Intangible E-service quality and Consumers' Reuse Intention During Covid-19 Pandemic: Food Ordering Aggregator AAPs (FOAA) in Saudi Arabia

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ABSTRACT: Existing related literature to service quality and it is measures has mainly focused towards online\offline\O2O and attitudes and satisfaction relationship to e-services in general. The competition in the Saudi food ordering aggregator apps "FOAA" market is growing dramatically due to the high demand motivated by COVID-19 pandemic risk. Accordingly, firms that operating a FOAA had to adapt localisation strategy to meet Saudi market needs. Therefore, the author explores that intangible dimensions of the service quality scale are highly related to intangible products such as FOAA. This study aims to investigate the intangible E-SERV-QUAL scale structural correlation to e-satisfaction, perceived risk, perceived usefulness and intentional behaviour. This aim was achieved via introducing an integrative conceptual framework based on E-SERV-QUAL, Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM). This study's findings were obtained based on 367 acceptable questionnaires that were collected online from Saudi residents due to COVID-19 precautions. The collected data was analysed by the Partial Least Square SEM (PLS-SEM). The findings were in favor to the formed theoretical assumptions. Theoretical and managerial contributions are presented along the identified limitation.

Keywords: Service quality, Intangible e-service quality, Perceived usefulness, Perceived risk, e-satisfaction and Intentional behaviour.

1 Introduction

Even though Saudis have developed a good knowledge of the MERS-CoV which was transmitted from camels to humans in 2012, Saudi Arabia and the rest of the globe confronted the fast spread of the COVID-19 that appeared in the Chinese city, Wuhan in December 2019 in the form of acute pneumonia M.O.H (2021). During March 2020, the World Health Organisation "WHO" announced the epidemic of COVID-19, which developed from SARS-Co-V-2 and presently caused 94,124,612

confirmed cases and 2,034,327 deaths in 219 countries (W.H.O, 2021). Consequently, most states have followed a tough containment procedure on people day-to-day activities such as social distancing, limiting the capacity of public places such as restaurants, malls and classes, postpone education or employing distance learning education and remote working in both public and private sectors. Thus, arguments were highlighting the disrupting effect of such containment procedure on businesses especially food and beverages due to the double impact on the international food supply chain enhanced by global consumers' panic. This pandemic exposed the susceptibilities of the worldwide food supplement chain to shocks and crises (Ben Hassen, El Bilali, & S Allahyari, 2020). Subsequently, the impacts of COVID-19 were observed to vary from one state to another both economically and epidemiologically, which Saudi Arabia has set an extraordinary example for other nations to overcome the critical effects caused by COVID-19. Saudi Arabia has managed the COVID-19 crisis by employing a unique and strategic leadership commitment, strictness and discipline (Alflayyeh & Belhaj, 2020), which led to softening the damage to be at 365,775 cases comparing to other G20 members such as the USA with 24,225,155 cases, India with 10,625,428 cases, Brazil with 8,638,249 cases, Russia with 3,655,839 cases, UK with 3,505,758 cases (W.H.O, 2021).

The international economy has suffered a critical recession caused by COVID-19, the GCC is reported to face a 6% GDP contraction during the year 2020 and slow economic recovery in 2021. It was reported by The World Bank that the world last witnessed this largest per capita contracting was since 1870 (T.W.B, 2020). Although Saudi Arabia undertook timely procedures in phasic approach to control the spread, Saudi Arabia allowed economic activities guided by safe precautions, which

assisted Saudi Arabia in surviving the strong wave. Consequently, one can observe that purchasing technique and behaviour of consumers have differed to adapt with the virus containment measures, which caused a dramatic shift from conventional to food ordering Apps "FOA". Thus, the FOA is implemented by two types; First, FOA is based on direct ordering from the food provider via a personalised App. Second, FOA is based on ordering via aggregator Apps "FOAA", which allows consumers to order from a long list of food providers (Yusra et al., 2020). Time-saving, convenience and health-safety benefits features advance the FOAA service (Jeng, 2016). Example local FOAA such as Hunger Station, Jahez and Marsool are operational cost-efficient since they allow their peer service operatives to economically consume time and fuel. However, due to untrained employees providing superior service to consumers is a challenging task. Therefore, FOAAs need to motivate the employees to deliver a satisfactory service in order to increase consumers' reuse probability (Yusra et al., 2020). Reasonably, improving the consumers' satisfaction and FOAAs attractiveness requires fair attention, which helps in better understanding of FOAAs' consumers' behaviour. Thus, the present study underpins these concerns by adding to the literature review via implementing the intangible E-SERV-QUAL measurements (Moon & Armstrong, 2019) and both Theory of reasoned action "TRA" (Everett M. Rogers, 1995) and TAM (Davis, Bagozzi, & Warshaw, 1989) as mediators. To the best of the author's knowledge, the intangible e-service quality combined with both TRA and TAM dimensions to exploring possible influential roles on consumer's satisfaction and reuse intention behaviour has not yet been employed in the context of FOAA. A quantitative and cross-sectional approach was employed by this research, and prior well-developed service quality measurements additional to the well-

recognised TPB were combined to achieve this study's aims. Finally, we present a literature review, followed by the practised methodology, and next the findings will be described and argued.

2 Literature and Hypothesis Development
2.1 Service quality
Service quality stands for the degree to which organisations' capability to achieve and surpass customer expectations. In other words, service quality is concerns with the variance between consumers' expectancies and observations regarding a service. FOAAs' success aims to accomplish the highest level of consumers' satisfaction expected related to their use of the FOAAs (i.e., service convenience). Anantharanthan Parasuraman, Zeithaml, and Berry (1988) identified the SERVQUAL framework to assess the service quality, which is composed of five dimensions and developed from 22 traits. These 22 traits were sorted under five dimensions, namely: responsiveness [the eagerness or readiness of employees to provide service, for instance, timeliness of service], empathy [kind, individualized consideration that a firm provides its customer], reliability [the steadiness of performance and dependability, for instance, the firm performs the service correctly and fulfil its promises], tangibility [the physical evidence of the service such as physical facilities, the appearance of employees, or tools or equipment used to offer the service] and assurance [the knowledge and politeness of employees and their ability to instigate trust and confidence] (Anantharanthan Parasuraman et al., 1988). The SERVQUAL framework gauged the variance between consumers' expectations for different characteristics of service quality and the actual service they received.

2.2 Intangible E-SERV-QUAL
Motivated by the popularity of the Internet globally, the notion of managing and predicting service quality was employed on the internet both online and offline. Accordingly, the expansion of smartphone services has driven considerable attention to employing the SERVQUAL model to advance customer's satisfaction and retention behaviour (Tan & Chou, 2008). Thus, there is a growing literature on e-service quality such as E-SERV- QUAL examined by Kassim and Abdullah (2010) and Kourtesopoulou, Theodorou, Kriemadis, and Papaioannou (2019), and Web-Qual further assessed by Kim and Lee (2005); Kourtesopoulou et al. (2019) and Yusra et al. (2020). Ananthanarayanan Parasuraman, Zeithaml, and Malhotra (2005) introduced the ES- QUAL framework that includes the Web-Qual, and it can be stated as the extent to which a website endorses a well-organised and successful shopping, acquiring, and personalised environment. ES-QUAL evaluates the transaction's quality of a site specifically related to system, service and data (Moon & Armstrong, 2019). On the other hand, MOBILE-S-QUAL designed to evaluate service quality features employed on the mobile business perspective via implementing location-based services (LBS) in order to provide personalised services wherever (Al Amin et al., 2020; Alalwan, 2020; Shah, Yan, Shah, & Ali, 2020).

The intangible service quality dimensions proposed by Ananthanarayanan Parasuraman, Zeithaml, and Berry (1994) were namely, reliability which reflects the ability to provide the expected service precisely and consistently, empathy which stands for offering personalised attention and caring to customers, and responsiveness which highlights the ability to assist clients and provide punctual service. Additionally, few authors such as Al-dweeri, Obeidat, Al-dwiry, Alshurideh, and Alhorani (2017) and Fang et al. (2014) argued that there are pair factors that should be included when studying intangible service quality, and they are system availability [the website technical

capability to continuously provide its services] and security [the extent to which the website is safe to be used and offers an accepted customer data protection]. In case of any difficulties faced by a consumer during website usage will undesirably influence his/her impression. Thus, since the system availability dimension is responsible for website ease of use, its' importance is stated as an intangible E-SERV-QUAL factor. Also, some of consumers' supreme concerns in e-commerce are to be financial transfers risk-free and danger free from private data disclosure. Relatively, prior researches argued the cruciality of both system availability and security to be included in assessing service quality such as Al-dweeri et al. (2017), Fang et al. (2014); Moon and Armstrong (2019). The current study classifies the construct of perceived intangible E-SERV-QUAL to be a combination of empathy, reliability, responsiveness, security and system availability.

2.3 FOAA and Covid-19
In September 2020 a mutated version of the Covid-19 was identified in the south-eastern region of England (W.H.O, 2021). The new strain of the coronavirus named B. 1.1. 7 has dramatically spread in the UK with a link to over 60% of new Covid-19 cases in December and began to be detected in other countries across the globe. Thus, shopping patterns have switched to online shopping (Ben Hassen et al., 2020). The rising concerns of Covid-19 fast spread and the increasing number of deaths have rapidly boost willingness to shop online for day-to-day goods, fashion, food and grocery. Oppositely, it was internationally observed that restaurants dining-in, travelling by air, public transportation and entertainment are the most impacted businesses by Covid-19 and Saudi Arabia is no different. The online grocery in Saudi Arabia has increased in comparing to the Q1 2019 2.4 times, which is more than just doubling with a value of appx

US $450 million (Consultancu-me.com, 2021). The online shopping sector in Saudi is expected to reach a volume of US $8.697 million by 2025 (Statista, 2020). Consequently, retailers and restaurants heavily invested in developing or improving internet sales channels in order to meet the increasing demand for a wide range of products and service range in the Saudi market. Thus, existing FOAA (e.g., Hungerstation and Marsool) have expanded, whereas, new FOAA has entered the attractive market (e.g., Jahez and Toyou). FOAA has been strongly enhanced by mainly four facts namely are people fear, anxiety, suitability and depression caused by Covid-19. Ben Hassen et al. (2020) argued that panic purchasing consumer's behaviour was boosted by the enlargement of the Covid-19 pandemic. It was observed in the number of countries such as the U.S.A, Canada, Kuwait and UK that people stock day to day goods but mainly food. Such behaviour reasoned to the widespread uncertainty, which caused people to stock goods in order to reduce store visits and relatively minimise the potential risk of coming in contact with Covid-19 infected people.

Saudi Arabia was one of the very few countries that banned restaurant dine-in, limited the allowed number of customers inside a store, stopped air travel, postpone public transportation, therefore, online shopping such as food delivery aggregator apps was increasingly popular (Alflayyeh & Belhaj, 2020). Saudi consumers' use of online grocery increased 240% in 2020 comparing to 2019 (Consultancu-me.com, 2021). Recently the term of O2O is widely explored in relation to customer loyalty, satisfaction and shopping preference (Kang & Namkung, 2019). O2O refers to the implementation of both online and offline commerce (Moon & Armstrong, 2019). Technologies such as communication network, data base, smartphone and applications are categorised under online commerce methods, and technologies such as WIFI, GPS and micro-

location method regarded as offline commerce methods. O2O commerce can be observed in two forms; firs, online platforms which offers offline connection between retailers that operate in similar products/services and potential buyers. For instant, Hungerstation and Jahez offers local restaurants sooq that provide food and drinks takeout to hungry customers. Second, offline firms that provide items' details via online devices such as smartphones and complete orders or services offline (e.g., Panda, Carrefour) (Annaraud & Berezina, 2020; Petrescu-Mag, Vermeir, Petrescu, Crista, & Banatean-Dunea, 2020; Sharma & Waheed, 2018). Consequently, O2O is implemented by companies as a strategic marketing method that allows them to enhance their promotional gaining.

H1. Perceived intangible E-SERV-QUAL expected to positively influence consumers' E-satisfaction.

2.4 Perceived Risk
Due to the Saudi containment procedures of COVID-19, customers developed a stronger positive attitude towards the new FOAA because they perceived positive performance expectancy in time and effort saving. Everett M. Rogers (1995) in his theory of Diffusion of Innovation stated that the more relative advantage of innovation to customers the more likely they will adopt it. For example, Hungerstation offers convenient, reliable and safe payment methods that allow consumers to easily place their orders with one click. Consequently, it can be argued that perceived performance expectancy is a consequence of convenience which is regarded as a major element of buying decisions process. Therefore, it was observed that convenience strongly influence e-shopping business such as FOAA, particularly during the epidemic of COVID-19 (Brewer & Sebby, 2021). Perceived performance expectancy incorporates safe

payment, convenience, control of when what and where a consumer needs his order to be brought from and delivered to. Thus, it was observed by prior studies that convenience, control over the ordering process and COVID-19 precautions are positively motivating consumers to order food via specialised platforms (Chang & Meyerhoefer, 2020). For an instant, by using an FOAA, a consumer can access any food provider at their convenient time on any day, can view an extensive collection of food providers local or international, gather satisfactory information and put through an order without the need of physical moving (Alalwan, 2020). Accordingly, it can be stated that consumers are more likely to be fulfilled with their involvement of using FOAA when they observe a better expectancy of using new innovated amenities and goods apps (Al Amin et al., 2020; Alalwan, 2020; Okumus & Bilgihan, 2014). Relatively consumers are commonly have fear of their personal information being lost or revealed without authorisation. Featherman and Pavlou (2003) defined perceived risk "PR" as uncertainty with regards to potentially undesirable consequences associated with a service or product purchase. COVID-19 precautions have dramatically increased people's usage of FOAAs to the extent that it became routine, which led to repeatedly give their personal information to gain better experience (LIU, CAO, & YANG, 2015). Therefore, successful FOAAs most employ a satisfactory role within them regarding consumers' expectations, awareness and authorisation (Alalwan, 2020; Thamaraiselvan, Jayadevan, & Chandrasekar, 2019; Yusra et al., 2020). Moon and Armstrong (2019) stated that existing literature backing the relationship between service quality, perceived risk and satisfaction. Previously it was argued that PR is a multidimensional concept comprising personal information risk, financial risk and product risk (Delener, 1990; Featherman &

Pavlou, 2003). Subsequently, personal information risk is correlated to transaction protection and confidentiality. The participated time and economic expense for product acquiring are regarded as a financial risk. Product risk happens when merchandise not functioning as predicted or it was overdue dispensed (C. Chen, 2013; Esmaeili, Haghgoo, Davidavičienė, & Meidutė-Kavaliauskienė, 2021).

H2. Perceived risk expected to negatively influence users' e-satisfaction.

2.5 Perceived usefulness

n prior studies perceived usefulness "PU" represents gaining an anticipated result or experience from using an innovation such as FOAA (Alalwan, Dwivedi, & Rana, 2017; Esmaeili et al., 2021; Tan & Chou, 2008). David Gefen, Karahanna, and Straub (2003) argued that perceived usefulness is an influential construct on consumers' adopting behaviour of an innovated product or service. Accordingly, people tend to adopt a service when convinced of its advantages and usefulness to them. E.M. Rogers, Medina, Rivera, and Wiley (2005) concluded in his Diffusion of Innovations theory, that for an invented product or service having a relative advantage and compatibility (ease of use) is a must to be successful. During the COVID-19 pandemic, the FOAA offers a crucial benefit; first, people can shop for their daily needs from home and minimise the chance of being exposed to COVID-19. Second, consumers can save time and increase their productivity. Therefore, satisfied customers tend to reuse the FOAA due to their health concerns and time and effort saving.

H3. There will be a positive influence from perceived usefulness towards e-satisfaction.

2.6 E-Satisfaction and Reusing Intention

Satisfaction refers to the fulfilment of customers expectancy of a product or a service (Khan & Shaikh, 2011; Oliver, 2006). As for the present study, the definition of e-satisfaction proposed by Anderson and Srinivasan (2003, p. 125), which explains e-satisfaction as "the contentment of the customer with respect to his or her prior purchasing experience with a given electronic commerce firm". In different words, a service experience that meets or exceeds a customer's expectations leads to a satisfied customer. Whereas a negative customer's experience with service leads to an unsatisfied customer, which is likely to cause undesirable word-of-mouth (Al Amin et al., 2020; Rita, Oliveira, & Farisa, 2019; Wu, Weng, Lin, Kim, & Gotcher, 2020). Contrary, maintaining satisfied customers enables businesses such as FOAA to gain more customers due to positive word-of-mouth from existing customers, which helps an FOAA to direct its efforts and finance to other crucial business factors (Alalwan, 2020; Kourtesopoulou et al., 2019). Prior studies have concluded that satisfied customer is more likely to perform reuse of the service. Thus, it was stated by earlier research that satisfaction has a direct influence on reuse\repurchasing intention, which led to our next hypothesis in the Saudi FOAA context.

H4. There will be a positive influence from e-satisfaction towards intention to reuse FOAA.

3 Study method and data analysis
3.1 Method, data collection and participants' profiles

In this study, the positivism philosophy was employed with a deductive approach. Due to seek to generalise this research outcome to the Saudi service market, cross-sectional data gathering via questioner method was adopted. The positivist research approach enables a researcher to reduce potential bias via

guaranteeing an unbiased data collection (Bryman & Bell, 2007; Sekaran, 2000). Furthermore, since this paper aims to examine a specific context which the FOAA in Saudi Arabia during the time of the COVID-19 pandemic, a non-random sampling tactic was employed to ensure getting the response from respondents who are familiar with FOAA. Surveys have been used to collect the needed data for this paper. Employing surveys was done due to the number of motives such as lower expense, wider geographical coverage, internet compatibility, matches COVID-19 precautions and time-saving. Since this study is concerning with the FOAA in the Saudi market a non-random sampling method was employed to ensure collecting the suitable data

(Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Such a sampling procedure is referred to as judgmental sampling because it enhances the sample's representativity by include participants that are familiar with FOAA to better reflect the study's population (Saunders, Lewis, & Thornhill, 2009; Sekaran, 2000). The form was sorted into two parts; the first part covered the personal information variables: income, education level, gender, age and FOAA usage frequency. The second part covered the research conceptual framework variables, which were adapted from prior literature. The variables of the second part were evaluated via a 7-point Likert scale, which was recommended by Dawes (2012) to obtain a higher accuracy finding compared to the 10-point Likert scale.

Table 1: Sample profile (*N*=367).

Group	Element	Frequency	Percentage
Age	below 15	26	7%
	16-22	89	24.2%
	23-30	141	38.5%
	31-40	78	21.3%
	41+	33	9%
Gender	Male	252	67.6
	Female	115	31.2
Education	Pre university	50	13%
	Diploma	69	19%
	BA	194	53%
	Higher	54	15%
Usage per week	below 1 a week	65	15%
	1-2 a week	221	60.3%
	3-4 a week	54	14.7%
	5+ a week	27	7.4%

3.1.1 Data collection and sample profile

For the phase of data collection, an online pilot study was conducted by hyperlink on social media platforms such as WhatsApp with 20 potential participants. Participants were asked to complete the forms within 5 days. Accordingly, the final version of the questionnaire was finalised and dispensed via social media platforms targeting a sample frame of 500 respondents who were residents of different cities within Saudi Arabia. From the received 436 responses which represents a total response of 87%. Due to excluding 48 incomplete and 21 misfiled surveys during the data screening phase, this study's findings were produced from 367 usable respondents. Marko Sarstedt, Ringle, and Hair (2014) and J. F. Hair, Ringle, and Sarstedt (2011) argued that a sample size between 100-150 is acceptable for the certain purpose of employing PLS-SEM to assess a model. Nonetheless, this research managed to collect 367 respondents. The participants were 31.2% female and 67.6 %, male. As for the age groups are sorted from highest percentage as follows: first 24.2 % found to be from 16 years to 22 years, second 38.5 % found to be from 23 years to 30 years, third 21.3 % found to be from 31 years to 40 years, and fourth 9 % found to be from 41+ years. Respondents' frequency usage of FOAA ranged from 1-2 times a week found to be 60.3% of total sample. Participants frequency usage of FOAA ranged from 15% uses FOAA less than 1 time a week and 3-4 times a week found to be 14.7% of total sample, and frequency usage of FOAA 5+ times a week found to be 7.4%. Please refer to table 1 for detailed respondents' profiles. As stated previously, the largest age group that remains adopting e-commerce is consists of consumers whose birth date ranged from the 1980s to-1990s (Alalwan, 2020; Ben Hassen et al., 2020; Moon & Armstrong, 2019; Yusra et al., 2020).

3.2 Conceptual framework dimensionality

This Paper developed theoretical propositions that forming the illustrated framework in Figure 1. These propositions are developed according to prior literature and models related to service quality and consumers' intentional behaviour. Therefore, the scales' variables and their items were adapted from earlier E-SERV-QUAL models integrated with the well-recognised theories of TRA and TAM. Due to the fact that the adapted variables were developed in a non-Arabic speaking context, back-ward translation technic from English to Arabic and from Arabic to English was employed (Bryman & Bell, 2007; Saunders et al., 2009). Perceived intangible service quality formed from both online and offline constructs. The online intangible service quality constructs included four independent variables, yet this study adapted only the most two effective variables. The first variable was security consists of three measures (Lin, 2007), the second variable was system availability consists of four measures (Ananthanarayanan Parasuraman et al., 2005). Accordingly, offline perceived intangible service quality was assessed by the introduced three measures by Finn (1991). These three measures were as follows: responsiveness consists of three sub-measures; reliability consists of three sub-measures and empathy consists of four sub-measures. Perceived risk consists of three measures, which were adapted from (Moon & Armstrong, 2019). Perceived usefulness measures which were selectively obtained from both Adams, Nelson, and Todd (1992) and Okumus and Bilgihan (2014) to match the present study's circumstance, which resulted in adapting four items that are regarded to be serving the purpose of this research. The E-satisfaction variable includes three measures extracted from Anderson and Srinivasan (2003); Annaraud and Berezina (2020). Lastly,

consumers' reuse intentional behaviour of FOAA was evaluated by three items proposed by Ajzen (1991) was adapted.

Figure 1: Conceptual framework of present study.
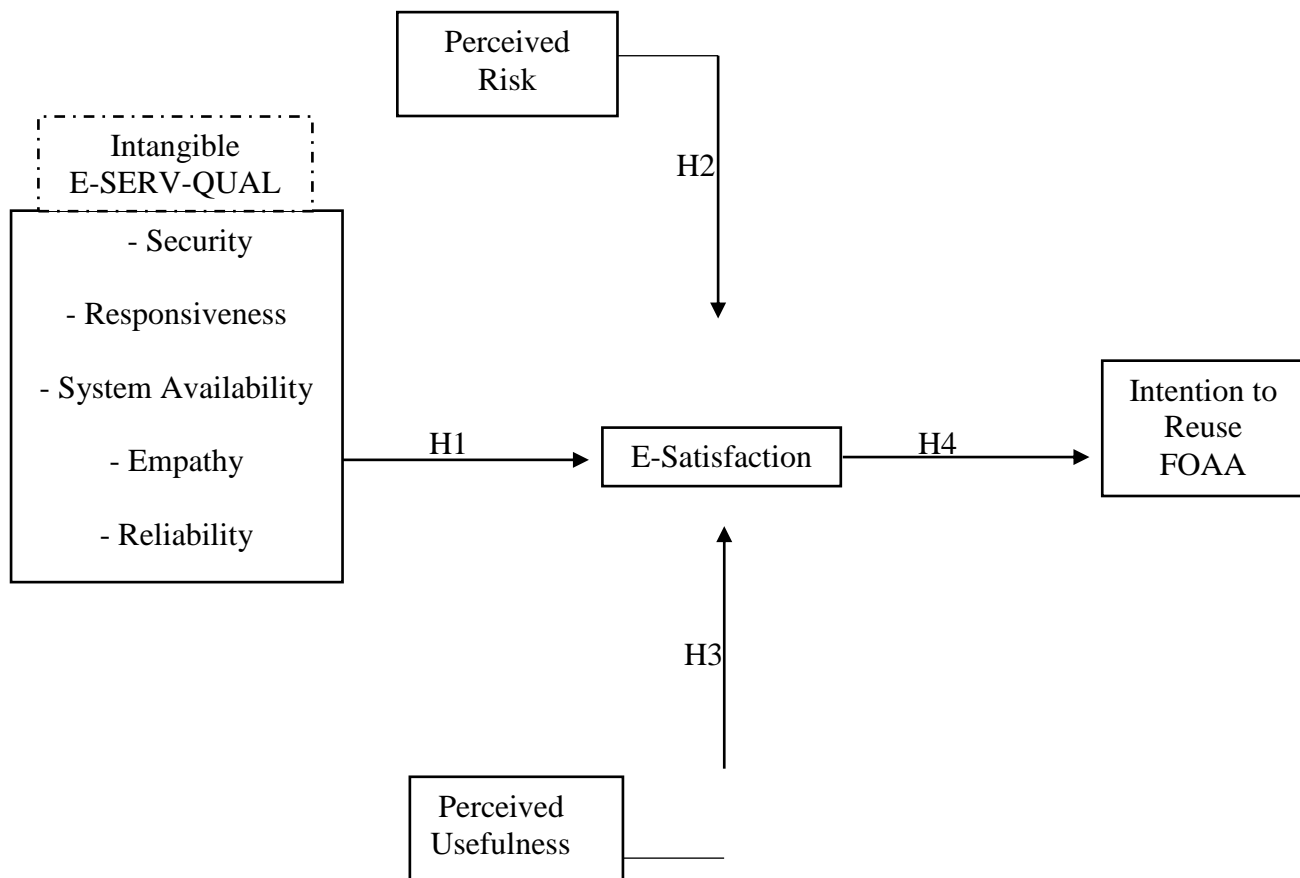
Source: developed by author.

3.3 Reliabilities and validities

It is important to assure that the hypothesised model assesses the exact issue that was developed to assess accurately. Relatively, as argued previously by the number of authors such as DeVellis (2011); Hess, McNab, and Basoglu (2014) the well-recognised reliability technique related to measurements is 'Consistency'. A model that produced high internal Cronbach's alpha (a) is regarded as reliable (J. Hair, Sarstedt, Ringle, & Mena, 2012). Accordingly, a Cronbach's alpha score of 0.7 to 0.8 is acceptable and above 0.8 to 0.9 is excellent. The results of this paper measurement illustrated a coefficients' values that ranged from 0.8 to 0.9 which is regarded to

be excellent reliable (F. Chen, Curran, Bollen, Kirby, & Paxton, 2008; J. Hair et al., 2012; Jörg Henseler et al., 2014; Saunders et al., 2009).

For the validity of this study's instrument content, convergent, discriminant and nomological validities were implemented. First, content validity aims to assess the face validity and representativeness of an instrument's items (Bryman & Bell, 2007; Malhotra, Kim, & Patil, 2006; Sekaran, 2006). Consequently, a two-step approach was employed as follows: the first step was conducted via pre-testing "piloting" the adapted measures and gathering the pilot study's feedbacks. The second step was accomplished by including marketing academics and experts to evaluate the relevance of each item of the developed model based on adapted variables from prior studies. Accordingly, it was stated that this research model represents a satisfactory content validity. Second, convergent validity was examined in accordance with the AVE calculation of Fornell and Larcker (1981):

$$\text{AVE} = \frac{\sum (\textbf{Squared Standardised factor loadings})}{\sum \textbf{Squared Standardised factor loadings} + \textbf{estimation indicator error variance}}$$

**Figure 2**: Conceptual framework algorithm-PLS outcomes.
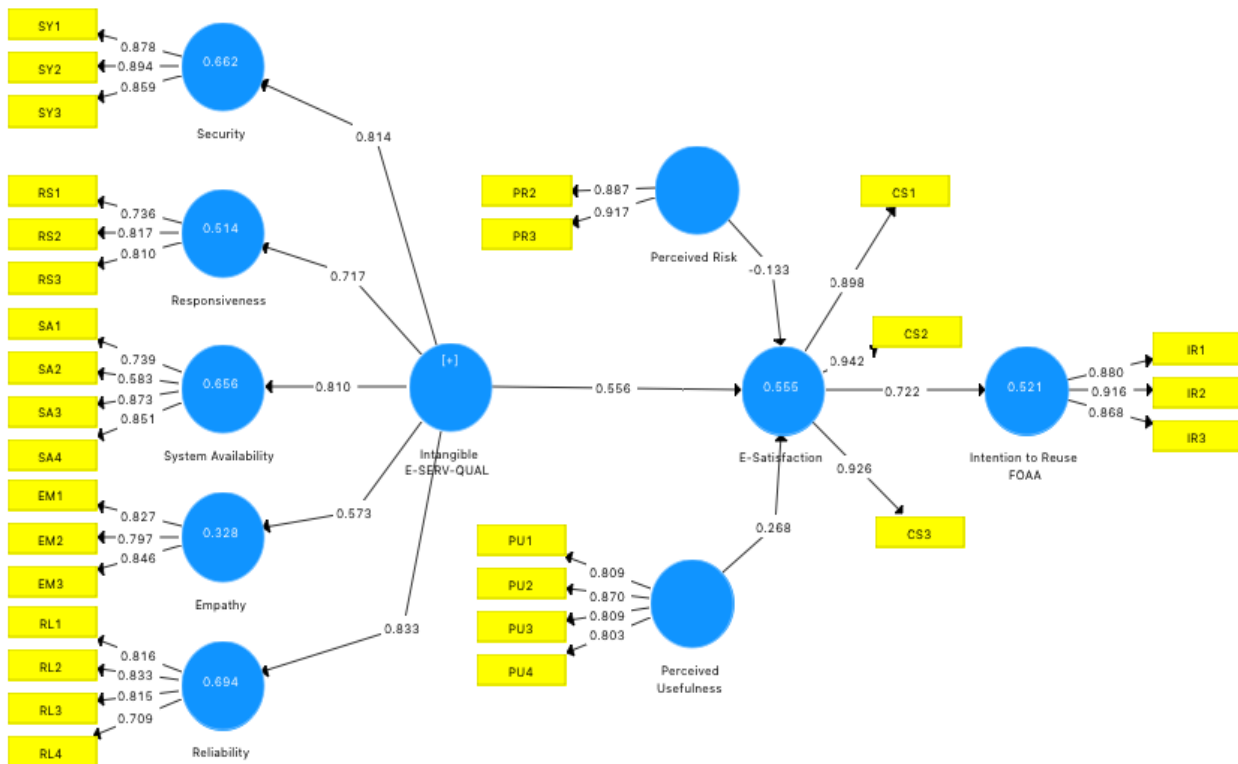
Source: produced by author.

Thus, it was concluded that the current model's AVEs estimated to be satisfactory since the variables produced factor loadings greater than 0.50 as follows: perceived risk (0.70), perceived usefulness (0.70), system availability (0.63), security (0.80), empathy (0.70), responsiveness (0.62), reliability (0.60), e-satisfaction (0.85) and FOAA reuse (0.80), values illustrated in table 2 (Richard P. Bagozzi & Foxall, 1996; Byrne, 2001; D. Gefen & Straub, 2005). The third validity test conducted in this paper was nomological validity, which was defined as the extent to which an instrument performs relative to the proposed theoretical framework (Chin, 2010; J. F. Hair et al., 2011; Marko Sarstedt et al., 2014). Accordingly, it is predicted by the current study that nomological validity is achieved if the Intangible E-SERV-QUAL construct was positively correlated to the E-satisfaction then to FOAA reuse construct as displayed and confirmed except for Perceived risk construct as shown in Figure 2. The paths' coefficients values between the variables of Intangible E-SERV-QUAL, e-satisfaction and intention to reuse FOAA yielded a positive correlation as hypothesised by the present research. Thus, it can be stated that the proposed model achieved nomological validity criteria.

Finally, the bias of the proposed model was estimated by the CLF (R.P. Bagozzi, Yi, & Phillips, 1991). The CLF bias estimation is concerning the framework's constructs' correlations to each other, which regards any correlation that is greater than 0.90 as approval of CLF bias existence within the examined model. Therefore, because no correlation greater than 0.90 was obtained within the model, it can be concluded that there were no worries regarding the possible bias of this study and its collected data. The highest correlation among the variables of this paper was about 0.71.

Figure 3: Nomological validity Theoretical Relationship of service quality, satisfaction and intention behaviour.
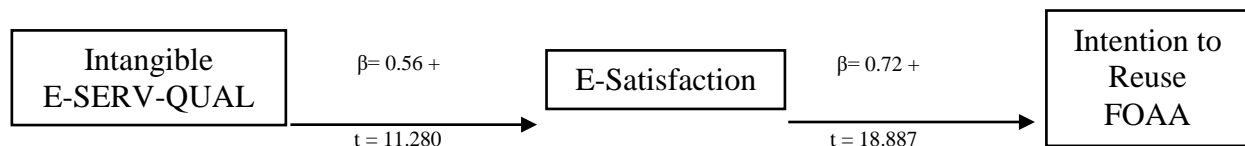
Note: β= Coefficient path value, T= t test value of the path. **= significant at p<0.05.

Table 2: Variables algorithm-PLS results.

| DIMESNSION	FL		CRONBACH'S ALPHA	RHO_A	CR	AVE
E-SATISFACTION	Cs1	0.897	0.912	0.912	0.945	0.850
	Cs2	0.942				
	Cs3	0.926				
EMPATHY	Em1	0.827	0.763	0.766	0.863	0.678
	Em2	0.797				
	Em3	0.846				
INTANGIBLE_E-SERV-QUAL	-		0.894	0.902	0.910	0.379
INTENTION TO REUSE FOAA	Ir1	0.880	0.866	0.867	0.918	0.789
	Ir2	0.916				
	Ir3	0.867				
PERCEIVED RISK	Pr2	0.887	0.772	0.783	0.897	0.814
	Pr3	0.916				
PERCEIVED USEFULNESS	Pu1	0.809	0.842	0.847	0.894	0.678
	Pu2	0.869				
	Pu3	0.809				
	Pu4	0.802				
RELIABILITY	Rl1	0.815	0.804	0.805	0.872	0.632
	Rl2	0.833				
	Rl3	0.814				
	Rl4	0.709				
RESPONSIVENESS	Rs1	0.736	0.698	0.709	0.831	0.622
	Rs2	0.817				
	Rs3	0.810				
SECURITY	Sy1	0.877	0.850	0.850	0.909	0.769
	Sy2	0.893				
	Sy3	0.858				
SYSTEM AVAILABILITY	Sa1	0.738	0.765	0.798	0.851	0.593
	Sa2	0.582				
	Sa3	0.873				
	Sa4	0.851				

Note: Hypothesised model with standardised parameter estimated based on the full sample (N=367). $\chi 2$ (62.712) (*p*=.00), root mean square error of approximation (RMSEA) = .041, factor loading (FL). *AVE* average variance extracted, *CR* composite reliability. An item deleted after testing CFA, was (PR1).

3.4 SEM analysis and hypotheses testing

The structure equational model 'SEM' was conducted in order to evaluate the hypothesised relationship among this study's framework's constructs. The SEM can be performed in two approaches according to the nature of the study and its collected data. Covariance based SEM approach examines the relationship between proposed covariance-linked constructs. Whereas partial least square SEM examines both dependent and independent constructs accordingly to uncover the variances (Chin, 2010). Consequently, partial least square SEM 'PLS-SEM' was employed to evaluate the hypothesised structural connection and produce the confirmatory factor analysis 'CFA' of this research framework via Smart-PLS 2.2. The framework involved analysing 8 hypotheses based on the total data set of N=367.

Figure 4: Conceptual framework SEM-PLS outcomes.
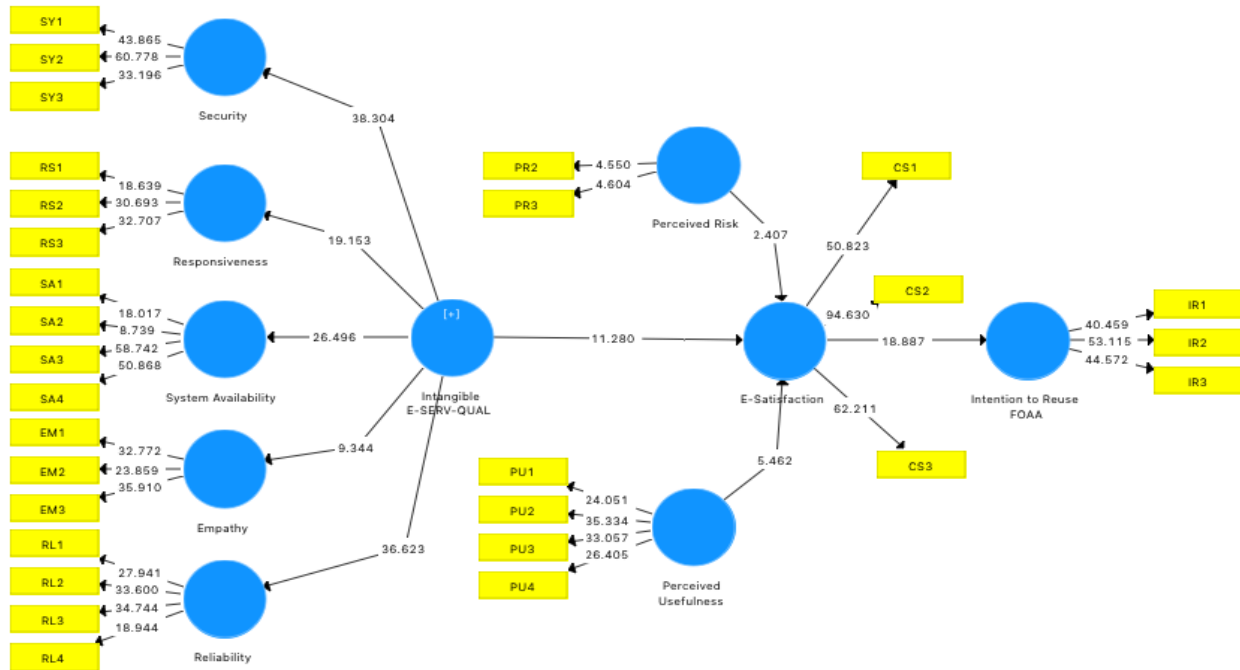
Source: produced by author.

The developed framework yielded a satisfactory fit to the gathered data as follows x2 (62.712), p<.01, RMSEA (0.052), SRMR (0.041). The model was evaluated according to the paths' coefficient values based on the yielded T values and its confidence level at p<.05 (%95) as suggested by previous authors such as J. Hair et al. (2012) and M. Sarstedt, Henseler, and Ringle (2011). Next, the proposed model was bootstrapped with a recommended criterion of 5,000 resamples to produce t values of each proposed connection among the variables as

displayed in Table 4 and illustrated in Figure 4. The SEM analysis shown consistency with prior literature regarding the sub-dimensions of Intangible E-SERV-QUAL scale, and the Intangible E-SERV-QUAL sub-dimensions (Reliable, Empathy, System availability, Security, Responsiveness) b values and t values at R< 0.05 were respectively as follows: b=0.833 and t=36.623, b= 0.573 and t= 9.344, b= 0.810 and t= 25.496, b= 0.814 and t= 38.304, b=0.717 and t= 19.153.

Table 3: Discriminant validity – latent variables' correlations.

Dimension	CS	EM	IESQ	IR	PR	PU	RL	RS	SY	SA
CS	**0.922**									
EM	0.357	**0.823**								
IESQ	0.698	0.573	**0.661**							
IR	0.722	0.336	0.646	**0.888**						
PR	-0.070	0.140	0.104	0.090	**0.902**					
PU	0.589	0.256	0.583	0.583	0.021	**0.823**				
RL	0.545	0.339	0.833	0.512	0.035	0.560	**0.795**			
RS	0.551	0.432	0.717	0.522	0.039	0.369	0.487	**0.789**		
SY	0.586	0.311	0.814	0.500	0.030	0.466	0.605	0.462	**0.877**	
SA	0.575	0.333	0.810	0.553	0.168	0.487	0.584	0.450	0.589	**0.770**

Note: E-Satisfaction (Henseler, Ringle, & Sinkovics), Empathy (EM), Intangible_E-SERV-QUAL (IESQ), Intention to Reuse FOAA (IR), Perceived Risk (PR), Perceived Usefulness (PU), Reliability (RL), Responsiveness (RS), Security (SY), System Availability (SA).

Accordingly, presented outcomes confirmed that during the COVID-19 pandemic the scale of the intangible e-service quality dimensions (reliability, empathy, responsiveness, security and availability) are significantly recognised to perform peoples' attention regarding the possibility of using FOAA in Saudi Arabia. Next, it was evident that intangible e-service quality positively and significantly influence e-satisfaction of FOAA users with b= 0.556 and t= 11.280 at a confidence degree of 95% (0.05). Also, the data indicated an accuracy of the hypothesised proposition of negative influential relationship between perceived risk and e-satisfaction with b= -0.133 and t= 2.407at confidence degree of 95% (0.05). Regarding the hypothesised positive influential relationship from perceived usefulness towards e-satisfaction, it was confirmed with b=0.268 and t= 5.462 at a confidence degree of 95% (0.05). Finally, the theoretical rationale behind the developed positive impacting connection from e-satisfaction towards intention to reuse FOAA was supported with b= -0.722 and t= 18.887 at a confidence degree of 95% (0.05).

Table 4: Hypotheses testing.

HYPOTHESES DIRECTION	β	STDEV	T	P	RESULT
H1 intangible_E-SERV-QUAL (+) --> E-Satisfaction	0.556	0.049	**11.280****	**0.000**	Supported
H2 perceived Risk (-) --> E-Satisfaction	-0.133	0.055	**2.407****	**0.016**	Supported
H3 perceived Usefulness (+) --> E-Satisfaction	0.268	0.049	**5.462****	**0.000**	Supported
H4 e-Satisfaction (+) --> Intention to Reuse FOAA	0.722	0.038	**18.887****	**0.000**	Supported
SCALE dimensionality	β	STDEV	T test	P	
Intangible_E-SERV-QUAL --> Empathy	0.572	0.061	9.344	0.000	
Intangible_E-SERV-QUAL --> Reliability	0.833	0.023	36.623	0.000	
Intangible_E-SERV-QUAL --> Responsiveness	0.717	0.037	19.153	0.000	
Intangible_E-SERV-QUAL --> Security	0.815	0.021	38.304	0.000	
Intangible_E-SERV-QUAL --> System Availability	0.809	0.031	26.496	0.000	

<u>*Note*</u>: **p < .05, **p < .01, ***p < .001,* β= Coefficient path value, T= t test value of the path. **= significant at p<0.05.

Discussion

This research aimed to examine the perceived intangible E-SERV-QUAL scale in the Saudi market and investigate the theoretical connections between perceived intangible E-SERV-QUAL scale and e-satisfaction, Perceived risk and e-satisfaction, perceived usefulness and e-satisfaction and e-satisfaction and intention to reuse FOAA throughout the COVID-19 epidemic era in the Saudi market. As presented in section (3.4) the collected data for this research yielded an empirical supportive outcome of the formed e-service quality and all proposed theoretical assumptions H1, H2, H3 and H4. The results of the SEM-PLS confirmatory factor analysis generally yielded an acceptable model fit, sub-dimensions of the intangible e-service quality achieved recommended criteria of the face and composite reliability ranging from 0.83 to 0.95 and AVE ranging from 0.60 to 0.85, discriminant ranging from 0.66 to 0.92 and nomological validity was found to be satisfactory. The developed framework estimated about 0.51 and 0.50 variance in e-satisfaction and intention to reuse FOAA

correspondingly, which confirms the argued theoretical basis of the present conceptualised model.

E-service quality is commonly explored concerning customer satisfaction and buying behaviour (Kang & Namkung, 2019). Moon and Armstrong (2019) stated that online-to-offline platforms (O2O) that operated via various channels online, mobile, and offline can explain consumers' usage behaviour towards satisfaction. This means that perceived good security measures of personal information, fast responsiveness during app use, reliable service, convenience availability of service and resendable empathy can enhance probability of higher consumers satisfaction. Thus, the proposed H1 was supported. Prior to this study it was stated that perceived usefulness is more likely to indicate consumers' intentional behaviour towards technology adoption via consumer satisfaction (Davis et al., 1989; Venkatesh, Morris, Davis, & Davis, 2003). The present study's data revealed a good validation to such proposition in the Saudi market in a time of the COVID-19 epidemic. In other words, consumers with the superior observation of usefulness of a specific e-service such as FOAA, are likely to behave favourably towards the FOAA. Earlier studies have argued that perceived risk is confirmed to be a crucial variable that negatively impacts people's intentional behaviour towards satisfaction of e-service experience. Moon and Armstrong (2019) concluded that the high perceived risk of using an e-service platform causes undesirable consumers' intention to adopt or reuse. Therefore, this research have produced a path coefficient and t test value that match these arguments, which means that for an FOAA to succeed it has to offers the least possible perceived risk in relation to consumers' payment safety, personal information and indeed the commitment to maintain COVID-19 precautions during the COVID-19 pandemic.

Finally, this study adapted a scale that hypothesised that e-satisfaction positively influence consumers' intentional behavioural to reuse or adopt a service. The analysis produced a b= 0.722 and t= 18.887 of the relationship between e-satisfaction and reuse intention of FOAA, which illustrate that reuse intention of a FOAA can surely be anticipated by the level of which a user is satisfied with the FOAA earlier usage (Alalwan, 2020; Moreo, Cain, Rahman, & Chen, 2019; Qi, Yu, & Ploeger, 2020; Yusra et al., 2020). This research as one of the early service quality studies from the Saudi market, represents an additional support the argument of previous literature such as (Al-dweeri et al., 2017; Annaraud & Berezina, 2020; Moon & Armstrong, 2019; Yusra et al., 2020) that considers both online and online commers as an integrated process that enhance consumers' satisfaction and retain desired repeated usage of FOAA.

Implication and forthcoming research
This study yielded two theoretical contributions as follows: first, this study to the best of the author knowledge is the first empirical paper that has examined the E-SERV-QUAL scale in the Saudi FOAA specifically via integrating the well-recognised theories of TRA plus one of the crucial factors of TAM model. Therefore, the presented outcomes earlier add on to the service quality literature is generally and to the strongly emerging economies such as Saudi Arabia. The Saudi market is set to expand in all aspects as announced by the Saudi 2030 vision and additionally detailed by the Saudi Crown Prince\ Mohammed Bin Salman al-Saud just recently. Accordingly, it is anticipated that the Saudi service market will witness dramatic growth as argued in section 2.3 it can be observed that several well-known services international firms have moved their regional head offices into the Saudi market due to the market size and economic opportunities. Second, this study is among the very few

studies that empirically investigated the intangible factors of the E-SERV-QUAL scale in the growing FOAA. Most earlier studies have examined E-SERV-QUAL scales both parts intangible and tangible components such as Moon and Armstrong (2019), Haming, Murdifin, Syaiful, and Putra (2019) and Ravichandran, Mani, Kumar, and Prabhakaran (2010).

Additionally, the present study produced managerial contributions as follows: first, it provides a better understanding for the marketing and technical practitioners in the Saudi market, which enhance their abilities to better introduce their FOAA or any e-service apps based on the highlighted influential factors on their potential consumers' intentional behaviour. It was observed by this study that consumers intention to use a service is significantly improved by expecting usefulness and ease use. Also, it was found that potential consumers' intentional behaviour to use an e-service\app is strongly impacted by the extent to which they feel safe for their personal information and bank details. Lastly, due to the COVID-19 pandemic respondents revealed that reuse of FOAA is influenced by the FOAA provider committed to the COVID-19 precautions, which is regarded as the main factor of increasing the demand on the FOAAs at least in the Saudi context.

As part of any academic study, this study experienced some limitations. First, due to the time limitation and budget reasoning behind adopting this study cross-sectional technique, the tangible service quality factors were not included. Thus, future researches could overcome this limitation by re-examining the proposed theoretical framework of this study and include the tangible service quality factors. It is expected that the impact of every individual variable will differ, thus observing the difference among the total model within

FOAA in Saudi would advance existing literature of service quality. Second, since the gulf countries council states members are largely similar in their culture, environment and economies, it would be interesting if this paper model re-examined in a different context such as U.A.E, Bahrain or Kuwait to compare reliabilities and validities. Finally, it could be a game-changer if the forthcoming study focuses on the possible variation among demographics variables such as gender, age group, income level and education level, which could provide a better and detailed understanding of the specific group of consumer intentional behaviour towards FOAA use during the COVID-19 pandemic.

Conclusion
The current research is advancing existing literature by outlining the influential dimensions of the intangible service quality and identifies the connection among service quality, perceived risk, perceived usefulness, e-satisfaction and intentional behaviour. Additionally, it provides practitioners with crucial factors that are most considered when introducing FOAA or other e-service apps. Accordingly, personal information, usefulness expectancy and COVID-19 precautions commitment are significantly motivating or demotivating consumers to use and an APP. It was also found by this study that most respondents do use APPs 3 to 4 times per week, which shows how business-wise attractive this sector is. Consequently, it is useful for practitioners to acknowledge this study when conducting new or operating an existing e-service or FOAA.

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جودة الخدمات الإلكترونية غير الملموسة وتوجهات المستهلكين حيال إعادة الاستخدام أثناء جائحة كورونا: دراسة على قطاع أعمال تطبيقات مقدمي طلبات الطعام السعودي

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المستخلص: ركزت الأبحاث الحالية المهتمة بجودة الخدمة ومقاييسها بشكل بارز على الفرق بين وسائل تقديمها عبر الإنترنت أو منصات سحابيه خاصه تسمى O2O وعلاقاتها برضى العميل. خدمات التبضع الإلكترونية بشكل عام تتزايد فيها المنافسة، والسوق السعودي ليس بمعزل عن المنافسة العالمية الشرسة بسوق تطبيقات المطاعم ومقدمي الأغدية والمشروبات "FOAA"، حيث نشط سوق التطبيقات بشكل قوي بسبب ارتفاع الطلب المتأثر بمخاوف جائحة COVID-19. لذا أصبح لزاماً على الشركات التي تدير FOAA التكييف سريعاً وتفعيل أدوات رفع رضى العملاء ورفع نسبة الاحتفاظ بهم. عليه قام المؤلف بدراسة العناصر غير الملموسة لأداة قياس جودة الخدمة، والتي ترتبط ارتباطًا وثيقً بـFOAA، وبالتالي فإن الدراسة تهدف لتقييم مدى ملائمة النموذج العلمي E-SERV-QUAL بسوق التطبيقات السعودي ومدى تأثريه على رضى العملاء، ودور المخاطر المتوقعة، والمنافع المتصورة، واخيراً مدى تأثر كل ذلك على سلوك العميل تجاه التطبيق. وقد تم تحقيق هدف الدراسة من خلال تقديم إطار نظري دمج بين نظريات E-SERV-QUAL وسلوك المستهلك المُخطط له وتبني التكنولوجيا الجديدة. وقد حصلت هذه الدراسة على نتائجها بناءً على ٣٦٧ استبيانًا مقبولًا تم جمعها عبر الإنترنت من مكونات المجتمع السعودي تماشياً مع احترازات COVID-19، ومن ثم تم تحليل تلك البيانات باستخدام (PLS-SEM) Partial Least Square SEM حيث أتت النتائج داعمه لفرضيات الدراسة، كما قدمت الدراسة مساهمات نظرية وإدارية تطبيقية ومقترحات للدراسات المستقبلية ذات العلاقة.

الكلمات المفتاحية: جودة الخدمة، جودة الخدمة الالكترونية غير الملموسة، الفائدة المتصورة، الرضا الالكتروني، السلوك المتعمد.