# Internet Commerce Adoption in the GCC Countries

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## ABSTRACT

*The purpose of this study is to determine the status of Internet and e-commerce adoption by the countries of the Gulf Cooperation Council (GCC). The research is designed to help local governments and the corporate sector formulate more effective strategies and make efficient resource allocation decisions. Surveying 189 companies' Web sites, the study uses the three-level model of Internet commerce adoption (MICA) to assess Internet adoption rates for firms in the various industries and shows variability in adoption rates among the different industries in the region. Many industries are lagging with the adoption of the Internet indicating a need for education and training. According to Burgess, Cooper and Alcock (2001), the central tenet of the MICA model is that in developing commercial web sites, organizations start with the establishment of a simple presence on the web and these sites get more functionally complex as the expertise of these organizations in the use of Internet technology increases and they incorporate more modules to these sites.*

**Keywords:** Internet Adoption, MICA, GCC, Website Maturity, Developing Countries

## INTRODUCTION

Over the past 15 years, countries of the Gulf Cooperation Council (GCC) have taken quantum leaps in the direction of liberalizing their economies and diversifying them away from the oil-based sector. Leaders in the six countries have realized that in the Internet era, it is important to effectively move in the direction of e-commerce and e-government in order to create competitive advantage. In order to assess their success/failures rates, both governments and firms need to learn the status of e-commerce adoption, especially when establishing policies and devising strategies. The results benchmark the internet adoption status of the GCC countries will yield statistics to support policy formulation for future industry development.

Internet technology has changed the world's supply chain by enhancing cooperation and adoption efficiency as well as adding value to products and enterprises. In recent years, electronic commerce has increased the sharing of business information, has built business relationships, and has enhanced business transactions by means of telecommunications networks (Zwass, 1997). According to recent studies, internet-based e-commerce provides a fast and efficient way of obtaining comprehensive market information, feedback from industry and supplier performance (Soliman and Youssef, 2003).

Many research projects are being conducted to document successful e-commerce processes. One such study finds that there are many processes critical to the success of e-commerce including order fulfillment, revenue generation, financial control, web management, monitoring, order generation, call center integration, and consumer behavior (Duffy and Dale, 2002). New business models are needed to conform to the electronic commerce of today's economy. Defining the customer's expectation in e-business is important as well as the need to invest adequately in the improvement of services (Rotondaro, 2002). The critical dimensions such as finance, legal issues, logistics, marketing, operations, security and technology, as well as strategy must be considered when planning new e-commerce ventures (Kao and Decou, 2003). Regardless of the benefits that can be gained from e-commerce, or the critical issues solved, the first thing for modern enterprise should do is to go online and adopt the Internet.

## GCC AND THE INFORMATION/KNOWLEDGE SOCIETY

The Gulf Cooperation Council (GCC) was established in accordance with an agreement concluded in 1981 in Riyadh, Saudi Arabia between: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE. These countries declared that the GCC is established in view of the special relations between them, their similar political regimes and geographic proximity (Karake-Shalhoub, 2006). The author evaluated the countries individually and collectively using three international indicators and standards developed by multinational organizations: The Economic Freedom Index, The Information Society Index, and Digital Access Index. The findings revealed that the GCC countries display the highest penetration rates in mobile phones, fixed lines and Internet users. Mobile phone penetration in the GCC stands at 26.16 percent while average Arab world penetration stands at 7.92 percent. GCC mobile phone penetration is also well above the world average, at 17 percent. While fixed line penetration in the Arab world stands at 7.95 percent and Internet penetration at 2.69 percent, the GCC enjoys a much higher fixed line penetration of 16.52 percent and Internet penetration of 9.48 percent (Karake-Shalhoub, 2006). Further, the study found that some of the GCC countries have emerged as forerunners and are among the 50 top information technology (IT) users in the world. In terms of the Digital Access Index (DAI), which includes variables, such as education and affordability, four of the GCC countries (UAE, Bahrain, Qatar and Kuwait, were classified in upper access category, and the remaining two (Saudi Arabia and Oman) were classified in medium access category (Karake-Shalhoub, 2006).

All indicators, then, point to the fact that the GCC countries are ready to engage in e-commerce transactions. Based on a study done by Ernest and Young, in 2002 it was estimated that the current total B2B trade in the region was between $3.5-4.2 billion, of which the automotive industry, the oil industry and IT industry accounted for the bulk of the online transactions. They also estimate that considering the ongoing initiatives in various other segments, particularly in the Oil, Petrochemical and Government sectors, it is likely that the B2B trade in the region could grow to $7.25-9.15 billion in 2005. Overall, eCommerce trade (B2C and B2B) in the GCC region can consequently be expected to amount to between $8 -10 billion in 2005.

A main indicator of the level of diffusion of electronic commerce is the rate of credit card penetration in a country/region (Karake-Shalhoub et al, 2006). According to the latest statistics of Visa International, daily use of debit and credit cards in the GCC countries continue to grow strongly. According to this report, for the 12 month period ended March 2005, an average of 730,000 purchases were made per day on Visa debit and credit cards in the GCC, or more than eight transactions every second, representing a 30 per cent growth over the previous 12-month period (Credit Cards News, 2005).

This year, shopping spending increased by 32 per cent to $10.5 billion from last year. While the rise in volume and value of card payments is pleasing, what is perhaps more significant is that the majority of purchases being made by Visa cardholders in the GCC are everyday, small value purchases. This indicates that these societies are moving away form the cash-based format, and that credit and debit cards are starting to challenge cash in societies of the GCC as the preferred way to pay.

Based on analysis of spending by geographic region, it is stated that more than a third of the shopping spend in the GCC was generated by Saudi cardholders. In addition, markets such as the UAE are already showing clear signs of cards replacing cash, with the numbers of purchase transactions by UAE cardholders being higher than the number of ATM cash withdrawals.

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## INTERNET COMMERCE ADOPTION MODEL

The rapid adoption of the Internet as a commercial medium has motivated firms in the Gulf Cooperation Countries (GCC) to experiment with innovative ways of marketing to consumers in cyberspace. Previous research has shown that that innovation, organization and external factors can influence a firm's decision to adopt e-commerce as a marketing and selling strategy (Lin et al, 1998). Using a survey of 162 SMEs, the authors found that the drivers of firm Internet adoption are different from those of traditional information system adoption, and the degree of internet adoption by firms in the study was strongly related to the owner's perception of the relative advantages of using information technology. Another study found that the degree of information system adoption can be related to the firm's previous innovation experience (Lee and Runge, 2001). Previous research has evaluated e-commerce adoption by firms from different perspectives. Wen et al (2003) employed a data envelopment analysis (DEA) model evaluates e-commerce adoption, diffusion and performance of firms using various measures such as financial and operational. A study by Davidson (2002), though a search of the literature, shows Web sites are classified in different ways: Web Typology, Scoring System, and Stages of Development.

## THE SAMPLE

This study, and for the first time, covers a sample of Web sites in a group of developing economies in the Middle East, namely the six countries of the Gulf Cooperation Council. The author evaluated 183 popular commercial Web sites. These Web sites were identified and classified based on the Standard Industrial Classification (SIC)/North American Industry Classification System (NAICS), as classified by the AMEinfo Business directory. AMEinfo adopted the SIC/NAICS classification because it is the most comprehensive overall industry classification system found when AMEinfo restructured its database of more than 200,000 companies in January 2005. Table 1 contains the distribution of the sample by country.

As can be seen from Table 1, Saudi Arabia and the UAE comprise close to 75 percent of the websites examined. This is consistent with the fact that the two countries have the largest numbers of registered Internet hosts (ITU, 2003).

The distribution of websites per industry is depicted in Table 2. The classification was based on the 1997 North American Industry Classification System (NAICS), which was updates of the original Standard Industrial Classification (SIC) (OMB, 1997). The industry classifications "Finance and Insurance" and Retail Trade" account for more than 53 percent of the total companies in the sample.

Based on the above Table and assessing the viability of the sample size within each industry, it was deemed appropriate to concentrate our research on industries represented by more than 10 firms reducing our sample size to 157; hence, the following sample (Table 3) will be analyzed.

This paper utilizes the model of Internet commerce adoption (MICA). The Model of Internet Commerce Adoption (MICA) advocates that in developing commercial web sites, private and public sector entities normally start by creating a 'presence' on the Web and add more and more functions and applications over time. As such, the sophistication and comprehensiveness of the sites will expand as the site provides more applications (Burgess and Cooper, 2000). This staged approach to the development of web sites that is embraced by MICA is well recognized within the Information Systems (IS) history that acknowledges that growth and development is caused by adding more functions (Burgess and Cooper, 2000).

According to the MICA model, a website goes through three stages of development, from infancy to maturity; these are promotion, provision, and processing (Table 4). During the promotion stage, companies start simply by establishing a "presence" on the Web; the main objectives here is to establish websites which make customers acquainted with their products and services. In doing so, they provide basic information covering business scope and post news relevant to their operations; some use animation and multimedia to draw visitors' attention toward an important promotion offered. Users, however, users cannot send anything to the site and can only receive information from promotion web sites. The second stage of website development is the provision stage; here the web site offers users the functionality of sending and receiving information. Users of a "provision" website receive information, access to search engines, and even choices of languages. The hope here is that these value-added applications will help maintain existing customers and cultivate new ones. More complex applications are also embedded as integral components of interactive Web sites. Users can search for information and use functionalities such as e-mail; they can also register online and take part of message boards. Interactive websites encourage and entice visitors to inquire, request, complain, challenge, or make recommendations; they also help companies adopt a sense and respond strategy, however, an imperfect one.

In the processing stage, customers play the most influential role. One of the main utilities here is customer relationship management, from initiation to maintenance. Other electronic services such as online orders or inquiries are all completed

*Table 1. Distribution of sampled firms among the six countries*

| Country | Number of Companies | Percentage |
|---|---|---|
| Bahrain | 10 | 5.46 % |
| Kuwait | 16 | 8.74 % |
| Oman | 11 | 6.01 % |
| Qatar | 9 | 4.92 % |
| Saudi Arabia | 74 | 40.44 % |
| UAE | 63 | 34.43 % |

*Table 2. Web sites classified by industry*

| Industry Type | Number of Sites |
|---|---|
| Accommodation and Food Services | 6 |
| Administrative and Support and Waste Management and Remediation Services | 0 |
| Agriculture, Forestry, Fishing and Hunting | 2 |
| Arts, Entertainment, and Recreation | 2 |
| Construction | 5 |
| Educational Services | 3 |
| Finance and Insurance | 36 |
| Health Care and Social Assistance | 14 |
| Information | 11 |
| Management of Companies | 0 |
| Manufacturing | 21 |
| Mining | 6 |
| Other Services (except Public Administration) | 0 |
| Professional, Scientific, and Technical Services | 0 |
| Public Administration | 16 |
| Real Estate and Rental and Leasing | 0 |
| Retail Trade | 41 |
| Transportation and Warehousing | 2 |
| Utilities | 18 |
| Wholesale Trade | 0 |

*Table 3. Web sites analyzed*

| Industry Type | Number of Sites |
|---|---|
| Finance and Insurance | 36 |
| Health Care and Social Assistance | 14 |
| Information | 11 |
| Manufacturing | 21 |
| Public Administration | 16 |
| Retail Trade | 41 |
| Utilities | 18 |

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*Table 4. Web site classification scheme*

| Item Name | Description |
|---|---|
| *Promotion Stage* | |
| 1. enterprise information | background and business scope |
| 2. product information | product catalog and names |
| 3. news of enterprise | important news such as new product releases |
| 4. animation and multimedia | attract user's attention; focus on major targets |
| *Provision Stage* | |
| 5. recruitment info. | list of open jobs and job requirements |
| 6. technical info. | detailed info on existing product/services or advanced info on new product or services |
| 7. email hyperlink | users' interaction |
| 8. search functionality | assist users in finding info. quickly |
| 9. language choice | provides service to an international audience |
| *Processing Stage* | |
| 10. online resume | functionality to fill in relative information |
| 11. e-service | ability to query, analyze, or download technical information |
| 12. online order or inquiry | functionality of making purchases or inquiring about products and services. |

online through the website. For example, a CV can be filled out using a template provided by the site and then submitted by an applicant; users and visitors are able to download technical information, and complete their orders online. More mature transaction sites incorporate ordering, purchasing, and delivering functionalities. Developing these web sites requires high levels of sophistication in programming.

## DESIGN OF THE RESEARCH

Previous research has demonstrated that larger companies are more likely to adopt e-commerce and to implement e-business applications (Macher et al, 2002). In terms of diffusion in the industry, the service sector shows greater internet commerce adoption and greater e-commerce maturity than other sectors, largely due to lower capital and manpower investment.

In our research the Burgess and Cooper MICA model (2000, 2001 and 2002) is used to assess the stage of e-commerce adoption by each of the 159 GCC websites identified in the previous section. Each website was evaluated and assessed using the MICA 12-code scheme (Table 4). Following previous research, if a MICA item was found, it was assigned the code "1" on the MICA sheet, and "0" if the item was not present. As in previous research, if a website had items including online resume, e-service, and online order or inquiry, it is categorized as belonging to the processing stage. A website is categorized in the processing stage, if any code "1" could be found from item 10 to item 12 (Peng et al, 2005). If the website does not qualify to be in the processing stage category, then it is checked for appropriateness to the provision stage. If there was any code "1" found for item 5 to item 9, then the website was classified into the provision stage. Finally, we would confirm that a web site was in the promotion stage if any code "1" was found from item 1 to 4, but not having any in item 5 to 12. To measure the maturity of website design, the ratio of items coded one to the total number of

*Table 5. Classification of Websites according to MICA stages of development*

| Stage | No. of Sites | Percentage |
|---|---|---|
| Promotion | 0 | 0.00% |
| Provision | 98 | 0.62% |
| Processing | 61 | 0.38% |

*Table 6. Classification by industry type*

| Industry Type | Number of Sites | Percentage |
|---|---|---|
| Finance and Insurance | | |
| • Promotion | 0 | 0.00 |
| • Provision | 16 | 0.44 |
| • Processing | 20 | 0.56 |
| Total | 36 | 1.00 |
| Health Care and Social Assistance | | |
| • Promotion | 0 | 0.00 |
| • Provision | 9 | 0.64 |
| • Processing | 5 | 0.36 |
| Total | 14 | 1.00 |
| Information | | |
| • Promotion | 0 | 0.00 |
| • Provision | 8 | 0.73 |
| • Processing | 3 | 0.37 |
| Total | 11 | 1.00 |
| Manufacturing | | |
| • Promotion | 0 | 0.00 |
| • Provision | 17 | 0.81 |
| • Processing | 4 | 0.19 |
| Total | 21 | 1.00 |
| Public Administration | | |
| • Promotion | 0 | 0.00 |
| • Provision | 3 | 0.19 |
| • Processing | 13 | 0.81 |
| Total | 16 | 1.00 |
| Retail Trade | | |
| • Promotion | 0 | 0.00 |
| • Provision | 30 | 0.73 |
| • Processing | 11 | 0.27 |
| Total | 41 | 1.00 |
| Utilities | | |
| • Promotion | 0 | 0.00 |
| • Provision | 13 | 0.72 |
| • Processing | 5 | 0.28 |
| Total | 18 | 1.00 |

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items in each stage was computed. For example, the processing stage has three items (items 10 thru 12), if only one item was coded "1" then the relative maturity of the site within each stage would be computer as 1/3 or 0.33.

## ANALYSIS AND RESULTS

A content analysis was performed on the 159 websites included in our sample. Based on the MICA 12-code scheme, all the websites were classified into one the three stages. Table 5 presents the classification of the sites by stage of development; as it is indicated, no site was classified in the "promotion" stage; this is not surprising since the countries of the Gulf region were early adopters of e-commerce and digital technologies. The majority of the sites, or 62 percent, were classified in the "Provision" category, and 38 percent were classified in the "Processing" stage.

Table 6 shows the MICA classification of the sites by industry type. The results show that the Finance and Insurance and Public Administration industries have the lion share of 'processing' websites, and 56 percent and 81 percent respectively. These were followed by the Information industry (37 percent), Health care and Social Assistance (36 percent), Utilities (28 percent), Retail Trade 927 percent), and Manufacturing (19 percent). These results are not surprising since the Financial and Insurance sector is dominated by global, well established firms such as Citigroup, HSBC, Bank of Canada, and bank of America, among others. In addition, the Local banks in the region are at a very advanced stage, and compete head to head with their foreign counterparts. Results of the Public Administration are explained by the fact that at least three of the six GCC countries (UAE, Bahrain and Qatar) have well established and well developed e-government programs supported by top political leaderships that encourage, and in some instance mandate (as is the case of the UAE and Bahrain), e-services, e-payments, and e-solutions.

The study also revealed several additional findings: (1) none of the websites offered chatrooms or discussion forums; (2) only fifteen (15) of the websites featured online resume functionality; (3) none of the website had a currency converter; and (4) sixty-one sites had language options (mainly Arabic and English). These findings are surprising, especially since these websites are geared toward promoting international and global orientation of the businesses.

## CONCLUSION AND RECOMMENDATIONS

This benchmark study provides a framework for evaluating the status of Internet and e-commerce adoption by the countries of the Gulf Cooperation Council (GCC). The twelve items of MICA were used to evaluate the development stage of the seven main industries with Web presence in the region; namely, Finance and Insurance, Health care and Social Assistance, Information, Manufacturing, Public Administration, Retail Trade, and Utilities. The research shows that none of the 159 websites under examination are in the 'promotion' stage, sixty-two (62) percent are in the 'provision' stage and thirty-eight (38) percent are in the 'processing' stage.

The results reveal that two industries had a large dominate the 'processing' stage; these are Finance and Insurance and Public Administration; these results are not surprising and might be justified by the fact that the Finance and Insurance sector is dominated by large, global companies which have the knowledge, resources and expertise in website development; and that the Public Administration sector is supported by successful e-government initiatives in the region.

The results for the other remaining industries can be explained by the fact that online ordering is currently not very popular, but will hopefully increase dramatically in the near future as awareness among providers and clients increase. The current strategic direction for the governments in the GCC region is very promising and is that of encouraging the use of e-commerce.

Definitely, more awareness programs are needed; and more education and training is needed to encourage the internet adoption. Further, the government should help enterprises become familiar with the use of the internet and research is needed to measure the impact of incentives and training on adoption.

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