

# Customer satisfaction in sharing economy the case of ridesharing service in Alexandria, Egypt

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## Key words

Access-based consumption, Collaborative consumption, Collaborative economy, Gig economy, On-demand economy, Ridesharing Service.

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## Abstract

*The phenomenon of the shared economy is still quite new. The concept of collaborative consumption is associated with this phenomenon. It can be understood as a socio-economic ecosystem built around the sharing of human, physical and intellectual resources. Consequently, reduce the extent to which assets are underutilized. Sharing economy is an internet-based business model that involves people exchanging their resources and skills on a peer-to-peer (P2P) basis rather than using traditional businesses. Examples include ride share services such as Uber or Careem instead of a taxi. The study explores the factors influencing customer satisfaction in the context of sharing economy, focusing on the case of ridesharing service in Alexandria. This case is analyzed from a consumer perspective in contribution to fill the gap in understanding the sharing economy. A quantitative survey approach is applied using structured questionnaire to identify outcome of customer value as well as determinants of customer satisfaction. Results of regression analysis and Structural Equation Modelling (SEM) conducted revealed that there is a significant effect of all research variables, except for Cost Savings. The study provides concrete insights into current satisfaction with the Ridesharing service provided in Alexandria City. Eventually, it would help to develop a regulatory approach to ridesharing and enshrines basic safety and consumer protection requirements.*

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## 1. Introduction

The sharing economy converges around activities facilitated through digital platforms that enable peer-to-peer access to goods and services (Richardson, 2015). It has set economic and socially relevant dynamics while altering existing markets. For example, the ride-sharing market, led by Uber, has changed the taxi market. In the sharing economy, transactions occur via digital platforms operated by organizations and can be considered as the main infrastructure. These digital platforms mediate transactions by matching the supply side with the demand side (Mair and Reischauer, 2017). The P2P market covered by the study can be described as platforms for sharing or hiring a ride from/with other people, which offer ride-sharing services. Collaborative consumption is of large scale, involves millions of users and makes up a profitable trend that many businesses invest in. Furthermore, it is a competitive business model and presents a challenge to conventional service providers that need to be analyzed (Möhlmann, 2015).

The concept of collaborative consumption is explained by (Botsman, 2010) as an “economic model of sharing, swapping, trading or renting products and services, enabling access over ownership. It is reinventing not just what we consume, but how we consume.”

As ride sharing becomes important service nowadays within the security circumstances present in Egypt, the research is designed to explore the dimensions achieving customer satisfaction regarding the service under study. It aims also at evaluating the explored dimensions so as to be able to know to what extent they are applied within the ridesharing services, as well as knowing the effect of such dimensions on customers being satisfied with such service. Accordingly, the researcher will be able to develop a framework of the explored factors to cope with the desired level of customer satisfaction. In addition, the

research examines the effect of demographics and personal profiles of respondents so as to evaluate to which level customer satisfaction may change according to their profiles.

Therefore, this research is examining the effect of customer values dimensions and their impact on customer satisfaction. The research is divided into several sections. The next section is a review of literature. The third section presents the research methodology, while the fourth section revealed the study results. Finally, the conclusion and recommendations are shown in the fifth section.

## 2. Literature Review

In this section, a review of literature identified the customer values as: Cost Savings, Knowledge, Service Quality, Customer Satisfaction, Security and Reliability, and Technological factors. These research variables are discussed in details. Regarding Cost Savings, it refers to spending less money than was planned. The general point of view is that it includes two categories: hard savings and soft savings. A third category, cost avoidance, is often discussed though. Hard savings is by nature quantitative, since "tangible" information is required for its measurement. A cost reduction is measured by comparing the negotiated price with a price referential, or with the last price paid. Hard savings are related to all buyers' actions that directly impact the bottom line, such as reductions in price or in transaction costs. (Nollet et al., 2008). many recent research contributions argue that the satisfaction of car sharing customers would be influenced by cost savings, including the initial cost of investing in a transportation option. (Bardhi and Eckhardt ,2012) stress economic concerns to be a major reason in many cases when practicing collaborative consumption.

Cost avoidance is the reduction or the elimination of a future cost. Promoting access over Ownership in sharing economy (Bockman ,2013) argues that Expensive and luxury goods suddenly become affordable for new customer groups that were not able to afford them before. Some authors consider that cost avoidance is not a saving at all: "whilst it can involve significant procurement activity to negate inflationary pressure for instance, it does not contribute to the financial accounts.". However, most researchers agree to measure cost avoidance, but not to integrate it into savings measurement (Nollet et al., 2008).

When considering Knowledge as another customer value, it had been found that knowledge is a valuable, rare, inimitable, and non-substitutable resource (Tseng, 2016). Knowledge is "not a self-contained substance waiting to be discovered and collected. Knowledge is created by people in their interactions with each other and the environment. Hence, a company requires a "process in which a firm creates its future by changing itself and its environment through knowledge creation" (Stary, 2104).

Considering Service quality as the third customer value, it had been found that service quality had been widely discussed in the services marketing literature. It is commonly acknowledged as an antecedent of customer satisfaction and loyalty. A comprehensive framework was provided linking service quality, customer satisfaction, customer retention, and company profitability. This relationship chain assumes that customer satisfaction is improved by enhancing service quality, and customer satisfaction drives customer loyalty and company profitability. A few studies have empirically investigated and supported this link (Prentice, 2013).

Service quality has been referred to as an abstract and elusive construct because of the unique characteristics of services, namely, intangibility, heterogeneity, inseparability and perishability. Due to the unique features, service quality is often assessed by customers' perceptions of the firm's service. Research based on these perceptions has developed scales to measure service quality, notably, SERVQUAL. The instrument has been designed "to be applicable across a broad spectrum of services" and has been frequently cited in the services marketing and management literature (Prentice, 2013).

In transportation, one of the contributing factors in customer satisfaction is personal security. While personal security is a rising issue in public transportation, it is becoming a matter of great concern and debate in ride-sharing services. The chance of undergoing assault, violence, harassment or attack has become a critical factor in traveler's decision making. Any anticipation of negative behavior can affect all characteristics of travel options, which may include the mode, time of day; route to be taken etc. and it also force a person to not travel at all (Chaudhry et al., 2018).

Technology is the most impactful feature driving the sharing economy. The emergence of mobile technology has helped to create hyper-efficient marketplaces (Nov, Naarman, & Ye, 2010) that allow us to share anything with the rest of the world. The Internet, in combination with mobile services, made it cheaper and easier to aggregate supply and demand where needed. For instance, smartphones, GPS-mapping and satellite placing can help find the next nearby apartment to rent or car to hire. Social networks and user recommendation systems help to establish trust (Hsu, Ju, Yen, & Chang, 2007); intelligent internet account and payment systems provide easy invoicing.

Finally, Customer Satisfaction is customers' respond to what they expect and what they experienced from a product/process. Service and performance influence Customer Satisfaction, with performance being a result of activities from a work plan. Service quality is influenced by perceived service and expected service. If the perceived service is less than the expected service, the customer will not be satisfied; but, on the other hand, if the perceived service is more than the expected service, the customer will be satisfied. There are five dimensions that build Customer Satisfaction, namely reliability, responsiveness, assurance, empathy and tangibles (Herman, 2014).

### 3. Research Methodology

This section is designed to present the research methodology to apply the empirical study of this research and be able to come up with the results and findings for this research. The research methodology is a number of methods that systematically solve the research problem. Research methodology describes the research methods as well as the logic behind these methods. It depicts which path is followed in order to reach the research aims. In this research, descriptive research methodology is adopted in order to evaluate the customer value in sharing economy.

In this research, the quantitative approach also is used to evaluate the customer value in sharing economy. Questionnaires are used as the tool of collecting quantitative data, where the unit of analysis for this research is the customers of ridesharing services. This is an infinite population. Since our sampling design is probability, the type of probability sampling that fit with this research is the stratified random sampling in which all elements in the population are considered and each element has an equal chance of being chosen as the subjects. Its great advantage is that it has a high generalizability of findings (Sekaran, 2016).

The Sampling frame for any probability sample is a complete list of all the cases in the population from which sample will be drawn (Saunders et al., 2009). As it is difficult to get comprehensive list of all ridesharing services customers in Egypt, a simple random sampling method is used. As, Egypt is a big country having thousands of firms so, it is almost impossible to count the exact number of them. So, the total population (N) i.e. the number of customers using ridesharing services in Egypt is considered infinite while calculating sample size for this research. The research adopted the strategy of having a sample size of 400 according to the sample size corresponding to the 95% confidence level (Saunders et al., 2009).

The current research purpose is to explore the main dimensions that cope with customer satisfaction for the ridesharing services. It also measures the impact of the research variables explored on customer satisfaction. Therefore, the current research framework could be expressed using the Figure 1, where the research variables are considered as Cost Saving, Service Quality, Technological Factors, Security and Reliability, Awareness and Customer Satisfaction.

**Accordingly, the research hypotheses are stated as follows:**

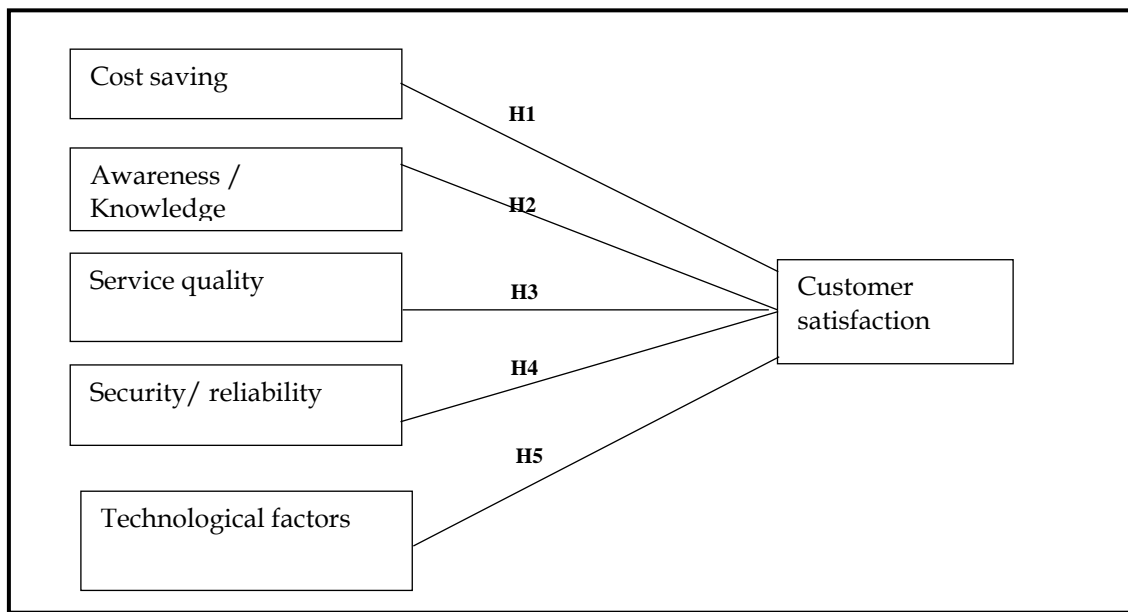
*H1: cost saving has a positive effect on the satisfaction with a sharing option*

*H2: Awareness and knowledge have a positive effect on the satisfaction with a sharing option*

*H3: Service quality has a positive effect on the satisfaction with a sharing option*

*H4: Security & reliability has a positive effect on the satisfaction with a sharing option*

*H5: Technological factors have a positive effect on the satisfaction with a sharing option.*



**Figure 1: Conceptual Framework**

#### 4. Empirical Study and Findings

As ridesharing becomes one of the arising and important services, with wide variety of customers in several cities of Egypt, customer satisfaction arises as a critical aspect of the ridesharing services. Thus, customer satisfaction antecedents were reviewed through literature to able to determine the factors that affect customer satisfaction of the ridesharing services. As per reviewing the literature, it was found that there are many factors that affect customer satisfaction and they vary according to the type of service provided as well as the culture of the geographical location that the service is allocated in it. Accordingly, a mixed research-based approach was followed between qualitative and quantitative methods. The qualitative method was beneficial to be able to explore the main antecedents of customer satisfaction for ridesharing services in Egypt. In addition, the quantitative method is followed to determine which of the selected factors are significantly affecting the customer satisfaction of ridesharing service and to develop a framework for customer satisfaction that cope with the required level of the service.

The descriptive statistics is a tool in which it explains and gives a distinct understanding of the features of certain data set, by giving short summaries about samples and how to measure the data. The three major types of descriptive analysis are frequency, measures the central tendency such as averages, and measure of variability such as standard deviation. Measures of variability describe the level of how different the scores are from the mean. Measures of central tendency suggest unique value that generally represents the entire scores set.

Frequency statistics sum how many times each variable is repeated; for instance, the number of employed and unemployed among the sample. In the following section, means, standard deviations and frequency statistics will be conducted on both; demographic data and the research variables. Table 1 shows the frequency tables for the research variables, where it could be observed that responses vary between strongly disagree and strongly agree, which means that not all responses are in the zone of agreement. In other words, the sample under study faces a problem in perceiving the sharing application as the respondents' reactions were not all in the agreement zone thus, in this study testing of hypothesis will be observed to identify which variables direct customers to be in the disagreement zone.

**Table 1: Descriptive Analysis for the Research Variables**

Variable	N	Mean	Std. Deviation	Frequency				
				1	2	3	4	5
Cost Saving	502	3.5737	0.99577	36	17	134	253	62
Awareness & Knowledge	502	3.4960	0.76015	4	46	173	255	24
Service Quality	502	3.5179	0.94704	3	59	209	137	94
Security & Reliability	502	3.5797	0.82901	10	25	187	224	56
Technological Factors	502	3.9861	0.76722	7	4	97	275	119
Customer Satisfaction	502	4.1215	0.75236	1	7	88	240	166

**Testing the First Hypothesis: Relationship between Cost Saving and Customer Satisfaction**

Table 2 shows the regression model for the effect of Cost Saving Dimensions on Customer Satisfaction, as the corresponding P-values are more than 0.05. Also, R Square is 0.000 which means that Cost Saving does not explain any of the variation in Customer Satisfaction.

**Table 2: Regression Model of Cost Saving on Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	R Square
		B	Std. Error	Beta				
1	(Constant)	4.150	.125			33.113		.000
	Cost Savings	-.008	.034	-.011		-.238	.812	

Therefore, the first hypothesis that there is a significant relationship between Cost Saving and Customer Satisfaction is rejected.

**Testing the Second Hypothesis: Relationship between Awareness and Knowledge and Customer Satisfaction**

Table 3 shows the regression model for the effect of Awareness & Knowledge on Customer Satisfaction, as the corresponding P-values are less than 0.05 and the regression coefficients are greater than zero. Also, R Square is 0.059 which means that the variable of Awareness & Knowledge explains 5.9% of the variation in Customer Satisfaction.

**Table 3: Regression Model of Awareness & knowledge and Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	R Square
		B	Std. Error	Beta				
1	(Constant)	3.279	.154			21.351	.000	0.059
	Awareness & Knowledge	.241	.043	.243		5.612	.000	

Therefore, the second hypothesis that there is a significant relationship between Awareness and Knowledge and Customer Satisfaction is supported.

**Testing the Third Hypothesis: Relationship between Service Quality & Customer Satisfaction**

Table 4 shows the regression model for the effect of Service Quality on Customer Satisfaction, as the corresponding P-value is less than 0.05 and the regression coefficient is greater than zero. Also, R Square is 0.150 which means that the variable of Service Quality explains 15% of the variation in Customer Satisfaction.

**Table 4: Regression Model of Service Quality Dimensions on Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R Square
		B	Std. Error	Beta			
1	(Constant)	3.038	.119		25.464		
	Service Quality	.308	.033	.388	9.406	.000	.150

Therefore, the third hypothesis that there is a significant relationship between Service Quality and Customer Satisfaction is supported.

#### Testing the Fourth Hypothesis: Relationship between Security and Reliability and Customer Satisfaction

Table 5 shows the regression model for the effect of Service & Reliability on Customer Satisfaction, as the corresponding P-value is less than 0.05 and the regression coefficient is greater than zero. Also, R Square is 0.086 which means that the variable of Service & Reliability explains 8.6% of the variation in Customer Satisfaction.

**Table 5: Regression Model of Security & Reliability on Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R Square
		B	Std. Error	Beta			
1	(Constant)	3.169	.143		22.226	.000	
	Security and Reliability	.266	.039	.293	6.859	.000	.086

Therefore, the fourth hypothesis that there is a significant relationship between Security and Reliability and Customer Satisfaction is supported.

#### Testing the Fifth Hypothesis: Relationship between Technological factors and Customer Satisfaction

Table 6 shows the regression model for the effect of Service & Reliability on Customer Satisfaction, as the corresponding P-value is less than 0.05 and the regression coefficient is greater than zero. Also, R Square is 0.052 which means that the variable of Service & Reliability explains 5.2% of the variation in Customer Satisfaction.

**Table 6: Regression Model of Technological Factors on Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R Square
		B	Std. Error	Beta			
1	(Constant)	3.231	.173		18.643	.000	
	Technological Factors	.223	.043	.228	5.229	.000	.052

Therefore, the fifth hypothesis that there is a significant relationship between Technological Factors and Customer Satisfaction is rejected.

#### Multiple Regression model on Customer Satisfaction

Awareness & Knowledge along with Technological factors are all positive and significant as the P-value is less than 0.05 and their coefficients are greater than zero. Cost Savings is insignificant because the P-value is greater than 0.05. The variation of all significant independent variables can explain 25.5% of the variation of the dependent model; Customer Satisfaction. The following equation expresses the relationship:

$$SAT = 1.490 + 0.006 CS + 0.148 AN + 0.261 SQ + 0.180 SR + 0.133 TF$$



**Table 7: Multiple Regression Model on Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		R Square
		B	Std. Error	Beta	t	Sig.	Tol	
1	(Constant)	1.490	.245		6.094	.000		
	Cost Saving	.006	.030	.008	.215	.829	.974	1.027
	Awareness & Knowledge	.148	.040	.149	3.737	.000	.945	1.058
	Service Quality	.261	.032	.328	8.209	.000	.944	1.059
	Security & Reliability	.180	.037	.198	4.929	.000	.931	1.074
	Technological Factor	.133	.039	.136	3.420	.001	.953	1.049

a. Dependent Variable: Customer Satisfaction

Table 8 shows that Cost Saving should be excluded from the model to reach the best results. It shows also that Service Quality, Security and Reliability, Awareness, and Technological Factors should all included in the multiple regression model as all has significant effect on Customer Satisfaction. R-squared of the final model is 0.252 which means that 25.2% of the variations in the dependent variable; Customer Satisfaction can be explained by the included independent variables all together. The following equation expresses the best relationship:

$$SAT = 1.512 + 0.260 SQ + 0.180 SR + 0.148 AN + 0.134 TFS$$

**Table 8: Step Wise Multiple Regression Model on Customer Satisfaction**

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.	R Square
		B	Std. Error	Beta	t		
1	(Constant)	3.038	.119		25.464	.000	.150
	Service Quality	.308	.033	.388	9.406	.000	
2	(Constant)	2.334	.163		14.320	.000	.209
	Service Quality	.282	.032	.355	8.824	.000	
	Security & Reliability	.223	.036	.245	6.104	.000	
3	(Constant)	1.909	.192		9.949	.000	.235
	Service Quality	.270	.032	.340	8.559	.000	
	Security & Reliability	.196	.037	.215	5.353	.000	
	Awareness & Knowledge	.161	.040	.163	4.052	.000	
4	(Constant)	1.512	.222		6.811	.000	.252
	Service Quality	.260	.031	.327	8.272	.000	
	Security & Reliability	.180	.036	.199	4.957	.000	
	Awareness & Knowledge	.148	.039	.149	3.746	.000	
	Technological Factors	.134	.039	.136	3.441	.001	

Table 9 shows the SEM model for the effect of Cost Saving, Awareness Knowledge, Service Quality, Security Reliability, and Technological Facts on Customer Satisfaction. It was observed that there is a significant effect of Awareness Knowledge, Service Quality, Security Reliability, and Technological Facts on Customer Satisfaction, with estimates of 0.221, 0.361, and 0.300 respectively and P-values of 0.000. While there is insignificant influence of Cost Saving, as p-valued are greater than 0.05. Also, the R Square is 0.603, which means that Awareness Knowledge, Service Quality, Security Reliability, and Technological Facts explain 60.3% of the variation in Customer Satisfaction.

**Table 9: SEM Model for the Customer Satisfaction and its Antecedents**

			Estimate	P-value	R Square
Customer satisfaction	<---	Cost saving	.000	.994	0.603
Customer satisfaction	<---	Awareness / Knowledge	.221	***	
Customer satisfaction	<---	Service quality	.361	***	
Customer satisfaction	<---	Security/ reliability	.300	***	
Customer satisfaction	<---	Technological factors	.176	***	

It should be highlighted that model fit indices were tested as a preliminary step of conducting the SEM model. Table 9 was obtained where it was found that the minimum discrepancy or chi-square divided by the degrees of freedom (CMIN/DF) was 2.096; the probability of getting as larger discrepancy as occurred with the present sample (p-value) was 0.000; goodness of fit (GFI) was 0.920; adjusted goodness of fit index (AGFI) was 0.900 - that evaluate the fit of the model versus the number of estimate coefficients or the degrees of freedom needed to achieve that level of fit; the Bentler-Bonett normed fit index (NFI) was 0.889 and the Tucker-Lewis index or Bentler-Bonett non-normed fit index (TLI) was 0.929 - which assess the incremental fit of the model compared to a null model; the comparative fit index (CFI) was 0.938.

Also, the root mean square residual (RMR) was 0.093 - which shows the amount by which the sample variances and covariances differ from their estimates obtained under the assumption that the model is correct; the root mean square of approximation (RMSEA) was 0.047 - which is an informative criteria in covariance structure modelling and measures the amount of error present when attempting to estimate the population; and (PCLOSE) was 0.819 - which gives a test of exact fit (Gaskin, 2012; Hair, 2010). Table 10 shows these indicators value in Model and the recommended values for them. The indices shown in the table means that the data fit the model quiet well, with the exception of p-value for the model that may be caused by larger sample size.

**Table 10: Fit Indices and Thresholds for Customer Satisfaction Model**

Measure	Results	Threshold
Chi-square/df	2.096	< 2 excellent; < 3 good; < 5 sometimes permissible
P-value	0.000	> 0.05
GFI	0.920	> 0.80
AGFI	0.900	> 0.80
NFI	0.889	> 0.80
TLI	0.929	> 0.80
CFI	0.938	> 0.95 great; > 0.90 traditional; > 0.80 sometimes permissible
RMSEA	0.047	< 0.05 good; 0.05-0.10 moderate; > 0.10 bad
PCLOSE	0.819	> 0.05

The SEM model conducted for the effect of Cost Saving, Awareness Knowledge, Service Quality, Security Reliability, and Technological Facts on Customer Satisfaction in Figure2.



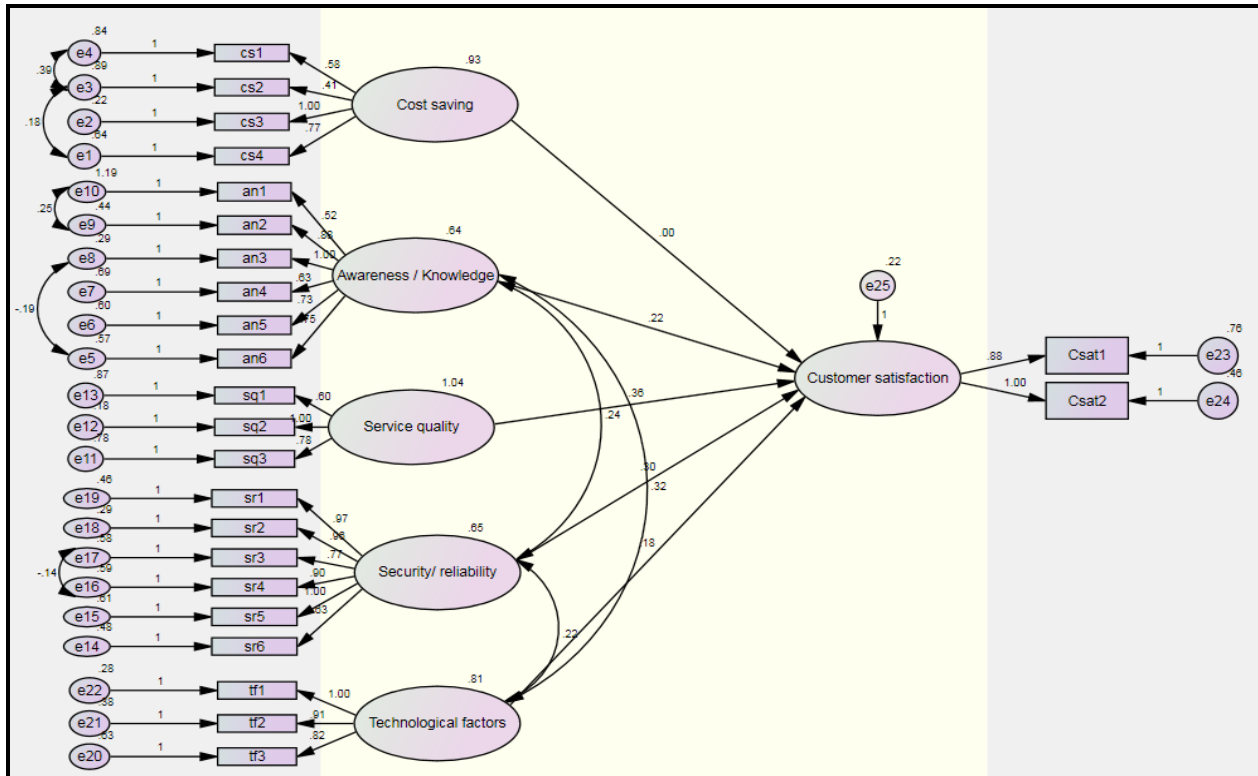


Figure 2: Structural Equation Modelling (SEM) Model

## 5. Conclusion

The study provides concrete insights into current satisfaction with the Ridesharing service provided in Alexandria City. Eventually, it would help to develop a regulatory approach to ridesharing and enshrines basic safety and consumer protection requirements. Results of regression analysis and SEM conducted revealed that there is a significant effect of all research variables, except for Cost Savings.

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