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E-Services Adoption Among Consumers in Oman: Employing Technology Readiness Model 2.0 to Analyse E-Services Adoption With Particular Focus on Gender

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Abstract

The study employed the Technology Readiness Model 2.0 to assess consumer readiness for e-Service adoption in Oman. The model's four primary constructs—optimism, inventiveness, discomfort, and insecurity- are applied to explore the effects on consumer adoption of e-Services. The study proposed that gender would moderate the impact of the critical constructs on the adoption of e-Services. Three hundred thirteen (313) responses, or 82% of the total sample size of 385, were gathered from Oman residents and citizens. The data were analysed using SmartPLS 4. The results showed that optimism and inventiveness have positive and significant effects. In contrast, discomfort and insecurity have a positive and insignificant impact on customer adoption of e-Services—no moderating influence of gender among the independent variables towards the dependent variable. The study has significant implications for how e-Service providers should develop crucial consumer-focused strategies. The study offers one of the few attempts to determine technology readiness among Oman's consumers while taking gender into account.

Keywords: *Technology Readiness, e-Services Adoption, Oman, Consumers, Technology Adoption, Gender, GCC.*

1. Introduction

Since the 1980s, when the Internet first appeared, the world has undergone a significant transformation. Technology advancements and the expansion of the Internet over the past few decades have revolutionised how people purchase, socialise, communicate, access entertainment content, and acquire news and information. The mobile Internet has emerged as one of the most popular services offered to customers worldwide and is poised to overtake fixed Internet. It combines two of the most notable recent innovations—the Internet and mobile devices like smartphones supported by the entire telecommunications sector (Wong et al., 2020). The continually changing technology environment presents chances for deploying new services while also posing risks to established business models (Nasser Al-Junaibi et al., 2022; Zhu et al., 2022; Lai, 2016). Numerous factors, such as technological accessibility, consumer need, convenience, security, and other advantages, impact how quickly and often people accept and use new technology. Thus, the expansion of internet-based services, also known as e-Services, is notably high due to the rise in labour costs and technical innovation. According to Kvasnicova, Kremenova, and Fabus (2016), e-Service often is contrasted with e-government, e-commerce, and e-learning. In government organisations, e-Services are a crucial instrument for delivering high-quality services to customers. Since they offer real-time and accessible services to both citizens and residents while also saving time, boosting efficiency, lowering costs, and improving transparency (Alraja, Hammami, Chikhi, & Fekir, 2016). E-Services technology is expected to continue to surge in Oman, particularly in consumer-business interactions, and will continue to rise in use. Oman's population of 5.27 million, with 5.02 million internet users as of January 2022, resulting in a 95.2% internet penetration rate (Kemp, 2022). In light of the COVID-19 pandemic, this research creates a model based on Technology Readiness (TR) 2.0 to predict and explains individual readiness to adopt e-Services (Parasuraman & Colby, 2015). This study assumes that the consumers' adoption of e-Services depends on innovation, optimism, discomfort, and insecurity expectations. If the consumer's expectations are achieved, they (consumers) will typically adopt e-Services. This study focuses on consumers in Oman towards the adoption of e-Services.

The acceptance and confidence of consumers in using technology are crucial for developing new technologies. According to Hamed AL-Shukri Udayanan (2019), user participation in system development determines how well users receive the technology. Modern technological services like e-government and related web applications have grown in popularity from the consumer's standpoint. This phenomenon is evident in the fact that the majority of industrialised countries, including the United States of America (USA) and the majority of Europe, have

transformed their service environments into virtual settings that do not require the physical presence of customers and service providers. According to Parasuraman and Colby (2015), managers must consider several important factors when choosing technology because of this shift from face-to-face communication to online techniques.

Due to the COVID-19 pandemic, businesses, schools, and other public facilities have been forced to close their doors. These indicate how crucial it is to comprehend how consumers behave when utilising new technology or e-Services. Despite numerous types of literature (Alraja et al., 2016; Alsaif, 2013; Haddad et al., 2020; AlAwadhi & Morris, 2012) examining consumers' reactions to new technology and e-Services, there is currently little systematic research addressing the problem Oman consumers have in embracing e-Services. Technology readiness, which refers to customers' propensity to adopt and use new technology to meet daily tasks, is frequently used to describe these actions and emotions (Parasuraman, 2015). Given these facts, and especially considering the Covid-19 outbreak, this research contributes to the field's scant literature. Hence, there is a need to promote the adoption of e-Services among consumers in Oman (Nasser Al-Junaibi et al., 2022).

The main question remains: How can we examine the effect of consumer readiness for e-Services adoption? What are the factors that can help promote and motivate consumers towards the adoption of e-Services in Oman? With this context in mind, the current study uses Parasuraman and Colby's (2014) Technology Readiness Model 2.0 to answer these questions. However, Wong et al. (2020) found that gender facilitates the relationship between habit and behavioural intention in a way that gives women more influence than men. Therefore, it will be fascinating to find out whether gender influences the adoption of e-Services in Oman, given men and women function in various cultural contexts.

The following objectives form the basis of the study question:

1. To measure the effect of innovativeness on consumers' readiness to adopt e-Services in Oman.
2. To measure the effect of optimism on consumers' readiness to adopt e-Services in Oman.
3. To measure the effect of discomfort on consumers' readiness to adopt e-Services in Oman.
4. To measure the effect of insecurity on consumers' readiness to adopt e-Services in Oman.
5. To compare the effect of technology readiness of consumers on e-Services adoption based on gender.

The following research questions serve as the foundation for the study (RQ).

(a) What are the effects of the four components of technology readiness model 2.0 among consumers on e-Services adoption in Oman?

(b) Are there any differences among consumers' adoption of e-Services based on gender?

The results of this study could help Oman's government and non-governmental organisations by highlighting the value of adopting e-Services, especially while the pandemic continues to roil the globe. In more detail, this study highlights the key elements affecting Oman's consumers' adoption of e-Services. The results will aid in the improvement of e-Services by the government and policymakers, which will increase customer acceptance. Alsaif (2013) asserts that constant high adoption rates are necessary for the successful implementation of e-Services.

2. Literature Review

Technology readiness is a gestalt of mental motivators and inhibitors determining a person's propensity to use new technologies (Parasuraman, 2000). Optimism, ingenuity, discomfort, and insecurity are the four dimensions of the structure's multidimensional structure. According to Parasuraman and Colby (2015), optimism and creativity are "motivators" that enhance TR, whereas discomfort and insecurity are "inhibitors" that reduce it. A person can have different combinations of technology-related features because the four dimensions are generally distinct, which occasionally results in a paradoxical state marked by strong motivations balanced by strong inhibitions (Nasser Al-Junaibi et al., 2022).

Each of the 36 belief statements in TRI 1.0 is rated on a 5-point scale (strongly disagree = 1 to strongly agree = 5). Ten of the 36 statements rate optimism as high, seven as innovative, ten as uncomfortable, and nine as insecure. As a result, TRI 1.0 offers both dimension-specific and global TR metrics. According to Kuo (2011), Lin and Chang (2011), higher TR levels are linked to more usage of cutting-edge technology, higher adoption rates, and greater perceived ease of use. The 36-item index was one of the main criticisms of TRI 1.0 in its initial release. A large item battery had the benefit of offering psychometrically reliable measurements of the four unique TR dimensions. However, a lot of academics who requested permission to use the scale were primarily interested in using it to measure total TR as a single construct in frameworks with many constructs. They ultimately decided to use the previously mentioned brief 10-item version since they needed survey space to test additional constructs. Further stating the requirement for a condensed version of TRI with a strict scale development procedure to develop a scale that measures overall TR and its four components without sacrificing reliability and validity.

A revised version of the TRI Model (2.0), created in 2014 by Parasuraman and Colby, has proven to be a reliable predictor of technology-related behavioural intentions and actual behaviour. According to Parasurman and Colby (2015), the newly revised TRI 2.0 is only slightly longer than the previous version. Because they don't mention technologies or make use of archaic vocabulary, its products are more technologically neutral. For the past

two decades, various scholars have studied pertinent technology concerns in rising countries (Kim et al., 2014; Jaafar et al., 2007). Their research, along with that of Parasuraman and Colby (2015), suggests that TR may be used to assess people's technological preparedness. The constructs of TRI 2.0 are highlighted in the following section:

2.1 Optimism

Optimistic persons anticipate "positive things to happen rather than terrible things to happen," according to Scheier and Carver (1985). Viewpoints on risk perception and technological acceptance have an impact on optimists' perceptions of the world. Moreover, according to Parasuraman (2000), optimism refers to a "positive attitude toward technology and conviction that it will give individuals better efficiency, flexibility, and control," where optimism is seen to favourably influence technological readiness. Technology readiness and the adoption of business process standards are discussed by Alharbi and Sohaib (2021); Buyle et al. (2018); Hallikainen and Laukkanen (2016); and Parasuraman. and Colby (2015); Liljander et al. (2006), optimism influences e-Services adoption.

2.2 Innovativeness

The term "innovativeness" is frequently used to evaluate the uniqueness of invention, with more innovative things being branded as having a higher degree of originality, according to Buyle et al. (2018). Therefore, inventive and creative consumers are more likely to quickly and effectively assimilate new ideas (Nasser Al-Junaibi et al., 2022; Liljander et al., 2006; Rogers, 2003). Creativity, according to Parasuraman and Colby (2015), is the ambition "to be a thinking pioneer and an invention pioneer," which is frequently used to describe a brave, innovative user. Furthermore, Alharbi and Sohaib (2021); and Venkatesh and Bala (2012) discovered a direct correlation between technology readiness and the technological dimension, whereas Parasuraman (2000) introduced the technological dimension and made reference to "a propensity to be a technology pioneer and influencer.

2.3 Discomfort

A sense of being overwhelmed by technology and a perceived lack of control over it are typically associated to discomfort-related traits (Parasuraman & Colby, 2015; Parasuraman, 2000). Due to the expense associated with the user's learning process, Mukherjee and Hoyer (2001) contend that overly complicated technology features could be detrimental to product evaluation. An "apparent lack of authority over innovation and sensations of being overrun by it" are indicators of unease, according to Parasuraman (2000). Uncomfortable customers are inclined to reject technology innovation, development, and changes, which may lead to technophobia (Nasser Al-Junaibi et al., 2022; Parasuraman, 2000). Alharbi and Sohaib (2021) find that discomfort hinders the adoption of technology, causing consumers to form a generalised negative perception when there is innovation in their study on the adoption of cryptocurrencies.

2.4 Insecurity

Insecurity is frequently associated with "distrust of technology and scepticism about its ability to perform effectively" (Parasuraman, 2000). Consumers who experience insecurity show a willingness to rely on innovation occasionally. Consumers are sceptical about using technology due to a confluence of safety worries, unfavourable technological effects, and the desire for certainty. Unique consequences of insecurity have been extensively studied concerning measurements of inventiveness. According to Haddad et al. (2019), recognising insecurity is unnecessary in situations where "one could hope that individuals will realise essential estimation for a framework that pays little mind to how things are being handled." However, in their TR re-assessment 2.0, Parasuraman and Colby (2015); Nasser Al-Junaibi et al. (2022) found that insecurity is closely related to a lack of faith in innovation and a reduced readiness to adopt it.

2.5 E-Services

The replacement of Vision 2020 with Oman Vision 2040, the Oman government has established its priorities to reduce reliance on natural resources, such as oil and gas, diversification of the Omani economy, youth development, and an increase in entrepreneurship are some of the significant elements of the Oman Vision 2040. Oman Vision 2040 emphasises the nation's involvement as a developed nation in the top 20 of the top 40 by fostering social and economic well-being, enhancing economic competitiveness, accelerating growth, and building trust in all global economic, social, and developmental ties (Omanuna. Official E-Government Service Portal,2021). As of January 2022, there were 5.02 million internet users in Oman, which points to a bright future for the country's use of the Internet to access e-Services Kemp (2022). The Omani government has made a significant effort to promote ICT use to achieve its objectives and offer organised services to its stakeholders. Most of Oman's governments, corporations, and international organisations use effective computer systems for business and administrative reasons.

Numerous studies reveal elements that directly determine new technology adoption, such as optimism, ingenuity, discomfort, uncertainty, trust in the internet, privacy, information quality, effort expectations, performance expectations, and social impact. These factors have a big effect on people adopting new technology (Hamed AL-Shukri Udayanan, 2019; Parasuraman & Colby, 2015; Alraja et al., 2015; Venkatesh et al., 2003). On the other side, obstacles to the deployment of e-Services include knowledge, models used, chosen infrastructure, the integration process, and the disparity in organisational, political, cultural, and technical roots (Alraja et al., 2016). The results of earlier studies show that TRI2.0 is a reliable model to apply to understand the four predictive components and their impact on consumers' readiness to adopt e-Services.

2.6 Gender and E-Services Adoption

The notion has been that men use technology more frequently than women, who are only supposed to be passive users. However, Khan et al. (2020) contend that there has been a rise in women adopting and using technology. The influence varies depending on gender because of the gender effect, which depends on the perceived relative advantage of adopting and using the technology (Wong et al., 2020; Ameen & Willis, 2018). Gender has an impact on the adoption and utilisation of the digital economy, according to a 2019 study by Orser et al. According to Rojas-Méndez et al. (2017), the TRI supports cross-cultural validity and further suggests that demographic factors are important when talking about people's propensity to accept new technologies. The study on gender differences and computer use revealed that the user's gender significantly influences the attitude toward the use of computers (Ayo et al., 2012; Ahmad et al., 2014; Abelsen and Olsen, 2015; Yoon and Occea, 2015; Jusoh and Jing, 2019). However, the context of gender use of new technology (e-Services) may have been ignored by many. Since the gender element has a significant impact on and moderates consumer trust in e-Services (Ayo et al., 2012; Ahmad et al., 2014; Abelsen and Olsen, 2015; Yoon and Occea, 2015; Jusoh and Jing, 2019), there is potential to investigate how gender affects consumer adoption of e-Services in Oman. Given the above debate, the following hypotheses are presented.

H1. There is a positive effect of optimism towards consumers' adoption of e-Services.
H2. There is a positive effect of innovativeness towards consumers' adoption of e-Services.
H3. There is a negative effect of discomfort towards consumers' adoption of e-Services.
H4. There is a negative effect of insecurity towards consumers' adoption of e-Services.
H5. The effect of optimism on adopting e-Services is significantly different based on gender.
H6. The effect of innovativeness on adopting e-Services is significantly different based on gender.
H7. The effect of discomfort on adopting e-Services is significantly different based on gender.
H8. The effect of insecurity on adopting e-Services is significantly different based on gender.

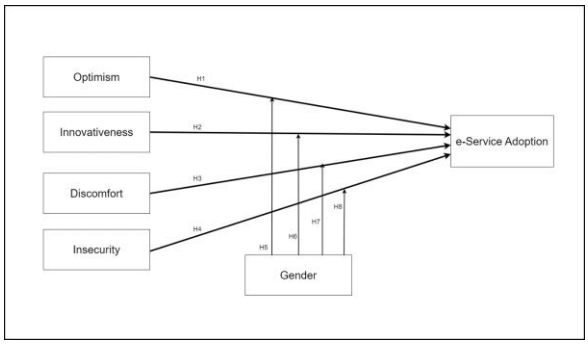

Figure 1 Research Framework

3. Research Methods

Consumers in Oman are the survey's target respondents; hence proportionate sampling was used in this study. The data for this study were gathered through a survey conducted using a web-based questionnaire. The questionnaire was bilingual, with instruction in both English and Arabic, to reduce sampling error and maximise the generalizability of the results. A total of 313 responses were collected, representing a response rate of 82%. Respondents were provided with the link to the web-based questionnaire through a reliable email database. These respondents were aware of the survey's aim and would keep their responses private. Participants were urged to provide feedback that genuinely expressed their sincere ideas using an online survey to facilitate collecting responses. The author anticipated that completing the questionnaire would take 5 to 7 minutes. Consumers in Oman, a country with a population of 4,527,446 million, according to National Centre for Statistics and Information (NCSI) (2021), are the study's target population.

Sekaran and Bougie (2016) state that a bigger sample size can be problematic. Consequently, Rosco (1975) recommended using a 10% sample size from the parent population while maintaining the restriction of 30 to 500 samples. Using the standard sample size calculator developed by Raosoft in 1991 (available at http://www.raosoft.com/samplesize.html), the sample size for this study was determined to be 385. The measuring scales were adapted from the TRI 2.0 16-item Questionnaire (Parasuraman and Colby, 2015). Three components make up the questionnaire. Part 1 focuses on the demographics of respondents, including gender, age, education, occupation, and years of internet use; section 2 contains 16 key factors that determine how ready customers are for new technology adoption. The statements in the first item of this section are rated on a Likert scale as follows: 1. (Strongly Disagree), 2. (Disagree), 3. (Neutral), 4. (Agree), and 5. (Strongly Agree). The adoption of e-Services is covered in Section 3 and consists of five items with the Likert scale of 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), and 5 (Agree) (Strongly Agree).

SmartPLS and SPSS are the analysis tools used in this study. Confirmatory factor analysis was used to verify validity and reliability, path analysis to test hypotheses, and multigroup analysis to examine the impacts according to demographic factors. Partial Least Square, a variance-based structural equation modelling approach, is used to evaluate the data using the SmartPLS software (Roldán & Sánchez-Franco, 2012). This method is used in conjunction with SmartPLS because it provides a more robust and incremental data analysis (Hair, Sarstedt, Ringle, & Gudergan, 2017; Ringle, Wende, & Becker, 2015). The gender was then analysed using the Multigroup Analysis (MGA) to determine the moderating effect of gender between consumer technological readiness and adoption of e-Services.

4. Result Findings and Discussion

Table 1: Demographic information of respondents

Demographic Variables	Categories	Frequency	Percent
Gender	Male	149	47.6
	Female	164	52.4
Age	20 years and below	27	8.6
	21 - 40 Years	209	66.8
	41 - 60 Years	54	17.3
	60 years and above	23	7.3
Education Level	Primary Certificate or lower	12	3.8
	High School	60	19.2
	Diploma	154	49.2
	Bachelor's Degree and above	87	27.8
Occupation	Self Employed	34	10.9
	Private Employee	48	15.3
	Government Employee	50	16
	Student	146	46.6
	Unemployed	35	11.2
Years of Internet use	No experience	2	0.6
	5 years or below	27	8.6
	5 – 10 years	146	46.6
	10 years or above	138	44.1

Table 1 reveals that female respondents comprised 52.4 % of the total respondents (47.6%). The ages of several of the responses ranged from 21 to 40 years (66.8 per cent). 12 (3.8%) respondents held a primary certificate or less, 60 respondents had a high school certificate (19.2%), 154 respondents had a diploma (49.2%), and 87 respondents had bachelor's degrees (27.3 per cent). A total of 146 (46.6%) individuals identified as students, 48 (15.3%) as private employees, 50 (16%) as government employees, 35 (11.2%) as unemployed, and 34 (10.9%) as self-employed people. Only 2 (6% of respondents) reported having no experience using the Internet; 27 (8.6%) said having used it for five years or less; 146 (46.6%) reported having used it for five to ten years, and 138 (44.1%) reported having ten years or more internet user experience.

Table 2: Descriptive statistics

	Min	Max	Mean	Std. Deviation
Optimism (OPT)	1.5	5	3.8978	0.73648
Innovativeness (INV)	1.25	5	3.5375	0.83132
Discomfort (DISC)	1.25	5	3.1677	0.83315
Insecurity (INS)	2.25	5	4.139	0.60169
E-Service Adoption (ESA)	1	5	4.0743	0.74213

According to the descriptive statistics, the survey respondents have an optimistic view on the adoption of e-Services (M=3.89, SD=0.73), a moderate level of innovativeness (M=3.53, SD=0.83), a moderate level of discomfort (M=3.16, SD=0.83), and a relatively high level of insecurity (M=4.13, SD=0.60). Participants in the study have a reasonably high adoption of e-Services (M=4.04, SD=0.42).

4.1 Assessment of Measurement Model

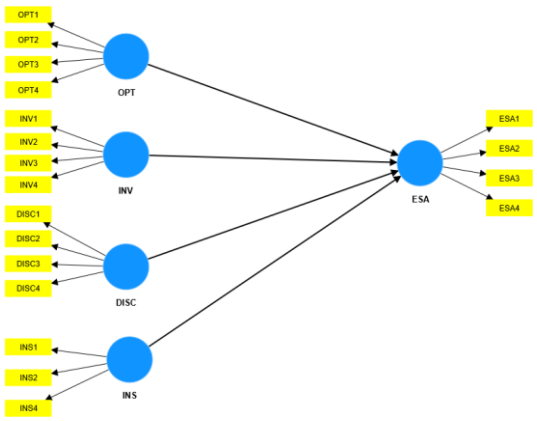

Figure 2: Final Revised Model

The measurement model's dimensions and items were validated using confirmatory factor analysis (CFA). The final revised model and the outcome are in Figure 2.

Table 3: Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE)

Constructs	Items	Standardised Factor Loading	Cronbach's alpha	rho_a	Composite reliability	Average variance extracted (AVE)
Optimism	OPT1	0.752	0.748	0.764	0.84	0.568
	OPT2	0.822				
	OPT3	0.746				
	OPT4	0.657				
Innovativeness	INV1	0.73	0.804	0.807	0.872	0.63
	INV2	0.766				
	INV3	0.766				
	INV4	0.837				
Discomfort	DISC 1	0.803	0.644	1.074	0.773	0.543
	DISC 2	0.776				
	DISC 3	0.747				
	DISC 4	0.681				
Insecurity	INS1	0.935	0.779	0.792	0.858	0.602
	INS2	0.631				
	INS3	Deleted				
	INS4	0.597				
E-Service Adoption	ESA1	0.74	0.737	0.754	0.834	0.558
	ESA2	0.787				
	ESA3	0.847				
	ESA4	0.798				

Optimism (OPT), Innovativeness (INV), Discomfort (DISC), Insecurity (INS), E-Service Adoption (ESA)

The Cronbach's alpha value and the composite reliability of each construct can be used to evaluate construct reliability. More than 0.7 is the recommended value for Cronbach's alpha and composite reliability (Ghozali, 2014). All constructs have composite reliability, as shown by the reliability test results in Table 3 above, and Cronbach's alpha values are higher than 0.7. Considering that the Average Variance Extracted is greater than 0.50, the convergent validity is satisfactory (Hair et al., 2017). In conclusion, all constructs have good reliability and internal consistency.

Table 4: Discriminant Validity

	1	2	3	4	5
DISC	**0.753**				
ESA	0.25	**0.794**			
INS	0.083	0.169	**0.737**		
INV	0.432	0.426	0.111	**0.776**	
OPT	0.219	0.549	0.18	0.387	**0.747**

The criteria proposed by Fornell and Larcker (1981) were used to demonstrate discriminant validity in this study. Discriminant validity is utilised to ensure that each latent variable is conceptualised uniquely from the others. Suppose the AVE square value of each exogenous construct (the value on the bold diagonal) is greater than the correlation between this construct and other constructs. In that case, the model has good discriminant validity. Based on the discriminant validity test results, shown in Table 4, the author concluded that all variables have strong discriminant validity.

4.2 Assessment of Structural Model

The structural model for testing hypotheses is assessed after analysing the measurement model. Multicollinearity assessment, t-statistics, path coefficients, coefficient of determination (R^2), effect size (f^2), and the predictive usefulness of the model are the criteria used to evaluate the structural model (Q^2).

Table 5: Multicollinearity Assessment

Construct	VIF Values
DISC	1.236
INS	1.037
INV	1.383
OPT	1.207

Table 5 analysis of the VIF shows that all values are below the threshold value of 5, demonstrating that multicollinearity is not an issue with study data. Based on the recommendations by Hair et al. (2017) and Ringle et al. (2018), the threshold value of VIF is 5. (2015). An accelerated bootstrap with 95% bias correction and 5000 resamples of data was employed. The results are shown in Table 6.

Table 6: Structural Model (Hypotheses testing)

H	Path	Original sample (O)	Sample mean (M)	Standard deviation	T statistics (|O/STDEV|)	R2	f2	Q2	P values
H1	OPT -> ESA	0.441	0.441	0.054	8.114	.361	0.252	.329	.000
H2	INV -> ESA	0.226	0.227	0.057	3.947		0.058		.000
H3	DISC -> ESA	0.049	0.055	0.052	0.946		0.003		0.344
H4	INS -> ESA	0.06	0.07	0.053	1.125		0.005		0.261

**Optimism (OPT), Innovativeness (INV), Discomfort (DISC), Insecurity (INS), e-Service Adoption (ESA)*

Table 6 results demonstrate that optimism (β.441, P<05) and innovation (β.226, P<05) have a favourable and significant influence on consumers' propensity to use e-Services. Positive but insignificant results were seen for discomfort (β.049, P>05) and insecurity (β.06, P>05). Based on these findings, H1 and H2 are accepted, while H3 and H4 are rejected.

According to Hair et al. (2017), the coefficient of determination (R^2), effect size (f^2), and predictive relevance should also be considered when evaluating a relationship in addition to the beta coefficient (Q^2). R^2 describes the variance in the dependent variable that can be attributed to the independent variables. So, according to this study's R^2 value, the independent variable satisfactorily explains 36.1% of the variation in the dependent variables of consumers' technology readiness to adopt e-Services.

The prediction power of the independent variables is represented by the f-square (effect size) value. According to Cohen (1988); Roldán & Sánchez-Franco (2012), an f-square value of 0.02 is regarded as a small effect, 0.15 as a medium effect, and 0.35 as a large effect size. The f-square value for optimism is above 0.15, which is a moderate to large effect; innovativeness is above 0.02 and can be considered small to medium effects; however, the f-square value for discomfort and insecurity is lower than 0.02, which indicates that its effects are weak. Another crucial criterion is Q^2, which means the model is predictive given the specific construct in the sample (Hair et al., 2017). The model's predictive relevance is satisfactory if the value is greater than 0. Using SmartPLS 4 PLS predict method, the study achieved Q^2. Hence, the model has good predictive relevance, as established by the Q^2 score shown in Table 6.

4.3 Multigroup Analysis (MGA)

The moderator variables in the final four hypotheses—gender on Optimism, Innovativeness, discomfort, and insecurity were related to the multigroup analysis (H5, H6, H7, H8). Using the MICOM process and 5000 permutations, we conducted the measurement invariance test by the recommendations provided by Henseler,

Ringle, and Sarstedt (2016). The three stages of the MICOM technique involve establishing measurement invariance, and the outcomes are as in table 7.

Table 7: Procedure - MICOM Process

MICOM-Step 2 Composite Measure Invariance					
	Original correlation	**Correlation permutation mean**	**5.00 %**	**Permutation p-value**	
DISC	0.982	0.976	0.937	0.501	
ESA	1	0.998	0.994	0.988	
INS	0.654	0.821	0.337	0.147	
INV	0.994	0.994	0.984	0.381	
OPT	0.997	0.995	0.986	0.637	
Step 3a - MICOM Report -Part 1					
	Mean original difference	**Mean-Permutation mean difference (Males Vs Females)**	**2.50 %**	**97.50%**	**Permutation p-value**
DISC	0.271	0.001	-0.247	0.228	0.019
ESA	0.034	0	-0.225	0.213	0.75
INS	0.083	-0.001	-0.223	0.216	0.466
INV	0.284	-0.002	-0.217	0.216	0.011
OPT	0.174	-0.005	-0.238	0.229	0.132
Step 3b MICOM Report - Part 2					
	Variance original difference	**Variance-Permutation mean difference (Males Vs Females)**	**2.50 %**	**97.50%**	**Permutation p-value**
DISC	0.079	-0.006	-0.272	0.271	0.569
ESA	0.025	-0.003	-0.355	0.365	0.881
INS	-0.386	0.006	-0.361	0.341	0.031
INV	-0.132	0.001	-0.318	0.286	0.371
OPT	0.025	0.002	-0.357	0.344	0.905

**Optimism (OPT), Innovativeness (INV), Discomfort (DISC), Insecurity (INS), e-Service Adoption (ESA)*

The MICOM procedure's outcomes are shown in Table 7. The software automatically calculates the configural invariance, or step 1 (Garson, 2016). The composite invariance was examined in the second phase to ensure that the results were insignificant for all required correlation values. The analysis of mean equality and variance across groups came as the third phase. The step test is based on the null hypothesis that there is no difference between the measures and the composite's variances. The outcome, as shown in the MICOM overall table 7, demonstrates that all values for step 3a are within the range. The result of step 3b is similar, with all values linked to the variance of the initial differences falling within the 95% confidence interval or being insignificant. These findings conclude that the adopted measure exhibits full measurement invariance. The data meet the multigroup assumption; hence, the next stage (MGA) of analysis can proceed, and the outcome is presented in table 8.

Table 8: Multigroup Analysis, Gender-based analysis

H	***Path***	***Path Coefficients Difference (Male-Female)***	***p-value Original 1-tailed (Male vs Female)***	***p-value New (Male vs Female)***
H5	DISC -> ESA	-0.059	0.719	0.563
H6	INS -> ESA	-0.128	0.84	0.319
H7	INV -> ESA	0.177	0.057	0.113
H8	OPT -> ESA	-0.014	0.554	0.892

**Optimism (OPT), Innovativeness (INV), Discomfort (DISC), Insecurity (INS), e-Service Adoption (ESA)*

According to Table 8 MGA results broken down by gender, there are no significant differences in the path coefficients for optimism, innovativeness, discomfort, and insecurity on consumers' readiness to adopt e-Services between males and females. Hence, H5, H6, H7 and H8 are rejected based on these findings.

This study aimed to evaluate the technological readiness model 2.0 in Oman consumers' adoption of e-Services. This study's key finding that optimism and inventiveness are significant predictors of the adoption of e-Services is supported by research from Alharbi and Sohaib (2021); Buyle et al. (2018); Parasuraman and Colby (2015); Hallikainen and Laukkanen (2016); Nasser Al-Junaibi et al. (2022); Liljander et al. (2018); Parasuraman and Colby (2018); Parasura (2006). Undeniably, the degree of clarity in the model of the study's development might indicate the level of confidence in the model's development. In addition, the study discovered that when examining the direct relationships between all the factors and consumer adoption of e-Services, the effect of gender is considered among the demographic variables. The result was established using the MGA analysis's moderating effect of gender. The analysis's findings revealed that gender (male or female) did not affect the relationship between customers' optimism, inventiveness, discomfort, and adoption of e-Services. The results contrast with the findings of Wong et al. (2020); Ameen and Willis (2019) found that gender had noticeably distinct effects on intention to adopt the technology. Consumers may be unaware of the advantages of using e-Services. However, the results align with numerous studies by Angelina et al. (2022); Muhammad Tahir (2021); Abdul Hamid et al. (2019); Gebre et al. (2019); Sakkthivel & Ramu (2018); that found no significant variations between male on the adoption technology. Hence, no moderating effect of gender between the key constructs and e-Service adoption in Oman.

5. Conclusion

This study used the technology readiness Model 2.0 to examine customer preparedness to embrace e-Services in Oman. Based on the findings, optimism and inventiveness are the two most significant factors driving e-Service adoption in Oman. Regardless of gender (male or female), they are motivated to adopt e-Services due to greater awareness of their use in Oman. According to the demographics of the respondents, there is no difference in consumer technology readiness to embrace e-Services for males and females.

5.1 Implication

These findings have management ramifications for e-Services providers consistent with the GCC's development trend. There are 5.02 million internet users in Oman, or 95.2% of the population. This breakthrough might increase e-Services in Oman and the GCC in general. The study into consumer readiness for e-Service adoption enables the Omani government and e-Service providers to bridge the e-Service development gap between Oman and other GCC nations. Only by encouraging more people to use e-Service can this be accomplished. Therefore, increasing the usage of e-Services will depend on raising awareness of the determinants.

5.2 Recommendation

- A higher emphasis on eService-related awareness among Oman's residents and citizens to spread technology-related information among customers and enhance their attitudes about e-Services.
- More assistance for consumers and pertinent public and private organisations is needed. Such aid will enable the development of innovative and secure technologies, facilitating customers' preparedness to adopt e-Services.

5.3 Future Research Direction

This study investigates the determinants that influence consumers in Oman towards adopting e-Services. Optimism and inventiveness, two of the four indicators, are crucial in boosting e-Service adoption. However, the inability to foresee consumer willingness to use e-Services makes discomfort and insecurity insignificant. Other demographic criteria, such as age, education level, occupation, city of residence, or tribe, could be utilised to determine any difference that may arise, as there was no discernible difference between male and female customers' adoption of e-Services. Other factors could moderate the relationship between the independent and dependent variables.

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