x_i^2 \dots\dots\dots(19)$$

That is:

$$\begin{aligned} \mathbf{BEN} = & \mathbf{0.370191 + 1.04124 CONT + 0.125164 PREST -} \\ & \mathbf{0.314544 SEC + 0.195968 PRI + 0.616049 ADAP -} \\ & \mathbf{0.217465 COMT + 0.050441 NW -} \\ & \mathbf{0.855796 ASRT - 0.0841666 ICT +} \\ & \mathbf{0.330058 REGU - 0.111002 CONT * CONT -} \\ & \mathbf{0.00666686 PREST * PREST + 0.0529586 SEC *} \\ & \mathbf{SEC - 0.0396139 PRI * PRI - .0673768 ADAP *} \\ & \mathbf{ADAP + 0.0561321 COMT * COMT -} \\ & \mathbf{0.00270281 NW * NW + 0.112562 ASRT * ASRT +} \end{aligned}$$

$$0.013352 \text{ ICT} * \text{ICT} - 0.0132651 \text{ REGU} * \text{REGU} \dots \dots \dots (20)$$

The value of R^2 was 23.15%, and the value of the adjusted R^2 was 18.59%. Despite that R^2 value increased, R^2 adjusted decreased indicating that the addition of the new predictors to the model did not have any actual added value to the model, besides that residuals were normally distributed but the VIF values were high so this model is not a good fit for the data.

Table (25) summarizes these models:

Table 25: Summary of benevolence regression models

	Regression Type	R^2	Adj. R^2	P-value of the model	P-value of residuals	F test	Notes
Regression btw Benevolence with its sig. factors	First degree polynomial of 10 predictors shown in equation (16)	22.31 %	20.07 %	0	0.096	9.96	Good fit
	First degree polynomial of 3	20.72 %	20.05 %	0	0.226	30.84	Best fit

	predictors shown in equation (17)						
	Stepwise regression of 3 predictors shown in equation (18)	20.72 %	20.05 %	0	Mallow' CP = 4		Good fit
	Second degree polynomial of ten predictors shown in equation (20)	23.15 %	18.59 %	0	0.122	5.07	High VIF

The detailed Minitab Results are as shown in appendix 6:

- ***Regression model for Ability***

Similar to the previous component of trust, a first degree polynomial multiple regression model was tested. Then a second degree polynomial was examined. In these models, Ability was the response variable, whereas eleven variables were the independent variables (predictors). These predictors include: content, interaction, presentation, security, privacy, adaptation, commitment, network, assortment, ICT infrastructure, and regulations.

First degree polynomial

This model has the form:

$$y = \beta_0 + \sum_{i=1}^{11} \beta_i x_i \dots \dots \dots (21)$$

The regression Equation was:

$$\begin{aligned} ABL^2 = & -8.8007 - 0.0848824 CONT + 0.803631 PREST + \\ & 0.485381 INTER + 1.88071 SEC - 0.331168 PRI - \\ & 1.09681 ADAP + 0.159654 COMT + 0.193369 NW + \\ & 2.2306 ASRT - 0.113073 ICT + \\ & 1.92329 REGU \dots \dots \dots (22) \end{aligned}$$

- **Testing model significance**

Form the ANOVA table, we notice that the significance of the regression model is 0.0 with F test of 10.12, indicating that at least on coefficients is not equal to zero. Which means that a linear relationship exists.

- **Testing individual regression model coefficient**

The values of the slope coefficients β 's are illustrated in Table (26):

Table 26: Slope coefficients of ability first degree polynomial regression model

Predictor	Coefficient	Value	Standard Error of the coefficient	p-value
CONT	β_1	0.0848824	0.64308	0.895
PREST	β_2	0.803631	0.41030	0.238
INTER	β_3	0.485381	0.62789	0.201
SEC	β_4	1.88071	0.52400	0
PRI	β_5	- 0.331168	0.58951	0.575
ADAP	β_6	- 1.09681	0.53200	0.040
COMT	β_7	0.159654	0.45243	0.724
NW	β_8	0.193369	0.26757	0.470
ASRT	β_9	2.2306	0.48330	0
ICT	β_{10}	- 0.113073	0.43462	0.795
REGU	β_{11}	1.92329	0.44755	0
Level of significance $\alpha=0.05$				

In the above equation, slope coefficients (β 's) are positive for all predictors except of three variables privacy, adaptation and ICT. Among the positive influencers, the highest value is for assortment followed by Regulations and security. Followed by presentation and interaction of the website, commitment and network variables are next with close value and finally the content of the website had the lowest positive effect. On the other hand, the highest negative influencers is adaptation, then privacy and at last ICT has the lowest negative impact.

The value of the R^2 of this model was 24.35%, R^2 adjusted was 21.94%,

This means that about 25% of the variability in customers trust in the ability of the e-vendor is attributed to the model.

- **Residuals check**

Checking the model residuals showed that the residuals were not distributed normally with p-value is 0.028, the independency test of residuals showed that the residuals are independent since DW statistics is 1.93931 which is close to 2, residuals were with constant variance as illustrated in Figure 16, and finally no multicollinearity exists as VIF values in regression model were below 5. Thus, the model adequacy conditions are not met, and the model does not represent a good fit for the data.

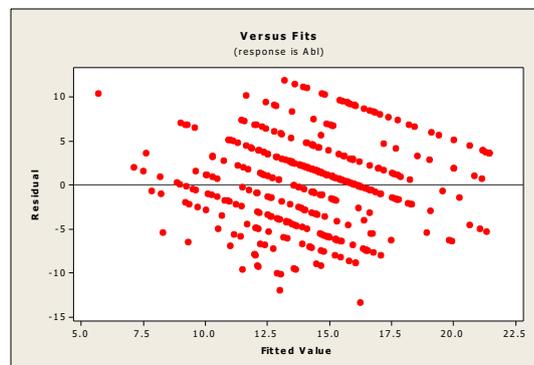


Figure 16: Residuals versus fits for the first degree polynomial of ability

First degree polynomial modification

The four most significant predictors were security, adaptation, assortment and regulations. Keeping only these factors as predictors of ability and use them in a multiple regression model to see their relative contribution in the model yield the following equation:

$$\begin{aligned}
 ABL^2 = & -5.98847 + 2.06396 SEC + 2.33612 ASRT - \\
 & 0.846288 ADAP + 1.82882 REGU \\
 & \dots\dots\dots(23)
 \end{aligned}$$

The value of the R^2 of this model was 23.21%, R^2 adjusted was 22.34%, This mean that these four factors contribute about 95.3% to the model significance.

The p-value of residuals was 0.052, indicating normal distribution of residuals. The Durbin Watson statistics was 1.93, VIF values were less than 5. So all conditions were met for model adequacy.

Similar to integrity and benevolence, stepwise regression was used to determine the best model of the significant factor that fit the data most. Different models were suggested, the model with the closest value of Mallow' CP was the model that used three predictors only; regulations, assortment, and security. The regression equation was:

$$\begin{aligned}
 Ability = & 0.8496 + 0.242 REGU - 0.246 SEC + \\
 & 2.66 ASRT \dots\dots\dots(24)
 \end{aligned}$$

The R^2 of this model is 21.08% and Adjusted R^2 is 20.04%. Mallow' CP = 3.3.

Although that this model suggested three factors, the researcher believes that the previous modified first degree polynomial model that used four predictors is the best fit since it included the four significant variables and the value or R^2 and Adjusted R^2 are higher.

Second degree polynomial

A second degree polynomial model for ability was tested. The standardized form for this model is :

$$y = \beta_0 + \sum_{i=1}^{11} \beta_i x_i + \sum_{i=1}^{11} \beta_{(11+i)} x_i^2 \dots\dots\dots(25)$$

That is:

$BL^2 =$

$$\begin{aligned} & 3.0705 - 3.12022 \text{ CONT} + 4.0986 \text{ PREST} + \\ & 0.730901 \text{ INTER} - 2.98621 \text{ SEC} - \\ & 1.88733 \text{ PRI} + 2.20783 \text{ ADAP} + \\ & 4.131125 \text{ COMT} + 0.864564 \text{ NW} - \\ & 2.9575 \text{ ASRT} - 1.98326 \text{ ICT} + 0.487153 \text{ REGU} + \\ & 0.355237 \text{ CONT} * \text{ CONT} - 0.41736 \text{ PREST} * \\ & \text{PREST} - 0.0214659 \text{ INTER} * \text{ INTER} + \\ & 0.582345 \text{ SEC} * \text{ SEC} + 0.164498 \text{ PRI} * \text{ PRI} - \\ & 0.410437 \text{ ADAP} * \text{ ADAP} - 0.549394 \text{ COMT} * \\ & \text{COMT} - 0.0493986 \text{ NW} * \text{ NW} + 0.660127 \text{ ASRT} * \\ & \text{ASRT} + 0.351102 \text{ ICT} * \text{ ICT} + 0.221519 \text{ REGU} * \\ & \text{REGU} \dots\dots\dots(26) \end{aligned}$$

Despite of the increase in the values of R^2 and adjusted R^2 to be 26.99% and 22.2% respectively, and that residuals are distributed normally with p-value of 0.078, the VIF values are higher than 5

which is a sign of multicollinearity. Therefore, this model is not accepted as a good fit for the data.

Table (27) summarizes these results:

Table 27: Summary of ability regression models

	Regression Type	R²	Adj. R²	P-value of the model	P-value of residuals	F test	Notes
Regression btw Ability with its significant sub factors	First degree polynomial of 11 variables shown in equation (22)	24.35 %	21.94 %	0	0.028	10.1	Residuals were not distributed normally
	First degree polynomial of 4 variables shown in equation (23)	23.21 %	22.34 %	0	0.052	26.6	Best fit
	Stepwise regression of 3 variables shown in equation (24)	21.08	20.04 %	0	Mallo w' CP=3.3		Good fit
	Second degree polynomial shown in	26.99 %	22.2 %	0	0.078	5.6	High VIF

	equation (26)						
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The detailed Minitab Results are as shown in appendix 7:

Based on the above results and discussion, the researcher suggest the following models shown in Table (28) as best fit for the data:

Table 28: Suggested regression models

	Regression Type	R²	R² Adjusted	P-value of the model	P-value of residuals
Main regression between Trust and significant factors	First degree polynomial (3 predictors SPA, CSF, PGF)	28.53%	27.93%	0	0.132
Integrity Model	First degree with 3 predictors (REGU,COMT,ICT)	23.04%	22.06%	0	0.194
Benevolence Model	First degree polynomial with 3 predictors (SEC,COMT,REGU)	20.72%	20.05%	0	0.226
Ability Model	Frist degree polynomial 4 predictors (SEC, ASRT, ADAP, REGU)	23.21%	22.34%	0	0.052

4.6 Statistical Differences Based on Demographic Factors

In this study five demographic factors are considered. These include gender, age, educational level, shopping experience and ownership or accessibility to credit card account. Based on the previous normality check results and since the data was not normally distributed, non-parametric tests were used. Kruskal-Wallis Test in particular was used for comparing participants' trust in e-commerce according to age, educational level, and shopping experience because these three characteristics have more than two categories; age and educational level have five categories each, whereas shopping experience has four categories. On the other hand, The Mann-Whitney test was used for comparing participants' trust in e-commerce according to gender and accessibility to credit card since these characteristics have only two unrelated categories, gender is either male or female and accessibility to credit card is either yes or no.

4.6.3 Statistical difference according to Gender

In order to test for the availability of statistical differences in trust level in e-commerce between males and females, the following null and alternative hypothesis were formulated:

H₀: There is no statistical difference between males and females in trusting e-commerce in Palestine.

H₁: there is a statistical difference between males and females in trusting e-commerce in Palestine.

The results of the Mann-Whitney test are shown next in Table (29):

Table 29: Mann-Whitney test results according to gender

	N	Median
Males	208	3.7778
Females	150	3.4444
This test is significant at 0.0005 , Level of significance $\alpha=0.05$		

Examining the level of significance ($0.0005 < 0.05$) led to rejecting the null hypothesis; in other words, there is a statistical difference between males and females in trusting e-commerce in Palestine. By looking at the Median column, it is realized that the median trust scores were higher for males compared to females trust scores.

4.6.2 Statistical difference according to Age

Kruskal-Wallis test was conducting for testing the following null hypothesis:

H₀: the medians of all age categories are equal.

H₁: The medians of all age categories are not equal.

The output of the Kruskal-Wallis test include (Minitab support):

- The number of items in each group N

- The median of each group
- Avg Rank which is the average rank of the ranks for all observations within each sample. When a group's average rank is higher than the overall average rank, the observation values in that group tend to be higher than those of the other groups.
- The z-value which indicates how the average rank for each group compares to the average rank of all observations. A negative z-value indicates that a group's average rank is less than the overall average rank, whereas a positive z-value indicates that a group's average rank is greater than the overall. The higher the absolute value, the further a group's average rank is from the overall average rank.
- A p-value

At a significance level of 5% the following results shown in Table (30) were obtained:

Table 30: Kruskal-Wallis test according to age

Age (Years)	N	Median	Ave Rank	Z value
18-23	107	3.667	184.9	0.65
24-30	113	3.667	174.4	-0.63
31-40	97	3.722	173.9	-0.63
41-50	30	4.000	204.4	1.73
>50	11	3.444	161.0	-0.60

This test is insignificant at p value of 0.567 , Level of significance $\alpha=0.05$

The p-value of this test was 0.567 which is higher than 5%, thus no enough evidence is available to reject the null hypothesis that all medians are equal.

4.6.3 Statistical difference according to educational level

Kruskal-Wallis test was conducting for testing the following null hypothesis:

H_0 : the medians of all educational level categories are equal.

H_1 : The medians of all educational level categories are not equal.

At a significance level of 5% the following results shown in Table (31) were obtained:

Table 31: Kruskal-Wallis test according to educational level

Educational level	N	Median	Ave Rank	Z value
Less than high school	4	4.000	247.6	1.32
High school	12	3.778	209.4	1.02
Diploma	49	3.889	201.9	1.63
Bachelor	193	3.667	169.2	-2.04
Higher	100	3.778	182.1	0.30

education				
This test is insignificant at p value of 0.134 , Level of significance $\alpha=0.05$				

The p-value of this test was 0.134 which is higher than 5%, thus no enough evidence is available to reject the null hypothesis that all medians are equal.

4.6.4 Statistical difference according to shopping experience

Kruskal-Wallis test was conducting for testing the following null hypothesis:

H_0 : the medians of all shopping experience categories are equal.

H_1 : The medians of all shopping experience categories are not equal.

At a significance level of 5% the following results were shown in Table (32) were obtained:

Table 32: Kruskal-Wallis test according to shopping experience

Shopping experience	N	Median	Ave Rank	Z value
Less than a year	128	3.667	169.8	-1.32
1-2 years	121	3.778	191.4	1.56
3-5 years	65	3.667	168.2	-0.98
>5 years	44	3.889	191.7	0.84
This test is insignificant at p value of 0.248, Level of significance				

$\alpha=0.05$

The p-value of this test was 0.248 which is higher than 5%, thus no enough evidence is available to reject the null hypothesis that all medians are equal.

4.6.5 Statistical difference according to accessibility to electronic payment cards

In order to test for the statistical differences in trust level in e-commerce between buyers who own or have access to credit card and those buyers who don't have, the following null and alternative hypothesis were formulated:

H₀: There is no statistical difference between buyers' who have access to electronic payment cards and buyers who don't have in trusting e-commerce in Palestine.

H₁: there is a statistical difference between buyers' who have access to electronic payment cards and buyers who don't have in trusting e-commerce in Palestine.

The results of the Mann-Whitney test are shown next in Table (33):

Table 33: Mann-Whitney test according to having access to electronic payment cards

	N	Median
Have access	271	3.7778
Don't have access	87	3.4444
This test is significant at 0.0095, Level of significance $\alpha=0.05$		

Examining the level of significance ($0.0095 < 0.05$) led to rejecting the null hypothesis; in other words, there is a statistical difference between buyers who have access to credit cards and buyers who don't have access to credit cards in trusting e-commerce in Palestine. By looking at the Median column, it is realized that the median trust scores were higher for buyers who have access to credit cards compared to buyers who don't have access to credit cards trust scores.

The results of the demographic factors comparisons indicated that there were no significant statistical differences between the respondents regarding age, educational level, and experience. On the other hand, there were significant statistical differences between the respondents based on gender and accessibility to electronic payment methods. Results showed that males tend to trust in e-commerce more than females; and those who had access to electronic payment methods tend to trust e-commerce more than those who did not.

Chapter Five

Conclusions and Recommendations

5.1 Overview

This chapter presents the summarized results of the research and derives conclusions. Besides that it aims to suggest some recommendations regarding enhancing customer trust in e-commerce in Palestine.

5.2 Conclusions

Due to the massive spread of the internet which has affected product availability to customers throughout the world, hence converting it into a one big store where any one can buy anything anywhere any time, studying and analyzing the factors affecting buyers' trust in e-commerce was necessary. The reason behind undertaking this research in the first place was to meet two main objectives:

1. Identifying the factors influencing buyers' trust in e-commerce in Palestine among the factors introduced in the proposed research model.
2. Identifying the relative influence of each factor.

In order to achieve these objectives, the current research followed the quantitative approach in which a questionnaire was used to gather the required data for analysis. The data was analyzed using Minitab software package. This study examined five main hypotheses which related the five independent constructs with the main dependent construct. Each of these hypotheses was divided into sub hypotheses

that related the sub factors of the independent constructs with the sub factors of trust. The findings have answered the two research questions and achieved its objectives. The results showed that four out of five main independent constructs had a significant influence on buyer' trust in e-commerce in Palestine. These were website design attitudes, security and privacy attitudes, customer satisfaction fulfillment and perception of governmental factors. The relative significance of each of these variables was examined by building a regression model for the data, different attempts were undertaken to build the model that fitted the data most as seen forehead, the best model suggested that security and privacy attitudes, customer satisfaction fulfillment and perception of governmental factors have higher impact than that of the website design attitudes which was eliminated from the model. Therefore, the three main significant factors on buyers' trust in e-commerce in Palestine include security and privacy attitudes, customer satisfaction fulfillment and perception of governmental factors, these factors explain about 28% of the variability in trusting e-commerce in Palestine. The highest impact was for the perception of governmental factors, followed by the customer satisfaction fulfillment and finally security and privacy attitudes.

Similarly, in order to assess the relative significance of the sub factors on the dependent sub factors of trust three regression models were

built; the first for integrity, the second for benevolence and the third for ability. The most influencing factors on integrity were commitment, ICT infrastructure, and regulations, these factors explain about 23% of the variability in the integrity of the e-vendor. Similarly, four variables were the most significant on the benevolence of the e-vendor these were regulations, commitment, and security, these factors explain 21% of the variability in the benevolence of the e-vendor. And finally, four predictors were the most significant factors on the ability of the e-vendor, these were regulations, adaptation, assortment, and security, these factors explain 23% of the variability in the ability of the e-vendor. In the three regression models of the sub factors, regulations was the only common variable in the three models, this implies that the buyers in Palestine consider it as a dominant factor affecting their trust level in the integrity, benevolence and abilities of the e-vendor. Therefore, in order to engender trust in e-commerce for the new customers, and reinforce the trust of the current customers the government is responsible for the drafting of laws and legislations that guarantee the rights of all parties which increases the bonds of trust.

The findings of the present study revealed that most buyers aged 18-30 years, most of them were graduates or postgraduate degree holders with relatively short shopping experience for the majority of them. In additions, about one fourth the surveyed respondents were used to

shop online and pay directly when their purchases were delivered instead of using electronic payment cards.

Statistical difference based on the demographic factors showed that there was statistical significance regarding gender and accessibility to electronic payment methods only; whereas no statistical significant differences existed based on age, educational level, and shopping experience. Males tend to trust e-commerce more than females, and respondents with accessibility to electronic payment methods tend to trust e-commerce more.

5.3 Recommendations:

The current study analyzed the factors affecting customers' trust in e-commerce in Palestine, e-commerce is still in its infancy in Palestine with limited impact on the Palestinian economy. It is expected that it will to evolve in the future in conjunction with technological advances in the information technology sector. The researcher came out with some recommendations for enhancing trust in e-commerce in Palestine. These recommendations are classified into two categories:

- **Recommendations for the government and authorities**
- **Recommendations for business owners who plan to use e-commerce.**

1. Recommendation for the government and authorities

The government and the official authorities should consider several actions and functions necessary for the success of e-commerce in Palestine these include:

- **Dissemination of awareness about e-commerce concept and operations**

The findings of this study revealed that reliability fulfillment was not a significant factor influencing trust in e-commerce in Palestine. The reason behind this could be the lack of awareness among customers of the concept of e-commerce, the importance of the reliability of an e-vendor, absence of full understanding of the possible risks, and security procedures that should be considered when dealing with local or international e-vendors. All of these would expose the customers to different types of substantial risks that could have been avoided if the customers were aware of and knew in advance the pros and cons of e-commerce. Other results of this study indicated that most respondents have relatively short shopping experiences and that most of them were young, therefore in order to overcome cultural barriers that impeded technology and e-commerce usage among the older people setting up a strategy to develop the use of e-commerce in the Palestinian community by dissemination of awareness campaigns and the elimination of illiteracy in information technology field among society members are important.

- **Drafting and issuing relevant regulations and legislations regarding online environment**

Governmental factors have the dominant influence on trusting e-commerce in Palestine. Regulations has the major influence on trusting the integrity, benevolence and ability of the e-vendors. The era of electronic communication and information technology requires the provision of legal and legislative environment suitable for e-commerce by issuing the relevant regulations and legislations in Palestine that meet all aspects of e-commerce. Until now, the applicable law in electronic transactions is the traditional trade law of 1966, which is not an appropriate law in the electronic environment. Although the activation of the electronic transactions law submitted to the Legislative Council is necessary, the most important is to ensure that this legislation covers the various types of transactions used in the electronic environment. In this context, we believe that the Palestinian legal legislator should work to issue laws related to e-commerce, e-signature and e-payment system so that the legislative system related to e-transactions is comprehensive. This makes it easier for contractors to conclude their contracts away from the formalities required by the laws in force in general, in addition, it contributes to enhancing the role of e-commerce in Palestine in particular as an alternative to traditional trade.

Besides that, the presence of specialized judges in electronic transactions will help to enhance the role of arbitration as a means of resolving disputes arising from online contracting in case that the electronic contract contains a condition that provides for the referral of the dispute that may arise to arbitration, which means recognition of the electronic arbitration agreement as an electronic editor. In accordance with the provisions of the new electronic transactions law and ensures that such disputes are referred to arbitration, which will contribute to filling the shortfall in the 2000 Arbitration Act which recognizes only the written arbitration agreement, and does not recognize the importance of the electronic arbitration agreement.

Furthermore, the continuous monitoring and improvements of these legislations are also needed since technological progress is continuously evolving in a higher rate than that of policy and legislations. By adopting the relevant legislations, the rights of all parties involved in the online processes and transactions are protected, which leads to a reduction of scams and fraud, and enhance trust in the buying and selling online.

- **Developing the ICT infrastructure to meet the increasing demands**

Developing the ICT infrastructure in Palestine should be in line with the increasing demands in internet usage in general, and in e-commerce transactions in particular. As discussed previously, the current capacity of the Palestinian postal services is limited. This requires relentless work to increase the capacity of the postal services, in addition, working on increasing the speed in delivering customers' purchases, which reflects positively on trusting e-commerce. On the other hand, although that about half of the Palestinian households have internet access as the statistics showed, more effort should be exerted toward enhancing internet connection quality and services, reducing the subscription prices of the Internet thus it reaches a larger segment of the society which will offer them the chance to try e-commerce.

- **Developing supportive services**

E-commerce operations require many financial and administrative services, shipping, transportation, enough mail boxes and the presence of electronic banking that facilitates electronic payments. The costs of transportation and shipping companies in Palestine are high, thereby hindering e-commerce. Although that electronic payment services are available in Palestinian banks, the issuing fees and the monthly cost are relatively high and most of them require a current account in the bank, therefore, many customers don't use these cards and pay directly when they receive their purchases.

The development of these service would positively affect e-commerce, in addition increasing security and safety procedure related to electronic payment cards would enhance customers' trust towards using them. The provision of sufficient mail boxes is also necessary to meet the customers' needs.

2. Recommendations for business owners who plan to use e-commerce

For business owners or individuals who want to explore e-commerce and use it as a platform for their work in order to reach a larger segment of people and gain their trust and loyalty, several points should be taken into consideration when designing the website, these include:

- **Investment in the website design is vital**

The first trust model suggested by this study used website design attitudes as a predictor for trust in e-commerce, but then the effect of website design attitudes was eliminated by other factors. This reflect that although the website design attitudes was not among the determining factors of trust, it was a strong candidate to be. Website design investment serves as a cue for the business as a whole. Customers usually make their judgements on the e-vendor trustworthiness based on the first impression they got from the

website design. Investing in building a professional, reliable, enjoyable, and secure website is elementary for attracting web browsers and make them regular customers. When customers navigate easily in a pleasant website without facing major problems this shall generate a positive attitude toward the e-vendor, hence, enhance customers' trust. Another important aspect that should not be overlooked is the content of the website, the information should be rich and comprehensive about the products and the e-vendors policies and procedures in accomplishing the deal, when customers have full information about their enquiries, this will encourage them to complete the transaction. Therefore, in order to be assessed as trustworthy online vendors and businesses should work hard on improving their website appearance and functionality.

- **Applying necessary security and privacy measures**

Based on the findings of this study security and privacy attitudes are predictors for trust in e-commerce. Using e-commerce is like exploring into the unknown especially to the unexperienced customers. The availability of persuasive security and privacy measures in the website helps in breaking the ice and convince the customer to conduct the transaction. The businesses need to enrich the site with evidences on the use of safety measures that guarantee transactions' safety. First time customers are more interested in these measure and tools than their experienced counterparts, and since that

e-commerce is relatively new in Palestine most people don't have long experience in online transactions therefore the website's containment on good security features and privacy policy shall enhance the customers trust behavior. Some of the security features include warranty messages, third party security seals, security tools regarding electronic payment methods, authorizations by providing access right to the employees in the website on a need to know basis, as well as encrypting the sensitive data, and authentication tools like identity certificate to make sure that the users are those who claim they are. On the other hand, for privacy features third privacy seals are recommended, the containment on readable and easy to understand privacy statement, and third party trustmarks: links to other trusted sites which helps assurance and enhancing trust in e-vendor because if the linked site is a trusted good site, then this site is a trusted one as well.

- **Intensify efforts on customer satisfaction**

Customer satisfaction fulfillment is a predictor for trust in e-commerce. Therefore, it is worthwhile for the current and emerging e-businesses to intensify and focus their efforts on satisfying their customers, especially that in the cyberspace nothing is easier than leaving a page of an e-vendor to another one. Satisfying customers encompasses different aspects, some of these were considered in the current study and proved their significance including customization

the products according to customer' needs, being committed to solve and possible problems customers may face while using the website, establishing a network or a virtual community for the customers of the website to share experiences, and assortment of products. Other aspects like transaction ease, service quality, products' brands, and competitive prices should also be considered in order to reach the ultimate goal of satisfying the customers. Through building an effective customer relationship management, a satisfied customer, who finds everything he needs, who is a member is a community he trusts, and who is dealing with an e-vendor who cares for him would eventually trust the e-vendor and be loyal to him.

- **Offering distinguishable products and services compared to offline commerce**

In order to convince the customers to buy online, the products should speak for themselves. If the products provided by the e-vendor are similar to those available in traditional offline commerce, customers would buy it from the traditional commerce vendors, thus avoiding any risks and saving time instead of waiting for delivery. Therefore, for those who wish to start their online business and those who already started, the quality and the specialty of the presented products are necessary. Products could be distinguished from others based on price, quality, brand, customized features, and after sale services.

5.4 Contribution of the study

While reading the available literature related to factors affecting customers' trust in e-commerce, it was noted that the number of studies in the Arab world was limited, and none of these studied the Palestinian context. Therefore, the current research is the first to analyze and determine the factors affecting customers' trust in Palestine and the relative significance of each factor. In this study, the concept of trust was studied in two approaches, first, factors influencing trust as a construct were determined, and second, factors affecting each of the three components of trust (integrity, benevolence, ability) were also determined. In the available literature, few studies focused on determining the factors affecting each component of trust, hence, this part of the research is significant.

The findings of this study are important for both practitioners' and researchers. For practitioners it can help them identify the factors that influence customers' trust in Palestine and focus on these in establishing their business website. On the other hand, for researchers it forms a first step on the way of building a comprehensive model of factors affecting customers' trust in Palestine. They can benefit from the current study' findings and build on it to include other factors that are not included.

5.5 Limitations

Any study has limitations, likewise the current study had its limitations. First, It is impossible to include all potential factors, but the aim was to cover the most important and relevant determining factors of trust due to the specialty of the Palestinian context because of the restrictions imposed by the Israeli authorities on Palestinian telecommunication sector. Second, lack of recent official statistics related to some elements of the study such as the number of internet users for shopping purposes in each of the Palestinian provinces, and absence of e-transactions laws.

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Appendices

Appendix (1) English Questionnaire:



Dear Participant:

I am a postgraduate student at An-Najah National University. I am conducting a study about **"The Factors Influencing Buyers' Trust in Electronic Commerce in Palestine"**. Five factors are to be studied including: website design attitudes; reliability fulfillment; privacy and security attitudes; customer satisfaction fulfillment and perception of governmental policies.

This questionnaire is designed to collect the required data for this research.

The tremendous development in the field of communication technology has led to the rapid spread of electronic commerce over the last two decades. **An online store can be defined as a platform for selling and buying products, services or information over the Internet.**

We believe that you are the best source for providing us with the necessary information to carry out this study by thankfully filling out this questionnaire which does not take more than 10 minutes. As a participant in the study you have the right to refuse to participate, refuse to answer any specific question, obtain the results of the study after implementation and ensure independence and confidentiality.

This study is supervised by : Dr. Yahya Saleh from An-Najah National University.

Please read the questions and put X at the option you see fit. If you have any comments or suggestions, feel free to type it.

Thank you for your time and support.

The Researcher

Rania Abdullah

Master of Engineering Management

Part 1: Personal Information

1. **Gender** Male Female
2. **Age** 18-23 24-30
 31-40 41-50
 >50
3. **Educational level** High School Diploma
 Bachelor Degree Postgraduate Degree
4. **Do you own an internet shopping card?** Yes No
5. **Have you ever experienced online shopping?** Yes No
6. **For how long have you been shopping online?** less than a year 1-2 years
 3-5 years more than 5 years

Part 2: Study Variables

Construct	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly disagree 1
1. Website Design Attitudes					
I think that the website content should:					
Be useful for getting information about the products					
Help in decision making					
Contain information about the company					
Update Products' information regularly					
In my opinion, the website should					
Provide effective search capabilities					
Be easy to get around and find what I want					
Provide a contact address					

Allow to compare with other products you choose					
Use multimedia elements (audio, video, animation) properly					
Has a professional appearance					
Use legible colors and texts					
Provide a site map					
Provide "add to cart" option					
Has Pictures of good quality and proper size (display from different angles)					
Few clicks to get to end product from home page					
Complete a transaction should be quick and easy					
A first time buyer can make a purchase without much help					

2. Reliability Fulfillment					
The delivered product should:					
Be represented accurately in the website					
Be delivered by the time promised by the website					
In my opinion, it is important that					
Returning items is relatively straightforward					
The website has reasonable shipping and handling costs					
Shipping and handling costs are known upfront					
Cancellation Policy of orders is relatively straightforward					
Error free transactions at the website is necessary					
3. Privacy/Security Fulfillment					
The website has adequate security features					
I feel secure about electronic payment system of the website					
The website usually ensures that transactional information is 'virus free approved'					
There were seals from companies stating that my information on this site					

is secured (e.g verisign)					
The general privacy policy should					
Be easy to find on the site					
Has an easy to understand text					
The website explain					
What personal information is going to be collected					
Why personal information is going to be collected					
How the collected data is going to be used					
4. Customer Satisfaction Fulfillment					
I believe that the e-commerce websites take good care of its customers					
My positive experiment with e-commerce websites enhances my relationship with it					
Gives me attention					
I am interested in other customers opinions					
I am interested in other customers experiences about their product purchases and use at the website					
I am not interested in other customers experiences and I depend on my own judgment					
I visit chat rooms available in e-commerce websites					
In my opinion, it is important that					
Respond to the customer's individual needs and desires					
Be willing to provide customized services to its customers					
Send advertisements and promotions that are designed to fit in my situation					
I prefer to deal with websites					
with broad variety of products					
with unexpected items you may find (seldom items)					
that have products I can't easily find in traditional stores					
The website does satisfy majority of my online shopping needs					

5. Perception of Governmental Factors					
Access to network services or infrastructure to support Web and Internet Technologies is satisfactory					
The telecommunication infrastructure is reliable and efficient to support e-commerce and e-business					
We feel that there is efficient and affordable support from the local IT industry to support our move on the Internet					
Secure electronic transaction (SET) services are easily available and affordable					
There are effective laws to combat cyber crime					
The legal environment is conducive to conduct business on the Internet					
There are effective laws to protect consumer privacy					
There is no lack of developed legal and regulatory systems					
6. Customer Trust in e-retailers					
I think					
That the website usually fulfils the commitments it assumes					
That the information offered by the site is sincere and honest					
I can have confidence in the promises that the website makes					
That the advice and recommendations given on website are made in search of mutual benefit					
That the website is concerned with the present and future interests of its users					
That the website would not do anything intentional that would prejudice the user					
That the website has the necessary abilities to carry out its work					
That the website has sufficient experience in the marketing of the products and services that it offers					
That the website has the necessary resources to successfully carry out its activities					

Appendix (2) :The Arabic version of the questionnaire



المشارك الكريم/ة:

تسعى الباحثة في هذه الاستبانة الى تحديد العوامل المؤثرة في ثقة المشترين في التجارة الالكترونية في فلسطين. تتضمن هذه الدراسة خمسة عوامل رئيسة مفترضة تؤثر على ثقة المشترين وهي: تصميم الموقع (المتجر) الالكتروني، الموثوقية في الموقع، الخصوصية والأمان، تحقيق رضا الزبائن ودرجة الادراك للسياسات الحكومية.

أدى التطور الهائل في مجال تكنولوجيا الاتصالات الى انتشار التجارة الالكترونية خلال العقدين الاخرين بشكل متسارع. ويمكن تعريف المتجر الالكتروني بأنه منصة لبيع وشراء المنتجات او الخدمات او المعلومات عبر شبكة الانترنت.

ونحن نعتقد انكم افضل من يزودنا بالمعلومات اللازمة لتنفيذ هذه الدراسة من خلال تكمم بتعبئة هذه الاستبانة التي لا تستغرق اكثر من 10 دقائق. كمشاركين في الدراسة لديكم الحق في رفض الاشتراك، رفض الإجابة عن أي سؤال محدد، الحصول على نتائج الدراسة بعد تنفيذها وضمن الاستقلالية والسرية.

هذه الدراسة تحت اشراف د. يحيى صالح من جامعة النجاح الوطنية.

ارجو من حضرتكم قراءة الأسئلة ووضع X عند الخيار الذي ترونه مناسباً. اذا كان لديكم أي تعليق او اقتراح، تفضلوا بكتابته.

شكراً لوقتكم ودعمكم

الباحثة

رانية عبد الله

برنامج ماجستير الإدارة الهندسية

القسم الاول: معلومات شخصية

1. الجنس ذكر انثى
2. العمر 23-18 30-24 40-31 50-41 اكثر من 50
3. المستوى التعليمي ثانوية عامة دبلوم متوسط بكالوريوس دراسات عليا غير ذلك
4. هل تمتلك حساب او بطاقة تسوق الالكتروني؟ نعم لا
5. هل قمت بتجربة التسوق الالكتروني؟ نعم لا
6. منذ متى تمارس التسوق الالكتروني؟ منذ اقل من سنة منذ 1-2 سنة منذ 3-5 سنوات منذ اكثر من 5 سنوات

القسم الثاني: دراسة العوامل

يرجى منك الاجابة بعلامة X لكل من الفقرات التالية بما تراه مناسباً

لا أوافق بشدة	لا اوافق	محايد	اوافق	اوافق بشدة	
1. تصميم الموقع الالكتروني					
اعتقد ان محتوى المتجر الالكتروني يجب ان					
					يكون غنيا بالمعلومات عن المنتجات والسلع المقدمة فيه
					يساعد في اتخاذ القرار المتعلق بعملية الشراء
					يشتمل على معلومات عن الشركة المالكة للموقع التجاري
					يقوم بتحديث معلومات المنتجات والسلع بشكل منتظم
برأيي انه من المهم في المتجر الالكتروني ان					
					يحتوي على محرك بحث فعال
					يكون سهل التنقل ويمكنني من إيجاد ما ابحت عنه
					يحتوي على عنوان او طريقة للتواصل مع القائمين عليه
					يسمح بالمقارنة بين البضائع التي اختارها
					يستخدم تعدد الوسائط (صوت-فيديو-صور متحركة)

لا أوافق بشدة	لا أوافق	محايد	أوافق	أوافق بشدة	
					بطريقة ملائمة
					يكون ذو مظهر احترافي
					يستخدم نصوصا واضحة
					يستخدم الوانا ملائمة للنصوص
					يحتوي على خريطة للموقع تسهل التنقل فيه
					يحتوي على ميزة "إضافة الى السلة Add to Basket"
					يشتمل على صور بجودة وحجم مناسب مع إمكانية عرض الصور من زوايا مختلفة
					من المهم ان تكون عملية الوصول من الصفحة الرئيسية للمتجر الى المنتج المطلوب بأقل عدد من النقرات على الفأرة
					اعتقد ان تنفيذ العملية (الحركة) المطلوبة يجب ان يكون سريعا وسهلا
					عند الشراء من متجر الكتروني لأول مرة افضل ان يكون ذلك بإقل مساعدة ممكنة
موثوقية المتجر الالكتروني					
					من الضروري خلو الحركات والعمليات التي انفذها في المتجر الالكتروني من الأخطاء التقنية
اعتقد ان المنتج الذي تم شراؤه واستلامه من المتجر الالكتروني يجب ان					
					يكون مطابقا بدقة للمنتج المعروض في المتجر الالكتروني
					يتم استلامه في الموعد المتفق عليه
باعترادي انه من المهم ان تكون					
					سياسة ارجاع المنتج سهلة نسبيا
					تكلفة النقل والتوصيل مناسبة
					تكلفة النقل والتوصيل محددة مسبقا
					سياسة الغاء الطلبات سهلة نسبيا
					خلو الحركات المنفذة في الموقع من الاخطاء
الأمان والخصوصية					
					من المهم احتواء الموقع على سياسات للأمان
					اشعر بالأمان عند استخدام أنظمة الدفع الالكترونية في المتاجر الالكترونية
					اشعر بالأمان عند احتواء المتجر الالكتروني على تأكيد ان المعاملات من خلاله خالية من الفيروسات
					اشعر بالأمان عند احتواء المتجر الالكتروني على اختتام لمؤسسات عالمية تثبت ان المعلومات في الموقع امنة
عندما اريد قراءة سياسة الخصوصية للمتجر الالكتروني افضل ان					
					أتمكن من ايجادها بسهولة في المتجر الالكتروني

لا أوافق بشدة	لا أوافق	محايد	أوافق	أوافق بشدة	
					ان تكون مكتوبة بنص وأسلوب سهل الفهم
عند جمع معلومات عن المستخدم، اعتقد انه يجب على المتاجر الالكترونية ان توضح					
					ماهية المعلومات التي سيقوم بجمعها
					سبب جمع هذه المعلومات
					طريقة تجميع هذه المعلومات
رضا الزبائن					
					اعتقد ان المتاجر الالكترونية تهتم بزبائننا
					تجاري ايجابية مع المتاجر الإلكترونية تؤثر على علاقتي معها
					تعطيني الاهتمام
					اهتم بأراء المشتريين الآخرين في المتاجر الالكترونية
					اهتم بقراءة تجارب المشتريين الاخرين في المتاجر الالكترونية
					لا اهتم بتجارب المشتريين الآخرين واعتمد على تقييمي الشخصي للمتجر الالكتروني
					أقوم بزيارة غرف الدردشة في المتاجر الالكترونية
باعقادي انه من المهم في المتاجر الالكترونية ان					
					تستجيب لاحتياجاتي و رغباتي
					تكون مستعدة لتقديم بضائع وخدمات مخصصة لي
					ترسل لي الإعلانات والعروضات التي تناسبني
افضل التعامل مع المتاجر الالكترونية					
					ذات القاعدة الكبيرة من المنتجات
					ذات البضائع النادرة
					ذات البضائع التي لا أستطيع ايجادها في المتاجر التقليدية
مدى ادراك العوامل الحكومية					
					اشعر بالرضى عن البنية التحتية وخدمات الشبكات المقدمة من الحكومة الفلسطينية الضرورية لتكنولوجيا الانترنت
اعتقد ان					
					من الممكن الاعتماد على البنية التحتية المقدمة من الحكومة الفلسطينية في مجال الاتصالات لدعم التجارة الالكترونية
					المتاجر الالكترونية الفلسطينية تحصل على دعم مناسب من قطاع تكنولوجيا المعلومات في فلسطين
					المعاملات الالكترونية الامنة متوفرة بدرجة كافية في فلسطين
					هناك قوانين فعالة في فلسطين لمكافحة الجرائم الالكترونية

لا أوافق بشدة	لا أوافق	محايد	أوافق	أوافق بشدة	
					البيئة القانونية في فلسطين تساعد على القيام بالاعمال الالكترونية من خلال الانترنت
					هناك قوانين فعالة لحماية خصوصية المشتريين
					السياسات القانونية الالكترونية المعمول فيها في فلسطين شاملة ولا يوجد فيها نقص
					اعتقد ان الحكومة الفلسطينية توفر مجموعة من القوانين التي تجعل أنظمة الدفع الالكتروني آمنة وموثوقة
الثقة في المتاجر الالكترونية					
اعتقد ان المتاجر الالكترونية					
					تفي بالتزاماتها التي تحددها
					تزود بمعلومات صادقة ومخلصة
					تقطع وعودا يمكنني ان اثق بها
					تقدم النصائح والتوصيات التي تهدف للمنفعة المتبادلة
					تهتم بالمصالح الحالية والمستقبلية لمستخدميها
					لن تعتمد القيام بأي عمل يضر بالمستخدمين
					لديها القدرات الكافية للقيام بعملها
					لديها الخبرة الكافية في تسويق البضائع والخدمات التي تقدمها
					لديها الادوات الكافية للقيام بأنشطتها بنجاح (تسويقية، دعائية، تواصل مع الزبائن....)

إذا كان لديك أية اقتراحات أو تعليقات أخرى، يرجى اضافتها هنا:

.....

.....

.....

Appendix (3): Arbitrators

<u>Name:</u>	<u>Specialization</u>	<u>Position</u>
Dr. Manal Sharabati	E-commerce	Head of Business Management & E-Commerce Department at PTUK
Dr. Ayham Jaaron	Manufacturing Engineering and Operations Management	Director of the Quality Assurance Unit of An-Najah National University,
Dr. Mohammed Othman	Industrial Engineering	Head of the Industrial Engineering Dep.
Dr. Mervat Sharabati	Entrepreneurship	
Dr. Ghassan Shaheen	E-Learning	Assistant Professor at Ploytechnic University- Hebron
Dr. Ali Zlait		
Dr. Amal Rashid	Knowledge Management	
Dr. Hisham Mallasi		

Appendix (4): Main Regression model of trust

1. First degree polynomial between trust and four significant factors

General Regression Analysis: TRST versus WSDA, SPA, CSF, PGF

Box-Cox transformation of the response with rounded lambda = 2
The 95% CI for lambda is (1.175, *)

Regression Equation

TRST^2 = -5.35955 + 0.0177498 WSDA + 1.25065 SPA + 1.74788 CSF + 2.2589 PGF

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	-5.35955	2.45852	-2.17999	0.030	
WSDA	0.01775	0.54861	0.03235	0.974	1.37004
SPA	1.25065	0.56351	2.21940	0.027	1.55431
CSF	1.74788	0.54043	3.23424	0.001	1.62054
PGF	2.25890	0.25862	8.73429	0.000	1.08983

Summary of Model

S = 4.20064 R-Sq = 28.54% R-Sq(adj) = 27.73%
PRESS = 6429.34 R-Sq(pred) = 26.23%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	4	2487.10	2487.10	621.77	35.2373	0.000000
WSDA	1	210.44	0.02	0.02	0.0010	0.974208
SPA	1	302.46	86.92	86.92	4.9257	0.027095
CSF	1	628.07	184.58	184.58	10.4603	0.001335
PGF	1	1346.13	1346.13	1346.13	76.2878	0.000000
Error	353	6228.81	6228.81	17.65		
Lack-of-Fit	349	6228.81	6228.81	17.85	*	*
Pure Error	4	0.00	0.00	0.00		
Total	357	8715.90				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	TRST^2	Fit	SE Fit	Residual	St Resid	
34	4.9383	14.5115	0.40944	-9.5732	-2.28989	R
51	20.7531	10.8598	1.10730	9.8933	2.44154	R X
68	4.4568	13.7601	0.45632	-9.3033	-2.22791	R
70	4.9383	13.7605	0.47286	-8.8222	-2.11365	R
80	21.2623	12.1105	0.42585	9.1519	2.18997	R
131	20.7531	12.3645	0.51253	8.3886	2.01202	R
145	25.0000	13.7803	0.32434	11.2197	2.67894	R
153	25.0000	14.9868	0.27946	10.0132	2.38903	R
162	11.1111	6.2660	0.92493	4.8451	1.18244	X
167	9.0000	6.4915	0.92313	2.5085	0.61214	X
168	9.0000	9.4718	0.91114	-0.4718	-0.11506	X
173	6.5309	8.7823	0.88857	-2.2514	-0.54837	X
182	7.7160	16.1146	0.40354	-8.3985	-2.00864	R
186	11.1111	10.8728	1.48469	0.2383	0.06064	X

215	25.0000	10.7406	0.53213	14.2594	3.42216	R
243	5.9753	15.0807	0.40164	-9.1054	-2.17760	R
251	16.0000	23.9753	1.80147	-7.9753	-2.10168	R X
255	16.0000	6.9064	0.64113	9.0936	2.19049	R
267	23.9012	13.3125	0.39479	10.5887	2.53194	R
268	14.6944	18.7808	1.55404	-4.0864	-1.04709	X
306	25.0000	13.9008	0.32071	11.0992	2.64999	R
310	25.0000	14.2582	0.45340	10.7418	2.57222	R
338	23.9012	15.3439	0.30834	8.5573	2.04265	R
356	22.8272	13.4729	0.39199	9.3542	2.23662	R

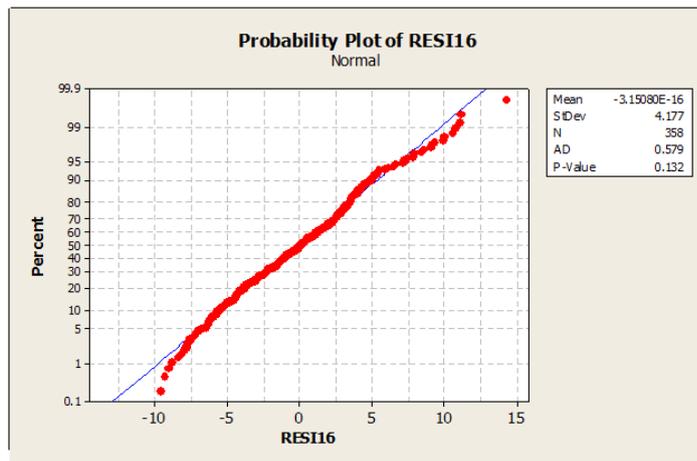
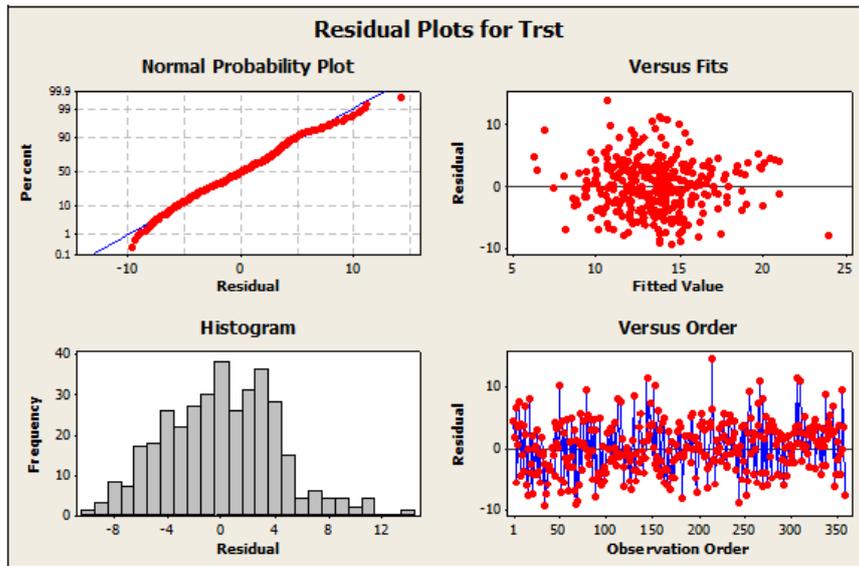
Fits for Unusual Observations for Original Response

Obs	TRST	Fit		
34	2.22222	3.80939	R	
51	4.55556	3.29542	R	X
68	2.11111	3.70946	R	
70	2.22222	3.70952	R	
80	4.61111	3.48001	R	
131	4.55556	3.51631	R	
145	5.00000	3.71219	R	
153	5.00000	3.87128	R	
162	3.33333	2.50320		X
167	3.00000	2.54784		X
168	3.00000	3.07763		X
173	2.55556	2.96349		X
182	2.77778	4.01430	R	
186	3.33333	3.29740		X
215	5.00000	3.27728	R	
243	2.44444	3.88339	R	
251	4.00000	4.89646	R	X
255	4.00000	2.62799	R	
267	4.88889	3.64863	R	
268	3.83333	4.33369		X
306	5.00000	3.72838	R	
310	5.00000	3.77600	R	
338	4.88889	3.91714	R	
356	4.77778	3.67055	R	

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.91633



2. First degree polynomial between trust and three significant factors

General Regression Analysis: TRST versus SPA, CSF, PGF

Box-Cox transformation of the response with rounded lambda = 2
 The 95% CI for lambda is (1.175, *)

Regression Equation

$$TRST^2 = -5.32301 + 1.25611 SPA + 1.7524 CSF + 2.25845 PGF$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	-5.32301	2.18063	-2.44104	0.015	
SPA	1.25611	0.53695	2.33933	0.020	1.41526
CSF	1.75240	0.52133	3.36138	0.001	1.51231
PGF	2.25845	0.25790	8.75715	0.000	1.08679

Summary of Model

S = 4.19471 R-Sq = 28.53% R-Sq(adj) = 27.93%
 PRESS = 6398.22 R-Sq(pred) = 26.59%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	3	2487.08	2487.08	829.03	47.1157	0.000000
SPA	1	490.60	96.29	96.29	5.4725	0.0198740
CSF	1	647.12	198.81	198.81	11.2989	0.0008602
PGF	1	1349.36	1349.36	1349.36	76.6878	0.0000000
Error	354	6228.83	6228.83	17.60		
Lack-of-Fit	344	6144.60	6144.60	17.86	2.1207	0.0920040
Pure Error	10	84.23	84.23	8.42		
Total	357	8715.90				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	TRST^2	Fit	SE Fit	Residual	St Resid	
34	4.9383	14.5064	0.37846	-9.5682	-2.29035	R
51	20.7531	10.8552	1.09654	9.8979	2.44462	R X
68	4.4568	13.7557	0.43540	-9.2989	-2.22886	R
70	4.9383	13.7618	0.47044	-8.8235	-2.11685	R
80	21.2623	12.1108	0.42509	9.1515	2.19297	R
131	20.7531	12.3723	0.45149	8.3808	2.00962	R
145	25.0000	13.7835	0.30899	11.2165	2.68125	R
153	25.0000	14.9872	0.27877	10.0128	2.39230	R
162	11.1111	6.2679	0.92171	4.8432	1.18352	X
167	9.0000	6.4969	0.90668	2.5031	0.61118	X
182	7.7160	16.1135	0.40162	-8.3975	-2.01116	R
215	25.0000	10.7370	0.52006	14.2630	3.42667	R
243	5.9753	15.0839	0.38908	-9.1085	-2.18084	R
251	16.0000	23.9963	1.67906	-7.9963	-2.08019	R X
255	16.0000	6.9089	0.63532	9.0911	2.19257	R
267	23.9012	13.3199	0.32288	10.5814	2.53006	R
306	25.0000	13.8950	0.26412	11.1050	2.65266	R
310	25.0000	14.2534	0.42835	10.7466	2.57540	R
338	23.9012	15.3461	0.30093	8.5552	2.04479	R
356	22.8272	13.4693	0.37545	9.3578	2.23986	R

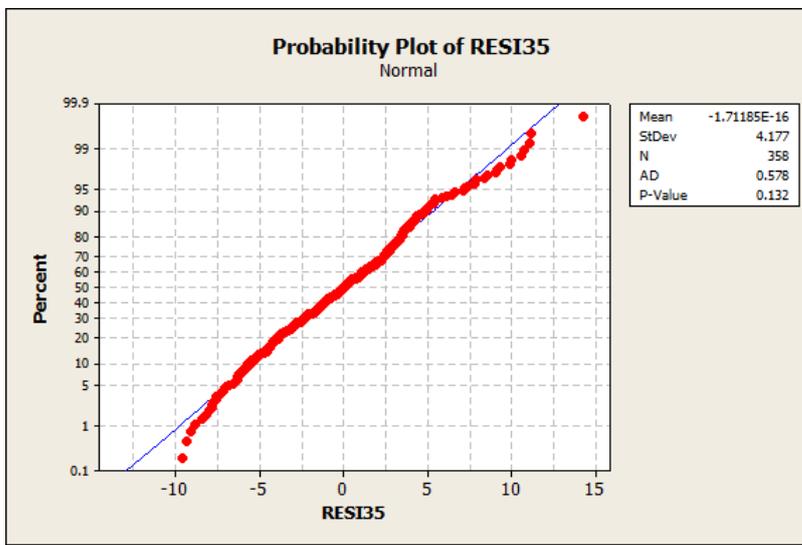
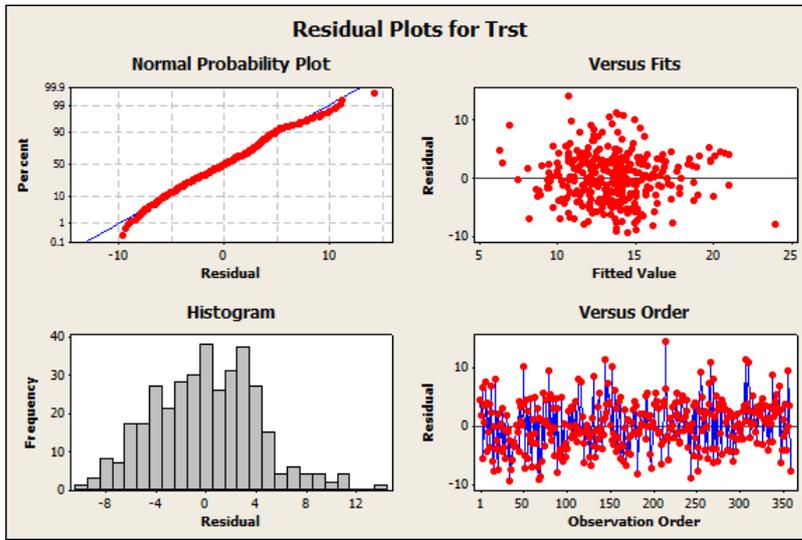
Fits for Unusual Observations for Original Response

Obs	TRST	Fit	
34	2.22222	3.80873	R
51	4.55556	3.29472	R X
68	2.11111	3.70887	R
70	2.22222	3.70969	R
80	4.61111	3.48006	R
131	4.55556	3.51742	R
145	5.00000	3.71261	R
153	5.00000	3.87133	R
162	3.33333	2.50358	X
167	3.00000	2.54890	X
182	2.77778	4.01416	R
215	5.00000	3.27674	R
243	2.44444	3.88379	R
251	4.00000	4.89860	R X
255	4.00000	2.62848	R
267	4.88889	3.64964	R
306	5.00000	3.72759	R
310	5.00000	3.77537	R
338	4.88889	3.91740	R
356	4.77778	3.67006	R

R denotes an observation with a large standardized residual.
 X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.91604



Second degree polynomial

Box-Cox transformation of the response with rounded lambda = 2
The 95% CI for lambda is (1.285, *)

Regression Equation

$$\begin{aligned} \text{TRST}^2 = & 7.82524 + 1.6768 \text{ WSDA} - 9.21968 \text{ SPA} + 6.64844 \text{ CSF} - 0.989193 \\ \text{PGF} - & 0.22081 \text{ WSDA} * \text{WSDA} + 1.23861 \text{ SPA} * \text{SPA} - 0.59845 \text{ CSF} * \text{CSF} + \\ & 0.562208 \text{ PGF} * \text{PGF} \end{aligned}$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	7.82524	13.3128	0.58780	0.557	
WSDA	1.67680	3.8307	0.43772	0.662	68.766
SPA	-9.21968	5.2477	-1.75689	0.080	138.762
CSF	6.64844	2.8418	2.33955	0.020	46.126
PGF	-0.98919	1.2639	-0.78267	0.434	26.793
WSDA*WSDA	-0.22081	0.4206	-0.52501	0.600	65.675
SPA*SPA	1.23861	0.6340	1.95359	0.052	140.366
CSF*CSF	-0.59845	0.3246	-1.84369	0.066	43.409
PGF*PGF	0.56221	0.2103	2.67323	0.008	27.002

Summary of Model

S = 4.14017 R-Sq = 31.36% R-Sq(adj) = 29.79%
PRESS = 6415.52 R-Sq(pred) = 26.39%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	8	2733.68	2733.68	341.710	19.9352	0.000000
WSDA	1	210.44	3.28	3.284	0.1916	0.661859
SPA	1	302.46	52.91	52.909	3.0867	0.079813
CSF	1	628.07	93.82	93.822	5.4735	0.019870
PGF	1	1346.13	10.50	10.500	0.6126	0.434354
WSDA*WSDA	1	2.17	4.72	4.725	0.2756	0.599911
SPA*SPA	1	84.62	65.42	65.419	3.8165	0.051548
CSF*CSF	1	37.31	58.27	58.266	3.3992	0.066076
PGF*PGF	1	122.49	122.49	122.493	7.1462	0.007865
Error	349	5982.22	5982.22	17.141		
Lack-of-Fit	345	5982.22	5982.22	17.340	*	*
Pure Error	4	0.00	0.00	0.000		
Total	357	8715.90				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	TRST^2	Fit	SE Fit	Residual	St Resid	
21	9.6790	18.0408	0.61905	-8.3617	-2.04262	R
34	4.9383	14.4966	0.55696	-9.5584	-2.32987	R
51	20.7531	15.2779	2.39778	5.4752	1.62221	X
60	1.0000	9.6678	0.91513	-8.6678	-2.14667	R
68	4.4568	13.0828	0.52575	-8.6260	-2.10049	R
70	4.9383	14.0329	0.52906	-9.0946	-2.21483	R
80	21.2623	12.6020	0.44648	8.6604	2.10406	R

128	3.1605	11.2876	0.93428	-8.1271	-2.01497	R
145	25.0000	13.5112	0.35242	11.4888	2.78507	R
153	25.0000	14.6527	0.32875	10.3473	2.50715	R
162	11.1111	10.1680	1.58485	0.9431	0.24658	X
167	9.0000	7.3015	1.78358	1.6985	0.45459	X
168	9.0000	7.8714	1.45627	1.1286	0.29121	X
173	6.5309	7.4705	1.42153	-0.9397	-0.24166	X
186	11.1111	8.9118	2.36485	2.1994	0.64719	X
215	25.0000	12.2056	0.68925	12.7944	3.13405	R
243	5.9753	14.3869	0.47113	-8.4116	-2.04498	R
251	16.0000	17.9973	3.77082	-1.9973	-1.16846	X
255	16.0000	7.6982	1.02365	8.3018	2.06943	R
267	23.9012	13.3338	0.43129	10.5674	2.56638	R
268	14.6944	18.0017	2.99621	-3.3073	-1.15751	X
269	20.7531	12.2778	0.55671	8.4753	2.06585	R
306	25.0000	13.2789	0.39713	11.7211	2.84419	R
310	25.0000	14.1914	0.55021	10.8086	2.63404	R
338	23.9012	14.8121	0.36462	9.0891	2.20391	R
356	22.8272	13.1812	0.39920	9.6460	2.34076	R

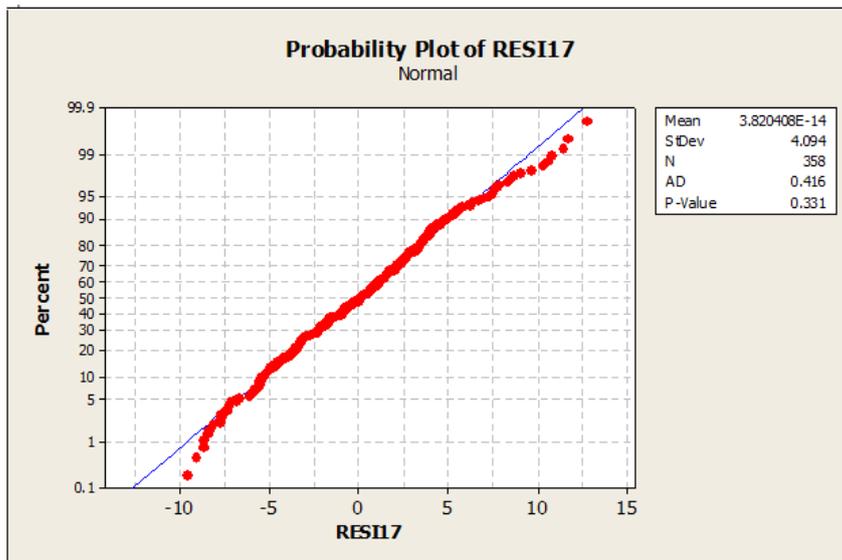
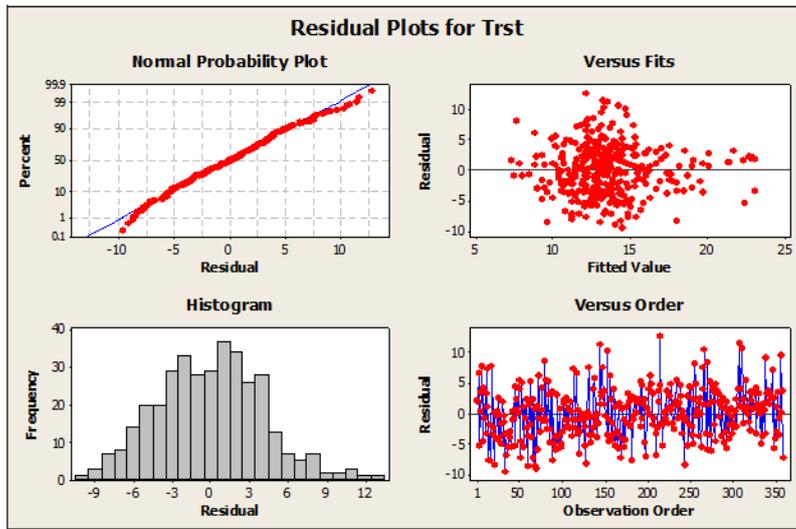
Fits for Unusual Observations for Original Response

Obs	TRST	Fit	
21	3.11111	4.24744	R
34	2.22222	3.80745	R
51	4.55556	3.90869	X
60	1.00000	3.10930	R
68	2.11111	3.61701	R
70	2.22222	3.74605	R
80	4.61111	3.54993	R
128	1.77778	3.35971	R
145	5.00000	3.67576	R
153	5.00000	3.82789	R
162	3.33333	3.18873	X
167	3.00000	2.70213	X
168	3.00000	2.80560	X
173	2.55556	2.73323	X
186	3.33333	2.98526	X
215	5.00000	3.49365	R
243	2.44444	3.79300	R
251	4.00000	4.24233	X
255	4.00000	2.77456	R
267	4.88889	3.65155	R
268	3.83333	4.24284	X
269	4.55556	3.50397	R
306	5.00000	3.64402	R
310	5.00000	3.76714	R
338	4.88889	3.84865	R
356	4.77778	3.63059	R

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.90242



Appendix (5): Regression models for integrity

1. First degree polynomial between integrity and seven significant factors

General Regression Analysis: INTG versus CONT, SEC, ADAP, COMT, ASRT, ICT, REGU

Box-Cox transformation of the response with rounded lambda = 1.46663
The 95% CI for lambda is (1.105, 1.845)

Regression Equation

$$\text{INTG}^{1.46663} = -0.534747 + 0.20146 \text{ CONT} + 0.225683 \text{ SEC} + 0.0135526 \text{ ADAP} + 0.382328 \text{ COMT} + 0.23415 \text{ ASRT} + 0.304014 \text{ ICT} + 0.668417 \text{ REGU}$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	-0.534747	1.10694	-0.48309	0.629	
CONT	0.201460	0.21956	0.91757	0.359	1.24705
SEC	0.225683	0.19109	1.18103	0.238	1.23975
ADAP	0.013553	0.19426	0.06976	0.944	1.55652
COMT	0.382328	0.17040	2.24368	0.025	1.35722
ASRT	0.234150	0.18099	1.29376	0.197	1.39365
ICT	0.304014	0.16170	1.88014	0.061	2.56103
REGU	0.668417	0.16503	4.05020	0.000	2.63620

Summary of Model

S = 1.90520 R-Sq = 25.11% R-Sq(adj) = 23.62%
PRESS = 1334.83 R-Sq(pred) = 21.32%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	7	426.03	426.03	60.8618	16.7672	0.000000
CONT	1	21.64	3.06	3.0561	0.8419	0.359476
SEC	1	23.58	5.06	5.0630	1.3948	0.238392
ADAP	1	44.49	0.02	0.0177	0.0049	0.944421
COMT	1	54.28	18.27	18.2728	5.0341	0.025478
ASRT	1	4.89	6.08	6.0756	1.6738	0.196603
ICT	1	217.60	12.83	12.8310	3.5349	0.060920
REGU	1	59.54	59.54	59.5436	16.4041	0.000063
Error	350	1270.43	1270.43	3.6298		
Lack-of-Fit	341	1269.54	1269.54	3.7230	37.5969	0.000001
Pure Error	9	0.89	0.89	0.0990		
Total	357	1696.46				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	INTG ^{1.46663}	Fit	SE Fit	Residual	St Resid	R
15	1.5249	5.36684	0.274163	-3.84195	-2.03776	R
21	2.7637	8.35072	0.234843	-5.58697	-2.95501	R

34	3.4649	6.08484	0.539268	-2.61999	-1.43381		X
51	10.5957	6.59501	0.500397	4.00065	2.17626	R	X
60	1.0000	4.76567	0.300378	-3.76567	-2.00155	R	
68	2.1153	6.30603	0.241415	-4.19074	-2.21750	R	
70	2.1153	6.38451	0.213336	-4.26923	-2.25501	R	
131	9.5760	5.10843	0.354959	4.46755	2.38671	R	
138	7.6383	5.27878	0.504029	2.35953	1.28422		X
153	10.5957	6.72961	0.325769	3.86605	2.05954	R	
155	2.7637	6.65938	0.446083	-3.89563	-2.10320	R	
157	10.5957	5.77541	0.354298	4.82025	2.57496	R	
168	5.0091	4.59633	0.565235	0.41275	0.22686		X
173	2.7637	4.60254	0.554081	-1.83879	-1.00874		X
198	2.7637	7.39447	0.198479	-4.63073	-2.44386	R	
215	10.5957	5.33394	0.234931	5.26172	2.78300	R	
255	9.5760	4.28625	0.276961	5.28973	2.80627	R	
267	10.5957	6.23848	0.289465	4.35717	2.31385	R	
269	10.5957	6.15095	0.446508	4.44471	2.39977	R	
296	2.7637	6.89804	0.294275	-4.13429	-2.19636	R	
310	10.5957	6.55229	0.257983	4.04337	2.14201	R	
324	10.5957	5.61486	0.353044	4.98079	2.66039	R	
345	10.5957	6.80697	0.246026	3.78869	2.00539	R	
351	2.7637	5.08245	0.558100	-2.31870	-1.27287		X
358	2.7637	6.94355	0.169675	-4.17980	-2.20264	R	

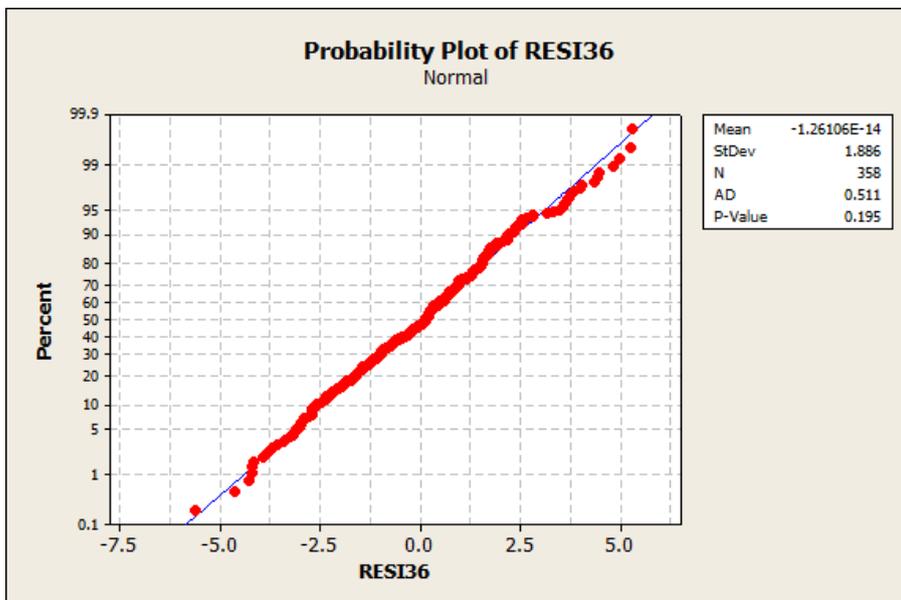
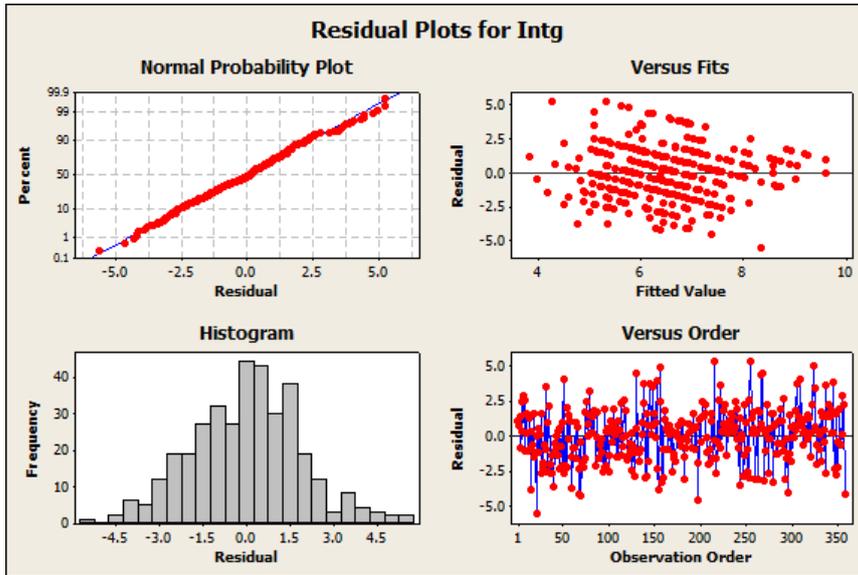
Fits for Unusual Observations for Original Response

Obs	INTG	Fit		
15	1.33333	3.14448	R	
21	2.00000	4.25075	R	
34	2.33333	3.42555		X
51	5.00000	3.61885	R	X
60	1.00000	2.89981	R	
68	1.66667	3.50997	R	
70	1.66667	3.53970	R	
131	4.66667	3.04044	R	
138	4.00000	3.10921		X
153	5.00000	3.66905	R	
155	2.00000	3.64290	R	
157	5.00000	3.30579	R	
168	3.00000	2.82915		X
173	2.00000	2.83176		X
198	2.00000	3.91249	R	
215	5.00000	3.13132	R	
255	4.66667	2.69758	R	
267	5.00000	3.48429	R	
269	5.00000	3.45088	R	
296	2.00000	3.73142	R	
310	5.00000	3.60285	R	
324	5.00000	3.24285	R	
345	5.00000	3.69776	R	
351	2.00000	3.02989		X
358	2.00000	3.74819	R	

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.93058



2. First degree polynomial between integrity and three significant factors from the previous model

General Regression Analysis: Intg versus Comt, ICT, Regu

Box-Cox transformation of the response with rounded lambda = 1.44203
The 95% CI for lambda is (1.075, 1.815)

Regression Equation

$\text{Intg}^{1.44203} = 1.67474 + 0.549659 \text{ Comt} + 0.272571 \text{ ICT} + 0.644997 \text{ Regu}$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	1.67474	0.596963	2.80543	0.005	
Comt	0.54966	0.142716	3.85143	0.000	1.03942
ICT	0.27257	0.154240	1.76718	0.078	2.54421
Regu	0.64500	0.155063	4.15959	0.000	2.54097

Summary of Model

S = 1.82334 R-Sq = 23.70% R-Sq(adj) = 23.06%
PRESS = 1203.68 R-Sq(pred) = 21.97%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	3	365.61	365.61	121.870	36.6575	0.000000
Comt	1	106.30	49.31	49.315	14.8335	0.000139
ICT	1	201.79	10.38	10.382	3.1229	0.078059
Regu	1	57.52	57.52	57.522	17.3022	0.000040
Error	354	1176.89	1176.89	3.325		
Lack-of-Fit	277	964.85	964.85	3.483	1.2649	0.110424
Pure Error	77	212.05	212.05	2.754		
Total	357	1542.50				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	Intg ^{1.44203}	Fit	SE Fit	Residual	St Resid	
17	5.6755	6.06856	0.349380	-0.39305	-0.21964	X
21	2.7170	7.68106	0.165260	-4.96404	-2.73375	R
34	3.3934	5.31222	0.425652	-1.91884	-1.08228	X
60	1.0000	4.79094	0.207097	-3.79094	-2.09266	R
68	2.0889	6.21496	0.158449	-4.12609	-2.27153	R
70	2.0889	5.91406	0.123856	-3.82519	-2.10277	R
101	3.3934	4.94990	0.338504	-1.55653	-0.86877	X
131	9.2199	4.51385	0.231461	4.70603	2.60205	R
145	10.1843	6.37285	0.103579	3.81150	2.09378	R
153	10.1843	6.43986	0.153432	3.74449	2.06095	R
155	2.7170	6.88269	0.308674	-4.16567	-2.31810	R
157	10.1843	5.68578	0.172715	4.49857	2.47836	R
198	2.7170	6.83276	0.135197	-4.11574	-2.26349	R
215	10.1843	4.99650	0.202641	5.18785	2.86299	R
243	3.3934	7.24388	0.168886	-3.85050	-2.12090	R

255	9.2199	4.42450	0.213540	4.79538	2.64823	R
267	10.1843	5.71074	0.199336	4.47361	2.46832	R
269	10.1843	6.39442	0.180746	3.78992	2.08885	R
296	2.7170	6.87368	0.261801	-4.15666	-2.30357	R
310	10.1843	5.89359	0.151084	4.29076	2.36136	R
312	5.6755	5.76990	0.383312	-0.09439	-0.05295	X
324	10.1843	5.32236	0.262473	4.86199	2.69460	R
345	10.1843	6.44322	0.165337	3.74112	2.06029	R
358	2.7170	6.64768	0.144602	-3.93066	-2.16256	R

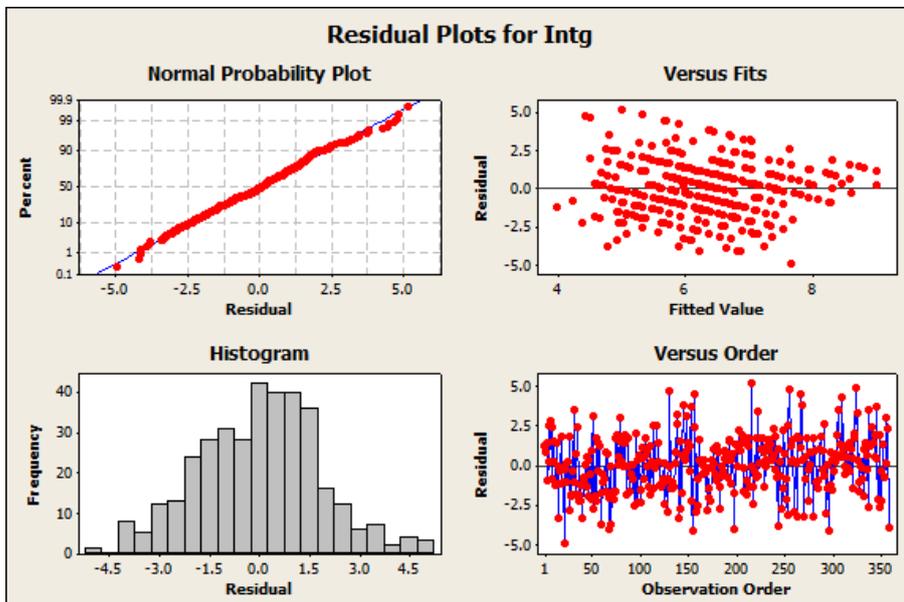
Fits for Unusual Observations for Original Response

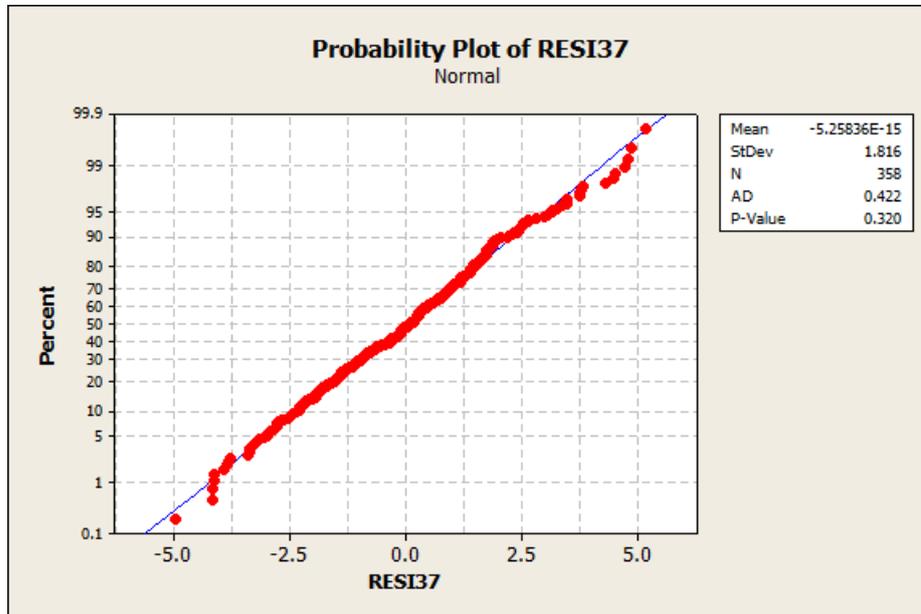
Obs	Intg	Fit	
17	3.33333	3.49177	X
21	2.00000	4.11161	R
34	2.33333	3.18388	X
60	1.00000	2.96381	R
68	1.66667	3.54997	R
70	1.66667	3.42988	R
101	2.33333	3.03166	X
131	4.66667	2.84386	R
145	5.00000	3.61227	R
153	5.00000	3.63857	R
155	2.00000	3.81030	R
157	5.00000	3.33751	R
198	2.00000	3.79111	R
215	5.00000	3.05142	R
243	2.33333	3.94787	R
255	4.66667	2.80470	R
267	5.00000	3.34767	R
269	5.00000	3.62075	R
296	2.00000	3.80684	R
310	5.00000	3.42164	R
312	3.33333	3.37168	X
324	5.00000	3.18809	R
345	5.00000	3.63988	R
358	2.00000	3.71960	R

R denotes an observation with a large standardized residual.
 X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.92953





Second degree polynomial for integrity

General Regression Analysis: INTG versus CONT, SEC, ADAP, COMT, ASRT, ICT, REGU

Box-Cox transformation of the response with rounded lambda = 1.54592
The 95% CI for lambda is (1.175, 1.935)

Regression Equation

$$\begin{aligned} \text{INTG}^{1.54592} = & 7.29579 - 0.360865 \text{ CONT} - 5.84007 \text{ SEC} + 2.68669 \text{ ADAP} + \\ & 0.948753 \text{ COMT} + 0.521999 \text{ ASRT} + 0.00531747 \text{ ICT} + 0.118529 \\ \text{REGU} & + 0.0730233 \text{ CONT} \cdot \text{CONT} + 0.736843 \text{ SEC} \cdot \text{SEC} - 0.329713 \\ \text{ADAP} \cdot \text{ADAP} & - 0.0828816 \text{ COMT} \cdot \text{COMT} - 0.0272766 \text{ ASRT} \cdot \text{ASRT} + 0.0645174 \\ & \text{ICT} \cdot \text{ICT} + 0.116347 \text{ REGU} \cdot \text{REGU} \end{aligned}$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	7.29579	7.14800	1.02068	0.308	
CONT	-0.36087	2.81036	-0.12841	0.898	152.869
SEC	-5.84007	2.28287	-2.55821	0.011	132.382
ADAP	2.68669	1.91715	1.40140	0.162	113.423
COMT	0.94875	1.66893	0.56848	0.570	97.406
ASRT	0.52200	1.99565	0.26157	0.794	126.779
ICT	0.00532	0.74708	0.00712	0.994	40.903
REGU	0.11853	0.71323	0.16619	0.868	36.839

CONT*CONT	0.07302	0.33522	0.21783	0.828	153.408
SEC*SEC	0.73684	0.27595	2.67018	0.008	132.098
ADAP*ADAP	-0.32971	0.23929	-1.37786	0.169	114.043
COMT*COMT	-0.08288	0.21791	-0.38035	0.704	97.463
ASRT*ASRT	-0.02728	0.24949	-0.10933	0.913	127.619
ICT*ICT	0.06452	0.13553	0.47605	0.634	46.689
REGU*REGU	0.11635	0.12915	0.90089	0.368	41.357

Summary of Model

S = 2.20260 R-Sq = 27.59% R-Sq(adj) = 24.63%
 PRESS = 1834.50 R-Sq(pred) = 20.17%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	14	633.98	633.98	45.2841	9.3341	0.000000
CONT	1	29.63	0.08	0.0800	0.0165	0.897904
SEC	1	32.31	31.75	31.7502	6.5445	0.010950
ADAP	1	60.30	9.53	9.5279	1.9639	0.162000
COMT	1	73.34	1.57	1.5678	0.3232	0.570081
ASRT	1	6.69	0.33	0.3319	0.0684	0.793812
ICT	1	295.42	0.00	0.0002	0.0001	0.994325
REGU	1	81.78	0.13	0.1340	0.0276	0.868108
CONT*CONT	1	0.11	0.23	0.2302	0.0475	0.827687
SEC*SEC	1	30.64	34.59	34.5903	7.1299	0.007942
ADAP*ADAP	1	9.19	9.21	9.2106	1.8985	0.169144
COMT*COMT	1	0.51	0.70	0.7018	0.1447	0.703921
ASRT*ASRT	1	0.01	0.06	0.0580	0.0120	0.913005
ICT*ICT	1	10.12	1.10	1.0994	0.2266	0.634344
REGU*REGU	1	3.94	3.94	3.9374	0.8116	0.368281
Error	343	1664.05	1664.05	4.8515		
Lack-of-Fit	334	1662.78	1662.78	4.9784	35.2456	0.000002
Pure Error	9	1.27	1.27	0.1412		
Total	357	2298.03				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	INTG^1.54592	Fit	SE Fit	Residual	St Resid	
15	1.5601	6.44101	0.46186	-4.88094	-2.26637	R
21	2.9199	9.71283	0.33526	-6.79293	-3.12040	R
39	2.9199	4.70413	0.80374	-1.78423	-0.87005	X
51	12.0379	8.92784	0.99849	3.11006	1.58411	X
68	2.2027	6.79567	0.32875	-4.59295	-2.10886	R
70	2.2027	7.06621	0.35030	-4.86348	-2.23653	R
101	3.7056	5.15104	0.81970	-1.44541	-0.70701	X
128	2.2027	6.71643	0.71576	-4.51370	-2.16686	R
131	10.8201	6.15641	0.54037	4.66365	2.18408	R
137	7.4528	5.19313	0.84921	2.25963	1.11185	X
138	8.5258	5.02980	0.82512	3.49600	1.71187	X
139	12.0379	7.23000	0.41192	4.80790	2.22203	R
145	12.0379	7.60439	0.29887	4.43350	2.03163	R
148	10.8201	6.38357	0.46990	4.43649	2.06167	R
157	12.0379	7.03590	0.51608	5.00199	2.33597	R
162	5.4650	6.54297	0.97009	-1.07796	-0.54512	X
167	5.4650	4.44504	1.03264	1.01996	0.52425	X
168	5.4650	4.43049	1.47939	1.03451	0.63396	X
173	2.9199	5.05171	1.05338	-2.13181	-1.10206	X
198	2.9199	8.37553	0.33644	-5.45563	-2.50631	R
215	12.0379	6.32684	0.37777	5.71105	2.63186	R
220	8.5258	7.43847	0.88374	1.08734	0.53894	X
255	10.8201	4.93634	0.48989	5.88372	2.73988	R
267	12.0379	7.21321	0.40754	4.82469	2.22893	R

269	12.0379	6.51633	0.97737	5.52156	2.79731	R	X
296	2.9199	7.56003	0.56720	-4.64013	-2.18018	R	
306	12.0379	7.53643	0.43837	4.50147	2.08542	R	
310	12.0379	7.34095	0.38180	4.69694	2.16522	R	
324	12.0379	5.85918	0.57827	6.17871	2.90716	R	
338	12.0379	7.62516	0.31997	4.41273	2.02490	R	
345	12.0379	7.63464	0.31255	4.40326	2.01955	R	
351	2.9199	4.70803	1.13802	-1.78813	-0.94819	R	X
358	2.9199	7.38457	0.26261	-4.46467	-2.04156	R	

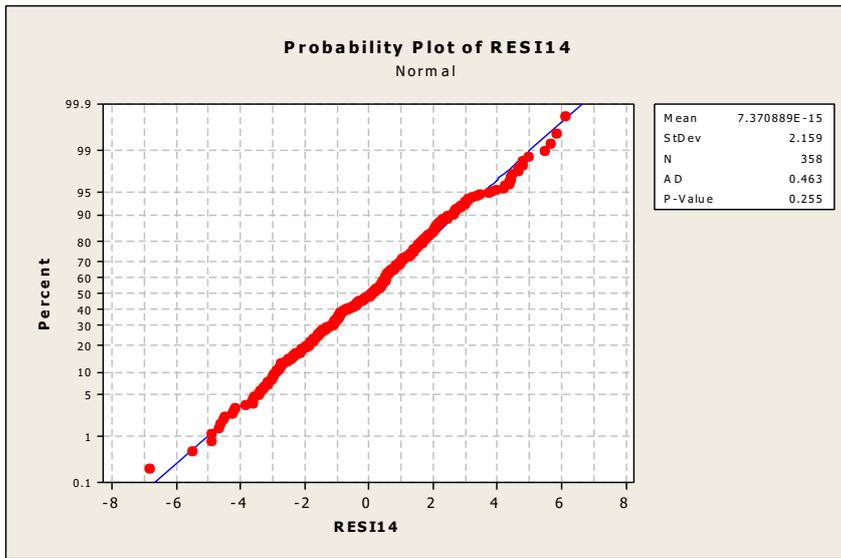
Fits for Unusual Observations for Original Response

Obs	INTG	Fit		
15	1.33333	3.33644	R	
21	2.00000	4.35190	R	
39	2.00000	2.72272		X
51	5.00000	4.12102		X
68	1.66667	3.45416	R	
70	1.66667	3.54249	R	
101	2.33333	2.88735		X
128	1.66667	3.42805	R	
131	4.66667	3.24032	R	
137	3.66667	2.90259		X
138	4.00000	2.84321		X
139	5.00000	3.59539	R	
145	5.00000	3.71475	R	
148	4.66667	3.31717	R	
157	5.00000	3.53266	R	
162	3.00000	3.37051		X
167	3.00000	2.62475		X
168	3.00000	2.61919		X
173	2.00000	2.85121		X
198	2.00000	3.95425	R	
215	5.00000	3.29807	R	
220	4.00000	3.66211		X
255	4.66667	2.80892	R	
267	5.00000	3.58999	R	
269	5.00000	3.36163	R	X
296	2.00000	3.70072	R	
306	5.00000	3.69324	R	
310	5.00000	3.63099	R	
324	5.00000	3.13824	R	
338	5.00000	3.72131	R	
345	5.00000	3.72430	R	
351	2.00000	2.72418		X
358	2.00000	3.64493	R	

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.88627



Appendix (6): Regression models for benevolence

1. First degree polynomial between benevolence and ten significant factors

General Regression Analysis: BEN versus CONT, PREST, SEC, PRI, ADAP, COMT, ...

Box-Cox transformation of the response with rounded lambda = 1
The 95% CI for lambda is (0.955, 1.695)

Regression Equation

BEN = 0.676956 + 0.115256 CONT + 0.0728545 PREST + 0.136531 SEC -
0.126784
PRI + 0.0808874 ADAP + 0.210815 COMT + 0.00854843 NW + 0.0395701
ASRT +
0.0024084 ICT + 0.251877 REGU

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	0.676956	0.434254	1.55889	0.120	
CONT	0.115256	0.090219	1.27751	0.202	1.47223
PREST	0.072854	0.088986	0.81871	0.414	1.60327
SEC	0.136531	0.075129	1.81729	0.070	1.33987
PRI	-0.126784	0.084051	-1.50841	0.132	1.63001
ADAP	0.080887	0.076376	1.05907	0.290	1.68224
COMT	0.210815	0.064880	3.24931	0.001	1.37566
NW	0.008548	0.038384	0.22271	0.824	1.14449
ASRT	0.039570	0.069373	0.57039	0.569	1.43168
ICT	0.002408	0.062410	0.03859	0.969	2.66750
REGU	0.251877	0.064255	3.91994	0.000	2.79412

Summary of Model

S = 0.720520 R-Sq = 22.31% R-Sq(adj) = 20.07%
PRESS = 191.817 R-Sq(pred) = 17.27%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	10	51.719	51.719	5.17194	9.9623	0.000000
CONT	1	6.848	0.847	0.84726	1.6320	0.202278
PREST	1	1.652	0.348	0.34798	0.6703	0.413511
SEC	1	4.495	1.715	1.71452	3.3026	0.070035
PRI	1	0.000	1.181	1.18122	2.2753	0.132360
ADAP	1	7.738	0.582	0.58229	1.1216	0.290306
COMT	1	9.908	5.481	5.48118	10.5580	0.001270
NW	1	1.212	0.026	0.02575	0.0496	0.823892
ASRT	1	0.177	0.169	0.16890	0.3253	0.568781
ICT	1	11.713	0.001	0.00077	0.0015	0.969239
REGU	1	7.977	7.977	7.97721	15.3659	0.000107
Error	347	180.145	180.145	0.51915		
Lack-of-Fit	341	179.395	179.395	0.52608	4.2087	0.036053
Pure Error	6	0.750	0.750	0.12500		

Total 357 231.864

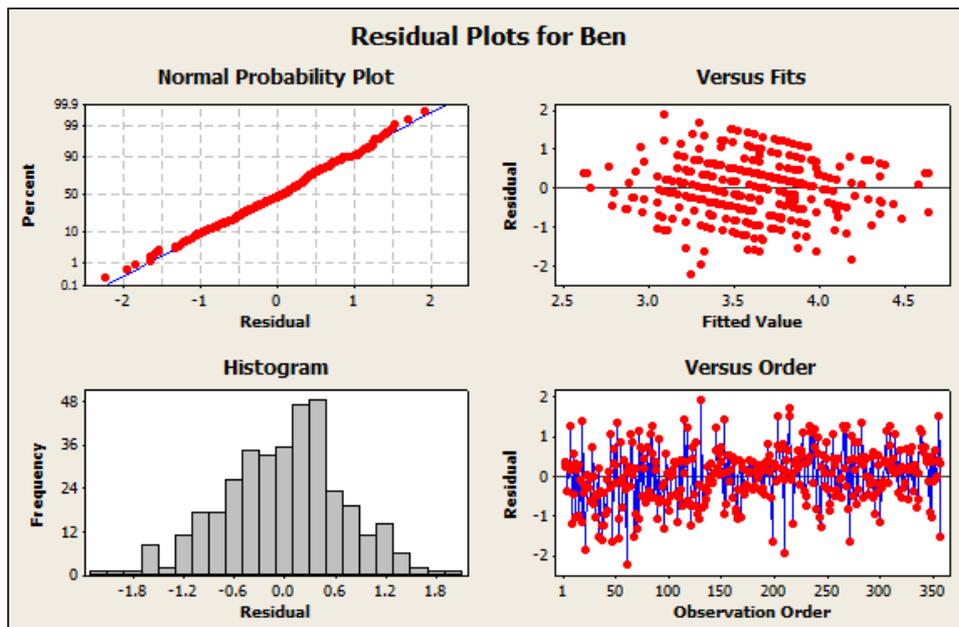
Fits and Diagnostics for Unusual Observations

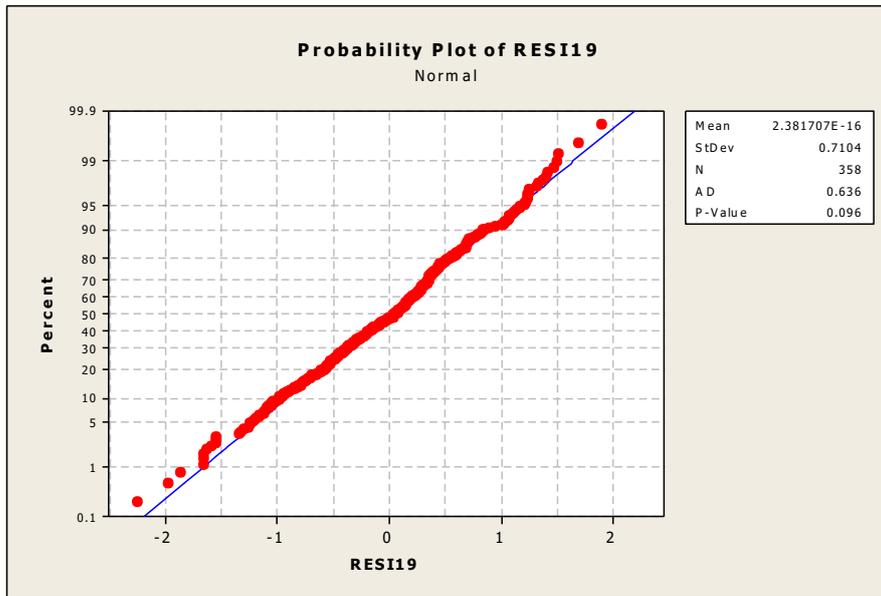
Obs	BEN	Fit	SE Fit	Residual	St Resid	
21	2.33333	4.18706	0.109899	-1.85373	-2.60322	R
34	1.66667	3.21289	0.208156	-1.54622	-2.24156	R
36	2.00000	3.62319	0.127037	-1.62319	-2.28866	R
46	1.66667	3.32456	0.106170	-1.65790	-2.32636	R
51	5.00000	3.66982	0.226630	1.33018	1.94485	X
52	2.00000	3.58124	0.136151	-1.58124	-2.23485	R
60	1.00000	3.24077	0.169844	-2.24077	-3.20011	R
67	2.33333	3.87332	0.100433	-1.53998	-2.15839	R
131	5.00000	3.08996	0.144997	1.91004	2.70628	R
153	5.00000	3.57531	0.125520	1.42469	2.00801	R
168	3.00000	2.63507	0.226733	0.36493	0.53359	X
173	2.66667	2.90337	0.230444	-0.23670	-0.34673	X
198	2.33333	3.98175	0.084553	-1.64842	-2.30374	R
203	5.00000	3.51953	0.140167	1.48047	2.09474	R
209	1.33333	3.30443	0.136951	-1.97110	-2.78646	R
214	5.00000	3.48110	0.121030	1.51890	2.13845	R
215	5.00000	3.29700	0.100516	1.70300	2.38691	R
251	4.00000	4.35182	0.535605	-0.35182	-0.73000	X
272	2.00000	3.65120	0.111573	-1.65120	-2.31966	R
351	2.66667	2.79492	0.220536	-0.12825	-0.18697	X
356	5.00000	3.49086	0.152325	1.50914	2.14295	R
358	2.33333	3.87340	0.076439	-1.54007	-2.14957	R

R denotes an observation with a large standardized residual.
 X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.95139





2. First degree polynomial between benevolence and three significant factors from previous model

General Regression Analysis: Ben versus Sec, Comt, Regu

Box-Cox transformation of the response with rounded lambda = 1
The 95% CI for lambda is (0.915, 1.665)

Regression Equation

$$\text{Ben} = 1.16302 + 0.169948 \text{ Sec} + 0.254866 \text{ Comt} + 0.257208 \text{ Regu}$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	1.16302	0.328967	3.53536	0.000	
Sec	0.16995	0.067994	2.49947	0.013	1.09720
Comt	0.25487	0.058891	4.32774	0.000	1.13317
Regu	0.25721	0.039103	6.57772	0.000	1.03454

Summary of Model

S = 0.720601 R-Sq = 20.72% R-Sq(adj) = 20.05%
PRESS = 187.964 R-Sq(pred) = 18.93%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
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Regression	3	48.044	48.044	16.0146	30.8408	0.000000
Sec	1	9.318	3.244	3.2440	6.2474	0.012890
Comt	1	16.259	9.726	9.7255	18.7294	0.000020
Regu	1	22.467	22.467	22.4668	43.2664	0.000000
Error	354	183.820	183.820	0.5193		
Lack-of-Fit	268	130.931	130.931	0.4886	0.7944	0.914082
Pure Error	86	52.889	52.889	0.6150		
Total	357	231.864				

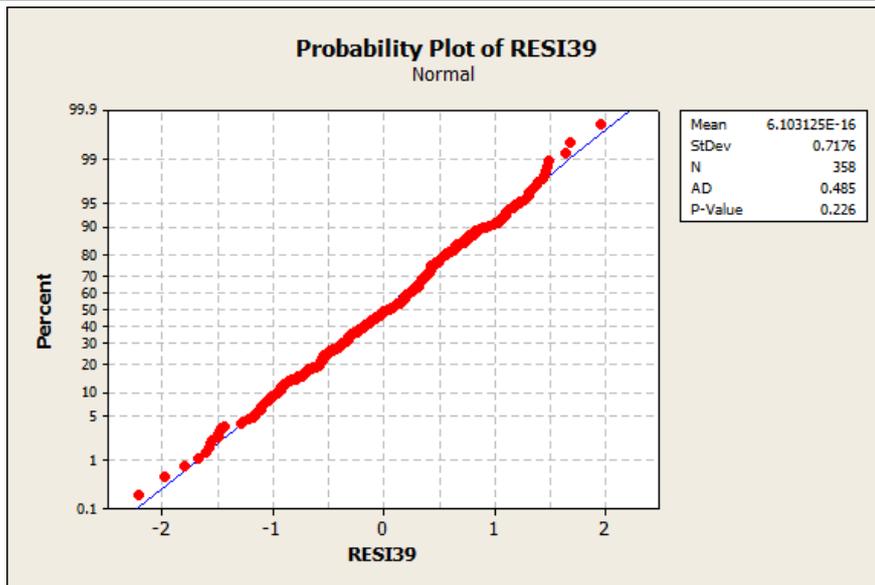
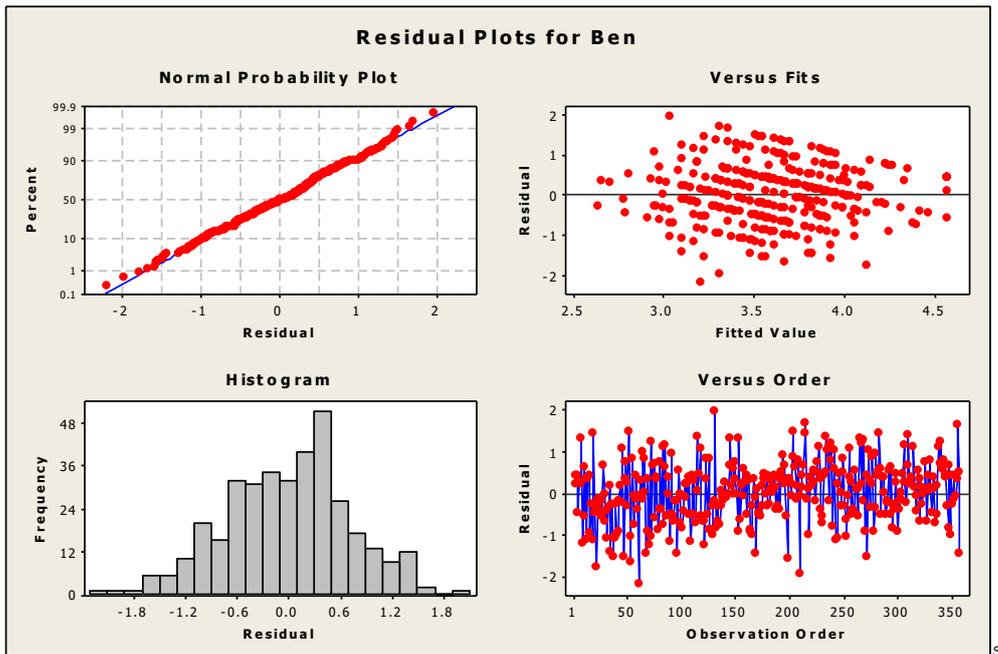
Fits and Diagnostics for Unusual Observations

Obs	Ben	Fit	SE Fit	Residual	St Resid	
18	5.00000	3.54430	0.101777	1.45570	2.04058	R
21	2.33333	4.12477	0.074985	-1.79144	-2.49960	R
34	1.66667	3.09945	0.105464	-1.43279	-2.00996	R
36	2.00000	3.54893	0.073449	-1.54893	-2.16074	R
46	1.66667	3.22571	0.085528	-1.55905	-2.17894	R
51	5.00000	3.52764	0.168734	1.47236	2.10167	R X
52	2.00000	3.67407	0.063561	-1.67407	-2.33225	R
60	1.00000	3.20446	0.074337	-2.20446	-3.07560	R
67	2.33333	3.80151	0.078394	-1.46817	-2.04959	R
96	2.33333	3.82508	0.046336	-1.49174	-2.07443	R
128	2.00000	3.03507	0.136527	-1.03507	-1.46289	X
131	5.00000	3.03456	0.103399	1.96544	2.75601	R
162	3.00000	2.69523	0.152948	0.30477	0.43281	X
167	3.00000	2.65452	0.141329	0.34548	0.48892	X
169	2.00000	3.48292	0.064288	-1.48292	-2.06614	R
198	2.33333	3.93128	0.057424	-1.59795	-2.22459	R
203	5.00000	3.50647	0.054672	1.49353	2.07861	R
209	1.33333	3.31125	0.069733	-1.97791	-2.75775	R
214	5.00000	3.54605	0.065187	1.45395	2.02599	R
215	5.00000	3.31066	0.079533	1.68934	2.35876	R
220	3.33333	3.12177	0.137449	0.21156	0.29909	X
272	2.00000	3.56960	0.047088	-1.56960	-2.18284	R
283	4.66667	3.22569	0.079034	1.44098	2.01183	R
356	5.00000	3.35373	0.076961	1.64627	2.29771	R
358	2.33333	3.82391	0.058079	-1.49057	-2.07526	R

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.95234



Second degree polynomial

General Regression Analysis: BEN versus CONT, PREST, SEC, PRI, ADAP, COMT, ...

Box-Cox transformation of the response with rounded lambda = 1
 The 95% CI for lambda is (0.965, 1.735)

Regression Equation

BEN = 0.370191 + 1.04124 CONT + 0.125164 PREST - 0.314844 SEC + 0.195968
 PRI
 + 0.616049 ADAP - 0.217465 COMT + 0.050441 NW - 0.855796 ASRT -
 0.0841666 ICT + 0.330058 REGU - 0.111002 CONT*CONT - 0.00666686
 PREST*PREST + 0.0529586 SEC*SEC - 0.0396139 PRI*PRI - 0.0673768
 ADAP*ADAP + 0.0561321 COMT*COMT - 0.00270281 NW*NW + 0.112562
 ASRT*ASRT
 + 0.013352 ICT*ICT - 0.0132651 REGU*REGU

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	0.37019	2.57003	0.14404	0.886	
CONT	1.04124	0.97215	1.07107	0.285	167.835
PREST	0.12516	0.88630	0.14122	0.888	156.156
SEC	-0.31484	0.79478	-0.39614	0.692	147.226
PRI	0.19597	0.83208	0.23552	0.814	156.845
ADAP	0.61605	0.65000	0.94777	0.344	119.628
COMT	-0.21746	0.56064	-0.38788	0.698	100.856
NW	0.05044	0.08869	0.56871	0.570	6.000
ASRT	-0.85580	0.66269	-1.29139	0.197	128.270
ICT	-0.08417	0.25135	-0.33486	0.738	42.481
REGU	0.33006	0.24159	1.36619	0.173	38.782
CONT*CONT	-0.11100	0.11546	-0.96136	0.337	166.991
PREST*PREST	-0.00667	0.10616	-0.06280	0.950	155.458
SEC*SEC	0.05296	0.09583	0.55262	0.581	146.174
PRI*PRI	-0.03961	0.10124	-0.39130	0.696	158.848
ADAP*ADAP	-0.06738	0.08114	-0.83039	0.407	120.304
COMT*COMT	0.05613	0.07332	0.76554	0.444	101.252
NW*NW	-0.00270	0.00528	-0.51228	0.609	5.578
ASRT*ASRT	0.11256	0.08299	1.35627	0.176	129.575
ICT*ICT	0.01335	0.04534	0.29447	0.769	47.951
REGU*REGU	-0.01327	0.04383	-0.30267	0.762	43.699

Summary of Model

S = 0.727153 R-Sq = 23.15% R-Sq(adj) = 18.59%
 PRESS = 402.349 R-Sq(pred) = -73.53%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	20	53.675	53.675	2.68373	5.07559	0.000000
CONT	1	6.848	0.607	0.60658	1.14719	0.284904
PREST	1	1.652	0.011	0.01055	0.01994	0.887780
SEC	1	4.495	0.083	0.08298	0.15693	0.692253
PRI	1	0.000	0.029	0.02933	0.05547	0.813951
ADAP	1	7.738	0.475	0.47497	0.89828	0.343923
COMT	1	9.908	0.080	0.07955	0.15045	0.698346
NW	1	1.212	0.171	0.17102	0.32343	0.569930
ASRT	1	0.177	0.882	0.88179	1.66768	0.197454
ICT	1	11.713	0.059	0.05929	0.11213	0.737939
REGU	1	7.977	0.987	0.98690	1.86646	0.172792
CONT*CONT	1	0.166	0.489	0.48868	0.92421	0.337063
PREST*PREST	1	0.004	0.002	0.00209	0.00394	0.949962
SEC*SEC	1	0.075	0.161	0.16147	0.30539	0.580892
PRI*PRI	1	0.062	0.081	0.08096	0.15312	0.695820
ADAP*ADAP	1	0.076	0.365	0.36460	0.68955	0.406904
COMT*COMT	1	0.299	0.310	0.30987	0.58604	0.444489
NW*NW	1	0.204	0.139	0.13876	0.26243	0.608794
ASRT*ASRT	1	1.013	0.973	0.97263	1.83948	0.175920
ICT*ICT	1	0.008	0.046	0.04585	0.08671	0.768582
REGU*REGU	1	0.048	0.048	0.04844	0.09161	0.762327

Error	337	178.189	178.189	0.52875		
Lack-of-Fit	331	177.439	177.439	0.53607	4.28857	0.034418
Pure Error	6	0.750	0.750	0.12500		
Total	357	231.864				

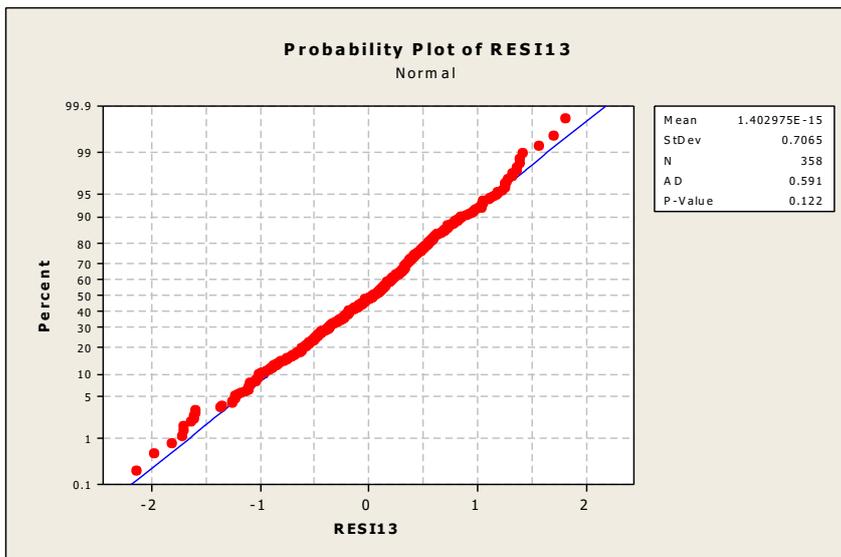
Fits and Diagnostics for Unusual Observations

Obs	BEN	Fit	SE Fit	Residual	St Resid	
4	3.00000	3.41960	0.373047	-0.41960	-0.67225	X
21	2.33333	4.14246	0.144233	-1.80913	-2.53839	R
34	1.66667	3.27096	0.231176	-1.60429	-2.32699	R
36	2.00000	3.69516	0.161454	-1.69516	-2.39091	R
46	1.66667	3.29853	0.166626	-1.63187	-2.30553	R
51	5.00000	3.67428	0.416243	1.32572	2.22349	R X
52	2.00000	3.71575	0.173956	-1.71575	-2.43011	R
60	1.00000	3.13775	0.224232	-2.13775	-3.09049	R
67	2.33333	3.93190	0.133177	-1.59856	-2.23621	R
131	5.00000	3.18327	0.194073	1.81673	2.59245	R
162	3.00000	2.76671	0.333101	0.23329	0.36092	X
167	3.00000	2.61378	0.376113	0.38622	0.62061	X
168	3.00000	2.44179	0.500966	0.55821	1.05912	X
173	2.66667	2.95542	0.415687	-0.28875	-0.48397	X
198	2.33333	4.02566	0.127287	-1.69233	-2.36384	R
209	1.33333	3.29747	0.178023	-1.96413	-2.78591	R
214	5.00000	3.42727	0.150722	1.57273	2.21087	R
215	5.00000	3.29115	0.142676	1.70885	2.39664	R
220	3.33333	2.90948	0.331101	0.42385	0.65470	X
251	4.00000	4.07119	0.725324	-0.07119	-1.38115	X
269	4.66667	3.79341	0.327900	0.87326	1.34550	X
272	2.00000	3.58400	0.156782	-1.58400	-2.23083	R
332	2.66667	3.09731	0.313734	-0.43064	-0.65648	X
351	2.66667	2.69843	0.396450	-0.03176	-0.05211	X
356	5.00000	3.57398	0.306630	1.42602	2.16280	R X
358	2.33333	3.92786	0.105938	-1.59453	-2.21649	R

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.92698



Appendix (7): Regression models for ability

1. First degree polynomial between ability and eleven significant factors

General Regression Analysis: ABL versus CONT, INTER, PREST, SEC, PRI, ADAP, ...

Box-Cox transformation of the response with rounded lambda = 2
The 95% CI for lambda is (1.425, *)

Regression Equation

$$\begin{aligned} \text{ABL}^2 = & -8.8007 - 0.0848824 \text{ CONT} + 0.485381 \text{ INTER} + 0.803631 \text{ PREST} + \\ & 1.88071 \text{ SEC} - 0.331168 \text{ PRI} - 1.09681 \text{ ADAP} + 0.159654 \text{ COMT} + 0.193369 \text{ NW} \\ & + \\ & 2.2306 \text{ ASRT} - 0.113073 \text{ ICT} + 1.92329 \text{ REGU} \end{aligned}$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	-8.80070	3.05739	-2.87850	0.004	
CONT	-0.08488	0.64308	-0.13199	0.895	1.54354
INTER	0.48538	0.41030	1.18300	0.238	1.26108
PREST	0.80363	0.62789	1.27989	0.201	1.64715
SEC	1.88071	0.52400	3.58911	0.000	1.34500
PRI	-0.33117	0.58951	-0.56177	0.575	1.65458
ADAP	-1.09681	0.53200	-2.06169	0.040	1.68421
COMT	0.15965	0.45243	0.35288	0.724	1.38039
NW	0.19337	0.26757	0.72268	0.470	1.14766
ASRT	2.23060	0.48330	4.61533	0.000	1.43385
ICT	-0.11307	0.43462	-0.26017	0.795	2.66945
REGU	1.92329	0.44755	4.29741	0.000	2.79711

Summary of Model

S = 5.01583 R-Sq = 24.35% R-Sq(adj) = 21.94%
PRESS = 9408.43 R-Sq(pred) = 18.24%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	11	2801.9	2801.88	254.716	10.1244	0.000000
CONT	1	206.7	0.44	0.438	0.0174	0.895067
INTER	1	89.8	35.21	35.209	1.3995	0.237621
PREST	1	134.1	41.21	41.213	1.6381	0.201442
SEC	1	527.9	324.09	324.086	12.8817	0.000380
PRI	1	10.6	7.94	7.940	0.3156	0.574638
ADAP	1	41.4	106.94	106.938	4.2506	0.039984
COMT	1	102.6	3.13	3.133	0.1245	0.724392
NW	1	115.8	13.14	13.139	0.5223	0.470366
ASRT	1	543.4	535.91	535.909	21.3012	0.000006
ICT	1	564.9	1.70	1.703	0.0677	0.794890
REGU	1	464.6	464.62	464.622	18.4677	0.000022
Error	346	8704.9	8704.87	25.159		
Lack-of-Fit	341	8704.9	8704.87	25.527	*	*
Pure Error	5	0.0	0.00	0.000		
Total	357	11506.7				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	ABL^2	Fit	SE Fit	Residual	St Resid	
18	25.0000	14.0988	0.83590	10.9012	2.20417	R
33	2.7778	13.0544	1.00211	-10.2766	-2.09099	R
40	25.0000	14.7017	0.73509	10.2983	2.07557	R
60	1.0000	13.0127	1.18298	-12.0127	-2.46448	R
80	25.0000	13.2155	0.85292	11.7845	2.38419	R
162	16.0000	5.6940	1.22478	10.3060	2.11883	R
163	2.7778	12.9062	0.51006	-10.1284	-2.02982	R
173	9.0000	8.8527	1.62373	0.1473	0.03103	X
182	2.7778	16.2649	0.64640	-13.4871	-2.71152	R
186	13.4444	14.6341	3.88304	-1.1897	-0.37470	X
215	25.0000	13.6051	0.71129	11.3949	2.29499	R
251	16.0000	21.3600	3.74284	-5.3600	-1.60522	X
256	21.7778	11.6533	0.55104	10.1244	2.03079	R
265	25.0000	13.9693	0.76558	11.0307	2.22525	R
306	25.0000	14.8067	1.01566	10.1933	2.07522	R

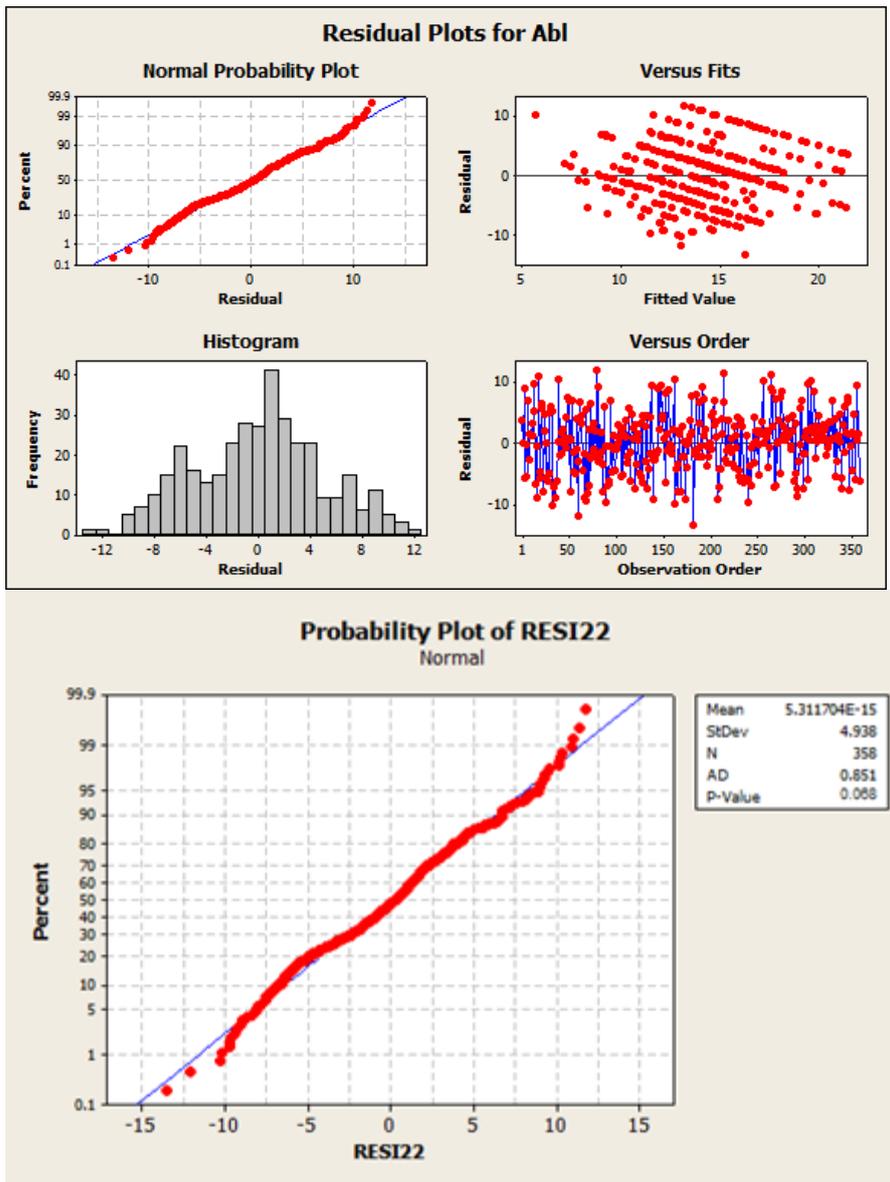
Fits for Unusual Observations for Original Response

Obs	ABL	Fit	
18	5.00000	3.75484	R
33	1.66667	3.61308	R
40	5.00000	3.83428	R
60	1.00000	3.60731	R
80	5.00000	3.63531	R
162	4.00000	2.38621	R
163	1.66667	3.59252	R
173	3.00000	2.97535	X
182	1.66667	4.03298	R
186	3.66667	3.82546	X
215	5.00000	3.68850	R
251	4.00000	4.62169	X
256	4.66667	3.41370	R
265	5.00000	3.73755	R
306	5.00000	3.84795	R

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.93931



2. First degree polynomial between ability and four significant factors from the previous model

General Regression Analysis: Abl versus Sec, Adap, Asrt, Regu

Box-Cox transformation of the response with rounded lambda = 2
The 95% CI for lambda is (1.415, *)

Regression Equation

$$\text{Abl}^2 = -5.98847 + 2.06396 \text{ Sec} - 0.846288 \text{ Adap} + 2.33612 \text{ Asrt} + 1.82882 \text{ Regu}$$

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	-5.98847	2.44767	-2.44661	0.015	
Sec	2.06396	0.48740	4.23463	0.000	1.16959
Adap	-0.84629	0.49552	-1.70787	0.089	1.46864
Asrt	2.33612	0.46419	5.03263	0.000	1.32946
Regu	1.82882	0.27434	6.66630	0.000	1.05636

Summary of Model

S = 5.00309 R-Sq = 23.21% R-Sq(adj) = 22.34%
 PRESS = 9091.82 R-Sq(pred) = 20.99%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	4	2670.8	2670.83	667.71	26.6753	0.0000000
Sec	1	817.0	448.86	448.86	17.9321	0.0000292
Adap	1	102.2	73.01	73.01	2.9168	0.0885403
Asrt	1	639.2	633.97	633.97	25.3274	0.0000008
Regu	1	1112.4	1112.36	1112.36	44.4395	0.0000000
Error	353	8835.9	8835.92	25.03		
Lack-of-Fit	313	8154.5	8154.49	26.05	1.5293	0.0516849
Pure Error	40	681.4	681.43	17.04		
Total	357	11506.7				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	Abl ²	Fit	SE Fit	Residual	St Resid	
18	25.0000	13.6093	0.70493	11.3907	2.29968	R
33	2.7778	12.9923	0.56754	-10.2146	-2.05492	R
40	25.0000	14.9809	0.57071	10.0191	2.01574	R
51	13.4444	11.7431	1.13935	1.7014	0.34924	X
60	1.0000	11.9338	0.68690	-10.9338	-2.20629	R
80	25.0000	13.0772	0.36840	11.9228	2.38958	R
128	2.7778	9.4226	1.17415	-6.6448	-1.36630	X
138	25.0000	16.6654	1.12947	8.3346	1.71004	X
148	21.7778	11.7148	0.52841	10.0630	2.02266	R
162	16.0000	5.4109	1.08171	10.5891	2.16778	R X
163	2.7778	13.2559	0.32930	-10.4781	-2.09889	R
167	9.0000	8.6608	1.03407	0.3392	0.06929	X
173	9.0000	10.1223	1.10875	-1.1223	-0.23005	X
182	2.7778	16.2349	0.46911	-13.4572	-2.70167	R
204	16.0000	9.0582	1.04539	6.9418	1.41881	X
215	25.0000	13.3555	0.59136	11.6445	2.34388	R
256	21.7778	11.6975	0.41631	10.0803	2.02183	R
265	25.0000	13.7540	0.50494	11.2460	2.25934	R
291	16.0000	20.7883	1.04076	-4.7883	-0.97848	X
306	25.0000	14.3293	0.66482	10.6707	2.15190	R
351	9.0000	14.0606	1.42124	-5.0606	-1.05496	X
356	25.0000	14.7012	0.60912	10.2988	2.07392	R

Fits for Unusual Observations for Original Response

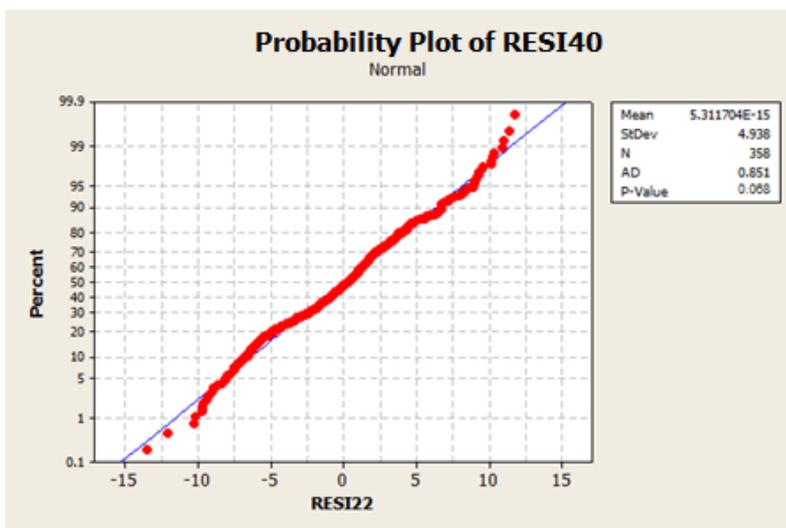
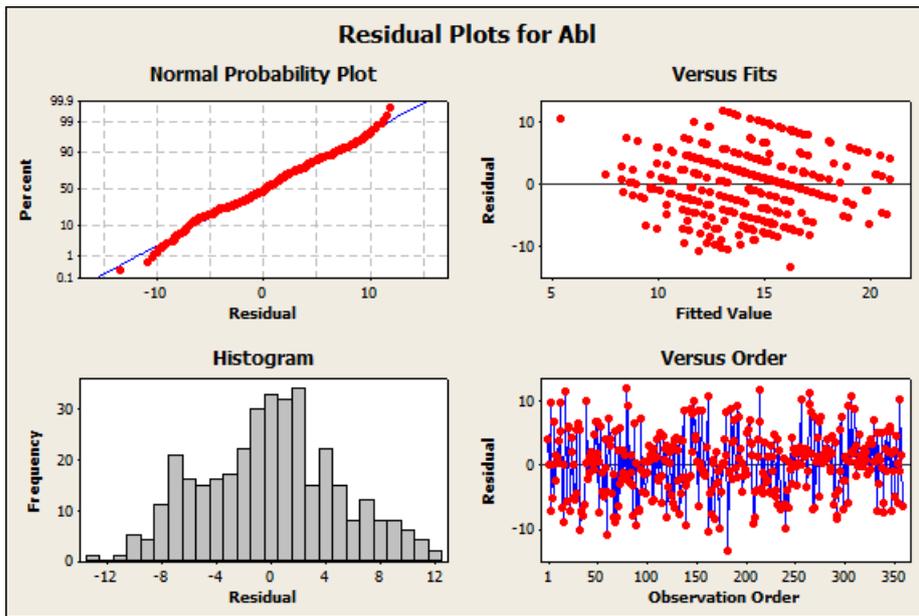
Obs	Abl	Fit	
18	5.00000	3.68908	R
33	1.66667	3.60449	R
40	5.00000	3.87052	R
51	3.66667	3.42682	X
60	1.00000	3.45453	R

80	5.00000	3.61624	R	
128	1.66667	3.06962		X
138	5.00000	4.08232		X
148	4.66667	3.42269	R	
162	4.00000	2.32614	R	X
163	1.66667	3.64087	R	
167	3.00000	2.94293		X
173	3.00000	3.18156		X
182	1.66667	4.02926	R	
204	4.00000	3.00969		X
215	5.00000	3.65452	R	
256	4.66667	3.42016	R	
265	5.00000	3.70864	R	
291	4.00000	4.55942		X
306	5.00000	3.78541	R	
351	3.00000	3.74975		X
356	5.00000	3.83421	R	

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.93340



Second degree polynomial

General Regression Analysis: ABL versus CONT, PREST, INTER, SEC, PRI, ADAP, ...

Box-Cox transformation of the response with rounded lambda = 2
 The 95% CI for lambda is (1.475, *)

Regression Equation

$$\begin{aligned}
 \text{ABL}^2 = & 3.0705 - 3.12022 \text{ CONT} + 4.0986 \text{ PREST} + 0.730901 \text{ INTER} - 2.98621 \\
 & \text{SEC} - 1.88733 \text{ PRI} + 2.20783 \text{ ADAP} + 4.13125 \text{ COMT} + 0.864564 \text{ NW} - 2.9575 \\
 & \text{ASRT} \\
 & - 1.98326 \text{ ICT} + 0.487153 \text{ REGU} + 0.355237 \text{ CONT*CONT} - 0.41736 \\
 & \text{PREST*PREST} - 0.0214659 \text{ INTER*INTER} + 0.582345 \text{ SEC*SEC} + \\
 & 0.164498
 \end{aligned}$$

PRI*PRI - 0.410437 ADAP*ADAP - 0.549394 COMT*COMT - 0.0493986
 NW*NW +
 0.660127 ASRT*ASRT + 0.351102 ICT*ICT + 0.221519 REGU*REGU

Coefficients

Term	Coef	SE Coef	T	P	VIF
Constant	3.07050	17.7729	0.17276	0.863	
CONT	-3.12022	6.7310	-0.46356	0.643	169.652
PREST	4.09860	6.1208	0.66962	0.504	157.034
INTER	0.73090	1.2685	0.57621	0.565	12.093
SEC	-2.98621	5.5079	-0.54216	0.588	149.088
PRI	-1.88733	5.7385	-0.32889	0.742	157.297
ADAP	2.20783	4.4846	0.49231	0.623	120.072
COMT	4.13125	3.8808	1.06454	0.288	101.893
NW	0.86456	0.6150	1.40580	0.161	6.083
ASRT	-2.95750	4.5725	-0.64680	0.518	128.762
ICT	-1.98326	1.7319	-1.14510	0.253	42.529
REGU	0.48715	1.6640	0.29276	0.770	38.792
CONT*CONT	0.35524	0.8012	0.44336	0.658	169.551
PREST*PREST	-0.41736	0.7322	-0.57004	0.569	155.918
INTER*INTER	-0.02147	0.0857	-0.25047	0.802	10.607
SEC*SEC	0.58234	0.6634	0.87787	0.381	147.682
PRI*PRI	0.16450	0.6982	0.23561	0.814	159.308
ADAP*ADAP	-0.41044	0.5597	-0.73326	0.464	120.722
COMT*COMT	-0.54939	0.5069	-1.08390	0.279	102.018
NW*NW	-0.04940	0.0365	-1.35216	0.177	5.639
ASRT*ASRT	0.66013	0.5725	1.15299	0.250	130.021
ICT*ICT	0.35110	0.3124	1.12395	0.262	47.988
REGU*REGU	0.22152	0.3019	0.73384	0.464	43.711

Summary of Model

S = 5.00768 R-Sq = 26.99% R-Sq(adj) = 22.20%
 PRESS = 35002.0 R-Sq(pred) = -204.19%

Analysis of Variance

Source	DF	Seq SS	Adj SS	Adj MS	F	P
Regression	22	3106.0	3106.00	141.182	5.62996	0.000000
CONT	1	206.7	5.39	5.389	0.21489	0.643266
PREST	1	178.9	11.24	11.244	0.44839	0.503562
INTER	1	44.9	8.33	8.326	0.33202	0.564861
SEC	1	527.9	7.37	7.371	0.29394	0.588065
PRI	1	10.6	2.71	2.712	0.10817	0.742447
ADAP	1	41.4	6.08	6.078	0.24237	0.622821
COMT	1	102.6	28.42	28.418	1.13325	0.287849
NW	1	115.8	49.56	49.559	1.97627	0.160711
ASRT	1	543.4	10.49	10.491	0.41835	0.518204
ICT	1	564.9	32.88	32.882	1.31126	0.252985
REGU	1	464.6	2.15	2.149	0.08571	0.769885
CONT*CONT	1	20.3	4.93	4.929	0.19657	0.657790
PREST*PREST	1	0.5	8.15	8.149	0.32495	0.569032
INTER*INTER	1	3.5	1.57	1.573	0.06273	0.802379
SEC*SEC	1	24.7	19.33	19.326	0.77065	0.380644
PRI*PRI	1	0.0	1.39	1.392	0.05551	0.813881
ADAP*ADAP	1	3.7	13.48	13.483	0.53767	0.463914
COMT*COMT	1	27.9	29.46	29.461	1.17484	0.279188
NW*NW	1	43.6	45.85	45.849	1.82834	0.177236
ASRT*ASRT	1	47.1	33.34	33.337	1.32939	0.249735
ICT*ICT	1	119.2	31.68	31.679	1.26327	0.261838
REGU*REGU	1	13.5	13.50	13.505	0.53853	0.463557
Error	335	8400.8	8400.75	25.077		

Lack-of-Fit	330	8400.8	8400.75	25.457	*	*
Pure Error	5	0.0	0.00	0.000		
Total	357	11506.7				

Fits and Diagnostics for Unusual Observations for Transformed Response

Obs	ABL^2	Fit	SE Fit	Residual	St Resid	
4	5.4444	10.2474	2.60996	-4.8029	-1.12382	X
14	25.0000	15.1048	1.01695	9.8952	2.01805	R
17	5.4444	15.5654	1.38214	-10.1210	-2.10277	R
18	25.0000	14.4803	1.12069	10.5197	2.15539	R
40	25.0000	14.2726	0.99407	10.7274	2.18569	R
51	13.4444	13.8311	2.86910	-0.3866	-0.09421	X
60	1.0000	13.8908	1.55697	-12.8908	-2.70845	R
80	25.0000	13.5086	1.31047	11.4914	2.37760	R
138	25.0000	15.1312	1.99501	9.8688	2.14860	R
146	25.0000	15.2837	1.40713	9.7163	2.02174	R
148	21.7778	11.7614	1.24131	10.0163	2.06463	R
162	16.0000	9.5809	2.30834	6.4191	1.44446	X
167	9.0000	5.3668	2.62859	3.6332	0.85241	X
168	9.0000	9.5985	3.46758	-0.5985	-0.16565	X
173	9.0000	11.1011	2.87356	-2.1011	-0.51231	X
182	2.7778	15.7200	0.91667	-12.9422	-2.62890	R
186	13.4444	13.4081	4.99807	0.0363	0.11718	X
215	25.0000	14.7832	0.99912	10.2168	2.08210	R
220	7.1111	9.1975	2.30938	-2.0864	-0.46955	X
251	16.0000	16.7983	4.99511	-0.7983	-2.25120	R X
256	21.7778	11.7916	0.74732	9.9862	2.01676	R
265	25.0000	12.9483	0.99835	12.0517	2.45594	R
269	16.0000	11.5146	2.26579	4.4854	1.00441	X
304	25.0000	14.8749	0.93293	10.1251	2.05795	R
306	25.0000	14.3985	1.16526	10.6015	2.17680	R
351	9.0000	12.6050	2.73055	-3.6050	-0.85880	X
356	25.0000	15.9322	2.13673	9.0678	2.00218	R

Fits for Unusual Observations for Original Response

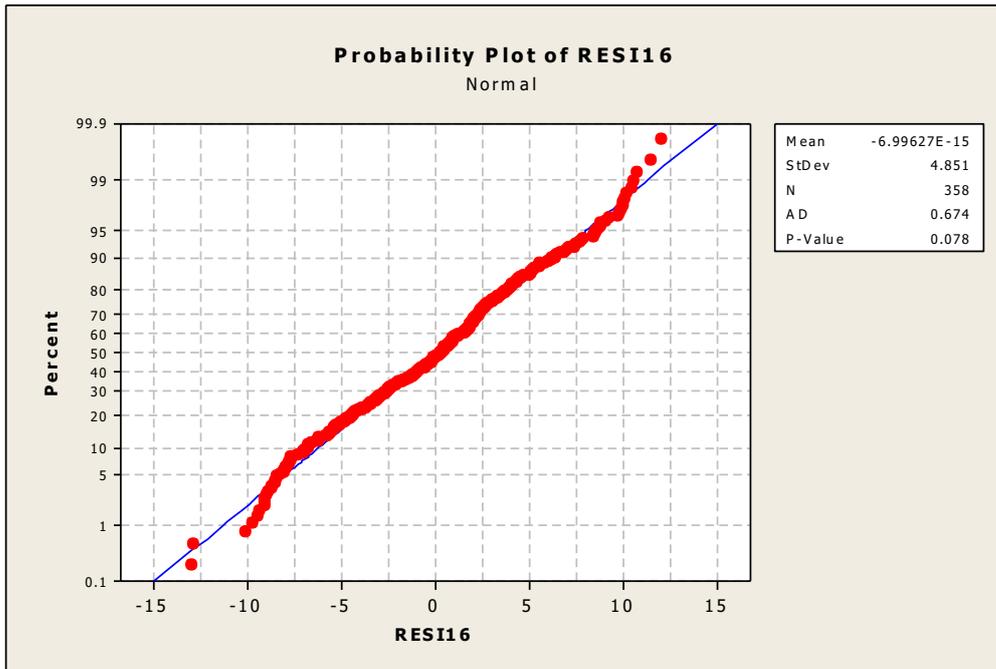
Obs	ABL	Fit	
4	2.33333	3.20115	X
14	5.00000	3.88649	R
17	2.33333	3.94531	R
18	5.00000	3.80529	R
40	5.00000	3.77790	R
51	3.66667	3.71902	X
60	1.00000	3.72704	R
80	5.00000	3.67541	R
138	5.00000	3.88989	R
146	5.00000	3.90943	R
148	4.66667	3.42950	R
162	4.00000	3.09531	X
167	3.00000	2.31663	X
168	3.00000	3.09814	X
173	3.00000	3.33183	X
182	1.66667	3.96485	R
186	3.66667	3.66171	X
215	5.00000	3.84489	R
220	2.66667	3.03274	X
251	4.00000	4.09857	R X
256	4.66667	3.43389	R
265	5.00000	3.59838	R
269	4.00000	3.39331	X
304	5.00000	3.85679	R
306	5.00000	3.79453	R
351	3.00000	3.55035	X

356 5.00000 3.99152 R

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large leverage.

Durbin-Watson Statistic

Durbin-Watson statistic = 1.93282



جامعة النجاح الوطنية

كلية الدراسات العليا

العوامل المؤثرة على ثقة المشتريين في التجارة الإلكترونية في فلسطين

اعداد

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اشراف

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قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير في الإدارة
الهندسية بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين

2017

ب

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الملخص

التجارة الإلكترونية هي مفهوم جديد نسبياً في البلدان النامية ومن بينها فلسطين. تهدف هذه الدراسة إلى تحديد العوامل المحتملة التي تؤثر على ثقة المشتريين في التجارة الإلكترونية من خلال اتباع نهج التحليل الكمي. اشتملت هذه الدراسة على خمسة عوامل كعوامل محتملة ومؤثرة على ثقة المشتريين في التجارة الإلكترونية. تضم هذه العوامل تصميم الموقع الإلكتروني، درجة الموثوقية بالموقع، اعتبارات الأمان والخصوصية المتوفرة في الموقع، درجة إرضاء الزبائن، ومدى ادراك تأثير العوامل الحكومية.

تم جمع البيانات الضرورية للدراسة باستخدام استمارة صممت لهذا الغرض، وتم توزيعها بصورتين ورقية وإلكترونية. بلغ عدد الاستمارات الصالحة للتحليل 358 استمارة كانت كافية من أجل تعميم النتائج على مجتمع الدراسة. استخدم برنامج Minitab 16.1 لتحليل البيانات من أجل الوصول للنتائج.

أظهرت النتائج ان اعتبارات الأمان والخصوصية المتوفرة في الموقع، درجة إرضاء الزبائن، ومدى ادراك تأثير العوامل الحكومية تؤثر في مستوى الثقة بالتجارة الإلكترونية. بالإضافة لذلك، تم استخدام الانحدار الخطي لتحديد العوامل المؤثرة في الأبعاد الثلاثة لمفهوم الثقة وهي النزاهة، النزعة للخير، والكفاءة. والقدرة.

تعتبر هذه النتائج مفيدة للممارسين الذين يخططون للدخول في بيئة التجارة الإلكترونية، والباحثين المهتمين في الثقة في التجارة الإلكترونية.

هذا وتم اقتراح بعض التوصيات للجهات الرسمية وكذلك لمالكي المتاجر الالكترونية او القائمين عليها مما يعمل على رفع مستوى الثقة بين المشتريين في فلسطين.