



# INTERNATIONAL TELECOMMUNICATION UNION TELECOMMUNICATION DEVELOPMENT BUREAU

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THE WORLD TELECOMMUNICATION DEVELOPMENT  
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## Note from the BDT Director

### INTERNET FOR THE ARAB WORLD

#### Overview

The Internet has emerged as one of the most profound social, technical and business phenomena in the history of humankind. It is transforming businesses (e.g., e-commerce), altering the way people communicate (e.g., e-mail, chat), and providing humans with access to a wealth of easily accessible information. Many governments are beginning to realize the benefits of the Internet and are eager to transform their countries into e-societies. The Arab world is no exception as Jordan's young king states:

“We firmly believe that technology adoption from a governmental, social and economic point of view is essential to the growth and stability of the Jordanian economy and society. This agreement with Microsoft is a step towards our vision to transform Jordan into a knowledge-based technology center...”<sup>1</sup>

The problem is that these visions are sometimes out of touch with segments of society and those that need to build the infrastructure and services for using the Internet.<sup>2</sup> Nowhere is this truer than the Middle Eastern and North Africa region, which does not know whether to embrace the Internet or reject it. Many of the region's citizens (and policy-makers) are unaware of the Internet's benefits or sensitive to its seamier side while many of the region's telecommunication operators are scared of it or have not yet awakened to its implications.

The Internet and IP-based networks have deep implications for the telecommunication sector. On the one hand, as the world of electronic communications converges, it is less likely that there will be multiple networks for voice, data, text and video. There will be one network and it is increasingly obvious that the network will be IP-based. This is *commercial* challenge to circuit-switched telephone networks. On the other hand, the rise of the Internet raises important *policy and regulatory* questions in terms of competition, licensing and universal access.

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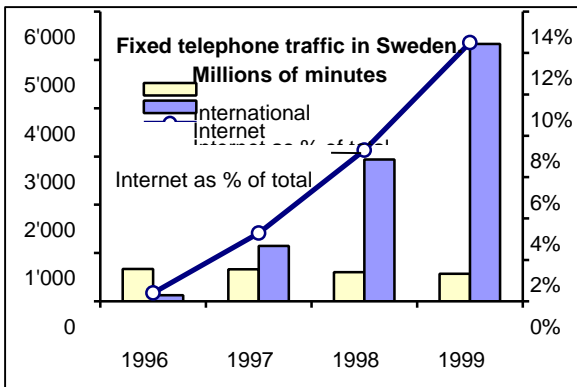
<sup>1</sup> DITnet. “Jordanian Government Signs Landmark Deal with Microsoft.”

[www.ditnet.co.ae/itnews/newssep2000/12.html](http://www.ditnet.co.ae/itnews/newssep2000/12.html) . Also see “Jordan Wants to be Tech Mecca.” *Wired News*. 6 March 2000.

<sup>2</sup> One computer expert notes: “...the Middle East region had the potential to greatly increase its presence on the Internet and make use of various services on the global network. But poor telecommunications in some countries...was a main obstacle for online development and e-commerce.” DITnet. “Arab Telecommunication Firms Urged to Upgrade for E-Commerce.” 17 May 1999.

## Commercial implications

At a basic level, the Internet has both positive and potentially negative benefits for traditional telecom operators. On the plus side:



- **Internet increases traffic revenues**—The most common way of accessing the Internet is dialing up the Internet Service Provider (ISP) over the Public Switched Telephone Network (PSTN). This increases revenue for telephone operators since Internet users pay local call charges while they are connected to the Internet. The amount of dial-up Internet traffic is growing and already exceeds international traffic in many economies.
- **Internet increases data services revenues**—Demand for faster Internet services is boosting requests for higher speed connections such as leased lines and ISDN. Also, ISPs need telephone lines and rapid connections from the telephone switch to their servers. This increases revenues for telephone operators that are responsive and able to provide these services. New high speed services such as Asymmetric Digital Subscriber Line (ADSL) and cable television modems can also boost revenues.
- **Internet increases new services revenues**—In many countries, telephone operators have become ISPs, adding to their revenue streams. There are a number of support services associated with the Internet that can generate revenue and that some telephone operators are providing. These include host registration, web hosting, consultancy and e-commerce services.

The main threat to the incumbent telephone company is that telephone services can be provided over the Internet and are often free or far less than what the incumbent charges. This can affect the incumbent's revenues particularly for high margin business segments such as international calling. Internet Telephony takes two forms. The first is users utilizing a microphone and headset with their computers to make international calls. This is typically the target of most bans on Internet Telephony even though it is probably insignificant in many Arab countries since few users have the requisite hardware or Internet account. The second form of Internet Telephony is where ISPs terminate incoming international telephone calls. This bypasses the accounting rate system. Ironically it is this form of Internet Telephony that is fastest growing yet which is often ignored in the emotional debate about the issue. There is evidence that this is taking place in a number of Arab countries as reflected by the fact that the prices of wholesale minutes on traffic exchanges are cheaper than settlement rates.

While regulatory bans may provide some temporary relief, they are no panacea. Internet Telephony is easily disguisable and as the Internet develops further, then it will become more widespread. Therefore incumbent operators can either sit back and watch their traffic revenues decline or join the game. Several Arab operators are now providing Internet Telephony services that offer cheaper prices for calls in exchange for lower quality.<sup>3</sup>

Internet Telephony is a reflection of the convergence of voice, data, text and video communications. It is increasingly recognized that communication networks will evolve to just one network and that

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<sup>3</sup> Telecom Egypt is one of the incumbent telephone operators providing IP Telephony. See "Voices from the Egyptian Desert." Wired News. 18 March 2000.

network will be the Internet. Most developed country telephone operators are already making the transition towards IP-based networks.<sup>4</sup> This transition is a challenge for developing countries, which are accustomed to circuit-switch networks and network planning, based on technological developments typically arising from the standardization arm of the ITU (ITU-T) in collaboration with equipment vendors. Although the ITU-T is increasingly moving into Internet-related standards,<sup>5</sup> the bulk of Internet infrastructure development take place outside the ITU framework. The problem for developing countries are complicated by a number of different issues including the fact that they need to build out their infrastructure but have already invested heavily in their circuit switch networks. Should they invest in the future or continue with where their expertise is? There is clearly a need for more information about the technical and financial issues about converting from circuit-switch to IP-based networks.<sup>6</sup> It is also noteworthy that a private, commercially run, profit-oriented operator will be better able to prepare for these deep changes.<sup>7</sup>

### Policy issues

There is a debate about whether to regulate the Internet or not. Many would argue that it has grown so fast because of relatively few regulations. Others would argue that it might grow faster, particularly in developing countries, if there was more policy guidance. In any case, *every* country regulates the Internet to some extent with the focus depending on the social and economic orientation. For example, the focus in the US is commercial; one example is where it has been provisionally ruled that music cannot be distributed for free over the Internet.<sup>8</sup> The US has also

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<sup>4</sup> The incumbent telephone operator in Switzerland is converting its circuit-switched telephone network to one based on Internet Protocol : “In 1999, Swisscom launched its MASS network migration program, a series of projects which together have the aim of evolving Swisscom’s fixed-line networks away from the current circuit-switched infrastructure optimized for narrow-band voice traffic toward a packet-based infrastructure designed for broadband data traffic and highly efficient transmission of voice traffic. The core of the infrastructure of this next generation network will be based on IP technology and will operate in co-existence with Swisscom’s current systems.” Swisscom. *Form 20-F Annual Report 1999*. Available on Swisscom’s web site at [www.swisscom.com/gd/information/investor\\_relations/form\\_20f.pdf](http://www.swisscom.com/gd/information/investor_relations/form_20f.pdf)

<sup>5</sup> For example two ITU-T Internet-related special projects are “Internet Protocol (IP)” (see <http://www.itu.int/ITU-T/com13/ip/index.html>) and “IP-Telecoms Interworking” Workshop (see <http://www.itu.int/ITU-T/ip-telecoms/ip-telecoms.htm> ).

<sup>6</sup> Networking vendor Cisco has launched a training programme for Middle Eastern network operators to understand this shift. See ““Old World” Telephone Systems Vendors Face Massive Challenge From Internet Technology: Cisco launches major training campaign to educate Middle East technology integrators on Internet Telephony.” Cisco Middle East News. June 2000. [http://www.cisco.com/warp/public/3/middle\\_east/CiscoNewsJune00.pdf](http://www.cisco.com/warp/public/3/middle_east/CiscoNewsJune00.pdf)

<sup>7</sup> For example OmanTel which is soon to be privatized, has embarked on an IP-based network noting: “Currently in the midst of a privatization initiative, the organization wanted to invest in leading-edge technology that would be able to support our expansion...” See Cisco. “Oman Telecommunications Company Chooses End-to-End Cisco for Internet Services.” *Press Release*. 15 September 1999.

<sup>8</sup> “Napster case scheduled for early October.” August 29, 2000. ZDnet News. <http://www.zdnet.com/zdnn/stories/news/0,4586,2621497,00.html>

ruled that ISPs are not liable for access charges to local exchange operators.<sup>9</sup> In the Arab world, the focus is different. There issues are more related to market structure and content.<sup>10</sup>

In any case, there are a number of important topics for Internet development. Each country needs to be aware of the repercussions of not intervening or intervening too heavily and the potential impact on Internet diffusion. Other issues to consider are whether the government should take a pro-active role in terms of promoting Internet use in the country. In that regards, should a specific government authority be responsible for Internet issues? The case of Tunisia is interesting where a special Internet entity has been created—the Tunisian Internet Agency—to deal with Internet issues.<sup>11</sup>

Key Internet policy issues include:

- 1) **Incumbent operator**—The role of the incumbent operator in Internet has repercussions for how the service develops in the country. If there is no competition in the ISP market and the incumbent telephone operator is the only provider, then the price and quality of its services will affect Internet diffusion. If there is a competitive ISP market then the level of service it provides to ISPs will affect how well they in turn can provide Internet service. For example ISPs are dependent on the telephone company for providing telephone lines and leased circuits. There are cases where the availability, pricing and quality of these services have affected the ISPs business.<sup>12</sup> If the telephone operator is also an ISP then it may exploit its dominant position unless its ISP operations are carried out at arms length (e.g., as a subsidiary).
- 2) **Pricing**—The price of Internet service obviously affects usage. There are a number of ways Internet access can be priced. In most instances, the price consists of an ISP charge plus local telephone charges. A number of countries around the world are trying to promote lower Internet access charges. One option is “free” Internet where there is no ISP charge; users pay for the local telephone usage charge only. Another option is no local telephone charge (e.g., the US) and only an ISP charge. Another issue is that unless ISPs have Points of Presence all over the country, then users who are not within a POP will have to pay long distance charges. Some countries have introduced a single Internet prefix that provides local call charging nationwide. For example, in Jordan the ISP Global One provides a single nationwide number that saves

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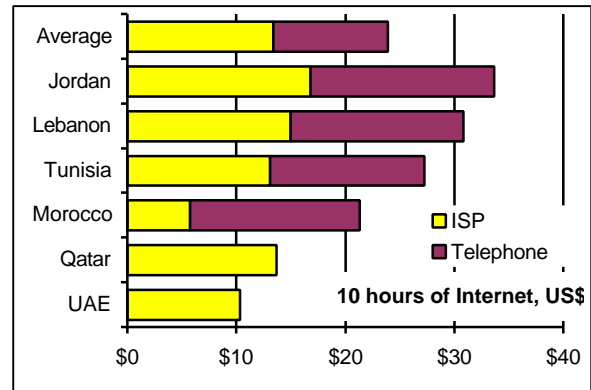
<sup>9</sup> “No Consumer Per-Minute Charges to Access ISPs.” FCC Fact Sheet. February 1999.  
[http://www.fcc.gov/Bureaus/Common\\_Carrier/Factsheets/nominute.html](http://www.fcc.gov/Bureaus/Common_Carrier/Factsheets/nominute.html)

<sup>10</sup> “Saudi Arabia blocks access to Yahoo clubs.” DITnet News. 13 August 2000.  
<http://www.ditnet.co.ae/itnews/newsaug2000/56.html>

<sup>11</sup> The Tunisian Internet Agency (Agence Tunisienne d'Internet, ATI) was created in April 1996 under the Ministry of Communications to promote Internet in the country. Activities include developing Internet strategy; contributing to health, education, agricultural networks; administering the national and international Internet backbone; administering the Tunisian domain name (TN); hosting web sites; and organizing training and other workshops about the Internet. The web site is <http://www.ati.tn/>

<sup>12</sup> In Jordan, ISPs have complained that the high cost paid for local telephone lines and international connectivity from the incumbent telephone operator has resulted in high prices and less efficiency. GlobalOne. “Clarification from the Internet Service Providers in Jordan.” Announcement. 15 March 1999. In Saudi Arabia, ISPs have complained that a lack of telephone lines and poor quality from the incumbent telephone operator has hindered widespread Internet use. DITnet. “Saudi Telecom Criticized for Poor Internet Services.” IT News Feature. 14 November 1999.

users up to 59 per cent over normal calls.<sup>13</sup> Yet another option is reduced local call charges for Internet. The most pro-Internet friendly tariff is none at all: no local call or ISP charge with costs recovered from advertising. Yet another option is local versus international Internet. Jordan provides access to the national Intranet (“Jordan Baladna”) at a reduced rate.



- 3) **IP Telephony**—Most Arab countries have blindly banned IP Telephony as they have call-back without considering the repercussions. First, if a service costs less than what is currently on offer, then consumers are penalized if they are not able to use it. Second there is a need to distinguish between banning the service as opposed to those who provide it because they do not have a license. In other words, can incumbent telephone operators provide IP Telephony? Third there are two aspects to IP Telephony. What is normally banned is domestic users utilizing it. But a far bigger impact is from incoming telephone calls terminated by ISPs over the local telephone network. The conclusions of the recent ITU IP-Telephony workshop may be of interest.<sup>14</sup>
- 4) **Universal access**—The purpose of universal access is to facilitate Internet access for those who do not have the equipment and or cannot afford it. Only around a third of Arab households have a telephone line, a basic pre-requisite for Internet access. Even fewer have a PC let alone Internet access. Therefore efforts need to be made to increase this.<sup>15</sup> One example is the “Internet Baladna” in Egypt which bundles Internet access with PC financed over three years. At the same time, it will take awhile before there is universal household access to the Internet. Therefore access at public locations such as schools, libraries and community centers needs to be enhanced. For example Tunisia had installed 133 public Internet access points (Publinets) by July 2000.
- 5) **ISP licensing**—What are the policies for ISPs in the country? About half the Arab countries allow multiple ISPs while the remainder have only one (typically the incumbent telephone company). It should be noted that in the Arab region at least, there is not always a strict relation between the number of ISPs and pricing. Some of the countries with the lowest Internet pricing and highest number of users, have only one ISP. In countries that have decided to allow multiple ISPs, there are a number of issues. Should ISPs be licensed? If so, what are the licensing requirements and what should the license fee be (if any?). Should ISPs contribute to universal service programmes? Should ISPs be restricted or will they be allowed to provide their



<sup>13</sup> <http://www.go.com.jo/newnumber.htm>. Other countries that have provide nationwide Internet calling are Egypt and Tunisia.

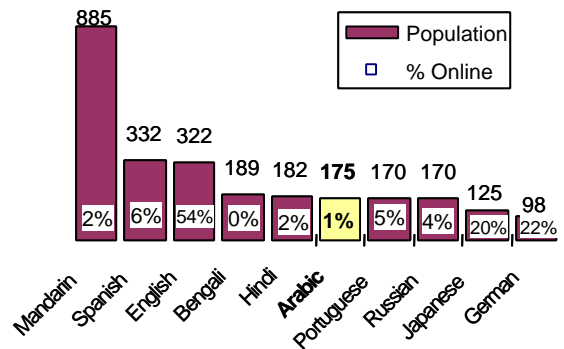
<sup>14</sup> See *Chairperson’s Report*. IP Telephony Workshop. ITU New Initiatives Programme — Geneva — 14 - 16 June 2000. <http://www.itu.int/osg/sec/spu/ni/iptel/workshop/Chair%20Report.htm>

<sup>15</sup> The President of Syria has called for Internet availability in every home. “Syria gets serious about the Net.” *Wired News*. 25 April 2000.



own national and international connectivity? Another issue is how national and international peering should be handled. Should domestic ISPs be encouraged to exchange traffic in order to keep national traffic inside the country and avoid high transit costs? What should the countries position be in regards to international connectivity that requires ISPs to pay the full cost of international circuit to Internet backbones?

- 6) **Domain name**—The Internet domain (e.g., ‘.eg.’ for Egypt) of a country is an important national resource. It is needed by organizations that wish to create servers and web sites. In many cases, responsibility for national domain names have arisen from informal arrangements in the early pre-commercial phase of the Internet. Issues include: Who should be responsible for the domain name? How much should it cost to register a domain? Note that high fees will drive organizations to use other domain names such .com. Should second level domain names be used and what should the structure be (e.g., .com, .edu, etc.)? Who has legal jurisdiction over the sites using a country’s domain name? What about trademark issues?
- 7) **Arab Internet**—Arabic is one of the top ten languages spoken in the world yet the Arab-speaking world is one of the least Internet connected with only around one per cent online. It is probably safe to say that of those Arabs who are now connected, most are young, highly educated, well paid and English speaking.<sup>16</sup> If the region is to get more people online, then it must attract them to the Internet through awareness, skills development and content creation. Policy-makers and telecom operators have a critical role to Arabize the Internet. This includes making people aware of it through marketing. It also involves training people on how to use it. Finally, efforts must be made to create Arab content that is relevant and compelling. While much effort and concern has been about sensitive content—including installing firewalls and other measures to prevent users from accessing—less effort has been on positive measures to counteract such as development of content.



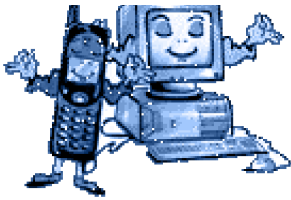
## Mobile Internet

Mobile is rapidly emerging as a viable platform from which to access the Internet. This is taking place first through intermediate (so-called 2.5 generation technologies) and eventually through the new 3<sup>rd</sup> generation (3G) IMT-2000 standard.<sup>17</sup> Most Arab countries are well placed to benefit from 2.5 technologies since many use the GSM standard. According to the GSM Association, there were 17 GSM networks in the Arab region supporting 7.6 million subscribers.<sup>18</sup> These include services such as Wireless Application Protocol (WAP) and General Packet Radio Services (GPRS). WAP provides Internet access for mobile phones with the mobile phone used as a browser. GPRS increases access speed from the normal GSM 9.6 kilobits per second (kbps) to a theoretical speed of 171.2 kbps.

<sup>16</sup> In a profile of 1'000 Arab users, the average age was 30, over 70 per cent had a university degree and 88 per cent understood English. DITnet. "Internet Reaches Layman in Middle East." 5 August 1999. [http://www.ditnet.co.ae/itnews/me\\_internet/ecomprofiles.html](http://www.ditnet.co.ae/itnews/me_internet/ecomprofiles.html)

<sup>17</sup> <http://www.itu.int/imt>

<sup>18</sup> [http://www.gsmworld.com/membership/ass\\_sub\\_stats.html](http://www.gsmworld.com/membership/ass_sub_stats.html)



Source: [www.cellis.com.lb](http://www.cellis.com.lb)

Several Arab operators support Short Messaging Services (SMS)—the ability to send text over a mobile phone and a way of getting clients ready for true Internet access. A few Arab operators are planning to

launch WAP-based services, the precursor towards true 3G. WAP services earn money for mobile operators in several ways. First, they gain money from subscription fees and usage charges. Second, they gain revenue from transaction and service fees from content providers. WAP services being implemented around the world include financial content such as stock quotes or bank account transactions and Global Positioning System (GPS) services that for example, list restaurants or shops in a subscribers cell range. Innovative mobile commerce (m-commerce) services include things like using the mobile phone to pay for drinks at dispensers or even betting on horse races.

Hardly, if any, Arab countries have announced their plans for 3G networks. This is in stark contrast to Western Europe where almost all countries have announced their licensing framework and several have already awarded licenses in the run-up to commercial implementation by January 2002. The Asia-Pacific region has also been announcing licensing plans. In Japan, where three licenses were awarded in June 2000, NTT DoCoMo aims to be the first operator in the world to launch mobile 3G in May 2001. It is already the world's largest mobile Internet service provider with over 10 million subscribers to its popular i-mode service. One implication for Arab countries is as the telecom sector becomes more liberal, whether to license additional GSM networks or move straight to 3G?

Mobile Internet can be an important way of accessing the Internet for Arab countries, particularly where fixed line infrastructure is insufficient. This can take the form of either the mobile handset as a browser or the mobile phone as the connection port for the computer.