

# Factors Affecting Adoption of M-commerce in Surat City

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## ABSTRACT

Mobile Commerce, also known as, M-commerce is thought to be the next big phase in this technologically dependent society after E-commerce era. The application of mobile services for doing commerce activities is increasing day by day. Future of expanding business and growth depends on adoption of M-commerce and technology transfer adoption by society and business simultaneously. The Technology Acceptance Model (TAM) has been chosen for the purpose of identifying effect of factors affection adoption of M-commerce because it is widely used and tested both theoretically and empirically in the field of m-commerce. Our proposed model takes up TAM determinants of perceived usefulness and perceived ease of use and then extends these with the inclusion of Social Influence, Innovativeness and Trust to predict the adoption of m-commerce in region. This study aims to identify factors affecting adoption of M-commerce in Surat city. Responses are collected through structured questionnaire and with the help of statistical tools like SPSS analysis have been conducted. Study revealed that Ease of use, Usefulness and Risk are the most important for M-commerce adoption in Surat city. It is found that education and gender does not have any association with M-commerce adoption in Surat city.

**Keywords:** M-commerce, Technology acceptance model, Factors

## Introduction

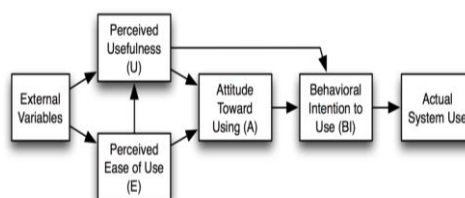
The rising industry of M-commerce is characterized by a continuously changing, complex and very uncertain environment, particularly in regard to technological developments and demand. Mobile commerce, also known as M-Commerce, or M-commerce, refers to the business activities conducted via wireless telecommunication networks. As a new phase of electronic commerce, mobile commerce has ample of exceptional advantages over electronic commerce like ease of use, usefulness, less risk and convenience. Penetration of Smartphone industry in India M-commerce has emerged with most promising platform for business.

The use of mobile in recent era is not limited up to calling and sending text messages in information age mobile phone fulfill the purpose of linking people to various kinds of services. And such changes are witnessed after evolution of 3G and 4G connectivity in India. Simply installing a mobile app to a smart phone allows users access to mobile commerce services, such as mobile banking, mobile investing, mobile auctions, and mobile shopping. Wireless subscription shows huge potential for the industry to nurture the potential of M-commerce in coming years. According to TRAI it there is total wireless subscribers (GSM, CDMA & LTE) increased from 1,125.07 million at the end of Apr-18 to 1,131.01 million at the end of May-18, thereby registering a monthly growth rate of 0.53%.

Previous studies on mobile commerce, especially those based on the technology acceptance model (TAM) developed by Davis, Bagozzi and Warshaw (1989), mostly focused on finding the collective contribution of independent variables, such as compatibility, perceived usefulness, and perceived ease of use, on the dependent variable of actual use via the mediating variables of attitude and behavior intention. This research is taking base of TAM model and tries to identify the factors affecting to adoption in Surat region.

## Literature Review

(Davis et al. 1989) The technology acceptance model (TAM) identified the fundamental variables that determine computer acceptance. According to the TAM, a user's behavior intention toward the use of a computer system can be predicted by the user's attitude toward that system, perceived usefulness and perceived ease of use of the system.



(Davis 1989) the perceived ease of use for a system is defined as the degree to which an individual believes that using a particular technology will be free of effort. The perceived ease of use has been incorporated as an important factor in adopting Mobile commerce. (Hosein, 2011) in his study describes that perceived ease of use is the degree of perception upon which one believe that the use of mobile commerce system would be easy and this would not be toilsome for them. (BenMoussa, 2005; Camponovo & Pigneur, 2003; Ng-Kruelle et al., 2002; Turban, et al. 2002) The freedom of time and location is related to the concept of anytime and anywhere access that represents the two main characteristics of mobile wireless technologies: mobility and reach ability.

Perceived usefulness of a system is defined as the extent to which individuals believe that using the new technology will enhance their task performance. There is extensive research in the IS that provides evidence of the significant effect of perceived usefulness on usage intention (Davis et al, 1989, Venkatesh & Morris, 2000).

Attitude toward behavior (ATB) can be considered as a person's general feeling of favorableness or unfavorableness for a behavior (Ajzen & Fishbein, 1980). And it is important component of Technology Acceptance Model (Davis, 1993)

Many researchers have ignored the role of risk perceptions, probably due to the complex nature of trust and risk (Gefen et al, 2003). In the mediating relationship, trust is hypothesized to influence perceived risk that, in turn, influences behaviour. If trust exists, the perception of risk is reduced, which, in turn, increases the willingness to take part in M-commerce. Olson and Olson (2000) take the view that trust is the consequence of risk, implying that trust mediates the relationship between risk and behaviour. Johnston et al (2002) also suggested identifying "practitioner's source" to find specific risk. Systems or technology related risks include viruses, blue-snarfing (theft of private details using Bluetooth), systems errors, security laps, fraud, etc.

(Venkatesh and Davis, 2000) A number of models each with different sets of acceptance determinants have been developed in the field of information technology acceptance research. They have identified that social influence process and cognitive influence process has significantly influenced user acceptance.

(Gupta & Vyas 2014) M-commerce is complex to adapt for Indians as it is at emerging level in India. Now Indian users have started using M-commerce for web access, surfing & a few times shopping. They have also focused on how M-commerce has evolved & developing in India along with some benefits & drawback of M-commerce in India.

M-commerce should not be viewed as e-commerce with limitations, but rather as a unique form of e-commerce with its own unique benefits (Scornavacca et al., 2006). Additionally, m-commerce is not a substitute for PCs. Rather; it is a new and a much more powerful way to communicate with customers.

### Objective of Study

Following are main objective of the study

- To identify the factors affecting adoption of M-commerce in Surat city.
- To study the influence of Ease of use on adoption of M-commerce.
- To study the influence of usefulness on adoption of M-commerce.
- To study the influence of attitude on adoption of M-commerce.
- To study the influence of risk on adoption of M-commerce

### Research Methodology

A total number of 250 respondents approached with questionnaires among those 27 questionnaires omitted due to response error and finally 223 usable questionnaires were considered for data analysis. Respondents were assured of anonymity and confidentiality. A convenient sampling method is used for data collection in this research. The duration of the study was from June to August 2018. Most of the constructs included in this research are used to operationalize from existing relevant previous studies with the necessary validation and wording changes. The constructs were measured by the subjects indicating their agreement with a set of statements using a 7 point Likert scale (7-strongly agree, to 1-strongly disagree).

### Results

General demographic variables such as age, gender, education, income, etc have a relationship with the way people adopt the M-commerce.

**Table 1 Demographic Profile**

		No. Of Respondent	Percentage	223
Gender	Male	149	66.8	
	Female	74	33.2	

<b>Age</b>	18-34	212	95.1
	35-46	7	3.1
	47-56	3	1.3
	57-65	1	0.4
<b>Education</b>	Master Degree	133	59.6
	Bachelor Degree	85	38.1
	Diploma	3	1.3
	High school or Lower	2	0.9
<b>Income</b>	Student/Unemployed	117	52.5
	<10,000	8	3.6
	10,000 - 24,999	33	14.8
	25,000 - 49,999	42	18.8
	50,000 - 74,999	12	5.4
	75,000 - 99,999	4	1.8
	1,00,000 - 1,49,999	4	1.8
	>1,50,000	3	1.3
<b>Occupation</b>	Own Business	26	11.7
	Service Provider	3	1.3
	Home Maker	6	2.7
	Government Employee	8	3.6
	Doctor	11	4.9
	Private Sector Salaried	39	17.5
	C.A.	6	2.7
	Student	121	54.3
	Engineer	3	1.3
	Lawyer	3	1.3

**Table 2 Reliability Statics**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.812
Approx. Chi-Square	1817.479
Bartlett's Test of Sphericity df	276
Sig.	.000

The resulting  $\alpha$  coefficient of reliability ranges from 0 to 1 in providing this overall assessment of a measure's reliability. Through the test it is found that questionnaire is reliable as it gives value  $\alpha = 0.75$  Factor analysis is a technique that is used to reduce a large number of variables into fewer numbers of factors. This technique extracts maximum common variance from all variables and puts them into a common score.

**Table 3 KMO and Bartlett's Test**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.775	.788	44

Kaiser-Meyer-Olkin (KMO) Test is a measure of how suited your data is for Factor Analysis. The test measures sampling adequacy for each variable in the model and for the complete model. The statistic is a measure of the proportion of variance among variables that might be common variance. The lower the proportion, the more suited your data is to Factor Analysis.

KMO values between 0.8 and 1 indicate the sampling is adequate. KMO values less than 0.6 indicate the sampling is not adequate and that remedial action should be taken. Interpretation-Here KMO values between 0.812 and 1 so the sampling is adequate.

**Table 4Total Variance Explained**

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.984	24.935	24.935	5.984	24.935	24.935	2.805	11.685	11.685
2	2.676	11.152	36.086	2.676	11.152	36.086	2.471	10.298	21.983
3	1.722	7.174	43.260	1.722	7.174	43.260	2.291	9.546	31.529
4	1.500	6.248	49.508	1.500	6.248	49.508	2.250	9.375	40.904
5	1.247	5.194	54.702	1.247	5.194	54.702	2.159	8.997	49.901
6	1.106	4.607	59.310	1.106	4.607	59.310	2.096	8.732	58.634
7	1.028	4.283	63.592	1.028	4.283	63.592	1.190	4.959	63.592
8	.964	4.016	67.608						
9	.816	3.400	71.008						
10	.766	3.190	74.198						
11	.656	2.732	76.930						
12	.640	2.667	79.597						
13	.630	2.626	82.224						
14	.576	2.399	84.623						
15	.508	2.116	86.738						
16	.470	1.957	88.695						
17	.422	1.760	90.455						
18	.417	1.737	92.192						
19	.385	1.605	93.796						
20	.331	1.381	95.177						
21	.325	1.354	96.532						
22	.301	1.256	97.788						
23	.280	1.167	98.954						
24	.251	1.046	100.000						

Extraction Method: Principal Component Analysis.

**Total variance explained**

Interpretation – From this table it can interpret that the 7 factor extracted the first factor accounts for 24.935% of the variance, the second 11.152%, the third 7.174%, fourth 6.248%, fifth 5.194%, sixth 4.607 and seventh 4.283%. All the remaining factors are not significant.

**Interpretation:**

All the variable that have large factor loadings for a given component define the component. The variable constituting **Factor 1** are,

IfinditeasytomakePurchasethroughM-Commerce	Ease of Use
IfeelcomfortablewhenIusetheM-Commerceonmyown	
IfinditeasytouseM-CommerceetobuywhateverIwanttobuy	

The variable constituting **Factor 2** are,

UsingtheM-Commercehelpmetohavemoretimeforacreativethinking	Usefulness
UsingtheM-Commercehelpmetoincreaseproductivityinonlinetransaction	
OverallusingM-Commercehelpimprovingmyperformanceintransaction	
GovernmentsupporttouseofDigitizationencouragemetouseM-Commerce	

The variable constituting **Factor 3** are,

IliketodoexperimentonM-Commerceapplication	Intention to use
IoftenseekinformationaboutnewadvancementinM-Commerce	
IintendtouseM-Commerceformoreinformation	
IamabletouseM-Commerceevenifthereisnoonearound	

The variable constituting **Factor 4** are,

IthinkusingM-Commerceputsmyprivacyatrisk	Perceived Risk
IamconcernedaboutsubmittinginformationviaM-Commerce	
IthinkusingM-Commerceinmonetarytermshas potentialrisk	

The variable constituting **Factor 5** are,

I use M-Commerce to make purchases only to make show off in peer group	Attitude
I use only those applications which are suggested by my friends and relatives	
Demonetization forces me to use M-Commerce more	

**H0:** There is no significant difference in Gender and intention of use of M-commerce.

**H1:** There is significant difference in Gender and intention of use of M-commerce.

**Table 5 Mann-Whitney U Test**

	I intend to use M-Commerce more often	I intend to use the M-Commerce more often	Demonetization forces me to use M-Commerce more
Mann-Whitney U	5350.500	5398.500	5472.500
Wilcoxon W	16525.500	8173.500	8247.500
Z	-.381	-.263	-.091
Asymp. Sig. (2-tailed)	.703	.793	.928

a. Grouping Variable: Gender

From this data, it can be concluded that intention to use M-commerce in the gender group was statistically insignificant. ( $p = 0.703, 0.793, 0.928$ ).

**H0:** There is no significant difference in Gender and ease of use of M-commerce.

**H1:** There is significant difference in Gender and ease of use of M-commerce.

**Table 6 Mann-Whitney U Test**

	I find it easy to make purchases through M-Commerce	I find it easy to use M-Commerce whenever I want to buy	I feel comfortable when I use the M-Commerce on my own	Overall I find the M-Commerce easy to use
Mann-Whitney U	5229.500	5276.000	5275.500	5474.000
Wilcoxon W	8004.500	8051.000	16450.500	8249.000
Z	-.676	-.556	-.568	-.092
Asymp. Sig. (2-tailed)	.499	.578	.570	.926

a. Grouping Variable: Gender

From this data, it can be concluded that ease of use M-commerce in the gender group was statistically insignificantly different. ( $p = 0.499, 0.578, 0.570, 0.926$ ).

**H0:** There is no significant difference in education qualification and intention of use of M-commerce.

**H1:** There is significant difference in education qualification and intention of use of M-commerce.

**Table 7 Kruskal Wallis Test**

	I intend to use M-Commerce more often	I intend to use the M-Commerce more often	Demonetization forces me to use M-Commerce more
Chi-Square	5.729	1.298	1.867
df	3	3	3
Asymp. Sig.	.126	.730	.600

a. Kruskal Wallis Test

b. Grouping Variable: Education Qualification

A Kruskal-Wallis H test showed that in all cases there is no significant difference in education and ease of use adoption of M-Commerce in variable.

**Conclusion**

The purpose of this research is to identify which factors have the most influence on mobile commerce adoption in Surat city. The study applied Technology Acceptance Model with its antecedents Ease of use, Usefulness, and Attitude with its extended antecedent Perceived Risk.

It was found that Ease of use and Usefulness and Perceived Risk were the important factors that influence Adoption of M-commerce. Further it is also found that the Adoption of M-commerce does not differ with demography of respondent mainly gender and education. This may be because majority of respondents were youngsters. For marketers it is necessary to consider these above mentioned factors that influence adoption of M-commerce while developing M-commerce related applications and formulating strategies related to M-commerce.

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