Analyzing E-Commerce effectiveness of SMEs Using SERVQUAL Model

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Abstract: This paper attempts to aid the E-Commerce influence on SMEs using SERVQUAL methodology and five factors of reliability, assurance, tangibles, empathy, and responsiveness. In Saudi Arabia, according to the survey results, the e-commerce has enhanced the country's service and quality. Safe transactions processing, employee appearance, on-time delivery, attention to customer wants, record keeping, and confidence in staff are the top six areas of improvement following the implementation of e-commerce. Product display, staff help, equipment appearance, delivery time, customer waiting time, and customer care are the six factors listed at the bottom of the improvement after integrating e-commerce. E-commerce has a positive effect on confidence, which was previously at 20.31% and is now at 11.02%, even though several features are found to be in the top before and after the implementation of E-commerce. Prior to e-commerce, it is being noticed that service was more important in terms of customer happiness. Observing the improvement will be easier if the recommendation is implemented and measured again. In the future, we can investigate the performance of the top five E-Commerce platforms in greater depth.

Keywords: E-Commerce, Covid, Customer, service, quality, SERVQUAL Model

I. INTRODUCTION

COVID pandemic and the quick technological changes have impacted the customer's perceptions and in general the whole lifestyle. As a result, the way of doing business has changed to adapt this new trend in presenting the products and services, packing them, where to find them and all the supply chain process behind it. These technological developments have significantly affected the business model as whole, and this technological revolution in the COVID time led to a growth in the business model of online selling "*E-Commerce*".

In this literature the focus will be on how E-Commerce affected the small and medium enterprises "SMEs" in Saudi Arabia nowadays and will view how really customers experienced this change to buy online instead of the traditional way to buy from physical stores. The ecommerce market is expected to grow by almost $11 trillion between 2021 and 2025. As businesses came online during the COVID-19 pandemic, the global trend toward digitization surged ahead at lightning speed. Even as regions begin to reopen, ecommerce sales are still climbing. (The Future of Ecommerce + Trends 2022, 2022).

Kingdom of Saudi Arabia is leading the Middle Eastern countries in many areas and has a unique and promising market, Saudi Arabia is going toward a transformation period and up to achieve its vision in 2030. The vision supports the Ecommerce, "*We will also support SMEs in marketing and*

help export their products and services, by leveraging e-commerce and collaborating with international stakeholders" [1].

The aim of this study is to explore the impact of E-Commerce on SME by using SERVQUAL Model to compare the situation before and after. SERVQUAL model definition is short for the Service Quality model is the research method to capture and analyze consumer expectations and perceptions of the service [2]. SERVQUAL model five service quality dimensions are tangibility, reliability, responsiveness, assurance, and empathy [3].

Looking at the previous accelerating demand for the E-Commerce lead to the importance of understanding how to come up with successful E-Commerce service and quality to meet Saudi customer needs and wants will grow the business in this specific time affected positively by Saudi 2030 vision and negatively by COVID-19.

Failure to understand the Saudi customer needs and wants and how they perceive the online store and the factors impacting their decision-making process will cause the E-commerce to lose.

This study aims to answer the following questions:
- How were SME doing before E-commerce?
- What is the impact of E-Commerce on SME?

Our goals to analyse E-Commerce effectiveness of SMEs Using SERVQUAL Model in Saudi Arabia to understands better the customers which will bridge the gap between customer expectations and need by applying the right quality and services measures.

In this research will depend on the sampling method both the subjective and objective. To get enough data will use the below:
- Online Survey
- Delphi Survey method
- Interview with customers
- Interview with Experts
- Focus group of customers
- Emails

The limitations of the study are conducting the survey due to COVID-19 it is not easy to meet people, hence depending on the online channel will be significant to get high quality paper.

II. LITERATURE REVIEW

There are many studies on E-commerce and its impact on business and SMEs. This chapter aims to look at several chosen studies related to E-commerce effect on SMEs and the methodizes used to evaluate that. At the end of the chapter the summary will illustrate why this thesis is different from the previous and where to focus.

Analytic hierarchy is a multi-criterion, analytical approach to decision making, based mainly on mathematical tools, the most important of which are matrices, and is used in many fields. This method was applied by Saaty Thomas (1970) and allowed to solve a complex problem in a coordinated hierarchical system at several levels. The analytic hierarchy method is used to consider three levels (environment, organization objectives, areas of activity) common to a set of different criteria and allows the identification of the most important alternative. The application of the analytic hierarchy method is through several stages through the identification of the goal and the problem, which goes through the following stages [5].

Factors resulting from exploratory factor analysis explain the inter-vertebral processes that are saturated in each factor. Whenever these factors are consistent with the nature of the measured feature and the processes it requires, the results are supportive of the test method and testimony to the validity of its internal construction. In many cases, however, exploratory factor analysis may lead to factors that may not be consistent with the measured characteristic and its components because of student samples, the way they respond to test items, the quality of the paragraphs, and the way in which the exploratory factor analysis is applied. The results of exploratory factor analysis can therefore be considered assumptions, which should be examined empirically, and other data collected to support or refute these assumptions [6].

Exploratory Factor Analysis, this type is used in cases where the relationships between the variables and the underlying factors are not known and therefore the factor analysis aims to discover the factors to which the variables are described. Used to discover the factors to which variables can be classified as categories of these variables. The exploratory factor analysis aims to derive a certain number of key axes that combine the interrelationships of the test paragraphs and, among them, at certain weights, explain the differences in student grades [7].

A framework for the implementation of B2C e-commerce in Saudi Arabia: a comparative study of Saudis living in Saudi Arabia and those living in the UK, and the perception of Saudi companies' study has developed a theoretical framework appropriate to the implementation of Business to Customer (B2C) EC in Saudi Arabia, after reviewing the literature on B2C EC, and testing several factors pertinent to the Saudi Arabian context. The researcher has adopted a novel approach by securing the perceptions of Saudi nationals living in Saudi Arabia and those living in the UK with a view to appreciating the differences and learning from the experience of these two communities. Additionally, the researcher conducted a survey of a sample of Saudi companies to understand their views and aspirations in adopting B2C EC. Data was collected using mixed methods and embracing both quantitative and qualitative research methods. The data was collected in Saudi Arabia via a questionnaire survey of 606 Saudi nationals, and in the UK from 169 questionnaires and interviews with 25 companies. The questionnaire responses were analyzed quantitatively by descriptive and statistical methods (percentages and t-test for two independent samples), and the findings were validated by the interview data. From the results, the theoretical framework was developed, thus allowing for an understanding of Saudi customers' attitudes towards online shopping in the two different environments of B2C EC (SA as a developing country and the UK as a developed country) to be gained. The influence of different environmental variables upon customer choice is seen as

significant variations occurred in the two different environments. The framework is potentially useful for policymakers, the commercial sector, and the government in SA. Hence, the research contributes to knowledge about the key differences in customer behavior toward B2C EC in SA [8].

Prinsloo [9] state in his published article that for the SMEs in south Africa a particularly excellent competitive advantage to pursue is high service-quality levels to satisfy customer wants and needs in such a way that customers make repeat purchases. In Prinsloo paper he establishes if small businesses can utilize the same measurement models as larger businesses by using quantitative research design whereby the data was collected by means of a five-point Likert scale survey, known as the SERVQUAL model. The results recommend that small and medium enterprises use the SERVQUAL model to measure and manage service quality and that the SERVQUAL instrument, when used to measure the perceptions of service quality aspects according to business owners in South Africa, functions largely as intended with only four of the items that are not quite interpreted as intended. At a confidence level of 95 percent or alpha at 0.05 is smaller than the p-value of expectations and perceptions at 0.101 and 0.076 respectively. Results indicate there is no evidence that the model does not fit the data and it is deemed acceptable. However, the SERVQUAL model does not measure service quality in its entirety, as their e are aspects that differ between large and small businesses that are not addressed in the SERVQUAL model [9].

In Darius Zumstein and Wolfgang G. Schäfer paper we see more than the half of the e-shops offer free shipping and product reviews, and already one third provides personalized content or product offers. To increase sales, most online shops provide discount codes and recommendation of complementary and alternative products. Analyzing different success factors, this contribution shows that customer-, service- and data-driven online shops generate higher conversions rates and revenues. Product reviews, discount codes, personalization and the recommendation of alternative products lead to significant higher conversion rates. Most online retailers are selling on different distribution channels like e-mail, phone, digital marketplaces, and pick-up stores. Ten findings this paper state such as: free shipping, provide discount code, Sales offers, enable site reviews, etc. which we will study in our paper to the Saudi market along other factors were not in this paper such as: The company origin, Brand, Political impact, Environment impact, COVID-19 impact, communication channels and other [10].

The impact of e-commerce adoption on business strategy in Saudi Arabian SMEs research aimed to examine the impact of e-commerce on business strategy, especially on SMEs in Saudi Arabia. It also investigates the relationship between E-commerce and business strategy and how the e-commerce niche changes SMEs' strategic management approach. Additionally, the author identifies the factors that moderate this relationship. To evaluate and examines the impact of e-commerce on business strategy, the study used a quantitative method by conducting a questionnaire survey in Saudi Arabian SMEs. The analysis of collected data confirms that e-commerce adoption has an impact on SMEs strategies. Many participants asserted that the introduction of e-commerce in Saudi market has changed their businesses' plans and strategies. The findings identify the major As the Saudi Arabian Vision 2030 focusses on developing and growing SMEs, the findings of this research can be helpful

to facilitate and motivate SMEs in Saudi Arabia and other countries to obtain sustainable growth and a thriving economy [11].

The Kingdom of Saudi Arabia is an Asian, Arab country that is in the Arabian Peninsula. It is bordered from the east by the Arabian Gulf involving Bahrain, Qatar, United Arab of Emirates and Oman. To the west, it is bordered by the Red Sea. To the south there is Jordan, Iraq and Kuwait provide borders to the north and Yemen. The kingdom had been united by King Abdul Aziz Al Saud in 1932 and since then, the primitive country started to develop. The country is divided into five areas, north, south, east, west and the center where the capital, Riyadh is located. The significance of Saudi Arabia as a Muslim country is founded on the presence of the two Holy Cities, Makah and Al Medina, where the two Holy Mosques are, and they are located in the west. Every year, large numbers of Muslims visit Saudi Arabia during pilgrimage. "*The total number of pilgrims in 2019 was 1,855,027 visiting from outside the country (General Authority for Statistics, 2019).*" The second importance of Saudi Arabia in the world is the production of oil, which makes it the first country in petroleum oil exportation. "The population estimate in 2019 was 34,218,169 (General Authority for Statistics, 2019)". The industrial revolution of the kingdom during the last century, and the movement of families within regions resulted in the mixture of those subcultures and the exchange of behaviors which appears in daily living such as in communication, housing, and dining [1].

III. RESEARCH METHODOLOGY

Study Design

The study design has involved the sampling technique that is utilized to decide the study sample, the methods that are implemented to collect the required data, the data analysis approaches [12]. The researcher takes the best research design that help to answer the research question and problem in the best way. The research design that is applied in this literature to collect the primary study data is survey technique. This method is considered as the most suitable data collection method as it allows collecting the essential amount of data from the population with a degree of reliability and accuracy.

The dimensions of the SERVQUAL model used for measuring service quality which are reliability, responsiveness, assurance, empathy, and tangibles [13] are professionally exploited when we carry out surveys, since it deals with expectations and perceptions of customers about services provided via E-Commerce. For us to know how customers perceive service quality, it is appropriate to use self-completed questionnaires which give the respondents a chance to independently and anonymously give answers that reflect their expectations and perceptions. This questionnaire is developed from the SERVQUAL model, and this makes it objective and not bias.

Research Approaches

Research approach can be divided into two main classes, firstly is the approach of data collection and secondly the approach of data analysis or reasoning. This literature approach of data collection will be quantitative approaches. Reason because we selected the target sample carefully and the aim is to hear the customers and people feedback on E-Commerce affect. The qualitative approach was used

by asking expert to rate some factors on SERVQUAL model to conduct Analytical Hierarchy Process (AHP) analysis.

Research Strategy

Quantitative and qualitative strategies are the two main strategies used in research. Quantitative strategy emphasizes quantification in the collection and analysis of data, and it entails a deductive approach to the relationship between theory and research, in which theory is tested. It assumes a natural scientific model of positivism and involves a view of social reality as an external, objective reality [14].

Our research strategy will be quantitative in logical view. We use this approach because it is suitable to answer our research questions. This strategy will permit measure our variables derived from the SERVQUAL model effectively in terms of assessing customers perceptions about service quality for using E-Commerce. This gives the research findings high reliability and validity. We use this strategy not only to describe the various attributes of the SERVQUAL model and their importance to customers but also why they consider these attributes to be important to them. Quantitative strategy will not be used because our findings could be more reliable if we focus on customers and avoid any type of bias.

Data Collection

In this literature, the data were collected one key source, The main source that researcher used a questionnaire survey for the research, which was developed for the objective of collecting information from primary source. The precreation for the survey covered reviewing relevant academic papers, documents, magazines, reports, references, and books to choose carefully the best set of questions.

IV. RESULTS AND DISCUSSION

To be capable to analyze the collected data in the best way, the researcher has used the SPSS analytical software. Several tests have been used to analyze the collected data, including, Mean, Standard Deviations, frequency distribution, exploratory factor analysis and analytic hierarchy process.

It's important to know how to build a successful e-commerce service that meets the needs and desires of Saudi customers in this time of rapid demand for e-commerce, which will lead to business growth at this specific time with a positive impact from the Kingdom's 2030 vision and a negative impact from COVID-19. Using the service quality model in the Kingdom of Saudi Arabia, we hope to better understand our customers and bridge the gap between their expectations and needs by applying appropriate quality and service standards to e-commerce for small and medium-sized businesses.

Questionnaire Design

In this study, where the primary data was collected through a questionnaire. On a five-point Likert scale to know the participants' views, (strongly disagree) (5) was given, (disagree) (4), while (neutral) (3) was given, and (strongly agree) was given (2), and finally OK) was given (1). Other subjective, multiple-choice questions such as age, qualification, and city were also asked.

Analysis of SMEs Variables Before implementation E-Commerce

This section is for analysis of how the following dimensions are important for SMEs Customers Satisfaction index to be successful in the job market before E-Commerce and after E-Commerce had been implemented. Mean had been calculated. Table 1 shows that the highest mean was for "*staff was more knowledgeable to answer questions*" by 3.56 points, against least mean were for "*the record keeping was better*" by 2.91 points.

Table 1: Frequency of Customers Satisfaction Before Implementation of E-Commerce

Dimension	Mean	Variables	Frequency				
			Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Reliability	3.13	The products and services were timely delivered	27	144	75	63	94
	3.34	The products and services were correctly delivered	19	109	80	106	89
	2.91	The record keeping was better	33	163	85	53	69
	3.03	The customers problems were better handled	32	144	81	71	75
Empathy	3.23	The individual attention was better	17	119	106	75	86
	3.05	Customer care was better	27	138	96	71	71
	3.02	The business hours were convenient	34	141	88	63	77
	3.17	Customer needs were well taken care	18	131	93	85	76
Responsiveness	3.13	The delivery time was faster	32	125	85	79	82
	2.94	Customer queries were quickly answered	42	134	102	57	68
	3.20	Staff was more willing to help customers	19	117	103	94	70
	3.00	Customer waiting time was less	40	138	81	72	72
Tangibles	3.07	The equipment was modern and up to date	30	134	96	65	78
	3.36	Staff was well-dressed and neat	18	94	107	93	91
	3.43	Staff was dealing in a friendly manner	17	88	93	116	89
	3.20	Products were displayed nicely	20	121	99	86	77
Assurances	3.47	Customers feel more confident with staff	20	82	94	104	103
	3.44	Customers feel safer in doing transactions	19	90	81	119	94
	3.43	Staff was more courteous with customers	12	84	107	118	82
	3.56	Staff was more knowledgeable to answer questions	14	74	85	134	96

Analysis of SMEs variables After implementation E-Commerce

Frequency of variables after implementation E-Commerce shown In table 2. " The record keeping was better " is a very important element after implementation E-Commerce by mean as a 3.91 points. On the other hand " Customers feel more confident with staff " is not at all important variable after implementation E-Commerce by mean of 3.51.

The methodology we used in this paper is unique in connecting SERCQUAL model to study the impact of E-Commerce on SMES in Saudi Arabia and it is obvious now how this method is valid and will give us a good insight on the service and quality. On the data analysis we can conclude the data is reliable to build our findings and discussion.

Table 2: Frequency of Customers Satisfaction After Implementation of E-Commerce

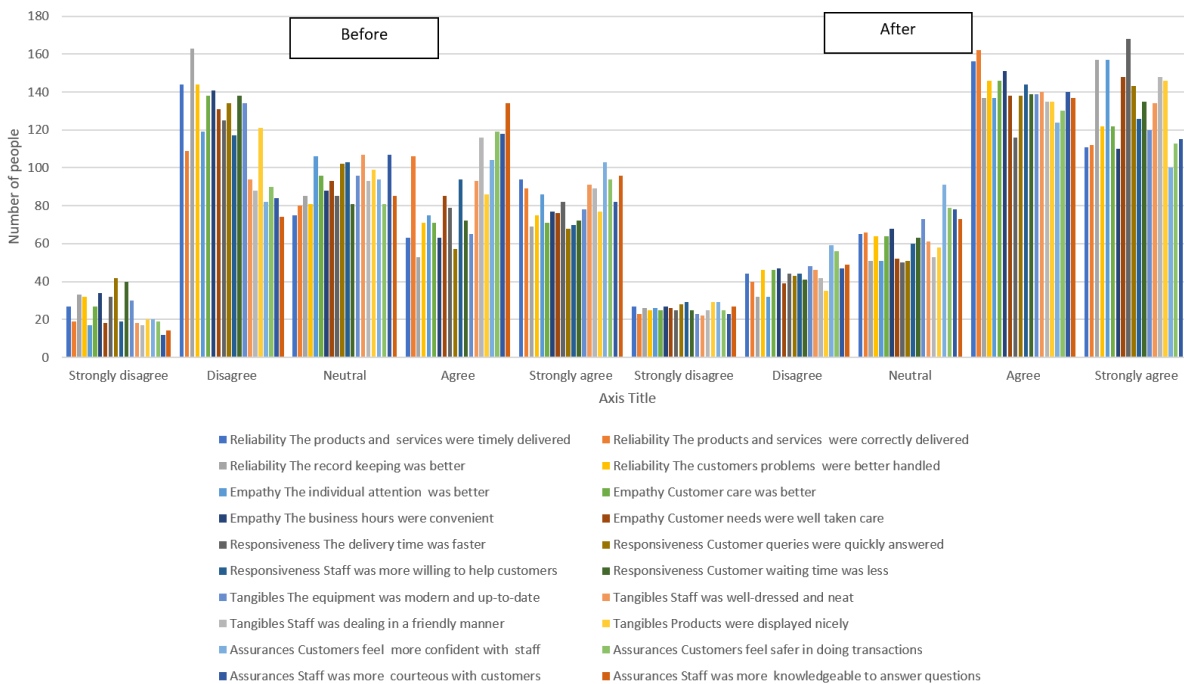| Dimension	Mean	Variables	Frequency				
			Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Reliability	3.69	The products and services were timely delivered	27	44	65	156	111
	3.74	The products and services were correctly delivered	23	40	66	162	112
	3.91	The record keeping was better	26	32	51	137	157
	3.73	The customers problems were better handled	25	46	64	146	122
Empathy	3.91	The individual attention was better	26	32	51	137	157
	3.73	Customer care was better	25	46	64	146	122
	3.67	The business hours were convenient	27	47	68	151	110
	3.85	Customer needs were well taken care	26	39	52	138	148
Responsiveness	3.89	The delivery time was faster	25	44	50	116	168
	3.81	Customer queries were quickly answered	28	43	51	138	143
	3.73	Staff was more willing to help customers	29	44	60	144	126
	3.79	Customer waiting time was less	25	41	63	139	135
Tangibles	3.71	The equipment was modern and up to date	23	48	73	139	120
	3.79	Staff was well-dressed and neat	22	46	61	140	134
	3.84	Staff was dealing in a friendly manner	25	42	53	135	148
	3.83	Products were displayed nicely	29	35	58	135	146
Assurances	3.51	Customers feel more confident with staff	29	59	91	124	100
	3.62	Customers feel safer in doing transactions	25	56	79	130	113
	3.69	Staff was more courteous with customers	23	47	78	140	115
	3.67	Staff was more knowledgeable to answer questions	27	49	73	137	117

Figure 1: Frequency of Customers Satisfaction Before Implementation of E-Commerce Vs Frequency of Customers Satisfaction After Implementation of E-Commerce

V. CONCLUSIONS & RECOMMENDATIONS

After COVID the world has changed and now we are living the new normal. Customers now expecting quality to be something giving in their products and with the E-Commerce speed has a higher target to hit every year. In Saudi Arabia with 2030 vision this area is being driven fast to reach a high level of service and quality, E-Commerce is and will play an important role on this.

To implement E-Commerce perfectly understanding the current situation and how people in Saudi perceive E-Commerce is important. From this outcome we can easily recommend the success factors.

To conduct this research, the quantitative approach was used in this study by studying the situation before implementing the E-Commerce and after implementing the E-Commerce in Saudi Arabia by using a questionnaire tool to observe the people points of view on the service and quality. The questionnaire was circulated online and the total number of responds, which answered this questionnaire, is 403. Moreover, the questionnaires used five-point Likert scale to knowing perspectives of the participants, (Strongly Agree) has been given (5), and (Agree) is given (4), whereas (Neutral) is given (3), and (Disagree) is given (2), and finally (Strongly Disagree) is given (1). Other subjective multiple-choice questions were asked as well to get demographic data.

The outcomes showed that people overall believe E-Commerce have improved the service and quality aspects in Saudi Arabia. The top six points of improvements after implementing the E-Commerce are: Safe transactions processing, staff appearance, Delivery on time, attentive to customer needs, record keeping and confidante in staff. On the other hands the six points ranked on the bottom of the improvement after implementing the E-Commerce are: Product Display, Staff help, Equipment appearance, Delivery time, customer waiting time and customer care.

This study focused on the five dimensions of Service Quality which are Reliability, Assurance, Tangibles, Empathy, also Responsiveness. This study can be constructed by asking more questions on other dimensions related to service and quality.

Implementing the recommendation and measure again the impact will help to observe the improvement. Also, we can conduct in future more extensive studies on the top 5 E-Commerce platform to understand in detail the performance of each.

Conflict of interest: We declare that we have no conflict of interest.

Ethical statement: we declare that they have followed ethical responsibilities.

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