Problems of Electronic Commerce Applications in a Developing Country: A Descriptive Case Study of the Banking Industry of Oman

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ABSTRACT

Internet banking is a relatively new area and there are several issues, which have been generally untouched and are therefore open to further investigation, especially in the developing countries. Hence, this study is a step in this direction. This research has been focused on investigating to identify and highlight the main potential factors or impediments that are currently inhibiting the incorporation or adoption of Electronic Commerce (EC) applications expansion in the Omani banking sector. Data, obtained for the first time, were collected using semi-structured interviews and a survey questionnaire as well as by reviewing some bank documents. The study explores the slow uptake of EC application in the banking industry. The objectives of the research, therefore, were to identify factors enabling or inhibiting the successful adoption and use of e-commerce applications within the banking industry of Oman. The results provide a pragmatic picture of the adoption of EC applications in the country's core financial sector domain. One of its main findings is that security and privacy issues were found to be a serious inhibiting factor. Other factors such as power relationships (as conflict between managers can often emerge during the process of IS/IT adoption). Banks adopting and implementing Internet banking services and applications face several management and social problems and challenges. Although the research context is quite specific, it is believed that the findings are of relevance to other industries and other developing countries.

1. INTRODUCTION

Banks in the Arab Gulf region in general have been quite slow to launch e-banking services. While they are convinced that online services reduce overheads significantly, a mixture of customer insecurities, technology investment costs and a lack of market-readiness have all conspired to make e-banking "unattractive". There is a strong argument that the electronic commerce is going to become the dominant form of interchange between business and consumers. The four principal factors that are bringing about the era of E-commerce [1] are: (1) reducing transaction cost; (2) providing better services to customers; (3) meeting consumer demand; and (4) creating efficient transactions. EC has the potential to open up global trading, with few limitations to growth. The literature and research surrounding EC activity has been dominated by an examination of its relevance to large enterprises like those of the banking sector. A resource-based view of organisations maintains that organisational performance is linked to resources. In this view, the resources are firm specific, rare and difficult to substitute or imitate [2]. In general, the resources of an organisation are composed of its technologies, capital, knowledge, employees, information systems, structure, rules, and procedures that are controlled by the organisation. Researchers in the IT field have shown that IT is an important resource for improvements in the performance of enterprises [3-5]. IT viewed in the context of a resource-based perspective shows that the IT resources of the organisations who are participating in global e-Commerce (GEC) have an impact on their performance [6]. The paper is structured as follows. The next section sets out some definitions of EC, Internet banking,. The cultural issues, language barrier, research objectives and developing countries' difficulties associated with EC applications,. The research methodology is then described and the results of the analysis of the data are presented. The final section presents the conclusions and summarises the research.

1.1 Electronic Commerce Definition

There appears to be no simple and straightforward generic definition of the term. Some examples of what IT authors define as electronic commerce are given below. According to [7] EC is "The buying and selling of information products and services via computer networks. It is the support for any kind of business transactions over a

digital infrastructure". Another definition of EC is provided by [8]: it is "the process of conducting business on the Internet using a combination of tools and establishing a server presence for users". According to Anon [9] EC is "using electronic information technologies to improve business relationships between trading partners". It can be used in a variety of business environments: Business-to-Business, Business-to-Consumer, Business-to-Government, and Government-to-Constituent.

1.2 Internet Banking

The Internet is a relatively new channel for delivering banking services. However its early form, 'online banking services', which required a PC, modem and software provided by the financial services vendors, were first introduced in the early 1980s with the "Homelink" service offered by the Bank of Scotland and the Nottingham Building Society in the UK. However, generally it failed to get widespread acceptance and was discontinued. In its very basic form, electronic banking can mean the provision of information about a bank and its services via a home page on the World Wide Web (WWW). A more sophisticated Internet-based service provides customers with access to their accounts, the ability to move their money between different accounts, make payments or apply for a loan or mortgage, and so on. The term 'Internet banking' will be used in this paper to describe the latter type of provision of services by a bank to its customers. The customer may be an individual or another business. With the rapid growth of other types of electronic services, mainly on the Internet, since the mid-1990s, banks have renewed their interest in electronic modes of delivery. As in the electronic trading environment, the real role of Internet banking is to provide electronic services, low cost and an information rich environment. Electronic trading represents the front-end services (i.e. the retail branch). Accordingly, banks are replicating the branch experience online, even to the extent of creating a "3D virtual branch" [10] for their customers to navigate through. These services innovate specialisation in the degree of services, mobilise efficiency, increase productivity, reduce complexity and lower costs. Information systems are taking over the branch's responsibilities to provide "non-stop 24-hours online banking" in order to provide maximum flexibility. The beauty of this system is that the customer can obtain services at any time from anywhere around the world. For example, the Bank of Scotland set up a statement "open a branch in your own living room" on its opening page, in order to give the customer more confidence.

1.3 Cultural Factors

National culture has gained much importance in the study of organisations and management despite the many difficulties related to its conceptualisation, operationalisation, and interpretation. There are a variety of factors that influence willingness to conduct business on-line. Although there are several cultural frameworks that seek to categorise national cultural differences [11], it is believed that a broader range of interacting technological, political and cultural factors must be considered when studying national differences related to global electronic and Internet commerce. As noted by Dr. Pasquali, former Deputy Director General of UNESCO: "A national culture is not the touristic total of stones, heroes, folklore and fashions which characterize, roughly speaking, the national stereotype, but the synthesis of a spiritual legacy of a national community. As a common and global patrimony, it includes all the concrete and abstract values which define and characterize it." [12]. Nations are unique on a number of levels, ranging from individual level purchase preferences and concerns about security to national telecommunications infrastructures and regulatory measures intended to enhance or protect a country.

In developing countries such as Oman the introduction of e-commerce technologies is very recent and traditionally the preferred way of communication, knowledge conversation and selling and buying is the face to face. According to [13-14] the preferred face-to-face mode of communicating and transfer of knowledge (especially the tacit knowledge) is the dominant mode between individuals. The resistance of the Omani business environment to the use Furthermore, the organisational hierarchical structure is characterised by its rigidity and consequently information flows from top to bottom [13-14]. In a study of Internet use in Kuwait, the general consensus among researchers is that 95% of Internet use is for chatting, both to enable business transactions between genders and also for personal interactions among the country's youth [15]. In Kuwait, for example, there is great concern that information communicated via the Internet might find its way into the wrong hands. As Wheeler [15] says "No one wants to talk on the record or to be quoted. The idea makes people scared or nervous. Only those who are elite feel they can speak freely and openly." Such fears may significantly impact the use of electronic communications technologies, including the Internet, as well as the features of websites.

1.4 Language Barrier

Forecasts suggest that by 2003, more than half the content on the Internet will be in a language other than English, up from 20 percent today [16]. There are also ongoing technological developments that will improve translation services (by people and machines), and new browsers that recognise characters of different languages. These technological changes will significantly expand the amount of content usable by the entire world-wide Internet users.

1.5 Developing Countries' Difficulties Associated with E-Commerce Applications

Developing nations are far behind the more advanced Internet economies not just in the number of Internet

Service Providers (ISPs), hosts connected to the Net, number of individual users online, Internet diffusion ratios, and number of organisations leasing line connections. This imbalance also extends to content in terms of the number of web sites in the developing countries (DC), the amount of local language content, and the use of online content by key sectors. According to the International Telecommunications Union report, Challenges to the Network: Internet for Development [17-18], there are more Internet hosts in Finland than in all of Latin America and the Caribbean. There are also more hosts in New York than in all of Africa.

The World Bank's annual development report, Knowledge for Development [18] stresses the importance of leveraging new media technologies like the Internet in the DCs in areas like learning, and the training and retention of skilled workers in financial institutions. But the main obstacle that faces DCs is that they lag behind in communication infrastructure, technical know-how, and information processes about the economy and the environment. The global nature of EC potentially provides developing countries with a unique opportunity to compete in market places that were beyond their reach. EC has the potential to reduce physical trade barriers, and increase market access and trade efficiency and could provide a competitive stimulus for local products and entrepreneurs.

2. RESEARCH METHODOLOGY

The lack of systematic research in this area justifies the exploratory nature of the study, as this research study may be characterised as exploratory [19]. The goal of the field study was to identify the factors causing barriers to the execution of business-to-consumer EC applications and expansion. The theoretical framework and relevant literature review guided us to formulate the field study. This section outlines the research methodology used in this study. It covers the research approach, combining qualitative and quantitative methods, questionnaire design, semi-structured interviews, unit of analysis, and selection of respondents.

2.1   Research Approach

Case study research is an accepted research strategy in the Information Systems (IS) discipline. Many researchers have used the case study approach as their research strategy (see, for example, [20-23]. The case study approach refers to an in-depth study or investigation of a contemporary phenomenon using multiple sources of evidence within its real-life context [19]. According to [24]: "Case study research is appropriate in situations where the research question involves a 'how', 'why', or exploratory 'what' question, the investigator has no control over actual behavioural events, and the focus is on contemporary as opposed to historical phenomenon" A case study methodology was selected for this research as this approach lends itself to concentrated focus on the topic, and

accommodates several data-gathering techniques. The strengths of the case study approach are in the degree of breadth and depth that can be obtained in complex real-world situations [22]. According to Avison [25] the strength of the case study is also in its use for examining natural situations and in the opportunity it provides for deep and comprehensive analysis. Guba [26] suggests the validity of this type of research is increased when different research methods are pitted against each other in order to cross-check data and interpretations. He suggests that different methodologies like "questionnaire, interviews and documentary analyses" should be used when possible. Case study research is very relevant in studies that focus on the understanding of areas of organisational functioning that are not well documented [27]. The qualitative case study approach is an appropriate method to conduct an in-depth investigation of a new phenomenon. Therefore, a case study methodology [19] has been utilised to execute the research project. Furthermore, It has been argued that combining qualitative and quantitative research methods in IS/IT research can be useful in building a wider picture of the phenomenon under study [28], can enable the validation of findings[29] .In order to achieve the research objectives the following Omani banks have been selected:

- National Bank of Oman.
- Oman Arab Bank.
- Bank Muscat.
- Bank Dhofar AlOmani AlFaransi.
- Oman International Bank.
- Central Bank of Oman.

3. DISCUTION AND ANALYSISI OF THE RESULTS

The following cultural factors have been identified as existing within the banking industry and as consequently inhibiting the incorporation of electronic commerce activities by the banks in Oman (see Table 1).The cultural factors can be described as the "unspoken factors". It is important to consider them when making decisions on any new and innovative IT systems. An IT manager commented on the importance of culture: "Local culture and traditions would certainly play an important role in making decisions on e-business. The leadership in Oman has very progressive thinking, vision, and a highly positive approach to and support for making rapid strides on the technology front in Oman. However, there is still a need for further development and improvement in the infrastructure in terms of networking and communication technologies, home PC penetration, and general IT awareness to hasten the adoption of the technology and provide the necessary ingredients for the adoption of e-Commerce".

As can be seen from Table 1, the most influential factor was "security and privacy issues" which had 4.04 mean value and captured 80 % of the respondents' agreement. This finding was consistent with [30], who found security to be the most important barrier to EC expansion in Malaysia.

Increasingly, the pundits of e-banking are raising the stakes on on-line security [31], and the prominence of this factor simply reflects people's concerns with regard to using the WWW for financial transactions.

Table 1: The Cultural Factor

Factor	Rank	Mean	Std Deviation	Scale
Security & privacy issues	1	4.04	1.43	1-5
Lack of computer adoption among people	2	3.96	.73	1-5
Lack of regulation & legislation (legal issues)	3	3.92	1.26	1-5
Lack of awareness & education about e-Commerce	4	3.72	1.06	1-5
Lack of government support	*5	3.68	1.18	1-5
Language and communication barrier	*5	3.68		
Lack of network infrastructure in the country	*6	3.52	1.39	1-5
People still prefer the 'traditional' way of doing business	*6	3.52	1.00	1-5

* Denotes a tie in the mean value

Security is perhaps the issue generating the most anxiety on the Internet. According to [32] "in most instances, e-banking activities will increase the complexity of the institution's activities and the quantity of its transaction/operations risk, especially if the institution is offering innovative services that have not been standardized" Banks and customers take a very high risk when dealing electronically, because neither knows personally who they are dealing with. It is like doing business over the phone with someone you have never met. The same common sense precautions should be followed on-line. Although technology firms are trying to develop/enhance Internet security, it is still unstable. Therefore, the Internet banking will remain a very high-risk matter until reliable security is in place. One manager explained the importance of the issue: "The core issues of security are data confidentiality and privacy, data availability, and authority and accountability. These are the key issues, and the top management in our bank is not confident that our current computer systems are able to maintain such high standards of security". Many customers are not confident about the security of online systems. The degree to which personal information and corporate information are protected may be as much a cultural issue as it is a legal one [11].

The second factor in the cultural group was "lack of computer adoption among people". The mean value was 3.96 and captured 78% agreement. To add to the picture, an IT manager gave many explanations of the importance of this factor. He said "there are several barriers to adopting e-business in the short term. First of all the penetration of personal computers amongst the population is low at about 1%. There are only about 44,000 registered users of the Internet in Oman" (This is an extremely low figure if one compares the population of Oman with those of neighbouring GCC countries). The IT manager added that, "The number of active users is likely to be even lower, with a large number using the Web predominantly as an e-mail service. Secondly, awareness of the potential benefits of e-Commerce amongst traditional manufacturing and trading houses is quite low. Thirdly, with a low percentage of the local population being networked, business groups and houses do not often find a 'true' justification for investing in the technology necessary to support e-Commerce applications. There is also the factor of resistance to any sort of change, especially conversion to technology-based automated access channels from the traditional access channels with human interactions". Also, some organisations reported problems with IS/IT because users lacked the skills needed to use computers and systems properly, especially navigating the Web.

The third factor in the cultural group was "lack of regulations and legislation". In effect, lack of legal regulations in the computing and Internet arena is a massive problem, which is challenging the whole world. How can or should the Internet be regulated? Many questions are still unanswered. This issue seems to be very problematic in Oman, as witnessed by the severe shortage of laws and regulations governing the relationship between the banks and their customers. For example, one of the delicate issues which has yet not been resolved is the matter of digital signatures. The legislative and legal framework of any nation is both a reflection of cultural values and will also influence what subsequently becomes legitimised within the country. Legislation and legal policy have an impact on businesses and on individuals as they pursue electronic commerce activities.

The fourth factor in the cultural group was "lack of awareness and education about e-Commerce" and the fifth factor was "lack of government support". In essence, the fourth and the fifth factors are quite closely related and can be explained together. There are not unfortunately many training and educational programmes in Oman, to educate people especially for the younger generation, about the potential benefits of using the Internet. One IT senior employee observed that "at present, the bank's customers are still suspicious and sceptical about e-business due to limited Internet awareness and education. The financial organisations have a tough task ahead of them in working towards convincing their customers about the perceived benefits of e-business, particularly in terms of real-time fulfilment, which is an advantage over conventional banking settlements". Another IT manager commented "Although IT awareness amongst people in Oman is still restricted to a

limited segment, many promising young Omanis are coming up and acquiring the required IT skills". It may be worth quoting another senior IT manager in this regard " Most of customers of Omani banks do not know enough about e-business or e-banking to comment on whether it is a viable option for the future. The technology-savvy customers are already demanding that banks should provide the service". Finally, comparing Oman to the Western world, one senior IT staff said, "IT technology has made inroads into the Omani way of life relatively recently. Hence, in spite of the convenience of electronic channels it has taken time for people to get over their inhibitions and adopt them. Across the world, the younger generation is usually the first to try out and convert to new technology. The situation in Oman is similar, and so a preference for doing business in the traditional way is not peculiar to Oman. We are just in an earlier phase in comparison to the networked world". In considering further the factors of the cultural group, it should be remembered that this research relies on interviews to add to the picture. Also, some factors cannot be explained in isolation, and should be discussed as part of a segment of factors. To shed some light on the cultural factors, an IT manager remarked that "as compared to the Western countries, PC users and Internet subscribers in Oman are limited and hence only a certain small segment of people are aware of the facilities that are available over the Web. Added to this, the international bandwidth available in Oman as of now may not be adequate to support e-business. However, with rationalisation of communication line tariffs and ongoing efforts from 'OmanTel' in the improvement of services, the trend should slowly change". Nevertheless the growth rate of home PC penetration announced officially in Oman is still considered very low, as -of course- compared to the figures announced in Western societies.

Another IT manager highlighted the importance of cultural factors in general: "Culture does play a big and vital role in the success of any new product or service. However, it would be incorrect to assume that culture has inhibited the growth and the use of e-Commerce applications in Oman. It does play a big role". He added, "For example, a few years back automated teller machines (ATMs) were alien concept as e-commerce is today to the average Omani customer. However, today almost everyone with a bank account is fairly comfortable, and even prefers to use an ATM. With the younger generation quickly adapting to technology, e-commerce is soon likely to achieve similar status".

Social approval is an important motivating factor; the public have come to accept the new 'innovations' and may bypass the old and traditional ways of conducting their banking activities.

4. CONCLUSION

This study can be considered as an attempt to meet a specific need by identifying inhibiting factors that have been responsible for the slow uptake of EC applications in the banking industry of Oman, as there has been as yet no literature published on any aspect of EC in the context of Oman. These factors need to be identified, and then addressed, so that the banking sector in Oman can exploit the potential advantages of EC to remain competitive.

The study identifies the major factors that may act as barriers to the adoption of e-banking in Oman, considered as an example of a developing nation. The objective of the study, therefore, was to examine a number of factors that are responsible for the slow utilisation of EC applications. The results provide a pragmatic picture of the adoption of EC applications in the core financial sector domain of Oman.

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