

Internet and the Arab World: Understanding the Key Issues and Overcoming the Barriers

Wasfi Alrawabdeh
Kent Business School, University of Kent, UK

Abstract: *The evolution of the Internet is affecting many nations around the world and forcing changes to business and socio-economic development plans. It has major implications for the realization of the concept of globalization. The Arab world as developing countries with an economy in transition, has been investing in building its communications infrastructure and adopting the use of the Internet since 1995 as a vital tool for development. This paper will provide a deeper understanding of the key issues surrounding the Internet use in the Arab world with a focus on the challenges faced that relate to a number of social, technological, financial and legal issues. There are a number of suggested solutions and recommendations having to do with collaboration between the governments and the private sectors in each country and between the specialized institutions within the Arabian countries to diffuse the use of the Internet in the Arab world.*

Keywords: *Internet, infrastructure, barriers, digital divide, Arab world*

Received March 2, 2007; accepted July 8, 2007

1. Introduction

The Internet is considered to be one of the challenges to the people of Arab World at the beginning of the 21st century. "The Internet is one of the key developments in the growth of globalisation in the 20th and 21st Centuries" [23]. The Internet became an important medium for information acquisition and knowledge dissemination across the globe [13] and connecting to the Internet so as to get data via superhighway is an important and crucial element in the lives of many people in the western countries and North America in accomplishing their daily activities. Unfortunately, it is still falsely considered as a peripheral issue in most of the Arab countries, with the result that they ignore the scale of this problem and the great loss they may suffer as a result. "It seems that initially many Arab governments did not fully appreciate the degree of freedom the Internet grants its users" [2].

The Internet has proved unquestioningly its vital role in the lives of people and its importance to the governments and other organizations, so as to save money, time and effort. "The arrival of the Internet and Web access has affected today's world in the same way that the industrial revolution affected the agrarian societies of previous centuries" [5]. The time has come for the Arab governments and organizations not only to dispel this ignorance of this vital project but also to make people aware of the importance of the Internet and to adopt new strategies to seize Internet to the benefit of their people in their communications with the rest of the world.

The purpose of this paper is to provide a deeper understanding of the major barriers affecting Internet usage in the Arab world. Another objective is to address the key issues surrounding the Internet and communication in the Arab world. An additional

objective will be to examine what changes are needed to the existing infrastructure to address the digital divide and present recommendations for further development. The paper does this by examining a sample of seven Arab countries, taken from a possible twenty one Arab countries, in order to compare their Internet development progress from 1997 – 2005 concentrating on 2005 as a benchmark. The sample consists of: Jordan, Egypt, Saudi Arabia (SA), United Arab Emirate (UAE), Kuwait, Lebanon and Morocco. The selection of the sample was based on the geographic factors in order to represent the entire range of Arabian countries.

2. Barriers Affecting the Use of the Internet in the Arab World

Major part of barriers challenging adoption and usage of the Internet lies in the political and regulatory environment, individual awareness of and access to new technology in the business and governmental sectors. "Although the digital divide between the Middle East and developed nations still exists, Arab governments are rapidly catching up through education, awareness, technical infrastructure and of paramount importance, change management" [3].

The Internet barriers in the Arab world can be summarised as follows:

- The inability of the Arab governments to adopt this important project as one of their priorities.
- Their inability to initiate the distribution of access and to encourage the use of the Internet widely through dedicating an important portion of their budgets to support and build an infrastructure that makes it easy for most people to access the Internet services.

- The absence of mutual strategic cooperation to develop and encourage the use of the Internet between the Arab countries, on the one hand, and between the institutions and organizations in the same country, on the other hand.
- Excluding Gulf States, most Arab countries find it more difficult even to partially pay their contribution covering connection fees. Considering per capita income in these countries, such fees would be an overburden. This discouraging factor would deprive most people from subscribing to the service. "Due to the successful implementation of a free Internet strategy in 2002, Egypt now has the largest Internet market in Africa with more than five million users at the end of 2005" [14].
- Ministries of Education and Higher Education in the Arab countries pay less attention to the training programs targeting their respective teachers on how to use the Internet. This would offer younger generation lesser opportunities to be taught by Internet-familiarized teachers.
- Language is one of the most important factors/barriers facing the Arab citizens. With more than 300 million people speaks the language, only 1.4% of the world online population use the Internet in the Arab world by the end of 2004 [9].
- The absence of effective laws and legislations that govern the Internet use and e-commerce, whether inside an individual Arab country or among the Arab countries. This barrier precludes further investments in this promising sector.
- Insufficient rewards are given to organizations or individuals that show a desire to provide the Internet services.
- The absence of a private sector role as the primary means of filling the gaps and missing links in providing these services.
- The issue of user acceptance of new technology is very important to every society in order to enhance the use of the Internet and increase its usage. User acceptance is defined as "the demonstrable willingness within a user group to employ information technology for the tasks it is designed to support" [8].

3. Key Issues Related to Internet in the Arab World

3.1. Internet Users and Penetration

In many Arab states the speed of introduction of the Internet is increasing rapidly and they have all made a positive progress over the whole study period in terms of Internet users as shown in Table 1. "There remains a huge gap between Arab countries in terms of Internet penetration" [4]. Individually, the UAE penetration rate of almost 31% by the end of 2005 is higher than

the European average [11]. The European IP association ranked the UAE 29th globally for Internet penetration [11]. The decline in the penetration rate in 2003 by 7% needs further investigation but growth resumed in 2004, and 2005.

Kuwait and Lebanon have a very acceptable Internet penetration rate of 26% and 20%, respectively, for 2005, as shown in Table 1. Two comments can be made about their progress over the study period. First, the Lebanon penetration growth stood at 21% for three consecutive years 2001, 2002 and 2003 and then grew with a very small percentage, as low as 1%, in 2004 then dropped by 3% in 2005. Second, Kuwait experienced significant growth in 2003 and reached 23% compared with only 11% in the previous year.

Egypt has the highest population in the region but has the lowest Internet penetration rate over the whole period of study being only 6.6% in 2005, as shown in Table 1. Due to the successful implementation of a free Internet strategy in 2002, Egypt now has the largest Internet market in Africa with more than five million users by the end of 2005. However, Internet penetration is still relatively low and the vast majority of users are located in urban areas [14].

Internet user estimates and penetration rates of Saudi Arabia widely vary as the use of prepaid Internet access cards is common. The penetration rate was estimated to be 6.8% by the end of 2005 even though it declined in 2003 by 1% to 6% and stayed at that level in 2004, as shown in Table 1. Internet access in Saudi Arabia was restricted to state academies, medical, and research institutions until January [18]. Jordan and Morocco had approximately the same penetration rate of 11% in 2004. While the penetration growth rate was steady in Jordan over the whole period of study and stayed at 11.2% by the end of 2005, Morocco had a significant growth which occurred between the years 2003-2004 from 3% to 11% and attained 14.6% by the end of 2005, as shown in Table 1.

Unfortunately, there is still a digital divide between the Arab countries, which are all considered as being developing countries, and the developed world in terms of the proportion of Internet users. However, the digital gap in terms of Internet users has shrunk from 73 times in 1994 to 8 times in 2004, as shown in Figure 1.

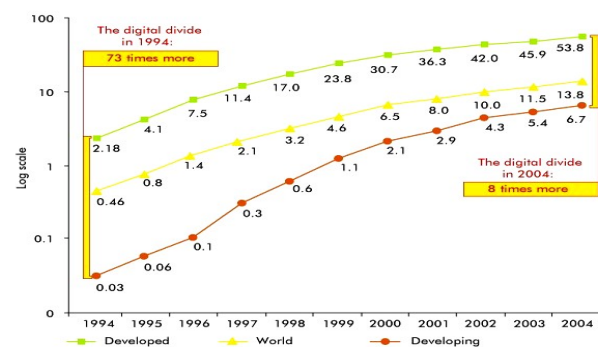


Figure 1. The digital divide between the world, developed and developing countries in term of internet users per 100 inhabitants from 1994 to 2004.

Table 1. Internet penetration 1997-2005.

Country	Years								
	1997	1998	1999	2000	2001	2002	2003	2004	2005
Jordan	0.1%	1%	2%	3%	5%	6%	8%	11%	11.2%
Egypt	0.1%	0.2%	0.6%	0.7%	0.9%	2.5%	4%	5%	6.6%
Saudi Arabia	0.1%	0.1%	0.5%	0.9%	1%	7%	6%	6%	6.8%
UAE	4%	8.5%	14%	28%	34%	34%	27%	29%	31%
Kuwait	2%	3%	5%	8%	10%	11%	23%	24%	26%
Lebanon	12%	16%	19%	21%	21%	21%	22%	23%	20%
Morocco	0.1%	0.1%	0.2%	0.7%	1.5%	2.5%	3%	11%	14.6%

3.2. Broadband Subscribers

Broadband penetration in the Arab world is still very low due to many reasons such as: the economic situation, technology awareness and lack of knowledge of the English language, (the Internet predominantly uses English and relatively few Arabs speak it). The majority of Arab Internet users are still using public places and cafes to access the Internet just because it is cheaper or it is more convenient.

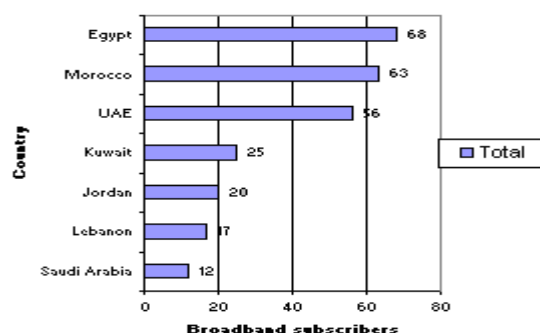


Figure 2. Broadband subscribers per 1000 inhabitants in 2004.

In 2004, 2% of all Internet subscribers in the Arab world had a broadband connection, compared to 15.3% globally; this is considered a very low broadband penetration rate. Within the region, Egypt has the highest number of broadband subscribers followed by Morocco and the UAE 68,000, 63,000 and 56,000 respectively by the end of 2004, as shown in Figure 2. Overall, “most Arab countries still have a long way to go before being able to fully realize the benefits of the Internet” [1].

Kuwait, Jordan and Lebanon had very similar numbers of broadband subscribers in 2004. Saudi Arabia had 12 thousand broadband subscribers by the end of 2004, a number that requires serious attention from the government of Saudi Arabia as shown in Figure 2. However, “The low ADSL penetration rate in Saudi is not on account of a lack of demand, but rather the fact that many applications to the service are turned down on account of technical constraints” [10].

The broadband subscriber numbers shown in Figure 2 do not reflect the real ranking for the Arab world because of the huge differences in population sizes. Therefore, it was decided to calculate the broadband subscribers as a percentage of the total population for each country and then check the ranking, as shown in Figure 3. It is obvious that the UAE and Kuwait have the highest broadband penetration followed by Jordan and Lebanon and then Morocco and Saudi Arabia. Egypt has the lowest percentage in terms of broadband penetration, because of its huge population size of 74 million by the end of 2004, as shown in Figure 3.

3.3 Internet Host Computers

For most of the Arab countries, the number of host computers has fluctuated over the study period. However, most of the countries had a comparable growth from 1997 – 2005 except for the UAE which has a different growth so that the number reached a peak in 2002 then dropped sharply in 2004. The UAE still has the highest number of host computers even though, the number dropped sharply in 2004 and stayed at 26,600 by the end of 2005, as shown in Table 2. Furthermore, the total number of host computers in the country is still more than all other countries combined except Saudi Arabia.

Saudi Arabia has had a reasonable and steady growth of host computers and the number was almost 16,700 by the end of 2005, as shown in Table 2. Jordan, Kuwait and Lebanon with similar population sizes had numbers of host computers of 3,000, 2,800, 6,900 respectively, in 2005. Finally, despite highly-populated countries, Morocco and Egypt both have a very low number of host computers of only 4,100, 3,500, respectively.

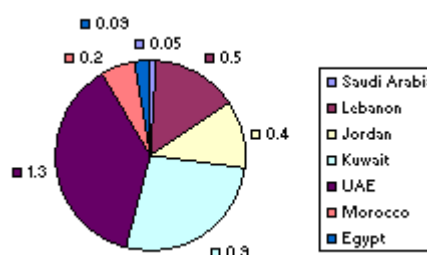


Figure 3. Broadband subscribers in 2004 (as a percentage of total population).

3.4. Consumer Dial-Up Charges

Connectivity charges remain high and are considered the biggest obstacle preventing the widespread use of the Internet in the Arab world. “The cost of broadband services remains a significant barrier to adoption, with Arab Advisors estimating that the average monthly ADSL charge in the Arab region is around \$80 with a median charge of \$79 by the end of 2004” [10]. Dial-up charges, that are split between ISP charges and telephone charges, are estimated to be very high

compared to the GDP per capita in the Arab world, except for the Gulf States (Saudi Arabia, UAE, Kuwait) [19]. Furthermore, the Gulf States have the lowest.

Table 2. Internet host computers 1997 - 2005 (in hundreds).

Country	Years								
	1997	1998	1999	2000	2001	2002	2003	2004	2005
Jordan	2	4	6	10	22	41	31	28	30
Kuwait	40	62	41	33	34	32	27	30	28
Egypt	30	42	60	22	18	30	33	35	35
Morocco	14	20	20	18	25	27	36	41	41
Lebanon	11	24	47	56	71	72	76	69	69
Saudi Arabia	1	3	28	37	114	148	158	166	167
UAE	19	180	197	343	756	523	561	265	266

Internet charges even though they had the highest GDP per capita in 2001, as shown in Figure 4. Similarly, Egypt has the lowest Internet charges outside the Gulf States, because of the free Internet initiative in 2002. "Egypt's Free Internet Project is an initiative by the Ministry of Communications and Information Technology in Egypt, to provide everyone nationwide with easy and affordable access to the Internet at the cost of a local call and with no additional subscription fees" [21]. However, Egypt still has the lowest Internet penetration because of the low GDP per capita, as shown in Table 3.

Internet charges are still high in such countries as Lebanon, Jordan and Morocco with total monthly charges of more than \$48, \$69 and \$71 respectively as shown in Figure 4. "Analysts predict that dial-up connectivity will only become attractive under the \$20 per month" [7]. Therefore, the Arab world has to pay serious attention to this problem and try to imitate the Egyptian initiative of free Internet connection especially in Jordan, Lebanon and Morocco cases.

The wide divergence in Internet diffusion in the Arab region is probably a reflection of the differences in both economic growth (income as measured by GDP per capita) and human capital development (educational level as measured by the literacy rate). For instance, Table 3 illustrates that the share of the population accessing the Internet in the Arab countries is significantly correlated with GDP per capita.

Thus, the richest Gulf countries like the UAE and Kuwait, which have a higher GDP per capita of \$43,400 and \$19,200, respectively, also have a higher ratio of the population online to the Internet, while Egypt, Jordan, Morocco and Lebanon, with a lower GDP per capita also access the Internet less.

Table 3 also illustrates that Saudi Arabia's Internet penetration rate is surprisingly low. Even though the country has a \$12,800 GDP per capita, hence, higher

than all other Arab countries except the Gulf countries (UAE, Kuwait); it has only 6.8% Internet penetration.

In addition, Table 3 reveals the fact that Lebanon, Jordan and Morocco with a GDP per capita of \$6,200, \$4,700 and \$4,200, respectively, all have a respectable percentage of Internet access of 19.6, 11.2 and 14.6, respectively.

Table 3. Population accessing the internet, GDP per capita and literacy rate in the Arab world, 2005.

Country	% of population Accessing the Internet	GDP per Capita US \$	Literacy Rate
UAE	31	43,400	77.9
Kuwait	26	19,200	83.5
Lebanon	19.6	6,200	87.4
Morocco	14.6	4,200	51.7
Jordan	11.2	4,700	91.3
Saudi Arabia	6.8	12,800	78.8
Egypt	6.6	3,900	57

Similarly, Table 3 indicates that the share of the population accessing the Internet in the Arab countries increases with the literacy rate. In particular, Kuwait and UAE, the richest Arab Gulf countries, have, on average, higher literacy rates and thus also a higher % of the population online to the Internet. Jordan leads the Arab world in terms of its literacy rate of 91.3%, followed by Lebanon with a literacy rate of 87.4%. Jordan ranks number one even though it has only 11.2% of the population accessing the Internet and this is related to the low GDP per capita of only \$4,700 by the end of 2005. In addition, Table 3 illustrates that Jordan and Lebanon's higher literacy rates explain their higher Internet penetration rates. In fact, their literacy rates are more than many other Arab countries even those with higher GDP per capita like Saudi Arabia.

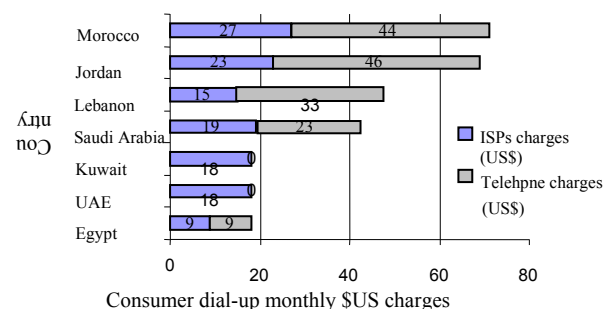


Figure 4. Consumer dial-up monthly US\$ (ISPs & telephone) charges in 2001.

3.5. Personal Computers in Use

In the Arab world Personal Computer (PC) penetration is much lower than the global average. For instance, in 2003 they needed to purchase six million more PCs to

keep up with global PC sales figures. The level of PC penetration is, therefore, way below the world average. "Arab PC penetration stayed at 2.2% against a world average of 10% in 2003" [13].

Except for the Gulf States (Saudi Arabia, Kuwait, UAE), which posted a number of 35,22 and 20 PCs per 100, respectively, in 2005, all the other countries in the region had lower PC ownership figures, with the Levant (Lebanon, Jordan) falling in the middle with 11.5 and 5.3 PCs per 100, respectively, while North African countries (Egypt, Morocco) showed a low number of 4 and 2.4 PCs per 100, respectively by the end of 2005, as shown in Figure 5.

As a result of the low PC penetration rate in the Arab world, the sample countries all have a world ranking of below 50 by the end of 2002, as shown in Figure 6. Therefore, the Arab world has to increase computer ownership through different initiatives such as offering personal computers at affordable prices and purchase through instalment payments.

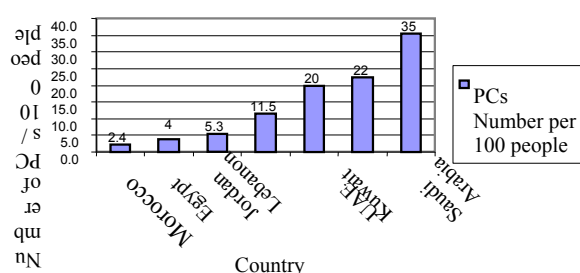


Figure 5. PCs Number per 100 people in 2005.

4. Conclusions and Recommendations

Internet penetration differences across Arab states reflect the income and population characteristics of the region. The share of the population accessing the Internet in the Arab countries significantly increases with an improvement in GDP per capita. In addition, the share of the population accessing the Internet in the Arab countries increases with a rise in the literacy rate. Although Arab states do not severely under perform when ranked by world standards in teledensity and PC penetration, they remain weak with regard to their number of broadband subscribers and Internet users. The lack of Arabic language content availability shuts out the Arab public from Internet access because of the dominants of the English language. Therefore, we recommend the following in order for the use of the Internet in the Arab world to be further enhanced:

- Arab countries have to work harder in order to create a clear vision and stable strategic plans locally, regionally and internationally for the future of the Internet.
- Arab governments have to take the initiative in making this project successful. This can be done through creating specialized institutions armed with independent budgets and managements which have

- The freedom to take and apply whatever plans they may consider suitable. Making sure that private and public sectors are represented on the boards of such organizations.
- These institutions have to be committed to stating the rules and laws that govern the relationship concerning the Internet matters. However, the cooperation with the private sector will be helpful in providing a comprehensive and cheaper Internet services on a larger scale. This is to make sure that low - income people have the opportunity to access the Internet easily anywhere anytime.
- Rewarding those who take part in making this project successful. By doing so, exploitation of the Internet may cease to be an unimportant activity in the lives of Arab citizens.
- These governments and the private sector partnerships working cooperatively need to publish a regular Internet use curriculum to be taught at schools and universities in an effort to diminish
- A sufficient proportion of the Arab countries' budgets have to be assigned for the support and supplying such project, so that the governments make sure that this service is accessible by anyone inside their countries.
- Encouraging the private sector to design web pages for their institutions and organizations using the Arab Language as an interface, so that anyone anywhere can deal with these websites easily.
- In addition to making such service available to most people in the Arab World, the Arab governments have to provide this service in the public libraries in rural areas as well as urban ones. Furthermore, they have to provide qualified staff and supervisors who can be of assistance to people interested in learn and surf the Internet safely.

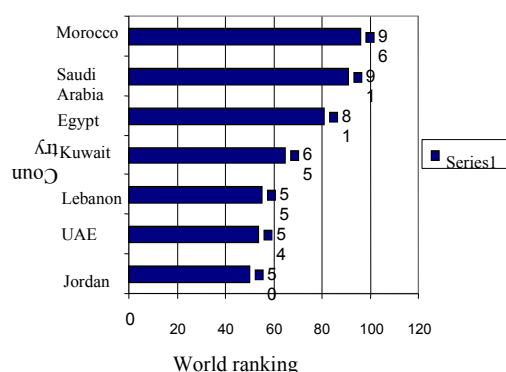


Figure 6. PCs world ranking in 2002.

References

- [1] Aladwani M., "Key Internet Characteristics and e-Commerce Issues in Arab Countries," *Information Technology and People*, vol. 16, no. 1, pp. 9-20, 2003.

- [2] Internet in the Arab World: A New Space of Regression, <http://www.hrinfo.net/en/reports/net2004/intro.shtml>, 2004.
- [3] Al Bawaba site, 55% Growth in Mid East Internet Usage, <http://www.menareport.com/en/business/201938/&searchWords=Internet%20and%20the%20Arab%20world>, 2006.
- [4] Al Bawaba site, "Online Population in Arab World Exceeds 26 Million in 2005," Madar Research, <http://www.albawaba.com/en/main/203335/&searchWords=Internet%20and%20the%20Arab%20world>, 2006.
- [5] Aljifri A., Pons A., and Collins D., "Global e-Commerce: A Framework for Understanding and Overcoming the Trust Barrier," *Information Management & Computer Security*, vol. 11, no. 3, pp. 130-138, 2003.
- [6] Central Intelligence Agency (CIA): The World Factbook, <http://www.cia.gov/cia/publications/Factbook/geos/le.html>, 2006.
- [7] Coury M., Information Communication Technology (ICT) Challenges for the Arab World, http://www.weforum.org/pdf/GlobalCompetitiveness_Reports/Reports/GITR_2002_2003/Arab_World.pdf#search=ICT%20challenges%20for%20the%20arab%20world, 2003.
- [8] Dillon A. and Morris M., "User Acceptance of Information Technology: Theories and Models," *Annual Review of Information Science and Technology*, vol. 31, no.1, pp. 3-32, 1996.
- [9] Global Reach, Global Internet Statistics, <http://globalreach.biz/globstats/index.php3>, 2004.
- [10] MissioniBroadband, <http://www.itp.net/features/details.php?id=3209&category>, 2005.
- [11] International Telecommunication Union (ITU), "International Telecommunications Statistics," http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=WTI/InformationTechnologyPublic&RP_intYear=2005&RP_intLanguageID=1, 2005.
- [12] Kamel S., "Information Superhighways: A Potential for Socioeconomic and Cultural Development," in *Proceedings of the 6th IRMA Conference*, Atlanta, 1995.
- [13] Menareport PC Penetration Much Below Global Average, http://www.menareport.com/en/business,IT_and_Telecom/193788/&searchWords=personal%20computers%20in%20the%20Arab%20world, 2006.
- [14] Paul Budde, Communications Website, Broadband and Internet Markets, <http://www.budde.com.au/Reports/Contents/Egypt-Convergence-Broadband-and-Internet-Markets-2544.html>, 2006.
- [15] Paul Budde, Communications Website Individual Reports Purchased and Downloaded by the Author Telecoms Market Overview & Statistics, <http://www.budde.com.au/Reports/Contents/Jordan-Telecoms-Market-Overview-Statistics-1162.html>, 2006.
- [16] Paul Budde, Communications Website Individual Reports Purchased and Downloaded by the Author Telecoms Market Overview & Statistics, <http://www.budde.com.au/Reports/Contents/Kuwaittelecoms-Market-Overview-Statistics-1163.html>, 2006.
- q. Paul Budde, Communications Website Lebanon Telecoms Market Overview & Statistics, <http://www.budde.com.au/Reports/Contents/Lebanon-Telecoms-Market-Overview-Statistics-1164.html>, 2006.
- r. Paul Budde, Communications Website Saudi Arabia Telecoms Market Overview & Statistics, <http://www.budde.com.au/Reports/Contents/saudi-Arabia-Telecoms-Market-Overview-Statistics-1167.html>, 2006.
- [19] Paul Budde, Communications Website UAE Telecoms Market Overview & Statistics, <http://www.budde.com.au/Reports/Contents/United-Arab-Emirates-Telecoms-Market-Overview-Statistics-1169.html>, 2006.
- t. Paul Budde, Communications Website Morocco Telecoms Market Overview & Statistics, <http://www.budde.com.au/Reports/Contents/Morocco-Telecoms-Market-Overview-Statistics-1006.html>, 2006.
- [21] Stockholm Challenge, Egypt's Free Internet Project, <http://www.stockholmchallenge.se/projectdata.asp?id=5&projectid=5406>, 2006.
- [22] The World Bank Development Indicators: World Development Report, Washington DC, the World Bank, <http://the.worldbank/worlddevelopmentreport.com>, 2006.
- [23] Trucker A., Younis S., and Shalaby T., "Cross Cultural Perceptions of the Internet and Virtual Reality," <http://www2002.org/CDROM/alternate/669/2002>.
- [24] United Nations Development Programme (UNDP), Arab Human Development Report 2002: Creating Opportunities for Future Generations, <http://www.undp.org/rbas/ahdr/>, 2002.



Wasfi Alrawabdeh received two BS degrees from Mu'tah University, Jordan, 1995 and from the University of Bridgeport, CT-USA, 1998. He received his MBA degree

from the University of Bridgeport, CT-USA, 2000. He worked as teacher assistant at the Faculty of Economic and Management Science, the Hashemite University, Jordan till 2005. Since September 2005, he has been with the Department of Business Administration at the University of Kent, UK as a PhD student. His research interests are e-commerce & e-government, e-business & e-learning, emerging technologies & applications, ICT & education, and internet applications & performance.