

ADOPTION OF ELECTRONIC COMMERCE IN INDIAN MSMEs

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ABSTRACT

The study aims to investigate the factors that influence MSME's in adopting E-commerce. MSME are considered to be the sector that plays a vital role in many developing countries. Digitalization has brought significant changes in MSME. A study among 300 MSME of pharmaceutical industry in Maharashtra was conducted. The responses helped in identification of the various factors in adoption of E-commerce in pharmaceutical industry. The adoption of E-commerce pharmaceutical industry is still far away in most of the industries in India. Adopters will reach the market easily than the non-adopters who will be left behind in their industry. The pandemic 2020 situation has made most of the pharmaceutical industries to adopt E-commerce especially for their sales promotion. This study provides suggestive implications for successful adoption of E-commerce in pharmaceutical industry.

Keywords: E-commerce, Environmental, MSME, Organisational, Pharmaceutical, Technological.

INTRODUCTION

Indian MSMEs are witnessing an extremely dynamic and multi-faceted business scenario Jena et al. (2018). E-commerce helps Pharmaceutical industry to reduce their basic expenses and gain more benefit to face global competencies. It also reduces the redundancy threat. To keep in pace and sustain with the competitive advantage over other companies, pharmaceutical industries need to adopt new technology in their daily transactions. Adoption of E-commerce is one among the influencers for sustainability in the market globally. MSMEs in India plays an indispensable role in the economic development of the nation through contribution to the manufacturing output, increasing foreign exchange earnings, provision of employment opportunities, exports, and promoting balanced economic development Mohan & Ali (2018).

The world has witnessed changes in the disease pattern in the past years which is due to the changing lifestyle of the people. This has led to the rise of demand of medicines promoting the online sales in pharmaceutical industry. E-commerce provides anytime anywhere purchase of the medicines contributing to the wellness and reducing suffering of the patients. Pharmaceutical industry has become a part of our daily life. E-commerce in Pharmaceutical industry helps the users to interact with the Doctors / Pharmacists for consultancy and providing E-prescriptions for their further follow-ups.

Objectives of the Study

1. To investigate how E-commerce adoption increases the effectiveness and efficiency to overcome new business environment of pharmaceutical industry
2. To analyze the factors influencing the adoption of E-commerce in pharmaceutical industry

3. To determine the MSME performance in E-commerce adoption in pharmaceutical industry
4. To identify the trust factors in E-commerce adoption
5. To provide valuable suggestions in improving the E-commerce adoption in pharmaceutical industry.

Accordingly, the following Hypotheses were tested for the study

H₁: There is no significant difference between Mean Ranks towards MSME Performance in E-Commerce

H₂: There is no significant difference between Gender with respect to Trust Factors

H₃: There is no significant relationship among Factors influencing E-Commerce Adoption in Pharmaceutical Industry

H₄: There is no significant difference between the Factors influencing E-Commerce and Adoption of E-Commerce in Pharmaceutical Industry.

REVIEW OF LITERATURE

Neirotti et al. (2018) points out the need for internet marketing for MSMEs arises from the fact that customer acquisition and retention is largely determined through reliable communication and promotions.

Sunday & Vera (2018) examines that Information Communication and Technology supports in the successful execution of a planned and targeted promotion which can aid the growth of the enterprise and helps to hold customers for the future.

Daviy & Rebiyazina (2015) investigates that the barriers and drivers for e-commerce market development revealed that the barriers are related to market, infrastructure and institutional issues.

Alnaser et al. (2013) proves that the analysis of internal factors such as technology factors, knowledge factors, and organizational factors reveals the enterprise's capabilities to survive in the e-market.

Zaied (2012) states that based on barriers to e-commerce adoption in Small and Medium Enterprises, identified technical barriers as the most noteworthy barriers followed by legal and regulatory barriers.

Cragg et al. (2011) states that a low level of organisational readiness is a key reason for slow adoption or an incapability to adopt e-commerce.

Shah & Mohamed (2011) describes that to be able to survive in the new economy businesses, are pushed to adopt this technology. Those businesses who do not adopt this philosophy and practice will be left behind by adopters.

Lawrence & Tar (2010) recognizes that extent of adoption is hindered by a range of complications including unavailability of infrastructure, absence of government policy frameworks, lack of financial facilities and unawareness on the part of users about the vast beneficial potential of e-commerce.

Kapurubandara (2009) argues that the organisations adopting e-commerce in developing countries face challenges such as lack of telecommunications infrastructure, lack of qualified staff to develop and support e-commerce sites, lack of skills among consumers needed in order to use the internet, lack of timely and reliable systems for the delivery of physical goods, low bank account and credit card penetration, low income and low computer and internet penetration.

Saffu et al. (2008) describes internal e-commerce readiness as the availability of financial and technological resources, the top management's enthusiasm to adopt e-commerce, e-commerce technology infrastructure (ECTI), compatibility of the firm's e-commerce, as well as culture and values. On the other hand, it is also suggested that after the initial e-commerce adoption, external readiness significantly affect adoption of e-commerce in developing countries.

Turban et al. (2008) express e-commerce as the process of buying, selling, transferring or

exchanging products, services and/ or information via computer networks, including the internet. E-commerce enables organisations of all sizes and in all market sectors to improve their competitiveness. It cuts across geographic boundaries and time zones to save time and costs, to open up new market opportunities and enable even the smallest of companies to compete globally.

Wymer & Regan (2005) points out that the Technology factors are the perceived relative compensations, the complexity of the innovation and the compatibility of innovation.

Tassabehji (2003) states that the understanding of partners participating in online trading is beneficial to identify the elements of e-commerce and understand its application in the business.

This study incorporates the performance of MSME to the Indian scenario, not only to identify the factors of adoption, but also to understand the trust and intention of the users of E-commerce in adoption for Indian Pharmaceutical industries.

RESEARCH GAP

Due to the increased awareness to usage of internet, there is a significant growth in the number of E-commerce companies. Most of the pharmaceutical industries has faced various problems like failure of getting desired drugs/medicines at required time and delivery of wrong products. Not much empirical study has been carried out in Maharashtra regarding this research area. The present study is focused on the factors influencing the adoption of E-commerce in MSME's especially in Pharmaceutical industries of Maharashtra.

METHODOLOGY

The study focuses on Maharashtra in India. 300 employees of pharmaceutical industries from the above state are taken as sample and surveyed with the help of a questionnaire for the study. The study is an empirical study. Secondary data is sourced from various credible sources like books, newspapers, journals, and through access to various websites. Primary data is collected through random sampling technique.

Sampling Technique

Simple random sampling method was applied from probability sampling method to select the sample.

Research Design

Descriptive research design is employed for this study.

Tools and Techniques

Statistical tools like Descriptive Analysis, Friedman Analysis, t-Test, Correlation Analysis, Factor Analysis and Structural Equation Model are employed for the study.

Proposed Conceptual Framework

The SEM model is constructed to determine relationship between the Technological, Organisational and environmental factors that leads to influence positive or negative effect on Adoption of E-Commerce in Pharmaceutical Industry. With the help of indices value from the output of AMOS software, it will be determined whether the proposed conceptual model will be

fit or not. RMSEA (Root Mean Square Approximate) value will infer that the proposed model will be close fit or not Figure 1.

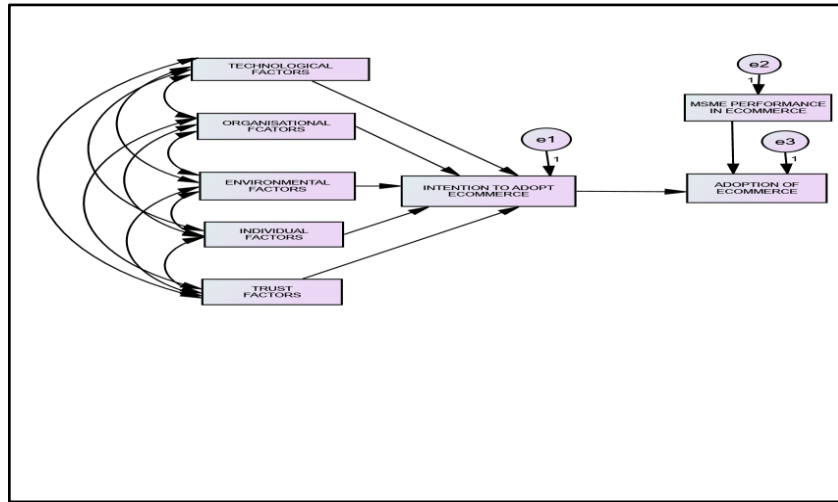


FIGURE 1
ADOPTION OF E-COMMERCE IN PHARMACEUTICAL INDUSTRY

Analysis and Interpretation

The data was collected and coded in IBM SPSS 21.0 and AMOS 21 for analysis. The analysis gives a clear and detailed explanation of the data collected through primary data collection Table 1 and 2.

Table 1 FREQUENCY DISTRIBUTION OF GENDER OF RESPONDENTS					
Sl. No.	Gender of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1	Male	182	60.7	60.7	60.7
2	Female	118	39.3	39.3	100.0
3	Total	300	100.0	100.0	

Source: Primary data

Table 1 show that 60.7 per cent of the respondents are male while 39.3 per cent of them are female.

Table 2 FREQUENCY DISTRIBUTION OF AGE OF RESPONDENTS					
Sl. No.	Age of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1	Below 25 years	46	15.3	15.3	15.3
2	25 – 35 years	177	59.0	59.0	74.3
3	35 – 45 years	32	10.7	10.7	85.0
4	Above 45 years	45	15.0	15.0	100.0
5	Total	300	100.0	100.0	

Source: Primary data

It is clear from the Table 2 that 15.3 per cent of the employees belong to the age below 25 years, 59.0 per cent belong to the age group of 25 years to 35 years, 10.7 per cent belong to 35 years to 45 years age group and 15.0 per cent of them belong to age above 45 years Table 3.

Sl. No.	Qualification of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1	Undergraduate	75	25.0	25.0	25.0
2	Postgraduate	35	11.7	11.7	36.7
3	Professional Degree	51	17.0	17.0	53.7
4	Technical Degree	139	46.3	46.3	100.0
5	Total	300	100.0	100.0	

Source: Primary data

Table 3 depicts that 25.0 per cent of the employees are Undergraduates, 11.7 per cent are Postgraduates, 17.0 per cent hold Professional Degree and 46.3 per cent of the employees hold a Technical Degree Table 4.

Sl. No.	Salary of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1	Rs. 10,000 – Rs. 20,000	13	4.3	4.3	4.3
2	Rs. 20,000 – Rs. 30,000	7	2.3	2.3	6.7
3	Rs. 30,000 – Rs. 40,000	239	79.7	79.7	86.3
4	Rs. 40,000 – Rs. 50,000	13	4.3	4.3	90.7
5	Above Rs. 50,000	28	9.3	9.3	100.0
6	Total	300	100.0	100.0	

Source: Primary data

Table 4 shows that 4.3 per cent of the employees earn a salary of between Rs. 10,000 and Rs. 20,000, 2.3 per cent earn Rs. 20,000 to Rs. 30,000, 79.7 per cent earn Rs. 30,000 to Rs. 40,000, 4.3 earn Rs. 40,000 to Rs. 50,000 and 9.3 per cent of the employees earn salary above Rs. 50,000 Table 5.

Sl. No.	Experience of Respondents in Pharmaceutical industry	Frequency	Percent	Valid Percent	Cumulative Percent
1	Less than 1 year	32	10.7	10.7	10.7
2	1 – 5 years	68	22.7	22.7	33.3
3	5 – 10 years	53	17.7	17.7	51.0
4	10 – 15 years	59	19.7	19.7	70.7
5	Above 15 Years	88	29.3	29.3	100.0
6	Total	300	100.0	100.0	

Source: Primary data

Table 5 proves that 10.7 per cent of the employees have Less than 1 year Experience in

Pharmaceutical industry, 22.7 per cent have 1 to 5 years of experience, 17.7 per cent have 5 to 10 years of experience, 19.7 per cent of employees have 10 to 15 years of experience and 29.3 per cent of them have above 15 years of experience in Pharmaceutical industry Table 6.

Sl. No.	Job Description of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1	Chief Medical Officer	10	3.3	3.3	3.3
2	Manager	26	8.7	8.7	12.0
3	Assistant Manager	9	3.0	3.0	15.0
4	Regional Manager	10	3.3	3.3	18.3
5	Team Leader	101	33.7	33.7	52.0
6	PRO	33	11.0	11.0	63.0
7	Quality Control Manager	56	18.7	18.7	81.7
8	Sales & Marketing Executives	31	10.3	10.3	92.0
9	Front Office Staff	9	3.0	3.0	95.0
10	Supervisor	15	5.0	5.0	100.0
11	Total	300	100.0	100.0	

Source: Primary data

Table 6 shows the frequency distribution of the Job Description of the employees in Pharmaceutical industry. 3.3 per cent of the employees in the study are Chief Medical Officer, 8.7 per cent are Manager, 3.0 per cent are Assistant Manager, 3.3 per cent are Regional Manager, 33.7 of them are Team Leader, 11.0 per cent are PRO, 18.7 per cent are Quality Control Manager, 10.3 per cent of the employees are Sales & Marketing Executives, 3.0 per cent are Front Office Staff and 5.0 per cent of them are Supervisor Table 7.

Sl. No.	Department of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1	Marketing	19	6.3	6.3	6.3
2	Sales	8	2.7	2.7	9.0
3	Quality	26	8.7	8.7	17.7
4	Inventory	40	13.3	13.3	31.0
5	Finance	31	10.3	10.3	41.3
6	Research & Development	9	3.0	3.0	44.3
7	Human Resources	61	20.3	20.3	64.7
8	Manufacturing	33	11.0	11.0	75.7
9	Information Technology	63	21.0	21.0	96.7
10	Training & Development	10	3.3	3.3	100.0

11	Total	300	100.0	100.0	
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Source: Primary data

It is understood from the table 7 that 6.3 per cent of the employees in the study belong to Marketing department, 2.7 per cent belong to sales, 8.7 per cent belong to Quality, 13.3 are from Inventory department, 10.3 from Finance department, 3.0 per cent belong to Research & Development, 20.3 per cent belong to Human Resources, 11.0 per cent belong to Manufacturing department, 21.0 per cent belong to Information Technology and 3.3 per cent of the employees belong to Training & Development Table 8.

H₁: There is no significant difference between Mean Ranks towards MSME Performance in E-Commerce.

Sl. No.	MSME Performance in E-Commerce	Mean	Std. Deviation	Mean Rank	Chi-Square	P Value
1	Marketing and Sales growth	3.77	1.285	3.95	156.000	0.000**
2	Customer base	3.77	1.118	3.95		
3	Customer satisfaction	3.90	1.223	4.42		
4	Competitive advantage	3.77	1.118	3.95		
5	Training and development Programs	3.90	1.223	4.42		
6	Supply chain performance	3.60	1.022	3.37		
7	Product quality	3.77	1.285	3.95		

Source: Statistically analyzed data

Note: ** Denotes significance at 1 % level

Based on mean rank, ‘Customer satisfaction’ and ‘Training and development Programs’(4.42) are the best factors behind MSME Performance in E-Commerce, followed by ‘Marketing and Sales growth’, Customer base, Competitive advantage and Product quality (3.95)and ‘Supply chain performance’ (3.37).P value is less than 0.01. Therefore, the null hypothesis is rejected. Hence it is concluded that there is significant difference between mean ranks towards MSME Performance in E-Commerce Table 9.

H₂ There is no significant difference between Gender with respect to Trust Factors

Sl.No.	Trust Factors	Gender				t Value	P Value
		Male		Female			
		Mean	SD	Mean	SD		
1	Overcomes business environment problems	4.41	0.736	2.69	1.122	16.086	0.000**
2	Security of site	4.52	0.749	2.61	1.062	18.220	0.000**
3	Webpage content	4.49	0.663	3.08	0.907	15.563	0.000**

4	Reliability	4.10	0.797	2.82	0.823	13.438	0.000**
5	Security on online transaction of fund	4.41	0.736	2.69	1.122	16.086	0.000**
6	Trust on web vendors and intermediaries	4.52	0.749	2.61	1.062	18.220	0.000**
7	Delivery risk	4.41	0.736	2.69	1.122	16.086	0.000**

Source: Statistically analyzed data

Note: **Denotes significance at 1% level

The above table indicates that based on Mean score of Overcomes business environment problems, Security of site, Webpage content, Reliability, Security on online transaction of fund, Trust on web vendors and intermediaries and Delivery risk Male employees Trust more on the adoption of Ecommerce in Pharmaceutical industry than the female employees.P value is less than 0.01. Therefore at 1 per cent level of significance, the null hypothesis is rejected. Hence there is significant difference between male and female employees with respect to the Trust Factors Table 10.

Table 10
FACTOR LOADING AND PERCENT OF VARIANCE USING ROTATED COMPONENT MATRIX FOR ‘REASONS FOR ADOPTING E-COMMERCE IN PHARMACEUTICAL INDUSTRY’

Factor	Statement	Factor Loading	Rotation Sums of Squared Loadings			
			Eigen value	Eigen value	% of Variance	Cumulative %
I	Expansion of pharmaceutical logistic market	0.925	6.128	30.641	30.641	
	Effective data management	0.722				
	Secured transaction	0.700				
	Customer awareness	0.688				
	Possibility to access new	0.683				
	Order placement	0.672				
	Mode of payment	0.628				
	Description of Drugs/	0.622				
II	Online payment	0.618	4.899	24.493	55.135	
	Transaction speed	0.805				
	User friendly	0.761				
	Relevant and accurate	0.711				
III	Direct customer interaction	0.669	4.884	24.420	79.555	
	Proper inventory	0.785				
	Time management	0.733				
	Integration between	0.688				
	Brand recognition	0.669				
Updation of availability of	0.611					

	Online tracking of delivery	0.604			
	Increases patients purchasing	0.577			

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.a
 a. Rotation converged in 20 iterations.

The above table exhibits that Three factors are extracted from the matrix, based on the criterion that only factors with Eigen values of one or more should be extracted. The cumulative per cent of variance of the two factors account for 79.555 per cent of the total variance. This is a good fit because the researcher is able to economize on the number of variables (from twenty, it is reduced to three underlying factors) while only 20 per cent is lost from the information content (80 per cent is retained by the three factors extracted out of the twenty original variables). Each factor loading is a determinant of the important variables from the above table. The table signifies that no variables are co-related with all the two factors. Hence the factors are independent.

Factor one is a combination of variables Expansion of pharmaceutical logistics market (0.925), Effective data management (0.722), Secured transaction (0.700), Customer awareness (0.688), Possibility to access new markets (0.683), Order placement (0.672), Mode of payment (0.628) Description of Drugs / Medicine (0.622) and Online payment (0.618) are positive factor loadings behind 'Reasons for Adopting E-Commerce in Pharmaceutical Industry'.

Factor two is a combination of variables Transaction speed (0.805), User friendly (0.761), Relevant and accurate information (0.711) and Direct customer interaction (0.699) are positive factor loadings behind 'Reasons for Adopting E-Commerce in Pharmaceutical Industry'.

Factor three is a combination of variables Proper inventory management (0.785), Time management (0.733), Integration between managerial relationships (0.688), Brand recognition (0.669), Updation of availability of Drugs/ Medicine (0.611), Online tracking of delivery (0.604) and Increases patients purchasing power (0.577) are positive factor loadings behind 'Reasons for Adopting E-Commerce in Pharmaceutical Industry' Table 11.

H₃. There is no significant relationship among Factors influencing E-Commerce Adoption in Pharmaceutical Industry

Table 11
INTER CORRELATION MATRIX ON THE FACTORS INFLUENCING E-COMMERCE ADOPTION IN PHARMACEUTICAL INDUSTRY

Particulars	Technological Factors	Organisational Factors	Environmental Factors	Trust Factors	Individual Factors
Technological Factors	1	0.995**	0.995**	0.993**	0.993**
Organisational Factors	-	1	0.999**	0.996**	0.997**
Environmental Factors	-	-	1	0.997**	0.998**
Trust Factors	-	-	-	1	0.998**
Individual Factors	-	-	-	-	1

Source: Statistically analyzed data

** . Correlation is significant at the 0.01 level (2-tailed).

The table illustrates that the correlation coefficient between Technological Factors and Organisational Factors is 0.995 which in turn indicates nearly 100 per cent positive relation between Technological Factors and Organisational Factors. The correlation coefficient between Technological Factors and Environmental Factors is 0.995 which in turn indicates nearly 100 per cent positive relation. The correlation coefficient between Technological Factors and Environmental Factors is 0.993 which in turn indicates nearly 99 per cent positive relation. The correlation coefficient between Technological Factors and Trust Factors is 0.939 which in turn indicates nearly 99 per cent positive relation. There exists a very high level of relation between Technological Factors and the other Factors and is significant at 1 % level.

The correlation coefficient between Organisational Factors and Environmental Factors is 0.999 which in turn indicates 100 per cent positive relation. The correlation coefficient between Organisational Factors and Trust Factors is 0.996 which in turn indicates nearly 100 per cent positive relation. The correlation coefficient between Organisational Factors and Individual Factors is 0.997 which in turn indicates nearly 100 per cent positive relation. There exists a very high level of relation between Organisational Factors and Environmental, Trust and Individual Factors and is significant at 1 % level.

The correlation coefficient between Environmental Factors and Trust Factors is 0.997 which in turn indicates 100 per cent positive relation. The correlation coefficient between Environmental Factors and Individual Factors is 0.998 which in turn indicates 100 per cent positive relation. There exists a very high level of relation between Environmental Factors and the Trust and Individual Factors and is significant at 1 % level.

The correlation coefficient between Trust Factors and Individual Factors is 0.998 which in turn indicates 100 per cent positive relation. There exists a very high level of relation between Trust Factors and the Individual Factors and is significant at 1 % level.

REGRESSION ANALYSIS OF ADJUSTMENT ON THE E-COMMERCE ADOPTION IN PHARMACEUTICAL INDUSTRY

In this study, Table 12 the dependent variable is E-Commerce Adoption in Pharmaceutical Industry and analysis are discussed as follows Figure 2:

Dependent variable: E-Commerce Adoption in Pharmaceutical Industry (Y)

Independent Variables

1. Technological Factors (X1)
2. Organisational Factors (X2)
3. Environmental Factors (X3)
4. Trust Factors (X4)
5. Individual Factors (X5)

• Method:	Stepwise Method
• Step number:	3
• Multiple R value:	0.807 ^a
• R square value:	0.651
• Adjusted R square value:	0.650
• F value:	555.595
• P value:	0.000**

FIGURE 2 METHOD AND STEPWISE METHOD

H₄. There is no significant difference between the Factors influencing E-Commerce and Adoption of E-Commerce in Pharmaceutical Industry.

Table 12						
VARIABLES IN MULTIPLE REGRESSION ANALYSIS						
Sl.No.	Variables	Unstandardized Coefficients (B)	SE of B	Standardized Coefficients (B)	t value	P value
1	Technological Factors	8.813	0.754	3.239	11.694	0.000**
2	Environmental Factors	-19.278	1.520	-7.116	-12.683	0.000**
3	Organisational Factors	12.666	1.473	4.673	8.597	0.000**
4	Constant	14.899	2.012	-	7.405	0.000**

Source: Statistically analyzed data

The multiple correlation coefficient is 0.807 measures the degree of relationship between the actual values and the predicted values of the adjustment. Because the predicted values are obtained as a linear combination of Technological Factors (X₅), Organisational Factors (X₂) and Environmental Factors (X₃), the coefficient value of 0.807 indicates that the relationship between adjustment and the nine independent variables is strong and positive.

The Coefficient of Determination R-square measures the goodness-of-fit of the estimated Sample Regression Plane (SRP) in terms of the proportion of the variation in the dependent variables explained by the fitted sample regression equation. Thus, the value of R square is 0.651 simply means that about 65.1% of the variation in adjustment is explained by the estimated SRP that uses Technological Factors (X₅), Organisational Factors (X₂) and Environmental Factors (X₃), Trust Factors (X₄) and Individual Factors (X₅) as the independent variables and R square value is significant at 1 % level.

The Multiple Regression Equation is

$$Y = 14.899 + 8.813 X_1 + 12.666X_2 - 19.278 X_3$$

Here the coefficient of X₁ is 8.813 represents the partial effect of Technological Factors on Adjustment, holding E-Commerce Adoption in Pharmaceutical Industry as constant. The estimated positive sign implies that such effect is positive that adjustment score would increase by 8.813 for every unit increase in E-Commerce Adoption in Pharmaceutical Industry and this coefficient value is significant at 1% level.

Here the coefficient of X₂ is 12.666 represents the partial effect of Organisational Factors on Adjustment, holding E-Commerce Adoption in Pharmaceutical Industry as constant. The estimated positive sign implies that such effect is positive that adjustment score would increase by 12.666 for every unit increase in E-Commerce Adoption in Pharmaceutical Industry and this coefficient value is significant at 1% level.

Here the coefficient of X₃ is 19.278 represents the partial effect of Environmental Factors on Adjustment, holding E-Commerce Adoption in Pharmaceutical Industry as constant. The estimated negative sign implies that such effect is negative that adjustment score would decrease

by 19.278 for every unit decrease in E-Commerce Adoption in Pharmaceutical Industry and this coefficient value is significant at 1% level.

STRUCTURED EQUATION MODEL FOR E-COMMERCE ADOPTION IN PHARMACEUTICAL INDUSTRY

The SEM diagram shows pictorial representation (along with regression weights) of the mediating of perception Table 13 ratings of adoption of E-Commerce in Pharmaceutical industry. It also shows the correlation value of dimensions and their corresponding regression weights are mentioned in the below diagram Figure 3.

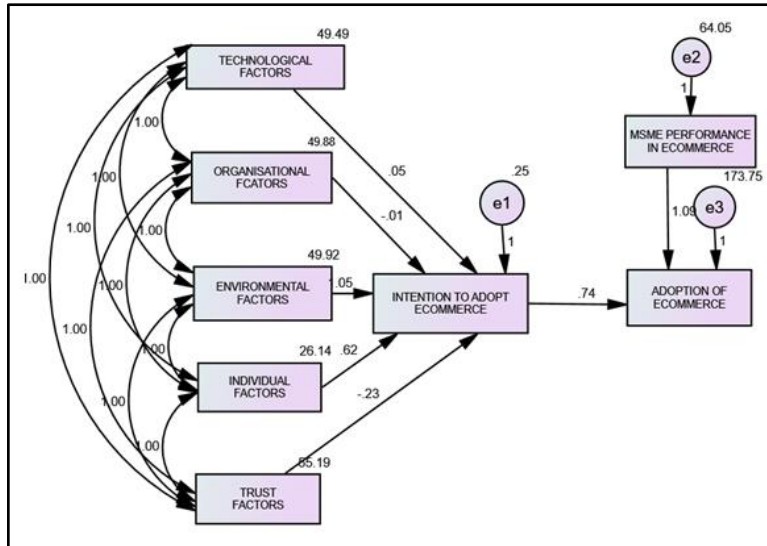


FIGURE 3
STRUCTURAL EQUATION MODEL FOR E-COMMERCE ADOPTION IN PHARMACEUTICAL INDUSTRY

VARIABLE SUMMARY OF STRUCTURAL EQUATION MODEL

Observed, Endogenous Variables

- Intention to adopt E-Commerce
- MSME Performance in Ecommerce
- Adoption of Ecommerce

Observed, Exogenous Variables

- Organisational Factors
- Environmental Factors
- Individual Factors
- Technological Factors
- Trust Factors

Unobserved, Exogenous Variables

- e2

e3
e1

Table 13 VARIABLES IN THE STRUCTURAL EQUATION MODEL ANALYSIS						
Structural paths			Estimate	S.E.	C.R.	P
Intention to adopt E-Commerce	<---	Organisational Factors	-0.010	0.004	-2.423	0.015*
Intention to adopt E-Commerce	<---	Environmental Factors	1.052	0.004	257.413	0.000**
Intention to adopt E-Commerce	<---	Individual Factors	0.618	0.006	109.348	0.000**
Intention to adopt E-Commerce	<---	Technological Factors	0.048	0.004	11.571	0.000**
Intention to adopt E-Commerce	<---	Trust Factors	-0.225	0.004	-57.939	0.000**
Adoption of Ecommerce	<---	MSME Performance in Ecommerce	1.086	0.095	11.402	0.000**
Adoption of Ecommerce	<---	Intention to adopt E-Commerce	0.737	0.092	8.042	0.000**

Source: Statistically analyzed data

The table represents AMOS text output for the unstandardized maximum likelihood estimates of structural paths. The significance test is the critical ratio (CR), which represents the parameter estimate divided by its standard error. The parameter estimate is significant at $p \leq 0.05$ and value of C.R is > 1.96 . The probability of getting a critical ratio as large as 257.413 and 109.348 in an absolute value is less than 0.005. In other words, the regression weight for Environmental Factors and Individual Factors dimensions are important on Intention to adopt E-Commerce dimension for the prediction of adoption of E-Commerce in Pharmaceutical industry. It is significantly different from zero at the 0.005 level (two tailed).

The coefficient of Organisational Factors is -0.010. The estimated negative sign implies that such effect is negative that Factors about E-Commerce Adoption in Pharmaceutical Industry will decrease by every unit decrease in Organisational Factors and this coefficient value is significant at 5% level.

The coefficient of Environmental Factors is 1.052. The estimated positive sign implies that such effect is positive that Factors about E-Commerce Adoption in Pharmaceutical Industry will increase by every unit increase in Environmental Factors and this coefficient value is significant at 1% level.

The coefficient of Individual Factors is 0.618. The estimated positive sign implies that such effect is positive that Factors about E-Commerce Adoption in Pharmaceutical Industry will increase by every unit increase in Individual Factors and this coefficient value is significant at 1% level.

The coefficient of Technological Factors is 0.048. The estimated positive sign implies that such effect is positive that Factors about E-Commerce Adoption in Pharmaceutical Industry will increase by every unit increase in Technological Factors and this coefficient value is significant at 1% level.

The coefficient of Trust Factors is -0.225. The estimated negative sign implies that such effect is negative that Factors about E-Commerce Adoption in Pharmaceutical Industry will decrease by every unit decrease in Trust Factors and this coefficient value is significant at 1% level.

The coefficient of MSME Performance in Ecommerce is 1.086. The estimated positive sign implies that such effect is positive that Factors about E-Commerce Adoption in Pharmaceutical Industry will increase by every unit increase in MSME Performance in Ecommerce and this coefficient value is significant at 1% level.

The coefficient of Intention to adopt E-Commerce is 0.737. The estimated positive sign implies that such effect is positive that Factors about E-Commerce Adoption in Pharmaceutical Industry will increase by every unit increase in Intention to adopt E-Commerce and this coefficient value is significant at 1% level Shah Alam (2011) Table 14.

Table 14			
CORRELATION BETWEEN THE DIMENSIONS OF ADOPTION OF E-COMMERCE IN			
Structural Paths			Estimate
Individual Factors	<-->	Trust Factors	0.026
Environmental Factors	<-->	Individual Factors	0.028
Organisational Factors	<-->	Environmental Factors	0.020
Organisational Factors	<-->	Technological Factors	0.020
Environmental Factors	<-->	Trust Factors	0.019
Organisational Factors	<-->	Individual Factors	0.028
Environmental Factors	<-->	Technological Factors	0.020
Organisational Factors	<-->	Trust Factors	0.019
Individual Factors	<-->	Technological Factors	0.028
Technological Factors	<-->	Trust Factors	0.019

Source: Statistically analyzed data

The above table estimates inter-correlation for two associations between latent constructs of adoption of E-Commerce in Pharmaceutical industry dimensions except Intention to adopt E-Commerce and MSME Performance in Ecommerce (act as mediating variable) is not greater than 1. Thus, the model indicates a degree of less multi-co-linearity between the items supposed to be measuring different constructs and dimensions Mohammed et al. (2013) Table 15.

Table 15			
MODEL FIT SUMMARY			
Sl.no.	Variable	Actual Value	Suggested Value
1	Chi-square value	8249.318	-
2	GFI (Goodness of Fit Index) (Joreskog&Sorbom 1988)	0.205	≥ 0.90
3	AGFI (Adjusted Goodness of Fit Index) (Joreskog&Sorbom 1988)	0.362	≥ 0.80
4	CFI (Comparative Fit Index) (Bentler 1990)	0.210	≥ 0.90

5	RMR (Hair et al. 1995)	0.003	≤ 0.08
6	RMSEA (Root means square of approximate) (Entler& Bonnet 1980)	0.045	≤ 0.08

Source: Statistically analyzed data.

The table 15 indicates GFI (Goodness of Fit Index) value and AGFI (Adjusted Goodness of Fit Index) value are greater than 0.90 which represents it is a good fit. The calculated CFI (Comparative Fit Index) value is 0.210 which means that it is a perfect fit, and also it is found that RMR (Root Mean Square Residual) value is (0.003) and RMSEA (Root Mean Score Error of Approximation) value is (0.045) which is less than 0.08 and indicates it is perfectly fit Ephraim (2000) Narayanasamy et al. (2008).

CONCLUSION

The study has revealed that the Technological Factors, Organisational Factors, Environmental Factors, Individual Factors and Trust Factors influence the Adoption of Ecommerce in Pharmaceutical Industry. It is evident from the research that there is substantial difference between male and female employees with respect to the Trust Factors in adopting E-commerce in Pharmaceutical Industry.

It is explicit from the research that Customer satisfaction, Training and development Programs, Marketing and Sales growth and Customer base are the vital aspects of MSME performance in the successful adopting Ecommerce in Pharmaceutical Industry. The reasons for adopting Ecommerce MSME's such as Pharmaceutical Industry form a good fit and the variables are independent to each other. The various factors corresponding to Technological, Organisational, Environmental, Individual and Trust influencing E-Commerce Adoption in Pharmaceutical Industry are related to each other.

E-commerce in Pharmaceutical industries has made a drastic change to serve the mankind. The prospect of E-commerce is becoming more assured and acceptable by the Pharmaceutical industry. Adoption of E-commerce will be a key enabler to gain competitive advantage through lowered cost and rebuilding the industry. With technological development and initiation of E-commerce, the world can be accessed and to fulfill our daily needs by effectively using it. These are the aspects that make purchasing drugs/ medicines easier the fast and modern world. With fast growing E-commerce everyone should become aware of the affordable and timely healthcare scenarios worldwide.

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Received: 02-Jul-2022, Manuscript No. AMSJ-22-12240; **Editor assigned:** 04-Jul-2022, Pre-QC No. AMSJ-22-12240(PQ); **Reviewed:** 18-Aug-2022, QC No. AMSJ-22-12240; **Revised:** 23-Aug-2022, Manuscript No. AMSJ-22-12240(R); **Published:** 25-Aug-2022