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# SME development and analysis for investigating the adoption of E-commerce in Libya using SEM-PLS

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**Abstract**

Based on international experience and practices, and considering the context of the country, the report identifies the necessary legal frameworks, institutions and policies for the promotion of SME and entrepreneurship. This study is to support the design and implementation of SME policies in Libya. Findings from this research based on the ordered model of growth regression show that age of firm and size of the company both have significant negative impact on the growth of firms while management qualifications, growth aspiration of entrepreneur and lifestyle of entrepreneur all have significant positive impact on the growth of firms. This research suggests the following recommendations among others; creation of a peaceful political atmosphere that can engender a conducive business environment and ensure sustainable growth and development of SMEs in Libya, putting in place appropriate meaningful and comprehensive economic policies that can improve business climate through legislations. The adults of Libya fill out a quantitative survey online. In this work data is modelled using structural equations (SEM) and route analysis with fractional least squares in Smart PLS 2.0, a PLS modelling of structural equations application (PLS). Using a structural model, we looked at how different aspects of online store quality related to customers' propensity to make a purchase. The measuring model illustrates the relationship among independent factors, dependent variables, and the mediating variable trust. The study advises business owners to prioritize quality in today's cutthroat and digital market to improve their consumers' online shopping experiences. In order to effectively convince a wide variety of Libyan SMEs interested in e-commerce, this study serves as a starting point and offers an informed base. This research explores the methods for funding SMEs, based on a field study in Libya of a sample of SMEs.

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## 1. Introduction

In the aftermath of the radical changes in 2011, enterprise development is at the forefront of the economic development priorities of the Government of Libya. One of the most important tasks for the Libyan government in terms of enterprise promotion and in the aftermath of the

events in 2011 is to establish a comprehensive SME development strategy, with concrete measures to facilitate access to finance for entrepreneurs and existing companies, including SMEs.(Gupta 2020)[1] claim that E-commerce will become more vital to the future of business as a result of its ability to boost efficiency and productivity, reduce costs, and provide businesses with the means to attract and serve customers all over the world.The inability to keep up with demand and guarantee timely delivery is another major setback. As a result, not all businesses will opt for the default perks. Considering the above, it's clear that the current internet business structure isn't the best way for businesses to interact locally and internationally (Giuffrida, 2017)[2] ; (Gupta, 2020)[1] ; (Kremez, 2019)[3] ; (Wang, 2020)[4]). However, adapting to the current methods of connecting with current and potential consumers is not what conducting business online is all about. It's an attempt to save expenses and make the business more resilient in the face of increased demand for its products and services. In addition, it frees up space for creative thinking and a focus on the consumer.It's disappointing that Libya is among the few nations without actual e-commerce sites; instead, most people there make their purchases via social media channels like Facebook and messaging apps like WhatsApp and Viber.

### 1.1 The Open Libyan Market

Since Libya Open Marketplace is a listings site, any user with an account may post items for sale. Interested buyers can then get in touch with the seller directly to finalise the transaction. Neither electronic nor payment on

delivery (also known as COD) options are available on Libya Open Market, hence it cannot be considered an e-commerce site in the classic sense. However, it's one of the most visited sites in Libya by shoppers shopping for a certain item, therefore we couldn't leave it off our list.

**1.2 Dokkan**

Dokkan Libya is an online marketplace that collaborates with trusted vendors to provide customers with groceries (meat, vegetables, and fruits), electronics (phones and
accessories), cosmetics (cosmetics), stationary (stationery), sports nutrition (supplements), and auto accessories (auto accessories) (parts, etc.).

Dokkan provides comprehensive product details,letting you make an informed purchasing decision and save time. You may use Dokkan on the web at Dokkan.ly, or download the app for your iOS or Android smartphone.If you'd want to use the company's services without giving up any personal information, you may create an account with them. Dokkan is a delivery business that operates all throughout Libya and accepts five different methods of payment (cash – credit cards – Tadawul – Sadad – PayPal).

**2. Objectives**

The general objective is, to explore the factors affecting consumer trust on e-commerce in the context of Libyan SME'sThe specific objectives are as follows:

(1) . To investigate the effect of process quality of ecommerce on the consumer's purchase intention through trust in SMEs of Libya.
(2). To explore the effect of outcome quality of ecommerce on the consumer's purchase intention through trust in SMEs of Libya.
(3). To examine the effect of recovery quality of ecommerce on consumer's consumer's purchase intention through trust in SMEs of Libya.
(4). To inspect the effect of web site quality on consumer's purchase intention through trust in SMEs of Libya.
(5). To investigate the effect of information quality of ecommerce on consumer's purchase intention through trust in SMEs of Libya.
(6). To examine the mediating role of trust on consumers purchasing behavior through the process quality; outcome quality; recovery quality; web site quality and information quality in SMEs of Libya.

**2.1 The Concept of SMEs**

The definition and the concept of SMEs vary from one country to another, according to the country's capabilities and economic conditions (Zarook, 2013) [5]. Thus, the Georgia Institute of Technology found not less than 60 different definitions of small firms in different 75 countries (Auciello, 1975) [6]. Similarly, a report by the Small Business Administration in the USA notes that there is no steady and fixed definition of SMEs, because of variations in technological development and the development plans of each country (Walters 2002) [7]. More broadly, SMEs in developed countries differ from those in developing countries (Abd Wahab 2012) [8];. (Development, The Arab Center for Human Resources 2007) [9] specifies that small and medium businesses are any productive or service activities which are owned by one person or more, are managed independently, have no more than 99 workers, use simple techniques, and the property rights belong to the

owner and his/her partners. SMEs can also be classified in terms of numbers of staff and capitalization. (Lewrick 2010) [10]states that an SME is a company or individual facility that engages in an economic, productive, or service activity and has a specified capital. Modern economic theory defines an SME as an initial unit that organizes production resources to achieve wealth, and controls the different factors of production by a unified management represented by one person(Abdul-Wahed 2010) [11]. The International Labor Organization lists a set of standards to identify SMEs: workers and staff, equity capital, sales and revenue, productivity, and technique used (De Kok 2006)[12].In Libya, the General People's Committee for Manpower, Training and Employment (2006) has adopted the following classification of SMEs: Small firms have at least ten and no more than 25 workers, and an equity capital of less than 2.5 million Libyan dinar (LD), whereas medium firms have no more than 50 workers and an equity capital of less than 5 million LD.

**2.2 The Importance of SMEs**

The importance of SMEs is related to the fact that they are considered the prime movers of economic development in any nation around the globe. (Abd Wahab 2012)[8] state that the importance of the SME sector varies between countries and that in many, its economic contribution could be enhanced. (Abor, J., & Quartey, P. 2010)[13] add that SMEs can make a great contribution to a country's national product. In an interview with the French newspaper Le Monde, J. Marseille is cited as asserting that the most profitable businesses, in the long term, are not the large firms but the small ones, managed by families depending on their own experience(Ghazi A. Samawi2016 ) [14]. SMEs are also a source of employment(Zarook 2013) [5] and a tool to combat poverty in society (Onugu, 2005) [15]; Cook & Nixson, 2000)[16]. In Japan, 99% of the industrial sector consists of SMEs, while in the USA, small projects account for 80% to 90% of businesses overall (Shamiah, 2006)[17].

**2.3 E-commerce in Libya**

For a population of 6.3 million, there are only around 605,000 fixed lines, only about 40,000 mobile clients (a penetration rate of less than 1 percent), and only about 10,000 Internet service subscribers. Despite its status as a developing nation, Libya has achieved impressive progress; the 5.9% of Libyans who had landlines in 1995 today make up more over 10% of the population. According to the Libyanna Mobile Technology Company, their service has more over a million subscribers. However, LTT's own data reveal that in 2006, only 55,000 individuals utilised dial-up. Progress and expansion tend to be slow, but not for lack of desire. Only in Tripoli have we seen the opening of more than fifty Internet cafés (Koloseni & Mandari, 2017)[18].
The bulk of Internet users are teenagers and young adults, and their primary motivations for going online are entertainment and social networking rather than academic pursuits or shopping. For a variety of factors that I will try to summarise, it seems that customers are not yet engaged Internet users and are not ecommerce clients.
a. The development of the country's virtual economy has just started.
b. The infrastructure supporting conventional commerce is more solid than that supporting online transactions.
c. Online trade is complementary to traditional methods of doing business.
d. Businesses that prioritise satisfying their customers will not be threatened by the rise of e-commerce (Hamed, 2008)[19].
Also, the recent decision to abolish Customs charges on over 3,500 imported items may help reduce the threat presented by e-commerce to conventional enterprises. This average charge rate of around 22%, however, is a cover for a complex system of levies ranging from 0% to 425%, as the Economist Intelligence Unit Limited (2005) discovered. The most recent adjustment will unquestionably result in lower prices, simpler processes, lower carrying costs, and more trade volumes (Lwoga & Lwoga, 2017) [20]

**2.4 Trust in Ecommerce**

In terms of e-trust, data frameworks disciplines received a lot of attention. By way of illustration, the connection between the Davis (1989) Technology Acceptance Model and shopper e-trust inspired the work of a number of IS analysts. Numerous studies on customer e-trust corroborate the findings of informationsystems specialists and consumer scientists that this phenomenon is significant (Chu & Lee, 2020[21]; Lee et al., 2017[22]; Singh & Srivastava, 2019)[23]. According to many studies (Chu & Lee, 2020 [21]; Lee et al., 2017[22]; Singh & Srivastava, 2019)[23], etc. Different studies have focused on different aspects of shopper e-trust; for example, 1) the creation of general models for buyer trust in online business (Chesney et al., 2017[24]; Ghavamipoor et al., 2017[25]; Shemi & Procter, 2018)[26]; 2) the causes of shopper e-trust (Wakil et al., 2019[27]; Wei et al., 2017[28]; Zhou et al., 2018)[29]; and (Alzahrani, 2019[30]; Tarhini et al., 2019)[31]. Both (Alzahrani, 2019)[30] and (Tarhini et al., 2019)[31] have confirmed this.

### 2.5 Factor affecting purchase intention in E-commerce

The website is essential to the success of e-commerce since it acts as the interface between buyers and sellers. Since trust seems to impact how people react to new technologies like the Internet, it is vital for online firms to earn customers' confidence (Fukuyama 1995)[32].Online shoppers go through three stages of trust, as described by Cheskin (1999)[33]and cited by Yoon (2002) [34]. Credibility is established in the preliminary stage by exercising command over both personal data and data associated with search engine results.
The next step is to ensure people's trust by keeping their data safe. Aspects of both internal and external trust, such as the intention to buy, are crucial at this juncture. To establish credibility, you may utilise logos from trusted companies like VeriSign or Visa. As a result, showcasing the endorsement from a third party increases customer trust in the web store.

## 3. Conceptual Model and Research Methodology

In the world of internet commerce, trust between buyers and sellers is widely acknowledged as a crucial component in determining whether or not a sale is made (C. C. Chen et al., 2018 [35]; Osatuyi & Turel, 2020 [36];Wakil et al., 2019 [27];Wei et al., 2017)[28].Trust in the product, salesperson, and company all have a role in how likely a customer is to make a large purchase (Kim et al., 2008)[37]. Researchers have shown that trust influences both behaviour and perception of risk (Jarvenpaa et al., 1999 [38]; Heijden et al., 2003 [39]; Thompson and Liu, 2007; Kim et al., 2008 [37];Meskaran et al., 2010). As a result, buyers' attitudes and feelings of risk play a role in their propensity to make a purchase. It has been shown that consumers' propensity to engage in online shopping is negatively impacted by a lack of trust. According to NECTEC (2006), over 63% of internet users don't purchase online because of security concerns. Additionally, trust has a direct and substantial impact on the likelihood that a shopper would complete a transaction on an e-commerce site (Tariq & Eddaoudi, 2009) [40].Trust has also been seen as an antecedent of intent to make a purchase online by researchers such as Heijden et al. (2003) [39],Kim et al. (2008) [37],and Delafrooz et al. (2011) [41]. Trust has been demonstrated to mediate several of the outcomes associated with e-commerce customers, including desire to buy, loyalty, and contentment (Dimyati & Subagio, 2018[42]; Nguyen, Leclerc, & LeBlanc, 2013[43]; Osman & Ilham, 2013[44]; Wijetunga, 2017)[45]. This leads us to postulate the following:

H1: There is a significant effect of trust on consumer's purchase intention.

H12: There is mediating effect of trust on consumers purchasing behavior through the dimensions of quality.

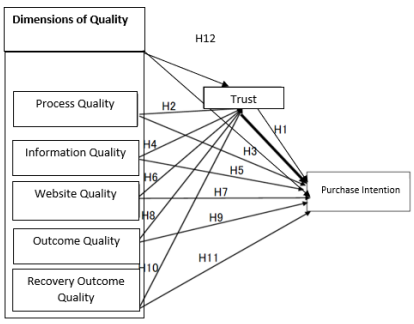


**Fig.1 Conceptual Mode**

### 3.1 Research Methodology

The research used both primary and secondary data. This new survey-based study inquiry allegedly collected primary data. This data was gathered from secondary sources, such as previously published articles and web searches. Taking into account the broad scope of the research, the triangulation research method was adopted to obtain data in a quantitative approach based on a survey questionnaire and qualitative data conducting an in-depth interview. The information generated was used to validate the newly developed trustworthy framework of e-commerce usage. The reason of using quantitative research method extends to help the researcher to determine statistically and predicts the impact of the trustworthy framework of increase in e-commerce usage for Libya in

providing a competitive edge to the companies and organisations using the website. In-depth semi-structured interview was conducted with IT managers handling e-commerce system in order to understand the difficulties faced in designing the system as per the requirement of the customers. Non-probability sampling technique was applied in this study with purposive sampling method to gather the data. The questionnaire was examined from side to side in extensive conversations with experts and scholars in the area of (IT) filed. The questionnaire was structured with 40 questions conforming to the study objectives. The investigator managed to approve the hypothesis sophisticated based on dependent and independent factors. Moreover, when the data collections had been done the measurement and structural models were run to ensure the validity of the model and testing the research hypotheses respectively.

### 3.2Method of Data Analysis

The results, which were descriptive in nature, were created by using SPSS 21.0 on the acquired data. Inferential processing was used to do further analysis on the data. Statistics such as averages, variance, and percentages are all put to use in descriptive statistics. According to Pallant (2011)[46], for example, the standard deviation of a sample is equal to its average variance, whereas the mean of a sampling is equal to the sum of its scores multiplied by the number of observations. Responses on a Likert Scale were created once the data were analysed. Raw data (frequency distribution), tables (means and standard deviation), and graphs were some of the representations that were made available for every respondent's contributions to the study. In order to accomplish this objective, the researcher used both descriptive and inferential analysis while doing data analysis. By using PLS-SEM version 3.0 for our mediation study and putting our hypotheses to the test, we made use of structural equation modelling.

### 3.2.1Test of Reliability

Forty participants were used in the study to ensure the accuracy of the tool. The reliability of the instrument employed in this study was examined with the help of Cronbach's Alpha. For this evaluation, reliability values of 0.7 or above are preferred, although values of 0.6 to 0.7 are not necessarily inappropriate (Hair, Anderson, Tatham, Black & Babin, 2006)[47]. The internal precision of every scale used in this research was far higher than required for the task at hand. The results from testing the reliability were as follows:

**Table 1. Cronbach's Alpha Test**

| Number of items | Variables of study | Cronbach's Alpha value |
|---|---|---|
| 05 | Process quality | .867 |
| 05 | Information quality | .933 |
| 05 | Web site quality | .925 |
| 05 | Outcome quality | .753 |
| 05 | Recovery quality | .797 |
| 05 | Trust | .848 |
| 05 | Purchase intention | .927 |

### 3.2.2 Factor Analysis

Multiple reports stress the need for a cross-validation to ensure the reliability and accuracy of the instrument. Evidence supporting the soundness of the proposition and Construct Validity is studied from both a theoretical and statistical perspective. The theoretical arguments need the natural event that proves the disputed idea. Previous studies provide the data needed to pin down the concept's constituent parts. The statistical backing for a concept's validity may be found in convergent validity. When conducting convergent validity tests, researchers inquire, "How strong is the relationship between the two most dissimilar tests that claim to measure the same concept?" (Hair, Wolfinbarger, Ortinau & Bush, 2010)[48]. In other words, comparing one instrument to another that it is supposed to assess may help establish convergent validity. Factor analysis (FA) was used to all study components to determine the reliability and validity of the research's measures. The purpose of this research is to verify the scales and test the variables to ensure that only the most important information is replicated in the data, since all variables are two-dimensional (Davis & Consenza, 1998)[49]. That is, FA is a multivariate method that identifies the optimal components for each opportunistically determined dimension (Sekaran & Bougie, 2009)[50].

Then we can determine how many separate factors are at play (Khelifa, 2009)[51]. Hypothesis testing is a common use of this technique, and statisticians often employ it to reduce the likelihood of making a type-one error. In cases when the Eigen value is larger than one (1) and the extraction is carried out as expected,

component extraction may be used. This method reassigns the disparity between variables as a close approximation of equality.
As a rule, favourable variables have factor loadings of 0.32 or higher. Based on the reliability of the survey responses, we can confidently estimate a greater weighting of 0.40 for this investigation; however, the threshold specifications for loading size should be based on the needs of the research (Tabachnick & Fidel, 2001)[52], with loadings greater than 0.71 being considered "excellent," loadings between 0.63 & 0.55 being considered "very good," and loadings between 0.32 & 0.55 being considered "poor".

**3.2.3Sample population results**
**Profile Respondents:**

Each participant's demographic data was gathered and examined. It provides a deeper understanding of the subject matter and helps to interpret the results of the analysis. The following are brief summaries of the collected demographic information.

Most respondents (36.5%) have much less than one year of online shopping experience, while 31.7% had between one and two years of online shopping experience. Only around a third of respondents had been making purchases online for between three and five years, and only about thirty people had been doing so for more than five years

Beginning with demographic data, we may
examine the findings of this research. If you want to know how applicable your findings will be, you need to start by defining the characteristics of the respondents. The table provides information on the demographics of those who filled out the survey and the percentage that returned it for analysis. With a total of 770 questionnaires sent out, 55% were returned (424 company owners). Babbie (2005) [53]recommended not include missing information 33 times.

Compared to female participants, male individuals made up a majority of the total samples (54.5 percent) in the study.
There were only three (0,7 percent) and five (1.2 percent) of respondents with secondary and intermediate credentials. More than half (51.9 percent) of respondents with diploma
and bachelor’s degrees and 46.2 percent with postgraduate degrees

Analysis of this study's results begins with a look at demographics. Defining the
characteristics of the respondents is the first step in determining how generalizable the results are. Data about the demographics of the respondents and the return rates of the questionnaire are included in the table. 424 business owners responded to the surveys, representing a 55% response rate on a total of 770 questionnaires sent. There were 33 instances in which Babbie (2005) [53], advocated omitting missing data.

**Table 2. Questionnaire distribution and response**

| | |
|---|---|
| Questionnaires distributed | 770 |
| Number of responses | 424 |
| Missing data | 33 |
| Usable responses | 391 |
| Response rate | 55% |

Each participant's demographic data was gathered and examined. It provides a deeper understanding of the subject matter and helps to interpret the results of the analysis. The following are brief summaries of the collected demographic information.

**Table 3. Age of Respondents**

| Age group | Frequency | Valid % |
|---|---|---|
| **Below 31** | 100 | 25.6 |
| **31 to 40** | 122 | 31.2 |
| **41 to 50** | 115 | 29.4 |
| **51 to 60** | 49 | 12.5 |
| **61 and above** | 05 | 1.3 |
| **Total** | 391 | 100.0 |

Beginning with demographic data, we may examine the findings of this research. If you want to know how applicable your findings will be, you need to start by defining the characteristics of the respondents. The table provides information on the demographics ofthose who filled out the survey and the percentage that returned it for analysis. With a total of 770 questionnaires sent out, 55% were returned (424 company owners). Babbie (2005) recommended not include missing information 33 times.

**Table 4. Gender of respondents**

| Gender | Frequency | Valid |
|---|---|---|
| Male | 213 | 54.5 |
| Female | 178 | 45.5 |
| **Total** | **391** | **100.0** |

Compared to female participants, male individuals made up a majority of the total samples (54.5 percent) in the study.

**Table 5. Education of respondents**

| Education | Frequency | Valid % |
|---|---|---|
| **Secondary** | 03 | 0.7 |
| **Intermediate** | 05 | 1.2 |
| **Undergraduate** | 203 | 51.9 |
| **Postgraduate** | 180 | 46.2 |
| **Total** | 391 | 100.0 |

There were only three (0,7 percent) and five (1.2 percent) of respondents with secondary and intermediate credentials. More than half (51.9 percent) of respondents with diploma and bachelor degrees and 46.2 percent with postgraduate degrees.

**Table 6. Experience of respondents**

| Experience | Frequency | Valid % |
|---|---|---|
| **Less than 1 year** | 249 | 36.5 |
| **1-2 years** | 124 | 31.7 |
| **3-5 years** | 295 | 24.2 |
| **More than 5 years** | 30 | 7.6 |
| **Total** | 391 | 100.0 |

Most respondents (36.5%) have much less than one year of online shopping experience, while 31.7% had between one and two years of online shopping experience. Only around a third of respondents had been making purchases online for between three and five years, and only about thirty people had been doing so for more than five years

### 3.3 Descriptive Statistics

Standard of estimate, sampling methods, independence of observations, detection of missing data and proof of identity of outliers, normal probability plot, and homogeneity of variance are just a few of the assumptions that must be met, per Hair (2006)[47], before descriptive statistics research can be conducted. Calculations using constant variables (interval scale) were required (constant variables). Random selection was used to collect the sample scores. Since the observations were unrelated to one another, there was no violation of the underlying premise (Stevens, 2001)[54].

It is assumed that samples from a population are normally distributed in order to comprehend normality tests and distributions (Pallant, 2011)[46]. The heterogeneity of error terms will also be met if the experiments were conducted accurately. For this investigation, we used the t-test significance level of the Levene equality variance test to look for differences between the two groups. Levene's variances equality test (F-test) was used for the variance analysis. A formula was developed to help explain the extent of differences between "expected total variation of regression model based on levels of independent factors" and the "predictive relevance" or "association strength" (Tabachnick & Fidell, 2001)[52]. At the end of every test, the "percent of variation in dependent variable represented by the independent factors" is shown in the form of an Eta square (Pallant, 2011)[46]. Cohen (1992) [55]suggests a range of 0.01 to 0.06 to 0.14 for the degree of an effect.

#### 3.3.1 Normality Test of the Study Variables

Each variable's skewness and kurtosis values may be used as a proxy for the data's normality. If the centre of the distribution is not a skewed variable mean, then the distribution scores are symmetrical. The skewness value

indicates the degree to which the score distribution is symmetrical. Either a very peaked (with a short and thick tail) or flat (with a long and thin tail) distribution peak may be indicated by a long and thin tail (Tabachnick & Fidell, 2001)[52]. This test is important regardless of whether or not the data is used in the parametric statistical approach described in this chapter.

If the skewness and kurtosis variables of a distribution are both 0, we have a normal distribution. Specifically, negative skewness is characterised by a concentration of high right-tail scores, whereas positive skewness is characterised by a cluster of low-value occurrences on the left (Tabachnick & Fidell, 2001)[52]. When the kurtosis is 0, the distribution is flat, or platykurtic, and when it's more than zero, it exhibits a peak, or leptokurtic. To prevent underestimating variance, it is best to use a large sample size (200 or more). Typical expectations almost seldom pan out in practise. Normality is rejected at absolute values of + 3.29 at the p0.001 level, + 2.58 at the p0.01 level, and + 1.96 at the p0.05 level, as stated by Hair (2006)[47]. The following assumptions for normality rejection were provided by Hair (2006)[47]:

When checked for normality using the following criteria, no variables were outside the + 3.29 probability range at p 0.001. All of these variables have normally distributed data, however the test result will determine the exact shape of the distribution. According to Field, you need 200 or more people in your sample to properly assess the skewness and kurtosis values, as well as the distribution pattern (2009a). These results also suggest that all data points were normally distributed as required by a regression analysis (ANOVA).

**Table 7. Skewness and Kurtosis of variables**

| | **Skewness** | | **Kurtosis** | |
|---|---|---|---|---|
| **Variables** | | | | |
| | **Statistic** | **Std. Error** | **Statistic** | **Std. Error** |
| **Process quality** | -.331 | .157 | -1.006 | .315 |
| **Information quality** | -.644 | .157 | -1.062 | .315 |
| **Web site quality** | -.808 | .157 | -.564 | .315 |
| **Outcome quality** | -.051 | .157 | -.917 | .315 |
| **Recovery quality** | .648 | .157 | .343 | .315 |
| **Trust** | -.044 | .157 | -1.337 | .315 |
| **Purchase intention** | .402 | .157 | -.165 | .315 |

### 3.3.2 Mean and Standard Deviations of the Study Variables

See the following table for the average and standard deviation of all of the measured quantities. Every one of the free variables was scored on a 5-point scale. The averages of all of the variables were greater than 2. The value was between 2.418 and 3.706.

**Table 8. Mean and Standard Deviation for Study Variable**

| **StudyVariables** | **Mean** | **Std.Deviation** | **N** |
|---|---|---|---|
| **Process quality** | 3.5455 | 1.0637 | 391 |
| **Information quality** | 3.4353 | 1.2626 | 391 |
| **Web site quality** | 3.7068 | 1.1396 | 391 |
| **Outcome quality** | 3.2061 | 1.1236 | 391 |
| **Recovery quality** | 2.4182 | .9318 | 391 |
| **Trust** | 3.0736 | 1.3628 | 391 |
| **Purchase intention** | 2.4798 | .9156 | 391 |

It was previously believed that PLS-SEM could be used to assess models in both normal and non-normal data settings (Reinartz, Haenlein, and Henseler, 2009[56]; Wetzels, Odekerken-Schroeder, and Van Oppen, 2009)[57]. Research on PLS-SEM over the last few years (e.g., Hair et al., 2017[58]; Hair, Sarstedt, Ringle, & Mena, 2012[59]; Hair et al., 2010)[60] shows that researchers should examine the data, including the normality test, before doing multivariate data analysis. Avoid using data that has an excessive amount of skewness and/or kurtosis,

since this may lead to inflated bootstrapped standard error estimates and a downplaying of the statistical significance of path coefficients (Chernick, 2008[61]; Ringle, Sarstedt & Straub, 2012)[62].

A graphical technique was used to examine the data's normality in this investigation. Consideration for the aforementioned viewpoint was crucial to this action (Tabachnick & Fidell, 2007)[63]. Having a

Kurtosis/Skewness score between -2 and +2 indicates that the data are normally distributed (Kline, 2010)[64]. Furthermore, when the sample size of a research is 200 or more, it is
preferable to utilise a graphical technique to assess whether the obtained data follows a normal distribution rather than looking at the values of skewness and/or kurtosis (Field, 2009)[65]. According to Field (2009)[65], a large sample size results in inaccurate standard error estimations, which in turn leads to inflated skewness and/or kurtosis levels. Therefore, the graphical approach is utilised to verify for normalcy instead of the statistical method. This study followed Field's advice and checked for normality in the data by constructing histograms and normal probability plots (2009). Each histogram bar, as shown in Figure 4.1, closely follows a normal curve, suggesting that the data was distributed normally. herefore, the research does not violate the normalcy criteria.

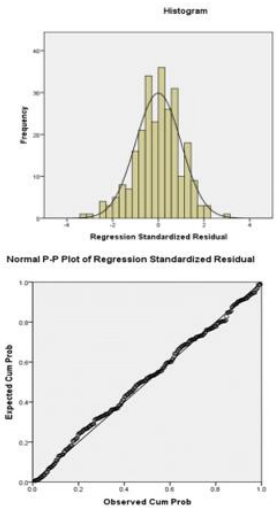


**Fig.2 Histogram and Normal Probability Plots**

### 3.3.3Linearity Test

Since just one kind of data is needed at any one moment from a subset of the population being studied, the survey approach is often used. The researcher doing ethnographic research, on the other hand, must spend more time in the community being studied and use a broader array of data collection strategies (Strijker, 2020)[66]. Compared to ethnographic methods, surveys are less reliable and valid; nonetheless, their cost- and time-efficiency make them an attractive alternative.

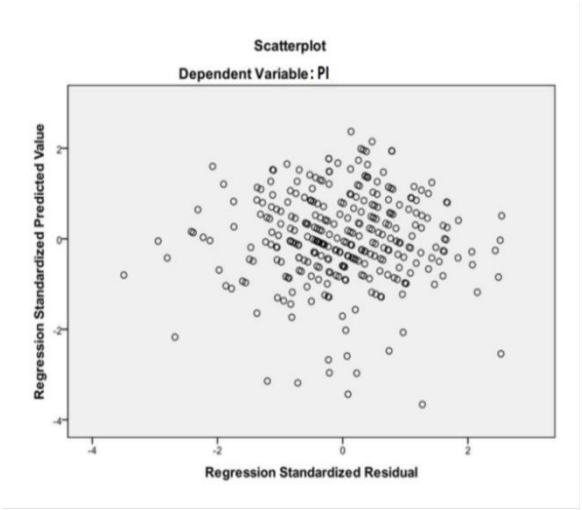


**Fig. 3 Scatter Plot**

### 3.3.4Multicollinearity

When there is multicollinearity, the magnitude of the path coefficients (beta) decreases as the standard error increases, according to Field (2009) [65] and Tabachnick and Fidell (2007)[63]. (t-value). As we've shown, multicollinearity raises the possibility of false positives and negatives in one's findings.

The VIF in PLS-SEM should be tested for common method bias, as suggested by Kock (2015)[67], whenever it is more than 3.3. Since all VIP values are less than 3.30, the model is free of bias due to a shared sampling procedure or an increase in the variance. High degree of multicollinearity are linked to tolerance levels around zero, as stated by Tabachnick and Fidell (2007)[63]. The inflation factor in the variance is less than a factor of 10 (VIF). Because this is how statistical analysis is often done, the study's premise has not been broken. Table 4.4 indicates that the VIF for each independent variable is under 10.

**Table 9. Test of Multicollinearity**

| Variables | Collinearity Statistics | |
|---|---|---|
| | Tolerance | VIF |
| **Process quality** | .245 | 4.325 |
| **Information quality** | .755 | 1.342 |
| **Web site quality** | .853 | 1.322 |
| **Outcome quality** | .285 | 3.648 |
| **Recovery quality** | .464 | 2.452 |
| **Trust** | .748 | 1.363 |
| **Purchase intention** | .833 | 1.143 |

None of the prior checks, such as those for missing data, outliers, normalcy, and multicollinearity, have shown any significant issues with the assumptions.

## 4. Results and Discussions

The development of a trustworthy framework for e-commerce usage in this study has become a necessity to meet with the emerging technological requirement to facilitate online transaction at varying capacity across a different organisation, government, and individual that conduct business. This development in updating the functionalities of existing transaction channel by improving the service framework incorporate modification that includes existing technologies to improve customer satisfaction in transacting businesses online. According to the findings, there was a very substantial positive correlation between trust and desire to buy. Also, the research discovered that trust partly mediates the connection between quality aspects and willingness to buy.

As many as 391 persons participated in this survey. In addition, there are significant differences in responses across a range of demographic characteristics. The study's sample was representative of the general population. The demographics of the survey participants show that men make up a disproportionately large portion of the sample (90.7%).

Participants spanned a wide range of ages in this study. Those between the ages of 41 and 50 made up the largest share of respondents (37.3%), followed by those between the ages of 51 and 60 (30.5%), and finally, those between the ages of 31 and 40 (11.3%). (29.2). Only 1.5% of workers were under the age of 31, while 1.3% were beyond the age of 60. The study's data show that there is a sizable portion of the working class in Libya that is comprised of a younger population with job potential; this trend bodes well for the expansion of online sales by small and medium-sized enterprises throughout the country.

Strong educational credentials were shown by respondents, 61.7% of whom have at least an associate's degree and 31.9% of whom hold a bachelor's degree. Only 4.1% of respondents had fewer than 5 years of experience, while 11.3% had between 10 and 15 years, 18.7% had between 15 and 20 years, 12.2% had between 20 and 25, 24.7% had between 25 and 30 years, and 20.3% had more than 30 years. Therefore, it is possible to have a deeper comprehension of the problems that plague e-commerce sites. Based on the comments, it seems that many business owners have faced with quality difficulties. E-commerce experts have the greatest ideas and strategy for putting them into action.

## 5. Conclusions

SMEs in Libya need to encourage participating to impart and react with a goal of developing e-commerce position in their organisation. For the government policy regulators, the finding of the study also provides legislation on pertinent and applicable e-commerce especially for the developing countries where the usages of e-commerce are either non-existent or expired. E-commerce legislation must be able to fit in the local environment boosting e-commerce development. The model explains 89% of the variance in the behavioural intention with the initiatives of using e-commerce. This thesis extends previous adoption studies by analysing data from a diverse pool of executives that represents the population. Although this study finds technological, organisational and environmental factors as a significant predictor of e-commerce usage, the overall perceptions in relation to trustworthiness and performance expectancy have not been investigated. Thus, it would be valuable to study specific components of trustworthiness and performance expectancy within the context of e-

commerce. From the analytical findings, it was evidenced that e-commerce has been developed to become an easy task to enable users from a different background to transact business online. The ease of use of the technology promoted access to ever increasing number of users that rely on e-commerce website for daily transaction making it a leading online website to transact business. A challenge for firms operating is figuring out how to increase customer confidence and motivation to buy. This study found that gaining customers' trust may boost sales while selling products online. In addition, the quality aspects are the strongest predictors of online shopping intent. The study advises business owners to prioritise quality in today's cutthroat and digital market to improve their consumers' online shopping experiences.

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