

# Structural Equation Modeling (SEM-AMOS) Analysis on Abu Dhabi M-Government Service Quality and Customer Satisfaction

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## ABSTRACT

The population of UAE is 9,540,000 and only 11.48% are the locals while the rest are the international expatriates. This affects the language, background and culture of the UAE people. This diversified background has led to the mismatch between customer expectation and M-government services providers. Others are due to the resistance to change as some customers prefer a traditional way of delivering services. Therefore, this study intending to determine the factors of service quality impacts on Abu Dhabi m-government service through customer satisfaction using structural equation modeling (SEM-AMOS) analysis. Quantitative survey approach was adopted. A total of 250 questionnaire sets were administered to selected respondents in the Abu Dhabi police sector. The findings has identified a substantial positive relationship between M-government service on customer satisfaction in AD. The results achieved the requirements of significant including factor loading, squared multiple correlation, fitness indices, correlation coefficient, standardized beta, Average Variance Extracted (AVE), Composite Reliability (CR), modification index, direction of relationship, and significance level.

## Keywords

UAE, Police Sector, SEM-AMOS

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## 1. Introduction

In today's globalized world, service quality has become an area of utmost importance due to its association to customer satisfaction, customer retention, costs, profitability, and positive word of mouth [1]. Service quality has been recognized as one of the major factors for organization sustainability and one of the driving forces for an organization's achievement [2]. Service quality represents the comparison between customers' expectations on the company's service performance and the customer's satisfaction [3]. One of the gaps that affect the customer's satisfaction about the service quality is the gap between the costumer's expectations and the actual service been delivered [4]. So it is very important for the government to fulfill the characteristics of service quality that the customers are satisfied in M-government. In this study, customers are the public who are being served by the government in Abu Dhabi. However, only 11.48% of total 9,540,000 population of UAE are UAE citizens while the rest are the international expatriates. Therefore, this diversified background affect the language, background and culture of the UAE people. Thus, this leads to the mismatch between customer's expectation and M-government services providers

due to the resistance to change from the traditional way of delivering services [5]. As a results, the issues of service quality and customer satisfaction have become a focus to all organization including government organization because no organization can be successful without satisfying its customers. Therefore, this paper aims to find out the relationship between service quality and customer satisfaction on M-government service in UAE.

## 2. Literature Review

In UAE, the main direction of the M-government service reform was to use great advantages of technology as a methodology to relate people to government and to make the delivery of integrated public services easier through smart phone application. The two-year reform journey (June 2013-May 2015) reflects great success in terms of a smooth transformation from e-Government to m-Government. The country has set new steps to reach new result; however, there have been a few points at the policy level includes: The public companies have failed to pull other champion entities; low usage by the government customers including citizens and business men's; and the mobile apps and services have not been fully integrated [7].

In addition, Abu Dhabi M-government service aims to give the required policies and facilities boost to attract the globally renowned Public Facility to ensure the best impact among individuals and organizations. There is an increasing interest in formal and casual preparing projects in wellbeing associations, particularly for the administration positions who need to secure administrative and authority aptitudes. Besides, the Abu Dhabi Strategic plan 2030 ensures that general strategic plan approaches help to produce fundamental decision in the government sector to help the government of Abu Dhabi to become more effective in government activities.

In this study, customers are general public; especially who are being served by the government in Abu Dhabi. Also State government here is considered as a professional service provider. However, public are the customers of government institutions, customers who are associated with the input and output of the process [7]. However, the current study aims to find out the relationship between service quality and customer satisfaction on M-government service in UAE.

Based on the previous studies, the desire of government institutions in the Emirate of Abu Dhabi in the rapid transition from electronic services to mobile services has caused some problems in customer satisfaction with these services. In addition, resistance to change and fear of switching to mobile services for traditional users and the elderly users because of different cultures and level Educational users, increasing the expectations of young users. Moreover, the desire of some government organization for the rapid transformation of mobile services caused them to ignore the required quality standards. In addition, lack of Wi-Fi is also one of the most important reasons that affect the provision of m-government services, which in turn affect customer satisfaction. Therefore, this study intend to Development of New Model of M-Government Services by Using Service Quality and Customer Satisfaction for AD Government

### 3. Methodology

The research approach is only quantitative. It involved a pilot study with the use of questionnaire instrument. The selection of the appropriate research instrument to be used; its reliability and validity, sample selection and the

pilot study, was incorporated in the study. In addition, the data collection, the analysis and interpretation of data collected is also a part of this study. Furthermore, data were collected through self-administrative from Police sector this agreed with [8]. In addition the police sector was choosing because of the role M-government services plays in this sector and M-government service in Abu Dhabi police sector will be given a great consideration. However, this research the sample frame of this research is the users of the smart application of Abu Dhabi Police sector. According to the researcher information as he is one of the staff in Abu Dhabi police sector the users of the smart application of Abu Dhabi Police sector over 744. Total 250 questionnaire sets were distributed to the targeted respondents. Structural Equation Modeling-AMOS was used for the analysis, and established the relationship between service quality and customer satisfaction on M-government service in AD [9].

## 4. Analysis and Result

### 4.1 Confirmatory Factor Analysis (CFA)

CFA is used as a construct's measures and is in line to the nature of this study [10-11] which is to establish the effects of e-government services and citizen satisfaction in the United Arab Emirates. SEM is used with the combination of CFA [11] and [13] such as: (1) model specification; (2) model identification; (3) parameter estimation; (4) goodness-of-fit measurement; and (5) model re-specification. The preliminary measure is to test the validity of the measurement model before considering the structural model in the analysis process. Both measurement and structural models were evaluated through the estimation of Maximum Likelihood (ML). Table 1 outlines the goodness-of-fit indices and level of acceptance used as a guide in the evaluation of the fitness of construct measurement models and structural equation models.

**Table 1- Goodness-of-fit Indices and level of acceptance**

Source: Adapted from [14])

Name of category	Goodness-of-fit indices	Acceptance level	Comments	Literature support
Absolute fit	Chi-square	$P > 0.05$	Sensitive to	[15]

			sample size greater than 200	
Absolute fit	RMSEA	RMSEA	Range	[16]
	A	A	< 0.05 to 1.00 is acceptable	
Absolute fit	GFI	GFI	> 0.90	[17]
			Is a good fit	
Incremental fit	AGFI	AGFI	> 0.90	[18]
			Is a good fit	
Incremental fit	CFI	CFI	> 0.90	[19]
			Is a good fit	
Parsimonious fit	Chisq/df	Chisq/df	The value should be less than 5.0	[10]
	f	f	< 5.0	

Re-specified models were subsequently tested in this research before using the models for further analysis. Modification Indices (MI) was used as a guide for detecting specification errors during the model re-specification process. Consequently, CFA of the measurement model entire latent constructs in the research assessment framework evaluated and presented in the subsequent sections accordingly. In addition, initial measurement models were presented sequentially for each latent construct; fitness indexes; modification indices and; final measurement models. The purpose of this was for readers to understand each step of evaluating the fitness of each measuring model in the research evaluation model.

4.2 Analysis of Structural Equation Modelling

After the unidimensionality, reliability and validity of the research constructs were ascertained, the next stage of analysis model is the entire constructs into a single structural equation model using Analysis of Moment Structure (AMOS). The reason for the pull out is to display

the causal effects between one construct and the other in line with the set hypotheses. As showing in Fig.1, the final measurement model after deletion all of the items that have low factor loading till achieved the accepted threshold.

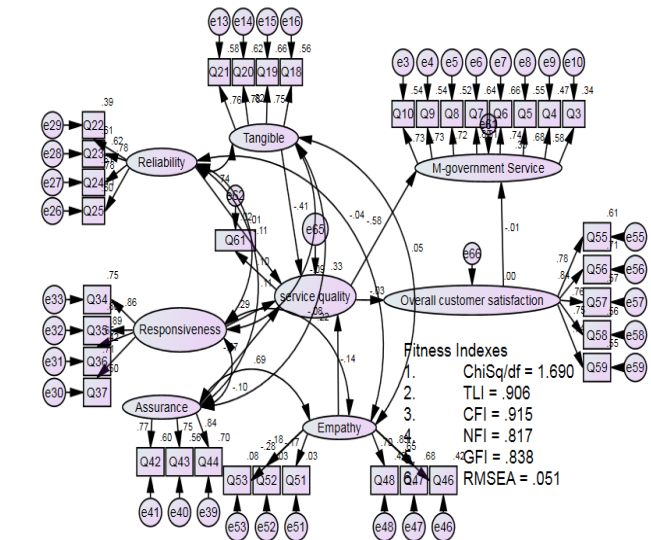


Fig 1- Final structural measurement model for the entire research constructs and goodness-of-fitness for structural model

In summary, the goodness-of-fitness for the two structural model are presented in the Fig.1 and showed the progressive improvement in the goodness-of-fitness indexes till acceptable level was realized. The final structural measurement model provided the analysis of the causal effect (impact) for the multiple constructs in the path diagram. First and foremost, the fitness indexes for the structural model which reflect how fit is the hypothesized model with the data at hand was observed and satisfactory within the established acceptable level of goodness of fitness indexes [11] and [12].

The standard regression weights indicated the estimate of beta coefficient which measures the impacts of the main constructs; exogenous variables on the intervening variable and endogenous variable (customer satisfaction).

The Analysis Moment of Structures (AMOS) used for the structural equation modelling in this research normally produced two types of text outputs: standardized regression weights and unstandardized regression weights for the path analysis. However, the standardized regression weight is adopted to explain the relationship among the entire constructs in the research theoretical framework and subsequently for

testing the hypotheses in the research as it is recommended to be better as it is easier to interpret [11].

### 4.3 Testing of Research Hypotheses

The comprehensive review of literature facilitated the earlier presented hypothesised research model. The hypothesised result in the Table 2 outlines the outcome of every respected path in the structural measurement model.

**Table 2- The summary of the tested hypotheses in this research**

S/N	The main hypothesis statement in the research	Estimate	P-value	Result
1.	H1 There is a relationship between service quality and M-government service.	0.587	***	Supported
2.	H2 There is a relationship between service quality and customer satisfaction.	0.350	***	Supported
3.	H3 There is a relationship between customer satisfaction and M-government service.	0.673	***	Supported

Key: \*\*\* represents P-value is less than 0.001

Findings of this study found that there is a substantial positive relationship between M-government services on customer satisfaction in AD. The 'results' to test this hypothesis of the independent M-government on the dependent construct customer satisfaction in AD and achieved the requirements of significant including factor loading, squared multiple correlation, fitness indices, correlation coefficient,

standardized beta, Average Variance Extracted (AVE), Composite Reliability (CR), modification index, direction of relationship, and significance level. The result revealed that M-government ( $\beta = 0.673$ , and  $p = 0.000 < 0.05$ ) have a significant impact on customer satisfaction and this has supported the hypothesis. The M-government is significantly contributing to customer satisfaction. This results is supported by study of [21].

Second findings of this 'results' to test this hypothesis of the independent relationship between service quality and customer satisfaction and presents the pulled information of the results which achieved the requirements of significant including factor loading, squared multiple correlation, fitness indices, correlation coefficient, standardized beta, Average Variance Extracted (AVE), Composite Reliability (CR), modification index, direction of relationship, and significance level. The research's result found that service quality ( $\beta = 0.350$ , and  $p = 0.000 < 0.05$ ) have a significant impact on customer satisfaction within the in AD. Therefore, the hypothesis is empirically supported by this research. The service quality is significantly contributing to customer satisfaction. This results is supported by previous study of [22].

Lastly, the result of the analysis which was based on the respondents' perception of the desirability and workability of the model also supports the applicability of the model. The desirability of the model was further ascertained through model validation by CFA. The validation of the model was carried out after research findings had been obtained. The result findings from the respondents further attested to the ability of the model to perform better as a catalyst to successful make customer satisfied. Also, the SEM inferably supported the influential factors related to M-government have a substantial impact on customer satisfaction. The study has provided proof that any effort made to improve the services provided by using M-government on customer satisfaction using the developed Model reported in this study is a step believed to be taken in the right direction.

### 5. Conclusion

The results of this research indicated that the primary recurring problems with the use of M-government facilities and leadership methods are mostly solved with human alternatives. In order to overcome the prevalent leadership issues, IT



adoption was not considered the best practice solution. The finding also disclosed that M-government can enhance the effectiveness of the organization resulting in efficient results. This research also discovered that the use of e-government among UAE people can be an instrument for efficient living procedures. This is important given the manner in which a bigger population worldwide seeks to transform all of their management operations specifically into materials management through e-government facilities. Furthermore, the research found that most clients prefer the use of traditional techniques rather than using systems such as e-government that give advantages to organizations that adopt and use M-government over traditional hands-on. Although M-government has been recognized as an instrument to help UAE people attain their goals in time, price and quality with all fulfillment. It should be noted, however, that there are inhibitors preventing the implementation of e-government technology in the UAE setting. Most of the people surveyed were worried about the inadequacies in facilities.

Furthermore, the results indicated price as one of the most prevalent factors that play a significant part in inhibiting the fulfillment of citizens by embracing new technologies, thus affecting their growth and development. The inhibitors found must be addressed or overcome to improve e-government acceptance among UAE people.

The critical drivers identified are important in ensuring that e-government adoption is enhanced. These critical influencers of M-government implementation are within practice, practice, and technology categories. All of these find important beneficial interactions between e-government and satisfaction of people.

The model was created by testing the cause impact connection between e-government and citizen satisfaction based on the quantitative results of this studies. The model factors created were regarded important for adoption by e-government. The model can thus improve the implementation of e-government for efficient tooling methods. Lastly, the e-government adoption model validation had done using Measurement model. The results demonstrate favorable and confident support for improving the practicality of the e-government model for efficient tooling procedures in the UAE

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