

B2C e-Commerce adoption possibilities in UAE: An empirical study on E-Readiness of Consumers

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Abstract:

This study is focused on the possibilities of adopting Internet based buying attitude from the consumers of various products and services more intensely than the existing situation in UAE. The factors such as availability of Internet access, Intensity of Internet usage and e-Commerce awareness are used as the basis for measuring such e-readiness of the consumers considered in the study. With the sample size comprising of 266 e-transactions enabled customers residing in the cities of Dubai and Sharjah, three independent multiple regression models were used to find out that the initial willingness of the consumers to shop online has significant levels of dependency towards three dimensions of e-Commerce awareness such as basic understanding, product concern and e-transaction security. Relevant findings and the implications towards the possible B2C e-Commerce adoption in the retailing operations of the region is addressed in the study carried out with a descriptive research design and survey methodology.

Keywords: *Internet, B2C e-Commerce adoption, e-Commerce awareness, e-transactions, e-readiness and Buying Attitude.*

1. Introduction

United Arab Emirates (UAE), despite being a major tourism and commercial hot spot of the world has not fully improvised its potentials towards B2C e-Commerce practices so far. Insufficiencies in this regard could well be noted as many of the branded retailers in various product and services segments continue to operate in traditional way without adopting Internet based selling operations. The developments like expanding virtual market place with affordable high quality Internet access both for the residents and the enterprises, decreasing cost of computers with increasing potential users signifies the underutilized opportunities and hence, the possibility of B2C e-Commerce adoption in UAE (UNCTAD, 2005; 2006; 2007; & 2008). Despite the availability of affordable high quality Internet access in the region, this situation is quite contrary to the realities that exist in economies and facilities of similar kind in other parts of the world particularly with regard to Europe, U.S and other Asian countries. However, it's worth mentioning that there exist a certain successful B2C e-Commerce models operating within UAE in terms of online ticket booking for air travel, online auctioning and online payment systems for consumer utilities etc. Also, the existing Internet penetration rate in the region confirms the availability of threshold levels of virtual market that remain underutilized so far. Based on the well established studies in this regard, this existing situation is viewed in a proposition towards solution such as insufficient levels of e-Readiness of the consumers more importantly than the readiness of the enterprises to adopt B2C type of e-Commerce. Quantification of this proposition in terms of measuring the willingness of the consumers to shop online will help in establishing the scheme map for B2C e-Commerce adoption in the region. Successful B2C e-Commerce adoption in the region might alter the existing shopping culture in UAE characterized by big malls with crowded customers.

1.1 Need for the study

From the global perspective, the importance of e-Commerce adoption is being well emphasized by UNCTAD through its annual reports ever since the year 2000. Invariably in all

UNCTAD reports on e-Commerce and Development (2000; 2001; 2002; 2003; 2004; 2005; and 2006), the advantages like increased quality of life, economic optimization and operational excellence were emphasized as the basis for justification towards e-Commerce adoption. Further, these reports have pointed out various categories of Industries that can improve e-Commerce adoption under specific socio economic conditions. However, consumer attitude towards Internet based e-shopping is viewed (Liao and Cheung, 2001) as the most critical aspect determining the success of B2C e-commerce in a specific market place. Thus, the major research challenge conceived in this study is to find out the willingness of the consumers to shop online in terms of e-Readiness that could form the basis towards establishing initial reference position towards B2C e-Commerce adoption schemes in the region. E-Readiness in the context of the present study is nothing but a measure developed towards establishing the classification scheme on technology adoption possibilities both from the perspective of consumers and the enterprises. Measuring the e-Readiness of the consumers will help in identifying their willingness towards initiating online purchase for various products and services that are not offered online at present in UAE. Concomitantly, the market for various products and services offered on retailing both in traditional and non traditional form is showing a consistent growth throughout the world. The factors contributing to this growth are fuelled by issues like expanding virtual market space, decreasing cost of hardware, convenience of shopping and time saving due to logistic issues like traffic and cost of transportation. Conversely, the enterprises selling products and services are quite visibly not improvising the potential market with B2C e-Commerce applications in their routine operations in UAE and hence, a need is felt to undertake this study with the possibilities and perspectives of e-Commerce adoption from the viewpoint of customers.

1.2 Research Problem

In UAE, the local enterprises like supermarkets and similar such establishments like retailers of various other products and services are the widely recognized SMBs (Small and Medium sized Business Units) and have established strong

control characterized by severe internal competition in the market for various house hold and food items (Rajmohan and Panchanatham, 2005). The presences of various big hypermarkets have still not significantly influenced the industry structure for small and medium size retailers operating in various places of UAE with continued current market propositions comprising non existence of B2C e-Commerce operations. However, in the long run based on Porter (2001) model, the adoption of B2C by any of the competing segments in the retailing operation could well alter the industry structure for small and medium size retailers in UAE. Under such circumstance some of the existing small retailing units could get cannibalized paving the way for oligopoly in the market. The best way to counter this possibility from the perspective of small and medium size enterprises is to get prepared for the changes with the ability to adopt B2C e-Commerce operation as way to compete in the market. Hence, identifying the consumer willingness to order products and services through Internet will be a worthwhile prospecting exercise on B2C e-Commerce adoption possibilities in UAE shopping culture. Thus, identifying the e-Readiness of the consumers constituting the UAE market for various products and services is viewed as the potential research problem in the present work.

1.3 Factors considered to measure E-Readiness

E-Readiness is the measure developed towards establishing the classification scheme on technology adoption possibilities both from the perspective of consumers and the enterprises. Since the present study is focused on the possibilities of Internet based buying attitude from the consumers of various products and services, the factors such as availability of Internet access, Intensity of Internet usage and e-Commerce awareness are used as the basis towards measuring their e-readiness.

(a) Availability of Internet access

The ever growing potential of Internet as information super highway is the one major reason that has been contributing to the growth of e-commerce activities throughout the world. The Infrastructure requirement for all the categories of e-commerce models is well fulfilled by the availability of Internet. According to UNCTAD (2000) in its report on e-commerce and development, the advent of Internet as a business tool has introduced profound changes both in the organization of the single firm and in the interaction of the firm with its suppliers and the customers. Thus, the market potential for the e-commerce ventures of the type B2C are calculated based on the number of Internet users available in a specific country. The number of Internet users in the world has been increasing every day and this has contributed to the tremendous growth of Internet based e-commerce in different dimensions. The initial phase of Internet revolution saw the emergence of portals and search engines which later on enabled many business models to embark B2C type of e-commerce more effectively. According to the latest statistics provided by the website www.internetworldstats.com, UAE's Internet penetration rate is 61 percent when compared with the global penetration rate of 26 percent. Also, it could be noted around 3 Million Internet users with broad band ac-

cess in UAE out of its total population of 5 million. These statistics confirms the availability of regional infrastructure and thresh hold levels of consumers towards establishing B2C e-Commerce operations

(b) Intensity of Internet usage

In order to estimate the willingness of the consumers' to order products and services through Internet the variable intensity of Internet surfing is considered as very important in the present study. In this context, Liao and Cheung (2001) reported that the individual's level of Internet usage could conveniently be measured by the frequency of access and the duration of each access. Hence, the variable intensity of Internet surfing(I) in the present study is measured in terms of Internet browsing experience in years (IBE), Internet browsing frequency (IBF),

Internet browsing time per week (IBT). Since, Internet life-style in the world is less than two decades old, an experience of more than 5 year usage by the user is considered to be very good level of experience in the present study. Further, the usage duration of more than 2 hours a day on twice a week basis is viewed to be the good intensity level of Internet usage. These matrices also forms the basis towards understanding the perception of the consumers towards initiating internet based e-Commerce

(c) Awareness about e-Commerce

The non-adoption of e-commerce by various potential consumers could also be due to the lack of clarity in understanding the basics of e-commerce. "Many people in developing countries tend to be excessively aware of the e-commerce possibilities to the extent that they overestimate its impact and have unrealistic expectations. What is really needed is critical analysis of real opportunities and potential pitfalls" (Ricipero, 2004). This lack of clarity in the e-commerce applications are justifiable from the standpoint that the first operational definition for e-commerce was given only in the year 2000, though many descriptive definitions can be found much before that(UNCTAD, 2001). The factor e-Commerce awareness in the present study is measured in terms of the consumers' perception about e-Commerce and its utility, product quality related inhibitions, their confidence on e-Payment systems particularly on transaction security and the their actual experience of using practical B2C e-Commerce systems that exist at present in UAE. In an effort to find out the world's best practice in e-Commerce training, Mcnicol Williams(2001) deployed these factors as the basis to measure the e-Commerce awareness of Australian public and the entrepreneurs.

2.0 Studies corresponding to the consumers on e-commerce

The basis for consumer oriented e-commerce applications emerge from the availability of Internet service in a specific place. The Internet was opened to the public in early 90s in the developed countries and in UAE it was from the year 1995 the public access to the Internet was made possible. Hence, it

is to be noted that consumer oriented e-commerce emerged in the developed nations of the world at least 2 or 3 years earlier than the actual availability of Internet access to the public in UAE. However, the published studies on various aspects of e-commerce technologies and its applications can be traced back from the year 1995 onwards. Many studies pertaining to B2C type of e-commerce in the recent past have given more focus to consumers of the products sold over the Internet (Benjamin and Wigand, 1995; Metha and Sivadas, 1995; Quelch and Klein, 1996; Peterson et al., 1997; Lee, 1998). The primary data for these studies have predominantly referred to the United States. The determining factors on the success of different B2C e-commerce ventures identified in these studies include consumer preferences, transaction costs with respect to logistics, communications, payments and the availability of product information.

Arthur and John (1996) studied the real business value of the online communities existed in the Internet. They classified the online communities into four categories namely (a) communities of transaction (b) communities of interest (c) communities of fantasy and (d) communities of relationship. According to them the Internet users who are classified, as the 'communities of transaction' are the real people contributing towards the online ventures like buying and selling over Internet and not the other categories of online communities. However, they opined that businesses have been slow to make use of the Internet's community building capabilities. In the context of the above study, underutilization of the virtual market place is the natural happening, which might get conquered as many business enterprises start participating in the B2C e-commerce ventures over a period of time. Also, the scope of the virtual market place can be extended if all the categories of online communities are brought under the gamut of B2C e-commerce ventures.

The customer loyalty for the firm is the basic phenomena for the successful launch of B2C e-commerce systems. In this context,

Lawrence et al. (1998) observed that the strategy of many portals is to become global supermarkets providing everything for individuals, families and the organizations. According to them the providers of these portals consider their huge customer base as the most important assets. In similar lines, Reichheld and Phil Schefter (2000) studied the impact of customer loyalty on the success of B2C e-commerce over Internet. In this context, they stated that many enterprises concentrate all their attention on attracting customers rather than retaining them in their Internet business. Further, they stated that price of the product sold over the Internet is not the major alternatives to the trust the customers have got for the same product sold outside Internet. This according to them is due to the uncertainties like non-availability of physical shopping experience the customer is likely to face in the e-commerce ventures. In the context of the above study, the firms that have established their trust over the customers in their existing model of the business can launch their Internet based B2C e-commerce ventures with pricing variations as the primary strategy.

As far as the growth of B2C type of e-commerce in developing countries is concerned, UNCTAD (2003) in its report on e-commerce and development provided various obstacles faced by these countries. The various factors identified to be hampering the growth of e-commerce in developing countries include digital divide factor, poor quality of Internet access, higher cost of Internet access, cost of computers, poor e-commerce awareness among the potential enterprises and the consumers. Despite all these obstacles, the available number of Internet users in UAE is considered to be more than significant to make an impact in terms of e-commerce (www.internetstat.com). As far as the studies corresponding to the number of Internet users are concerned, Rajmohan and Panchanatham (2006) observed the growth in the number of ISP's throughout the world. Also, they reported the higher level of satisfaction among the customers of the Internet service. In the context of the above study, it is noted that the Internet users in the early days of Internet usage use it just for the purpose of e-mail and other communication facilities like voice chatting.

Krishnatray and Kulshrestha (2002) made a notable work on Internet usage pattern among the students and reported that more than 50 percent of the Internet users are in the age group between 15 to 24. In the context of the above study the focus was restricted only to the students and hence, more elaborate applications on the Internet usage like e-commerce was ignored. However, the increase in the number of Internet users is noted consistently in all reports of the UNCTAD ever since the year 2000. In this context, the UNCTAD (2005) in its report on e-commerce and development observes 300 percent growth in the number of Internet users in UAE between the year 2003 and 2008. In this context, Rajmohan and Panchanatham (2007) reported the availability of large virtual market place and hence, the opportunities for various segments of the society like youth, women and the enterprises throughout the world.

In a significant study made by JaiGanesh (2003) the classification of the e-market places was provided. According to this study the e-market place is primarily classified into 3 categories namely

(a) e-market place for the public (b) e-market place for the private and (c) consortia market places. Further, the study provided the empirical and theoretical basis for adoption and evolution of Internet based electronic market places.

Making sense of the emerging B2B market structures is worthwhile for the organizations in terms of fixing the timing for exploiting the web-based opportunities. In this context, Mahadeven (2003) provided the taxonomies of emerging e-Commerce market structures. In a study involving 200 e-Commerce web sites, this work has reported a list of 12 major electronic market structures classified under three distinctive categories such as collaborative market mechanism aided by collaborations among the trading partners, quasi-market mechanism characterized by electronic market initiated by the group of buyers or sellers, and neutral market mechanism characterized by the large number of buyers and sellers. Also, he provided the alternative scheme of classifying

these 12 market structures based on the appropriate timing of entries in to the market for the organizations namely degree of fragmentation and asset specificity. The market structures classified in the above study include: (i) Extranet, (ii) Trading partner network, (iii) Web EDI, (iv) Buyer centric private market, (v) Supplier centric private market, (vi) Consortia market place, (v) Seller oriented (forward) auction sites, (vi) Buyer oriented (reverse) auction sites, (vii) Neutral auctions, (viii) Exchanges, (xi) Catalog aggregators and (x) Online community. The prospects of deploying B2C type of e-commerce in selling the products like food items are to be assessed in terms of potential opportunities along with the possible pitfalls. A notable contribution that can closely be matched in this regard was provided in a study on chances and strategies for selling fresh food items over Internet. In this context, Theuvsen (2003) critically analyzed the possibilities and challenges in selling fresh products like ready-made food items over Internet. According to this study successful e-commerce applications in selling products like food items requires the fulfillment of certain preconditions like higher consumer involvement, rareness of the product sold, non substitutability of the specific nature of the product and seller differentiation among the potential consumers. Also, this study provides the conceptual basis for assessing the chances of food manufacturers in B2C e-commerce. The characteristic features of the preconditions identified in the above study include, rareness of the product sold over Internet, emotional and cognitive involvement of the consumers towards the specific product.

The theoretical and empirical framework for the study on consumer attitudes towards Internet-based e-shopping was provided by Liao and Cheung (2001). Through the survey data generated from Singapore, they measured the initial willingness of the consumers to do shopping in the Internet and reported that life content of the products, transaction security, price, Vendor quality; IT education and Internet usage significantly affect the initial willingness of the Singaporeans to e-shop on the Internet. In the context of the above study, the availability of infrastructure facilitating e-commerce with a minimum threshold size of the virtual market place is a prerequisite for the successful incorporation of B2C e-commerce. Thus, an Internet penetration rate of 61 percent in UAE when compared with the global penetration rate of 26 percent; comprising 3 Million Internet users with broad band access out of total UAE population of 5 million strongly confirms the availability of regional infrastructure and threshold levels of consumers towards establishing B2C e-Commerce operations more intensely than the present situation.

3.0 Research objectives & Methods

The under utilization of e-commerce applications in retailing operations of products and services in UAE is viewed in two entrepreneurial dimensions namely consumer preference towards B2C e-commerce systems and the capability of the readymade food selling enterprises to incorporate it. However, identifying the consumer preference towards the Internet based selling operations is viewed as the potential research problem in the present work and hence, the objectives and hypotheses for the study have been framed accordingly

such as;

1. To suggest the methodology to adopt B2C type of e-commerce in retailing operations of various products and service providers.
2. To measure the e-commerce awareness of the consumers of various products and services.
3. To identify the acceptance of the consumers to order products and services through Internet.

In order to accomplish these objectives, the following null hypotheses were tested and reported in this work such as;

1. e-Commerce awareness of the consumers do not depend on their socio-economic factors
2. The e-commerce awareness of the consumers do not depends on their intensity levels of browsing.
3. The willingness of the consumers to order products and services through Internet depends on their e-commerce awareness.

3.1 Research Design

The blue print for executing this research work is prepared considering the nature of the problem identified and subsequent objectives taken up for the work. Hence, a descriptive research design with a questionnaire for the primary data collection is employed in this work. In this context, Seltiz et al. (1959) stated that the research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. As far as the notable existing research designs on e-commerce studies are concerned, Liao and Cheung (2001) employed descriptive research design supported by regression model for an empirical study of consumer attitudes towards Internet based e-shopping in Singapore. Similarly, Mcnicol Williams (2001) employed descriptive research design with structured interview schedule for studying the e-readiness of the SMEs in Australia.

3.2 Details of the Questionnaire

The questionnaire employed in the work was designed with 26 variables consisting of a variable with open-ended questions and another 3 variables with 2-point scale (Yes/No) type. The remaining 21 variables were measured with 5-point scale following the standard approach provided by Aaker et al. (1998); Downing (1999); Keeney (1999) and Liu and Arnett (2000). These variables were grouped under 3 major categories such as (a) Socio-economic details comprising 8 variables (b) Measurement scheme for Internet usage comprising 4 variables (a) Measurement scheme for e-commerce awareness comprising 10 variables grouped under 3 dimensions such as basic understanding, product concerns and Online payment concerns.

3.3 Pre-testing

A pilot survey was conducted to obtain the preliminary assessment of reliability of the research instrument with 83 consumers who are Internet surfers. Before the deployment of the instruments to the actual planned sample size in 2 major sample areas, the data collected through the pilot study was analyzed and the results have confirmed the reliability of all the important variables.

Table 1: Measurement items and reliabilities.

Construct	Dimension	Item	Cronbach alpha	Composite reliability
e-Commerce awareness	Basic Understanding	E-Commerce seems to be a good idea	0.76	0.77
		I have understanding about trading on the web		
		I have never seriously entertained the idea about e-Commerce		
		I have heard some talk about e-Commerce		
		I am very curious about e-Commerce		
	Product Concerns	I do not like buying or selling products using Internet	0.85	0.85
		Buying the product through the Internet may not be as good as buying in person in a store		

Table 1: Measurement items and reliabilities.

Construct	Dimension	Item	Cronbach alpha	Composite reliability
	Online Payment Concerns	I feel Credit/Debit card is not essentially required for e-Commerce	0.78	0.79
		I do not trust the Internet with my credit card		
		I may like ordering the products through the Internet, but never pay on it through Credit/Debit Card		

Note: All items were measured with five-point Likert scale.

Reliability of the multi-item scale for each dimension was measured using Cronbach alphas and Composite reliabilities measures. Both measures of reliability were above the recommended minimum standard of 0.60 (Nunnally, 1978). For all three dimensions of e-Commerce awareness such as basic understanding, product concerns and online payment concerns both measures of reliability are above 0.70 as shown in table 1 which summarizes all measurement items, Cronbach alphas, composite reliability, and their scales for all the items.

3.4 Sampling Details

The survey for the study on consumers of various products and services was conducted in the Emirates of Dubai and Sharjah among the households who have Internet connection in their home based. The questionnaires were distributed and subsequently collected with filled up responses from the respondents. All the respondents who took part in this survey are treated as the consumers of various products and services and they were identified based on their capability to browse Internet with reasonable operational knowledge of computers. Since the availability of Internet connection in home is set forth as one of major criteria for sample selection, all the respondents who took part in the survey were with good level

of operational knowledge on computers.

Another major factor applied for sample selection is social articulation (Cosmopolitanness) of the households. Some researchers have considered this to be the central variable accounting for change and modernization (Rogers, 1983). Social articulation refers to the degree of contact of the household with the wider society through the mass media, visits to market centre and cities, and general knowledge of the wider world. In UAE context, the people living in places like Sharjah and Dubai is normally expected to have good level of social articulation. Also, the respondents were informed about the nature and the objective of this study to ensure their earnest coordination and reduce errors in the survey. Thus, the sampling procedure adopted for this survey can be categorized under judgment sampling method. The primary data pertaining to the present study was collected between September 2009 and December 2009. The sample size of the survey is 266 comprising 100 respondents in Dubai and 166 in the city of Sharjah. As far as the sample size for the consumer related survey is concerned, Hoinville et al. (1978) stated that the decision on a sample size could be based on experience and good judgment rather than relying on strict mathematical formula. Also the use of surveys in social research does not necessarily have to involve samples of 1000 or 2000; instead research with samples between 30 and 250 is adequate (Martyn Denscombe, 1999). Further, Liao and cheung (2001) employed a sample size of 250 to measure the willingness of the Singaporeans to e-shop over Internet.

3.5 Research models tested in the study

(a) e-Commerce awareness of the consumers

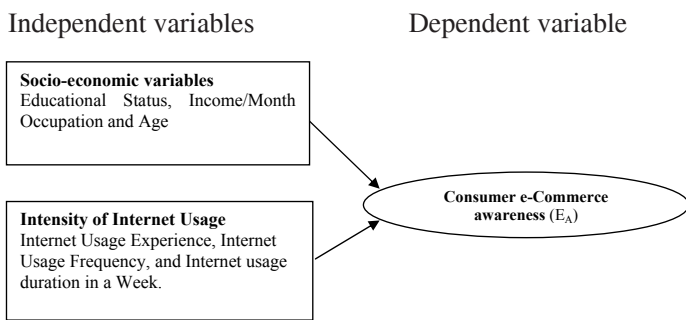
The consumers' e-Commerce awareness (EA) is considered to be the function of Socio – economic variables and their intensity levels of Internet usage as provided in the figure-1. The major socio economic variables of the consumers considered in the study include Age, Gender, Education, Income and Occupation. As far as the measure on the intensity levels of Internet usage is concerned, Liao and Cheung (2001) reported that the individual's level of Internet usage could conveniently be measured by the frequency of access and the duration of each access. Hence, the variable intensity of Internet surfing (I) is measured in terms of Internet browsing experience (IBE), Internet browsing frequency (IBF), Internet browsing time per week (IBT). This is expressed mathematically in terms of the equation 1.

$$I = IBE + IBF + IBT \quad (1)$$

Where,

- I** : Intensity of Internet browsing.
- IBE** : Internet usage experience in months and years.
- IBF** : Internet usage frequency in days.
- IBT** : Internet usage time per week.

Figure 1: Research model for consumer e-Commerce awareness Two different regression models, one consisting of so-



cio-economic variables and another consisting of variables on Intensity of Internet usage are considered in the research model framed for studying the consumers' e-Commerce awareness (EA). This research model is shown in the Figure - 1, where the dependent variable for EA is conceptualized to be influenced by two sets of independent variables. Each of this regression models is stated in the equation 2 and 3 as follows.

$$E_A = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \longrightarrow (2)$$

Where,

- EA** : e-Commerce awareness of the consumers,
- X 1** : Educational status
- X 2** : Income/month,
- X 3** : Occupation
- X 4** : Age
- $\beta_1, \beta_2, \beta_3, \beta_4$** : Regression coefficients which are independent normal variables with zero mean and corresponding variance
- β_0** : Constant
- μ** : Standard error

Also,

$$E_A = \beta_0 + \beta_1 Y_1 + \beta_2 Y_2 + \beta_3 Y_3 + \beta_4 Y_4 + \mu \longrightarrow (3)$$

Where,

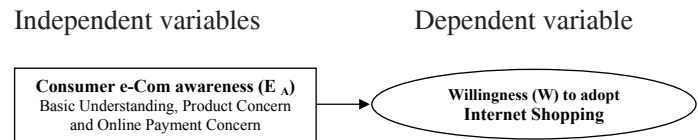
- EA** : e-Commerce awareness of the consumers
- Y 1** : Internet usage experience in months and years (IBE)
- Y 2** : Internet usage frequency in days (IBF)
- Y 3** : Internet usage time per week (IBT)
- $\beta_1, \beta_2, \beta_3,$** : Regression coefficients which are independent normal variables with zero mean and corresponding variance
- β_0** : Constant
- μ** : Standard error

In the context of the above two equations (2&3), it is to be noted that they are considered as two separate regression model and no attempt is made to integrate all these independent variables into a single regression model as the Independent variables are identified from two separate theoretical frameworks one from Rogers (1983) and other from Liao and Cheung (2001) respectively.

(b) Consumer Willingness towards Internet Shopping

The consumer willingness to adopt Internet Shopping is viewed as e the function of their e-Commerce awareness as provided in figure-2. The major dimensions of consumer e-Commerce awareness considered in the study include basic understanding, product concerns and online payment concerns.

Figure 2: Research model for consumer willingness to adopt Internet Shopping



The third regression model consisting of variables of different dimensions of e-Commerce awareness such as basic understanding, product concerns and online payment concerns are considered in the research model framed for studying the consumer willingness (W) to adopt Internet based shopping and this model is stated in equation 4 as follows.

$$W = \beta_0 + \beta_1 E_1 + \beta_2 E_2 + \beta_3 E_3 + \mu \longrightarrow (4)$$

Where,

- W** : Willingness to adopt Internet based Shopping.
- E1** : Basic Understanding on e-Commerce operations.
- E2** : Concerns on the product attributes sold over Internet.
- E3** : Concerns on the online payment systems

$\beta_1, \beta_2 \& \beta_3$: Regression coefficients which are independent normal variables with zero mean and corresponding variance

- β_0** : Constant
- μ** : Standard error

The regression models provided in the equations 2, 3 and 4 are used as the basis to test the hypotheses 1, 2 and 3 taken up in the study and the results are discussed accordingly.

4.0 Analysis and Interpretations

(a) Socio-economic factors and Consumer e-Commerce awareness

The e-Commerce awareness of the consumers is considered not be the dependent on of socio economic factors like educational status, income per month, age and occupation status of the consumers. These Socio-economic variables are considered in the regression model provided in the equation-2 and treated as group of key socio economic variables in the multiple regression analysis performed for testing the hypothesis - 1. The results of this test are shown in table -2, where

the F value of 9.497 is found to be significant at 5 percent level. Hence, hypothesis – 1(Null Hypothesis) is rejected at 5 percent level of significance. Also, the adjusted R Square value of 0.114 indicates that 11.4 percent of the e-Commerce awareness of the consumers is contributed by these groups of key socio economic variables for the consumers.

Table 2: Results of the regression analysis for the test of hypothesis-1

Model 1		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Adjusted R Square	F
		B		Beta			
	(Constant)	1.642	0.640	-	2.567*	0.114	9.497*
	Educational status	-1.023E-03	0.178	0.000	-0.006		
	Income per month	0.271	0.105	0.170	2.583*		
	Age	-0.175	0.108	-0.110	-1.624		
	Occupational status	0.683	0.118	0.372	5.761*		

*Significant at 5 percent level

Dependent variable: Consumer e-Commerce awareness

From table 2, it can also be inferred that the independent variables such as income per month and occupational status of the consumers are found to be significant at 5 percent level with the corresponding ‘t’ values of 2.583 and 5.761. Thus, the results of the regression model considered in the equation 2 provides the importance of these two variables in determining the e-Commerce awareness of the consumers. However, the effect of independent variable educational status is not found to be significant at 5 percent level among the group of key socio economic variables.

(b) Intensity of Internet Usage and Consumer e-Commerce awareness

The intensity of Internet usage by the consumers is measured in terms of Internet usage interval, Internet usage time per week, Internet usage experience. The effects of these influencing variables were reported by Liao and Cheung (2001) to be significant on the e-commerce awareness level of the Singaporean consumers. These variables are considered in the regression model provided in equation-3 and treated as group of major influencing variables in the multiple regression analysis performed for testing the hypothesis – 2.

Model 2		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Adjusted R Square	F
		B		Beta			
	(Constant)	29.067	1.531		18.979*	0.566	78.565*
	Consumers' Internet usage interval in days	1.340	0.286	0.335	4.690*		
	Consumers' Internet usage time per week in hours	1.379	0.189	0.500	7.295*		
	Consumers' Internet usage experience in months & year	0.173	0.371	0.030	0.465		

* Significant at 5 percent level

Dependent Variable: e-Commerce awareness

The results of this test are shown in table 3, where the F value of 78.565 is found to be significant at 5 percent level. Hence hypothesis – 2 (Null Hypothesis) is rejected at 5 percent level of significance. Also, the adjusted R Square value of 0.566 indicates that 57 percent of the e-commerce awareness of the consumers is contributed by these groups of influencing variables for the consumers. The results of this test confirm the earlier reported finding by Liao and Cheung (2001) and Mcnicol Williams (2001). From table-3, it is to be noted that the ‘t’ values of 7.295 and 4.690 corresponding to the independent variables Internet usage time per week and Internet usage interval in days are found to be significant at 5 percent level. From these ‘t’ values, it is inferred that the e-commerce awareness of the consumers has significant dependency towards the variables Internet usage time and usage Interval of the consumers.

(c) Consumer willingness to shop online and their e-Commerce awareness

Table 4: Results of the regression analysis for the test of hypothesis – 3

Model 3		Un standardized Coefficients	Std. Error	Standardized Coefficients	t	Adjusted R Square	F
		B		Beta			
	(Constant)	-2.731	0.672		-4.062	0.41	24.065
	e-com Basic Understanding	0.072	0.034	0.202	2.140*		
	e-Com Product Concerns	0.114	0.062	0.180	1.839*		
	e-Com transaction Security	0.163	0.049	0.320	-3.314*		

* Significant at 5 percent level

Dependent Variable: Willingness to shop Online.

Table 5: Details of the consumer willingness to order ready-made food items through Internet and their reliability on e-payment method

	Classification of consumer willingness to order products through Internet			Classification of consumer reliability on Internet payment methods		
	Ordinary willingness	Good willingness	Very good willingness	Ordinary reliability	Good reliability	Very good reliability
Number of consumers	102	41	123	70	95	101
Percentage	38.3%	15.4%	46.4%	26.3%	35.7%	38%
Grand total	266 (100%)			266 (100%)		

The results of test for hypothesis-3 are shown in table 4, where the F value of 24.065 is found to be significant at 5 percent level. Hence, hypothesis – 3 (Null Hypothesis) is rejected at 5 percent level of significance confirming the earlier finding. Also, the adjusted R Square value of 0.41

indicates that 41 percent of the consumers' willingness to order products through Internet is contributed by three major dimensions of e-Commerce awareness considered in the study. From table 4, it is also inferred that the 't' values of 2.140, 1.839 and -3.314 corresponding to three dimensions of e-Commerce awareness such as basic understanding, product concerns and e-com transaction concerns are found to be significant at 5 percent level. However, the negative t value for transaction concern implies increased online transaction fear causing less willingness to shop online. Thus, the initial willingness of the consumers to order product through items through Internet has significant level of dependency towards all the three dimensions of e-Commerce awareness. In similar lines, Theuvsen (2003) reported that higher consumer involvement is a major factor that can contribute to the success of the ventures like B2C type of e-commerce. Hence, the results of this regression analysis confirm the earlier findings on the possibilities towards B2C type e-commerce deployment in selling various products and services that are not offered online at present in the study area. Further, the results shown in table-5 have confirmed that 60 percent of the consumers have good and very good willingness to shop online in the study area.

5.0 Findings, Implications and Concluding remarks

The major finding of this work is the mismatch that exists in the market between the willingness of the consumers to shop online and the availability of such preferred facilities by them. In this context, it is found that 60 percent of the consumers who are Internet users have good and very good willingness to order products through Internet. In contrary to this most of the popular retailing enterprises in UAE is not offering B2C type of e-commerce systems in the market. With ever expanding virtual market place, this is viewed as the gross underutilization of the infrastructure on e-commerce possibilities with constantly increasing demand for such products and services. This finding made in the present study can further be substantiated by the details provided as follows.

1. The group of socio-economic factors such as educational status, income per month, occupational status and Age has significant effect on consumer e-commerce awareness. In particular, the consumer e-Commerce awareness levels have a significant level of dependency towards their income per month and occupational status. In this context, it is found that 25 percent of the consumers have their family income per month at AED 10,000 and above. As far as the various categories of occupation of the consumers are concerned 10 percent of them are found to be engaged in small business operation with 35 percent of them constituting employees of various companies and the government agencies.

2. The e-commerce awareness levels of the consumers are significantly affected by their intensity of Internet browsing. In particular, the e-commerce awareness levels of the consumers have significant level of dependency with regard to the Internet usage interval in days and its usage duration in time per week by them. In this context it is found that 35 percent of the consumers have already used Internet based e-commerce systems for purchasing and selling of products

and services.

3. The consumer willingness to order their preferred products and services through Internet is highly encouraging in terms of B2C type of e-commerce adoption in various retailing operations. In this context, it is found that 38 percent of the consumers have shown ordinary willingness to shop through Internet even if their preferred retailers offer such services. The remaining 62 percent of the consumers have shown good and very good willingness to shop through Internet, if their preferred retailers in the market offer such services. However, it is also found that the availability of secured electronic transactions (SET) have not yet shown considerable improvements in terms of customers trust towards e-transactions and this is really a concern area that is to be addressed among the Internet surfers. In this context, it is found that 35.7 and 38 percent of the consumers have shown good and very good reliability on Internet payment methods. However, the remaining 26.3 percent of the consumers are found to be with only ordinary reliability on Internet payment methods.

4. The willingness of the consumers to shop through Internet is significantly affected by their e-commerce awareness level. In this context, it is found that the willingness of the consumers to shop through Internet significantly depend on the all the three dimensions of e-commerce awareness such as basic understanding of e-Commerce, Concerns over the product and services that may be offered online and Concern over the transaction security in the Internet.

5.1 Implications and Concluding Remarks

Based on the above findings made in this work, the following are the managerial implications for the retailing enterprises operated in UAE. This also includes a few suggestions to the policy makers.

1. The situation for B2C e-commerce operations for some of the potential products and services is not properly improvised in the market. This is considered to be a good opportunity that remains underutilized in the market. However, certain branded but small retailers are well improvising the market with home delivery services of the products that are ordered. Hence, the existing retailers in larger context, particularly the sellers of grocery and food items in the market should come forward to offer this service more effectively than the present scenario to their customers.

2. Most of the home delivery services offered by certain branded but small retailers are based on the ordering system centered on telephone and personal ordering in the shop. This type of ordering systems are not considered to be so transparent in terms of product displayed for ordering and subsequently sold. Establishing a web based selling strategy can solve this problem. Hence, the well-established branded retailers should establish their B2C type of e-commerce portals for trading activities in UAE. In this context, the higher willingness of the consumers found in the present work to use such systems is an added advantage in the initial stages of such ventures.

3. The inhibitions of the consumers regarding the reliability of the existing e-payment methods is really a concern area that is required to be addressed among the Internet users. In this context, the role of the banking corporations more specifically those providing credit card and debit card services is viewed with higher level of significance as they are identified to be in pivotal position to take up the confidence boosting efforts among the customers on various e-payment systems. Also, these bankers should come forward to device a scheme that can facilitate e-transactions in higher volume than the present situation in UAE.

4. More elaborate role of the government than the present situations is required to facilitate the e-commerce growth in a country like UAE where the opportunities are countless. More specifically, the federal and local governments should take up the e-commerce awareness raising measures among some of the potential SMEs, SMBs and even among the Internet users as the infrastructure Internet still remains highly underutilized in terms business and macroeconomic dimensions in UAE.

6.0 References

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