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Empirical Investigation of Internet Banking in the UAE: Bank adoption levels in the context of customer satisfaction and influencers of adoption among potential users (WP)

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Abstract

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Keywords

Empirical, Investigation, Internet, Banking, UAE, Bank, adoption, levels, context, customer, satisfaction, influencers, adoption, among, potential, users

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Empirical Investigation of Internet Banking in the UAE: Bank adoption levels in the context of customer satisfaction and influencers of adoption among potential users (WP)

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Abstract

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INTRODUCTION

The financial sector in the UAE accounts for 6.5% of GDP (Ministry of Planning, 2003), and is dominated by a well established banking industry which is one the most profitable in the world with overall profitability increasing by 15% in 2003 alone. The International Monetary Fund has vouched for the soundness of the UAE banking sector (IMF Report, 2004) as reflected in an 18 % capital-assets ratio (minimum is 10%), a net NPL ratio of below 2%, and diversified lending across industries. The founding of Dubai International Financial Center in 2004 strengthened the UAE credentials as a key financial center, the country is undeniably fast emerging on the world's financial stage

There are 25 foreign banks and 21 local banks registered with the UAE Central Bank. Local banks are those which are incorporated in Abu Dhabi, Dubai, Sharjah, and in the northern Emirates of Fujairah, Ras Al Kahima, Umn Al Qaiwain and Ajman. Despite the growth of electronic banking services, UAE banks are increasing their branch networks. Between 2001 and 2003 local banks branches increased by 10% to 334 (Table 1). Meanwhile, foreign bank branches totaled 87. This gives a population of 8,653 per bank office which is high compared with developed countries such as the United States which has approximately 3,500 persons per bank office (Spieker, 2004). Moreover, most of the bank offices are concentrated in the metropolis areas of Dubai, Abu Dhabi and Sharjah. This makes all the more necessary for banks to explore other channels in reaching customers.

Table 1

Bank Head Offices and Branches - UAE

	1991	1998	2002	2003
Local Banks Head Offices	21	20	21	21
Local Bank Branches	160	264	324	334
Foreign Bans Head Office	28	27	26	25
Foreign Bank Branches	91	83	86	87
Population per office	6,406	7,003	8,214	8,653

Source : UAE Central Bank Reports

In spite of this apparent strength and serious potential of the banking sector in the UAE, its products and services do not seem to be as developed compared to those in the Western economies (IMF Report, 2003). This is surprising given the prevalence of a number of strong international banks in the market. Specifically, physical branch banking, ATMs, and tele-banking are by far the most widely used channels of customer interaction with banks. Internet banking appears to be a slow starter in the UAE despite the existence of well developed internet infrastructure. According to the Economist Intelligence Unit (2001), by the year 2000 only 20% of the banks in the region offered online transactions. However, our primary research has shown that in the UAE the number of banks offering online banking services has increased considerably. Indeed, all 46 banks have a form of online presence.

According to the Internet World Stats (Internet World Stats, 2004), the UAE internet penetration rate is very high with 33% compared to a regional average of 6.1 %. Out of a population of 3.4 million, 1.1 million are regular internet users. Moreover, the number of internet users increased by 51% between 2000 and 2004. However, only 21% of internet users

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have adopted internet banking (EIU, 2001). Considering that foreign banks are restricted by law in the number of branches they can have in the UAE, it becomes imperative for these banks to reach out to customers via internet banking.

LITERATURE REVIEW

The role informational technology in the success of banking is well documented (Pollais, 1994; Van Aswegen, 1999; Martin, 1998; & Chatzky,1998). However, the acceptance of internet banking service has been mixed (EIU 2001). In an attempt to explain such conclusion, the Diniz (1998) model has been used to analyze the content of bank websites in the middle-east and Islamic countries (e.g., Awamleh et al , 2003; Guru et al, 2000; Jasimuddin, 2001). In the UAE, there is no documented evidence of such an examination, accordingly, this study proposes to fill this void.

The Diniz model delineates three functional areas and three levels of activity:

1. **Informational**

   Basic – providing contact, electronic brochures and special events

   Intermediate – search engines, report downloads, economic information

   Advanced – subscriptions, interface customization and advertisements

2. **Transactional**

   Basic – opening accounts, check book requests, card requests

   Intermediate – balance enquiry, bill payments, fund transfers

   Advanced – electronic cash, electronic signature, electronic checks

3. **Customer relationship**

   Basic – electronic mail, suggestions and complaints forms, feedback forms

   Intermediate – advising tools, what-if calculations, and calculators

   Advanced – video conferences and service developments

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The adoption of internet banking services is to a large extent dependent on the value added services they can offer. Diniz (1998) surveyed banks in the United States and reported that most of them offer basic and intermediate services at the transactional and informational levels. Awamleh et.al. (2003) surveyed Jordanian banks and found limited evidence of web usage at the intermediate level while the basic level use was dominant. Guru et al (2003) found that overall bank website evaluation ratings are clearly related to the three functional and interactivity levels.

There is evidence to suggest that banks are seeking to slowly move out of branch banking and into multi-channel banking, primarily internet banking, to attain cost advantages (Kurtas, 2000) and to improve customer service (Polatoglu & Ekin, 2001). This paper aims at assessing the extent to which UAE banks have adopted internet banking to take advantage of opportunities in providing market information, delivering banking products, and improving customer relationship (Diniz, 1998). Additionally, we seek to understand the factors that determine the satisfaction of customers of internet banking services. Also worthy of investigation, are factors that influence potential users of internet banking in the UAE. If banks are to effectively expand their service, it is essential that they gauge potential customers adoption influencers.

METHOD

This study was conducted in three parts. Part 1 analyses the websites of banks in the UAE using the Diniz (1998) model to assess the extent of adoption. Part 2 is concerned with factors that impact the satisfaction of internet banking users. While Part 3 addresses factors influencing potential internet banking users.

Part One

This part uses Diniz's model (1988) to evaluate UAE bank websites. These are categorized into three channels, providing information, conducting transactions, and improving customer relations. Within each of these channels there are three level of interactivity, basic, intermediate, and advanced.

Population, Sample, and Instrument

A representative sample of 35 of the 46 banks operating in the UAE were included in this study. These were 19 foreign and 16 local banks. The instrument used was the one developed Diniz (1998).

Data Collection and Analyses

Data on the sample banks was collected in September 2004. All pages and functions contained in these banks websites were extracted, tabulated, and evaluated (Table 2). Although the study does not hypothesize differences between local and international banks when it come to internet banking practices we have tested for this and conclude that there are no significant differences as shown in Table 2. For each dimension and level of interactivity, the percentage of banks that have this activity on their website is shown in column 1 and 2 of Table 2. For example, 95 % of foreign banks and 93.75% local banks report instructional information at the basic level of interaction for informational dimension.

Table 2

Bank Website Evaluation Model

Information Vehicle	1	2
	Foreign Banks	Local Banks
Interactivity Level & Dimensions		
Basic Level:		
- Institutional information	95.00%	93.75%
- Promotional Information	75.00%	81.25%
- Ways of contact	90.00%	93.75%
- Special events	5.00%	6.25%
- Addresses and Branches	95.00%	100.00%
- Board of Directors information	85.00%	87.50%
- News letters.	85.00%	68.75%
- Welcome letters.	50.00%	50.00%
Intermediate Level:		
- Search engines	45.00%	25.00%
- Report downloads	90.00%	50.00%
- Stock information	50.00%	31.25%
- Recruitment forms	0.00%	62.50%
- Job offers	25.00%	68.75%
- Hot links	55.00%	31.25%
- Economic Information	45.00%	18.75%
- Financial Markets Information	65.00%	18.75%
- Detailed Articles	55.00%	12.50%

Advanced Level:		
- Ability to customize the interface	0.00%	0.00%
- Subscription options	5.00%	0.00%
- Online chat with customer service	0.00%	0.00%
- Discussion groups	0.00%	0.00%
- Advertisement and Promotion	75.00%	68.75%
Conducting transactions	0.00%	0.00%
Interactivity Levels & Dimensions	0.00%	0.00%
Basic level :		
- Opening accounts	85.00%	87.50%
- Card requests	65.00%	81.25%
- Loan applications	45.00%	25.00%
- Investment applications	45.00%	31.25%
- Exchange rates inquiry	**75.00%**	**43.75%**
- Check book request	5.00%	6.25%
Intermediate level:		
- Bill payment	5.00%	12.50%
- Fund transfer	80.00%	81.25%
- Balance inquiry	75.00%	68.75%
- History of the account	**20.00%**	**56.25%**

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- Stock trading	**45.00%**	**12.50%**
Advanced level :		
Virtual banks with solutions such as e-cash, e-signature and e-checks	**50.00%**	**0.00%**
Relationship with customers		
Interactivity Levels & Dimensions		
Basic level:		
- E-mail	90.00%	100.00%
- Suggestions and complaint forms.	55.00%	62.50%
Intermediate Level:		
Providing tools to make financial decisions.	0.00%	6.25%
- What if calculations	**0.00%**	**31.25%**
Advanced level:		
- Video conferencing.	0.00%	0.00%
- Information Gathering on products and services.	**55.00%**	**37.50%**

Results

As shown in Table 2, the predominate use of websites by banks is as an informational vehicle, and the main focus there is on the basic level of activity. No significant difference between foreign banks and local banks is apparent in many of the areas. One area that both sector banks clearly need to improve on is the relationship with customers category.

Part Two

This part of the study is focused on assessing customer satisfaction with the level of service that UAE banks provide through internet banking.

Population, Sample, Subjects, and Instrument

The population of this study consisted of all bank customers in the UAE across various sectors and industries. A total of 330 questionnaires were distributed by hand to several national and multinational companies that agreed to distribute them to their employees. Two hundred and twenty questionnaires were returned, again picked up by hand from company premises. Of these, 155 respondents indicated that they did not use internet banking services and were excluded form the study. Of the remaining 70 who use Internet banking services, 49 questionnaires were usable as the others had to be discarded due to incomplete data. Data was collected through a questionnaire developed by Polatoglu and Ekin (2001) using 7-item Likert Scale. Data collection took two months. Fifty nine percent of respondents were male; 54% had more than 4 years of work experience; and 70% had a minimum of a bachelor degree.

The first part of the instrument relates to internet usage habits, e.g., "how frequently I use internet banking", and "The time since I have been using internet banking is..". The second part relates to how satisfied is the internet banking user with the internet banking service

ranked on a Likert scale ranging from 1 = Not at all satisfied to 5 = Very satisfied. E.g., "The internet banking service I use is secure", and "The web banking site transactions save me a lot of time". The third part consisted of demographic variables such as age, gender, education and salary levels.

Results

As a first step, factor analysis was performed to extract the valid dimensions describing customer satisfaction among internet banking users in the UAE. Results of factor analysis are shown in Table 3. These results reveal that the 12 dimensions of customer service can be reduced to three factors. Two factors identified by Polatoglu and Ekin (2001) Convenience, and Security were substantiated by this study. However, a new factor emerged which is designated as independence. These three factors, Independence (INDEPT), Convenience (CONVIN), and Security (SECURT), together explained 64.81 % of the variance. Furthermore, scale reliability for each factor is very good as Cronbach Alphas are 0.725, 0.8123 and 0.8157 for independence, convenience, and security, respectively.

The independence dimension captures the concept of customers interacting with their bank using the internet without the need to directly interface with bank employees. This can be valuable if it reduces communication apprehension which may be caused by the profound cultural diversity that the UAE's society exhibits. For example, virtual interaction provides customers with independence and control as they go about managing their accounts without the risk of mistakes due to language or perceptual biases. Convenience on the other hand depicts the ease and practicality of the channel. This includes the ability to access banking services from anywhere and around the clock. Lastly, the security dimension measures customers perceptions of channel reliability and safety, and also the speed by which

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transactions are completed. The latter is perhaps a reflection of the view that the longer the

time taken for a transaction, the more likely that the service will be compromised on from a

security point of view.

Table 3

Factor analysis satisfaction of UAE Internet banking users

Factors	Loadings	Statistics
Factor 1 – Independence		Percentage variance explained = 45.51 Cumulative percentage variance expalined = 45.51 Cronbach's alpha = .7524
Privacy is maintained	.828	
It is easy to use	.632	
Instant feedback on transactions	.579	
Satisfies all my banking needs	.576	
Factor 2 - Convenience		
Access from anywhere	.768	Percentage variance explained = 10.68 Cumulative percentage variance expalined = 56.195 Cronbach's alpha = .8123
24 hour availability	.711	
Transactions have low or no cost	.698	
It provides time savings	. 667	
Factor 3 – Security		
IB services are reliable	.817	Percentage variance explained = 8.26 Cumulative percentage variance expalined = 64.81 Cronbach's alpha = .8157
IB services are secure	.770	
The transactions are done quickly	.530	

To further explore the data, and in an attempt to evaluate the impact of independence,

convenience, and security dimensions on customer satisfaction of internet banking services, a

multiple regression was performed. Table 4 shows results of the multiple regression with

satisfaction ($m = 4.16$, $SD = 0.912$) as dependent variable and entering independence (m

$= 4.06$, $SD = .634$), convenience ($m = 4.45$, $SD = .63$), and security ($m = 4.11$, $SD = .773$) as

independent variables. The overall model is significant at the $p < 0.001$ level. The model

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revealed significant impact for convenience and security. Surprisingly, however,

independence failed to show significant relationship with satisfaction.

Table 4

Multiple Regression: Satisfaction is dependent variable.

Dependent variable ... Satisfaction

R Square 0.708   **Adjusted R Square** 0..689   **Standard Error** 0.517

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	29.722	9.907
Residual	46	12.278	.267

F = 29.500   **Sig. F = 0.0000**

Variables in the Equation

Variable	**B**	**SE**	**Beta**	**T**	**Sig.**
INDEPT	.265	.156	.181	1.696	. 097
CONVIN	**.451**	**.160**	**.307**	**2.822**	**.007**
SECURIT	**.560**	**.140**	**.469**	**4.009**	**.000**
(Constant)	- 1.386	.570		-2.431	.019

In order to test for the possible impact of demographic and behavioral variables on

satisfaction of internet banking, a series of additional regression models were performed.

More specifically, the data set was divided based on gender, monthly income (less than AED

7000 Arab Emirates Dhirams , and AED7,000 or more), and those who have used internet

banking for 2 years or less and those who have used it for more than two years . These results

are shown in Table 5.

Table 5

Regression Models:

Cultural and Demographic Variables

Category	Dependent : Satisfaction*	
Gender		
Male	CONVIN	.011
	SECURT	.008
	CONVIN	.041
Female	SECURT	.011
Income		
<= AED7,000	CONVIN	.001
> AED7,000	SECURT	.000
Usage Time		
<= 2 year	INDEPT	.032
> 2 year	SECURT	.000

* All values show significance of 't'

Results of further regression analyses (Table 5) conform to the main regression model (Table 4), with two notable exceptions. Only convenience is significant for the group earning equal to or below AED 7000 a month. Independence, however, is significant for the group using internet for one year or less. Finally, gender does not appear to be a factor in determining satisfaction with internet banking.

Part Three

This part of the study is focused on assessing potential customer influencing factors to adopt internet banking in the UAE. To measure this, we adopted the model used by Chan and Lu (2004) in their study of Hong Kong's potential internet banking users. Constructs deduced and used by Chan and Lu are well grounded in social psychology, social cognitive theory (i.e., Self Efficacy), and information technology acceptance models. They have conducted an extensive literature review of the above areas and concluded that seven factors are highly relevant.

The resulting model delineates the seven factors that are expected to influence the adoption of internet banking decision by a potential user. The final set of factors was based in main on theory of planned behavior (Ajzen, 1991), technology acceptance model (Davis, Bagozzi, & Warshaw, 1989; Venkatesh & Davis, 2000), and computer self-efficacy which is derived from social cognitive theory (Bandura, 1986). The dependent variable is intention to adopt. Below are the following factors with a brief description (adopted from Chan and Lu, 2004):

Computer self efficacy(CE) : the perception of the potential adopter of his/her ability to use the computer in order to accomplish a task.

Image(IM): the degree to which adoption of internet banking is perceived to enhance one's image or status in one's social system.

Perceived ease of Use(PE): the degree to which internet banking is perceived as easy to understand and use.

Perceived Risk(PR): the uncertainty that a potential adopter faces when he/she cannot foresee the consequences of his/her adoption decisions.

Perceived Usefulness(PU): the degree to which a potential adopter views internet banking as offering advantages over previous ways of performing the banking transactions.

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Results Demonstratability(RD): the degree to which the results of using internet banking are observable and communicable to others.

Subjective Norms(SN): a potential adopter's belief that the salient referent thinks he/she should or should not adopt internet banking.

Population, Sample, Subjects, and Instrument

The population of this study consisted of all potential internet banking customers in the UAE. The sample included undergraduate and graduate students of a medium size private university in the UAE. A total of 150 questionnaires were distributed by hand in randomly selected classes and voluntary participation was requested after securing the lecturers' permission. Students were asked to return the questionnaires to a research office located on campus. Ninety five questionnaires were returned. Of these, 79 were usable as the others had to be discarded due to incomplete data. Data was collected using the questionnaire developed by Chan and Lu (2005) using 7-item Likert scale, factor analysis results are shown in Table 6. Data collection took two weeks. All used questionnaires were from respondents who are not internet banking users. Fifty three percent of the respondents were female and 63% were over 22 years of age.

Results

Initially, factor analysis was performed to validate the constructs included in this part of the study. Results of factor analysis are shown in Table 6. These results reveal that the seven dimensions adopted by Chan and Lu in addition to the dependent factors are confirmed in this sample, with very minor adjustments. Additionally, scale reliability for all factor are in the acceptable range (Cronbach Alphas).

Table 6

Factor analysis satisfaction of UAE Internet banking users

Factors	Loadings	Statistics
Factor 1– Computer Self Efficacy (CSE)		
I would be confident of using Internet Banking if someone else could help me get started	.829	
I would be confident of using Internet Banking if I have sufficient time to complete the transaction for which the system provides.	.809	
I would be confident of using IB even if I can call on someone for help if I am stuck	.758	
I would be confident of using Internet Banking if I have a built-in online "Help" functions for assistance	.754	
I would be confident of using IB if I see someone first using it before I try it	.691	% variance explained = 19.71
I would be confident of using Internet Banking if someone shows me how to use it first.	.652	Cumulative %variance explained = 19.71
I would be confident of using Internet Banking if I had used a similar system before this one to do the same transactions	.596	Cronbach's Alpha = .8725
Factor 2 – Perceived Usefulness (PU)		
Internet Banking allows me to manage my finances more efficiently	.849	
Internet Banking is a convenient way to mange my finances.	.843	% variance explained = 11.09
		Cumulative %variance explained = 30.8
Internet Banking will give me greater control over my finances.	.837	Cronbach's Alpha = ..8786
Internet Banking is more friendly than existing bank channels , including Bank Branches, ATMs and Phone Banking	.703	
Internet Banking will make it easer for me to conduct my banking transaction.	.504	
Factor 3 Perceived Ease of Use (PE)		
Using internet banking does not require much of mental effort.	.767	% variance explained = 9.319
I believe it would be easy to get internet banking to do what I want to do	.729	Cumulative %variance explained = 40.2
It will be easy for me to remember how to perform tasks with internet banking.	.695	Cronbach's Alpha = .8341
Internet Banking eliminates geographic limitation and increases flexible mobility; I can bank at anyplace that has an internet connection.	.487	

Factor 4 Intention to Adopt (IA)		
Be interested in securities trading via Internet Banking in the next 6 months.	.804	% variance explained = 7.016
Be interested in using insurance services via internet banking within the next 6 months.	.718	Cumulative %variance explained = 47.1
Plan to experiment or use internet banking in the next 6 months.	.715	Cronbach's Alpha = .7928
Be interested in wireless Internet banking (mobile banking) within the next 6 months.	.610	
Be interested in investment and fund services via Internet Banking in the next 6 months.	.687	
Factor 5 Subjective Norm (SN)		
Decision to adopt IB is influenced by friends	.856	% variance explained = 3.78
Decision to adopt IB is influenced by colleagues/classmates	.834	Cumulative %variance explained = 50.9 Cronbach's Alpha = .7425
Factor 6– Image (IM)		
Adopting IB I would be more prestigious amongst peers	.789	% variance explained = 3.47
Adopting IB would give me a higher status amongst peers	.597	Cumulative %variance explained = 54.38 Cronbach's Alpha = ..7723
Factor 7 – Perceived Risk (PR)		
I feel that others can tamper with information concerning my internet banking transactions.	.782	% variance explained = 2.97
I am afraid others will know information concerning my internet banking transactions	.713	Cumulative %variance explained = 57.35
I am not confident about the security aspects of internet banking in the UAE	.558	
I believe that it is easy for my money to be stolen if using Internet Banking	.548	Cronbach's Alpha = .7363
Factor 8 – Result Demonstrability (RD)		
I have no difficulty telling others about the results of internet banking.	.645	% variance explained = 2.917 Cumulative %variance explained = 60.26
The results of using internet banking are apparent to me.	.621	Cronbach's Alpha = .6942

To evaluate the impact of the seven independent factors on the dependent one which is

intention to adopt, a multiple regression was performed. Table 7 shows results of the multiple

regression with Intention to Adopt - IA ($m =2.75$, $SD =.656$) as dependent variable and

entering Image - IM (*m = 3.40, SD =1.32*), Subjective Norms - SN (*m =3.29 , SD =1.39*),

Perceived Risk - PR (*m =4.09 , SD =1.28*), Computer Efficacy – CE (*m =4.81, SD =1.17)*,

Perceived Usefulness (PU) (m =4.79 , SD= 1.10), Perceived Ease – PE (m =5.07 , SD

=1.02), and Result Demonstrability – RD (m =4.73 , SD =1.39) as independent variables.

Surprisingly, the statistical model revealed little support for the theoretical one. Only

subjective norms and perceived risk showed significant relationship to the dependent

variable.

Table 7

Multiple Regression. Intention to Adopt as Dependent Variable.

Dependent variable ... Intention to Adopt (IA)

R Square 0..198   **Adjusted R Square** 0.132   **Standard Error** 0.611

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	7	6.725	.961
Residual	72	27.294	.379

F = 2.534   **Sig. F = .022**

Variables in the Equation

Variable	B	SE	Beta	T	Sig.
PU	3.067	.544	-.009	-.062	.951
PE	.115	.089	.179	1.294	.200
CE	-.004	.066	-.008	-.066	.948
SN	**..105**	**.056**	**.223**	**1.858**	**.067**
PR	**-.191**	**.062**	**-.373**	**-3.093**	**.003**
RD	-.079	.056	-.166	-1.394	.168
IM	-.012	.060	-.024	-.201	.842
(Constant)	3.067	..544		5.639	.000

Testing for the possible impact of demographic and behavioral variables on intentions to

adopt, a series of additional regression models were performed. Specifically, the data set was

divided based on gender and monthly income (less than AED 5000 Arab Emirates Dhirams,

and AED5000 or more). These results conform to the main regression model, with two notable exceptions (Table 8). Subjective norms shows no significance in the women group, and results demonstratabilty replaces subjective norms for those whose salary is equal to or more than AED5000 a month.

Table 8

Regression Models - Demographic Variables

Category	Dependent : Intention to Adopt (IA)*
Gender	
Male	SN .033
	PR .005
Female	PR .071
Income	
<= AED5,000	PR .038
> AED5,000	SN .009
	PR .032

8 All values show significance of t

DISCUSSION

Analyses of Part One results demonstrate that internet banking in the UAE is in its infancy. Most of the interactivity provided by internet banking is at the basic informational and transactional levels. Applications at these levels are far from being developed in sophisticated ways that can give sustainable added value to all parties. The basic levels are what branches, ATM's and tele-banking channels provide, thus customers do not see valid reasons for using the internet banking channel and still get the same services. This conclusion has serious cost and customer service implications for banks in the UAE. Business and Information

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Technology planners in UAE banks ought to address this gap as it appears that their websites are strategically underutilized.

Analyses of Part Two results addressed the three dimensions that motivate customers to use internet banking and thus are the same bases that can be used to asses customer satisfaction with that service. Factor analysis substantiated independence, convenience, and security. Furthermore, regression analyses showed convenience and security to be strongly related to satisfaction, whereas independence unexpectedly was not. If the internet banking service provides convenience and is secure, customers' levels of satisfaction go up, but why doesn't the feeling of independence achieve the same result or at least support it? The answer could be that internet users in general, and internet banking users in particular, take the independence dimension for granted and most of them are experienced users who are quite used to independently manage their own accounts. This explanation becomes more apparent when we consider that the second regression analyses revealed that independence did indeed affect the satisfaction of the group that has used internet banking for less than a year but not the others. What does this say to banks? In part it says that customers in general, and increasingly so, expect any internet banking activity to give them independence, but are very keen on assessing the security and convenience of the service before they develop positive attitudes towards it. Embedded in convenience is the concept of added value discussed above, in other words, customers will not use internet banking to replace the traditional channels unless they see a real added value and added advantage in the new channel.

Income appears to be a factor in satisfaction. Customers who earn AED7000 or less saw convenience as their primary source of satisfaction with internet banking while those who earn more than AED7000 gave a priority to security. This finding seems logical as the higher

the income the more likely for online transaction security to be an issue. Furthermore, those who earn less than AED7000 a month in the UAE are likely to be working in non-managerial positions which means that they are not afforded much freedom time-wise to leave their workplace and do their banking during regular hours, making internet banking for them, therefore, a very convenient solution.

Analyses of Part three results are much less straightforward. Indeed, results are mixed. As expected, subjective norms play a role in the decision of the potential user to adopt internet banking. This may indicate that future efforts by banks to grow the service can be helped by introducing company and group schemes for the enrolment in such service. A major finding is that the higher the perceived risk, the lower the intention to adopt. Perceived risk in banking transactions is always a factor in the minds of customers, perhaps this explains why banks find that a small percentage of customers use ATMs to deposit funds in their accounts. However, perceived risk maybe more relevant in an environment like the UAE where the majority of population is expatriate who would regularly make fund transfers to their accounts in their home countries and would be looking to use internet banking for that purpose. The risk of errors in online transfer would be something to consider. This conclusion is consistent with the earlier finding in part two which showed that customers with higher salaries saw security as a major issue in internet banking. Finally, why are women and those twenty two years and younger unaffected by subjective norms when it comes to adopting internet banking? Not clear. This is an interesting result that requires further investigation. In general, Chan and Lu's (2004) model is intuitively appealing and theoretically sound, indeed the results of factor analysis validate the constructs, however, results show weak support in general. Certainly, the results of their own study were inconclusive and mixed. A number of variables fail to show direct relationship but can show indirect ones. For example, computer

self efficacy failing to show any significance is not only counter intuitive but also contrary to consistent earlier research findings (e.g., Venkatesh & Davis, 1996) . This needs further research attention and inquiry.

Future research in this area can focus on possible methods of introducing and advancing the interactivity levels towards the higher end of the matrix. For example, linkages between investments in web banks and organizational performance need to be established. In addition, it is worth investigating the impact of education on the adoption of and satisfaction with internet banking. Also, one would expect notable distinctions in the behaviors and attitudes towards internet banking between individual, small business, and corporate customers, in addition to gender as suggested by results.

CONCLUSION

This paper investigated websites of banks in the UAE and evaluated factors that are significant in determining the satisfaction of customers using internet banking. Banks in the UAE do not use their websites strategically to improve customer relationship or to add real value. For instance, if banks want more of their customers to use internet banking, they will need to provide more value add services than the ones provided by ATMs or phone banking.

The study identified the factors that are significant for internet banking customer satisfaction. Security of transactions and convenience contribute significantly to satisfaction of internet banking customers. Banks while advertising their internet services should emphasize these points. In the case of new users of the internet banking service, banks should also concentrate on the independence aspect of this service. Additionally, banks should realize that factors influencing decisions to adopt are varied and diversified to a large extent, as the market seems

to be segmented based on income and gender. Perceived risk of internet banking is also a critical factor that needs to be addressed.

Once proper developments in the design, infrastructure, and interface of internet banking in the UAE are established, customers can be encouraged to take advantage of online banking by providing them with incentives. For example, successful online applications of frequent flyer programs in the airline industry may be a useful benchmarking exercise for internet banking.

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