Revised and Extended Social Commerce Technology Adoption in e-business of Pakistan

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Abstract—— **Social commerce is a new perspective change in modern electronic business procedures bringing together individuals on social media sites and opens up another electronic social marketing channel to establish business. In developing countries like Pakistan, e-business can help organizations using social commerce and social marketing intelligently on particular social network sites to grasp their business clients while they are interacting with their online community on the social media sites. This study investigated consumers' behavior towards adoption of social commerce and introduced a revised and extended social commerce technology model. The investigation proved the proposed model is valid by confirming loading factor, Kaiser-Mayer-Olkin (KMO), reliability analysis, and structural equation modeling approach for hypotheses tests. The study found Perceived Ease of Use (PEU), Perceived Usefulness (PU), Social Media Influence (SMI), and Risk (RI) have significant impact on social commerce adoption in e-business of Pakistan. More, Trust (TR) and Web experience (WXP) were insignificant that revealed the preventive behavior towards adoption of social commerce in e-business of Pakistan.**

Keywords— *Social commerce, e-business, Social Media, Social trade, e-commerce, Social consumers, Web2.0*

I. Introduction

Fast sharing and social media intelligence of individuals has given new open doors cum difficulties to organizations to get a handle on their new clients by means of conjuncture of internet based social life advancements and online business. In developing countries like Pakistan, e-business can help organizations using social marketing intelligently on particular social network sites to grasp their business clients while they are interacting with their online community on one of the social media sites. As indicated by Pakistan futuristic customer study completed by Google, a normal 150 minutes are spent in online exercises via web-based networking media. Internet based social life stage has turned out to be a wellspring of legitimate data about organizations and their items among clients via posting and sharing either positive or negative review points about a particular business product [1]. Social trade is a sort of electronic trade, which utilizes structures to help the gaining of the offering of business items. This sort of trade uses client appraisals, referrals, online get-togethers and social lifting to invigorate electronic shopping. These days, the progression of web business in the modernized economy has instigated social trade (s-commerce) as another point of view. S-commerce, for the most part, intimates online trade applications that handle electronic casual posts using Web 2.0 technology[2]. Web 2.0 has given another approach with different sort of online platform where the customers can without much of a stretch share sentiments; convictions and observations comprehensively open by means of Internet based social life. Sharing data on line is presently conceivable because of Web 2.0[3]. Social media is a broadly open and informal platform of sharing and communication hence, users are vigorously linking to both social media

platforms for online purchases, as shown in Figure 1 a high increase in retail e-commerce sale worldwide by statistica (2018).
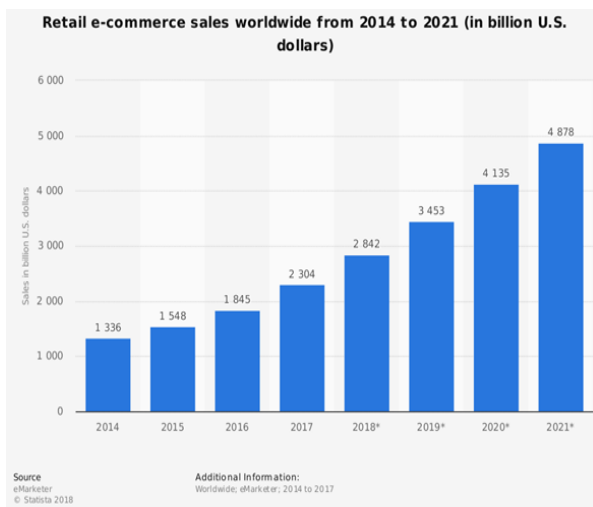

Fig 1 source: Statistica 2018

As organizations around the globe have exploited the intensity of Internet and social networking sites and began to explore and receive the best techniques to fuse it into their plans of action in their businesses and marketing[4][5][6]. In Pakistan, small businesses have started using social media platforms to incorporate their businesses with social media and e-business activities. Sharing posts about product reviews and ratings makes social media powerful tool and vital for customers during purchase decision online[7]. Social commerce is a subset of electronic commerce trade that combines electronic individual to-individual casual communication, online media that supports social cooperation, and client obligations with respect to encourage the online purchasing and promotion of business products by e-business organizations. Even more, social commerce is the utilization of social harmony effort in favor or disfavor the e-business. S commerce is a new perspective change in procedures bringing together individuals on social media sites and opens up another online social marketing field to examine.

Further, the paper is organized as follows. Section 2 provides the background information, followed by Proposed Research Framework in Section 3, Research Methodology in Section 4, Results in Section 5. Then after Hypotheses Testing and Discussion in Section 6. Finally, Section 7 concludes the study findings.

II. BACKGROUND

Pakistan is a developing at 4.87 for every annum and sixth largest population in South Asia region with 190.77 million people [8]. Data Innovation has disturbed the legitimate structures and execution of wide-ranging of society private and other social relationship around the world. Since 1990s, data framework applications have penetrated into all estimations of human life. The fundamental utilization of PC artifacts was "computerization" of the standard shopping and businesses, along these lines, the development played back-office part in the various leveled business procedures [9]. Social commerce or social business has diverse implications in modern internet business so it has no particular definition [10]. Social commerce is a web-based business involving social networking sites to expedite customers to join in online trade, comparing, and sharing information about business products in an online communities or markets[11][12]. Pakistan is on the course to modernized techniques for organizations and businesses. Pakistan is one of the developing economies, experiencing awesome and dreadful experiences, nevertheless, unless adequate measures are exhibited in re-trying the development to conclude the endeavors most specifically in online business organizations[10]. The country over IT workshops, exhibitions and competitions are being engineered and public areas are equipped with advanced internet hotspots to ensure IT and web use. Several departments and entrepreneurs have been involved to set up and manage the distinctive localities of the technological advancement and its procedures with help to gather opportunities of the digital age [10]. According to an investigation of the 54 SMEs[11], 84% of the business firms had web accounts, 46% have ensured ordinary to above gathering of e-business. Additionally, 59% of the affiliations had either an in-house or vendor maintained web servers and 67% business firms owned the home pages [12] . Consenting to Ibrahim report [1] e-business is creating at yearly rate of half per annum that in Pakistan, where computerization and automation of business organization is growing at the rate of 30% consistently; in like manner, Pakistan imported 350,000 Internet and automation structures in 2002-2003, where the request of portable technology raised to 35% which was 15% previously. In the same year, Pakistan transported in IT hardware and related devices worth $20 million.

According to reports published in January 2018 [13], social media has gained more popularity in Pakistan and it has key social media marketing information for anyone doing business in Pakistan. Social media has produced social marketplace by integrating social networks into online local business firms, letting the customers look for purchases from their social media friends or friends of friends online [14]. Due to growing use of social marketplace by the private and public sector business in Pakistan, this paper intends to investigate opportunities, challenges, and solutions for promising s-commerce.

III. PROPOSED FRAMEWORK AND RESEARCHS HYPOTHESES

Figure 2. Represents hypothetical research framework with six casual paths of endogenous and exogenous factors of social commerce adoption. While Table 1 and Table 2 details the constructs and hypotheses description respectively.

TABLE I KEY CONSTRUCT OF THE MODLE

Theory	Construct	Description
TAM	Perceived Ease of Use (PEU)	Concerning this study, it alludes to the degree to which a customer trusts that buying goods and services using the social web will be free of exertion [15]
TAM	Perceived Usefulness (PU)	Concerning this study, it alludes to the degree to which a customer trusts that buying goods and services using the social web will be free of exertion [15]
TRA	Social Media Influence (SMI) (Subjective Norm)	"A subjective norm is the perceived social pressure to engage or not to engage in a behavior." [16].
External Factors	Trust (TR)	"Trust is a crucial enabling factor in online transactions, where there is uncertainty, information asymmetry and fear of opportunism". Absence of trust is the key reason that keeps buyers change their gesture to buy online [17].
	Risk (RI)	The risk is "the purchaser's insight of unpredictability or the unreliability regarding unfavorable outcomes of the products and services" [18].
	Web Experience (WXP)	"e-consumers rely heavily on awareness abilities, which can only be developed over vast

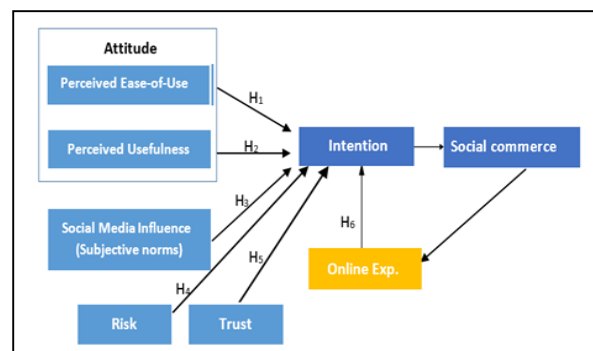| Theory	Construct	Description
		experience with e-purchasing [19].

Fig 2 Proposed Research Frame work

TABLE II CONSTRUCTS HYPOTHETICAL RELATIONSHIP

RH#	Research Hypotheses	Hypothetical Relationship of Constructs
1	H1: Attitude towards perceived ease of use of e-business will have positive influence on intention to use s-commerce	Attitude➜PEU➜Social Commerce adoption
2	H2: Attitude towards usefulness of e-business will have positive influence on intention to use s-commerce.	Attitude➜PU➜Social Commerce adoption
3	H3: Social media influence will have positive impact on intention to adopt S-commerce	SMI➜Social Commerce adoption
4	H4: Risk will negatively affect the behavioral intention to use social commerce.	RI➜Social Commerce adoption
5	H5: Trust will have positive	TR➜Social Commerce adoption

R H #	Research Hypotheses	Hypothetical Relationship of Constructs
	influence intention to use social commerce.	
6	H_6: Web experience will positively influence intention to use social commerce.	WXP ➔ Social Commerce adoption

IV. *RESEARCH METHODOLOGY*

In order to reach the research objectives and research hypotheses, the quantitative research methodology was utilized and adopted the structured questionnaire survey for data collection. Investigative acceptance and use of social commerce and its significance of adoption in e-business of Pakistan completed this part of a study. This research study was approved to conduct the survey from all individuals both business consumers and retailers with or without a social media account potentially constituted the population of interest. The researcher considered more specifically business consumers residing in metropolitan cities of Pakistan. Four senior researchers to find out ambiguities reviewed the earliest survey questionnaire draft and unclear items of the survey, consequently, required changes improved the survey readability. At last, the questionnaire was prepared to be spread in six metropolitan urban communities of Pakistan. Furthermore, a portion of the surveys was gathered from regional urban areas to give a superior comprehension of the present circumstance.

A. *Data Collection and Instrument*

The researcher utilized both online electronic surveyor form of Google, for the individuals who were not accessible online since, paper-based survey was set up for those respondents. The survey was organized with structured and unstructured items, which were short and brief with the multiple choice options (Strongly disagree to strongly agree). The survey contained of three areas with the main effort to build up the statistic demographics of the respondents, the second part, to know background information about internet, social media, and social commerce among the potential respondents. The third part was to measure the latent and external factors towards adoption of social commerce in e-business of Pakistan.

B. *Data Analysis*

Several statistical techniques and procedures were applied like frequencies, percentages, and measures of central tendency, mean commutative percentages, mean, standard deviation, reliability using Cronbach's Alpha, factor loading, and t-test to investigate the significant factors of social commerce in e-business of Pakistan by testing and test and validating proposed research hypotheses in the precision of TAM and TRA theories.

V. RESULTS

A. *Questionnaire reliability using Cranach's Alpha*

The Cronbach's Alpha test results that proved the questionnaire survey reliability and validity. All the factors were exceeding the Cronbach's α acceptable score (0.72 to 0.99) verified the reliability of collected data [20]. Table 3 shows all the values of Cronbach's alpha for all factors. The value ranges from 0.71 to 0.96. Perceived ease of use and perceived usefulness had values 0.82 and 0.78 respectively. Social media influence was (0.89), risk (0.71), trust (0.70), web experience (0.72), and s-commerce use (0.96) with the highest value that shows the more reliability towards use of social commerce in e-business.

TABLE III RELIABILITY STATISTICS OF FACTORS

S#	Construct	Cronbach's α
1	Perceived ease of use (PEU)	0.82
2	Perceived Usefulness (PU)	0.78
3	Social Media Influence (SMI)	0.89
4	Risk(RI)	0.71
5	Trust(TR)	0.70
6	Web Expereince (Wxp)	0.72
7	S-Commerce use (SCU)	0.96

A. *Exploratory Factor Analysis*

Exploratory Factor Analysis (EFA) was performed for investigation of large-scale data collection among observed variables and to ensure proposed research framework validity. Principal components analysis (PCA) and Orthogonal method with Varimax rotation was performed via SPSS24.0. The Varimax analysis technique measures three values. First, the loading of factors which must be more 0.4[21]. Second, KMO value, which ensure the sample size and fitness, is enough to perform factor analysis. KMO test result was (0.81) of the factor model that is more than the acceptable value (more than 0.5) as suggested to be closer to (1.0) by [22] and Barlett test of sphericity indicated that the data were appropriate for factors study in Table 4. The significant test value is recommended ($p<0.05$) according to[22] and Bartletts' test of factor model was less than 0.01.Finally, in Table 6 eigen value that is recommended to be more than 1.0 according to Kaiser's criterion and [21]. Table 5 show the factor analysis results that confirms the validity of proposed research framework.

TABLE IV 4 KMO Statistics and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.81
Bartlett's Test of Sphericity	Approx. Chi-Square	7795.805
	DF	820
	Sig.	.000

TABLE V LOADING FACTORS

Rotated Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9
SCU1	.748								
SCU2	.736								
SCU3	.802								
SCU4	.815								
SCU5	.845								
SCU6	.828								
PEU1		.870							
PEU2		.891							
PEU3		.875							
PEU4		.788							
PEU5		.856							
PU1			.773						
PU2			.775						
PU3			.811						
PU4			.739						
SMI1				.721					
SMI2				.792					
SMI3				.809					
SMI4				.829					
RI1					.815				
RI2					.854				
RI3					.837				
RI4					.805				
TR1						.821			

Rotated Component Matrix[a]

TR2					.852			
TR3					.844			
TR4					.799			
Wxp1						.702		
Wxp2						.774		
Wxp3						.785		
Wxp4						.824		
Wxp5						.812		

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 6 iterations.

VI. HYPOTHESES TESTING AND DISCUSSION

This section discusses the underlying hypotheses presented in Table 2. Six casual paths (H1, H2, H3, H4, H5, and H6 verified the relationship between latent factors of the hypothetical research framework. Statistical analysis of seven factors is shown in table 7. Perceived Ease of Use (PEU), Perceived Usefulness (PU), Social Media Influence (SMI), Risk (RI), Trust (TR), Web Experience (WXP), and S Commerce Usage (SCU). The structural model parameter measurements were utilized to assess covariance matrix for the structural model, which is the most vital piece of the structural model figuring coefficient parameter estimations. Total number of 31 observed variables related to seven latent factors were observed in the final model. The covariance matrix among the constructs was applied to test the model. "When the critical ratio (CR or t-value) was higher than ±1.96 for an estimate (regression weight), then the parameter coefficient value was statistically significant at the p-value less than .05 levels" (Hair et al., 2010). The researcher divided regression weight estimate by standard error (S.E) to calculate the critical ratio (CR) or t-value. Finally, the CR values and path estimates of the factors confirmed and verified the causal paths in this research study. For four causal paths estimates, t-values were above the ±1.96 critical values at the significant level p-value ≤.05. Hence, the investigation confirmed paths between (SCU➜PEU), (SCU➜PU), (SCU➜SMI), and (SCU➜RI) were statistically significant. Similarly last two causal relations between (SCU➜TR) and (SCU➜WXP) were statistically insignificant

TABLE V NO. OF FACTORS EXTRACTED AND TOTAL VARIANCE EXPLAINED IN EFA MODEL

S#	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
						Total Variance Explained			
1	9.157	22.334	22.334	9.157	22.334	22.334	4.693	11.448	11.448
2	3.954	9.645	31.978	3.954	9.645	31.978	3.753	9.153	20.600
3	3.415	8.330	40.308	3.415	8.330	40.308	3.731	9.100	29.700
4	2.776	6.771	47.079	2.776	6.771	47.079	3.189	7.777	37.477
5	2.520	6.147	53.226	2.520	6.147	53.226	3.087	7.530	45.007
6	2.399	5.851	59.078	2.399	5.851	59.078	2.949	7.192	52.199
7	2.272	5.542	64.619						
*For factors that have eigenvalues less than 1.0 are not shown and truncated									
Extraction Method: Principal Component Analysis.									

TABLE VII HYPOTHESES TESTING RESULTS WITH REGRESSINO WEIGHTS OF LATENT CONSTRUCTS IN STRUCTURAL MODLE

S#	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
						Total Variance Explained			
1	9.157	22.334	22.334	9.157	22.334	22.334	4.693	11.448	11.448
2	3.954	9.645	31.978	3.954	9.645	31.978	3.753	9.153	20.600
3	3.415	8.330	40.308	3.415	8.330	40.308	3.731	9.100	29.700
4	2.776	6.771	47.079	2.776	6.771	47.079	3.189	7.777	37.477
5	2.520	6.147	53.226	2.520	6.147	53.226	3.087	7.530	45.007
6	2.399	5.851	59.078	2.399	5.851	59.078	2.949	7.192	52.199
7	2.272	5.542	64.619						
*For factors that have eigenvalues less than 1.0 are not shown and truncated									
Extraction Method: Principal Component Analysis.									

VII. CONCLUSION

All statistical methods and techniques were applied from screening the data to factor analysis, and hypotheses testing. Exploratory factor analysis technique was performed to extract the latent factors. Some of the cross-loaded factor items were removed from the rotated component matrix. Structural equation modeling (SEM) approach was utilized as a main analytical method of testing for six hypotheses and relationships among the constructs of the proposed research framework. However, four out of six hypotheses i.e. H1, H2, H3, and H4 were statistically significant and confirmed that Perceived ease of use PEU, Perceived Usefulness (PU), Social Media Influence (SMI), and Risk (RI) were significant factors for successful adoption of social commerce in e-business of Pakistan. Similarly, H5, and H6 were statistically insignificant that proved Trust (TR) and Web Experience (WXP) external factors were insignificant. Hence, both factors caused future barriers or challenges to adopt social commerce successfully in e-business of Pakistan. These factors postures the future challenges for researchers to reconsider the resistance of social commerce adoption in e-business of Pakistan. The reason behind is the Risk factor significance with t-value (2.0), which shows high risk behavior of businessmen and consumers associated with the new technology specifically Internet business. This is creating preventive behavior towards adoption of innovation in e-business of Pakistan.

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