

OMAN

The small country of Oman occupies a strategic position across the Strait of Hormuz, through which most of the world's oil supplies travel, from Iran (Figure 43). The country remained a forgotten backwater between independence in 1951 and the *coup d'etat* that brought Sultan Qaboos bin Said to power in 1971, with only three elementary schools, no road network, no medical system, no telephone network, and few links with the outside world.³¹⁰ At the time of the coup, the country was involved in suppressing a Communist-led rebellion in the Dhofar region, and only settled its border dispute with neighboring Yemen in 1997.

The country has pursued a slow and purposeful development program since 1971. Now in the third year of the fifth Five-Year Plan, the country is clean and well-developed (Table 76), with a modern infrastructure throughout the nation. The focus continues to be on sustainable development projects that will gradually reduce the country's reliance on

income from the petroleum sector. Trade plays a key role in the government's plans. The number of business visitors to the country increased dramatically during the 1990s, and tourist visas were granted for the first time in 1996. The country is becoming more involved in regional politics and business.

Oman's telecommunications development has followed the same purposeful path as that of other sectors, resulting in a modern nationwide digital infrastructure. The decision to establish Internet service, behind all the others save Iraq and Saudi Arabia, was part of the General Telecommunications Organization's (GTO) plan for the year 2000, which aims to give government



Figure 43. Map of the Sultanate of Oman

Table 76. Oman in Statistics		
Metric	Value ³¹¹	Remarks
Population	2.16	millions, 1995
Population density	8	per km ² , 1995
GDP	11.3	US\$billions, 1994
GDP per capita	5,415	US\$, 1994
Telephones	169.9	thousands, 1995
Teledensity	7.87	per 100 inhabitants, 1995
Teledensity in largest city	13.97	per 100 inhabitants, 1995
Cellular subscribers	8.1	thousands, 1995
Cellular density	0.37	per 100 inhabitants, 1995
PCs	20	thousands, 1995
PC density	1.91	per 100 inhabitants, 1995
Television sets (receivers)	132	thousands, 1995
Television density	6.1	per 100 inhabitants, 1995
Literacy rate	na	
Infant mortality	27.3 ³¹²	per 1000 inhabitants, 1996 estimate

³¹⁰ Pat Lancaster, "Oman: Meeting the challenge," *The Middle East* (November 1996), pp. 22, 24, 26-28.

³¹¹ Source: *World Telecommunication Development Report*, 3rd ed., 1996/97 (Geneva: International Telecommunications Union, March 1997), unless otherwise noted.

³¹² *The World Factbook 1996*, <<http://www.odci.gov/cia/publications/nsolo/factbook/mu.htm>> (9 February 1998).

and business executives “access to any information, any time, any where in any presentation mode he desires.”³¹³ According to Minister of Posts, Telegraphs, and Telephones (PTT) Ahmed Suwaidan al-Balushi, the decision was driven by requirements to gather “information from all parts of the world” and assist in “the global promotion of [Omani] products.”³¹⁴

Networks in Oman

In June 1994, the GTO invited companies to bid for a contract to establish an ISP site on a turn-key basis,³¹⁵ in response to which 11 companies submitted proposals, including Sprint, which was in the process of establishing the Internet in the UAE, and Omnes, which had established an Internet service in Bahrain.³¹⁶ Although the proposals had all been submitted by the July 1995 deadline, the contract award decision was held up while the Ministers of PTT and Information discussed which of them should sponsor the Internet project. The PTT minister finally gained control of the Internet with the argument that the Internet was simply another telecommunications service. However, while those two ministers were holding their discussions, the Minister of Foreign Affairs quietly registered the .om national TLD with the InterNIC in his name, with the help of U.S. government officials at the U.S. Bureau of Reclamation (USBR) in Denver, Colorado.³¹⁷ At that time, the Internet market in Oman was estimated to be 3,000-4,000 mainly commercial users.³¹⁸

The contract to establish an ISP site for the GTO was awarded to Sprint International in July 1996. In addition to installing and commissioning the equipment, the RO 173,000 (US\$449,000) contract included a five-year transponder and Internet port lease.³¹⁹ In addition to



Sprint, connections for some Omani Internet servers are provided to an AlterNet Internet access port by Teleglobe. The service was opened to the public in January 1997 (www.gto.net.om), with 32 local companies throughout the country handling the marketing, subscriber registration (also possible on-line), and customer service (e.g., Internet-related software installation and set-up).³²⁰

³¹³ H.E. Ahmed bin Suwaidan al-Balushi, Omani Minister of Post, Telegraph, and Telecommunications, “The GTO Plan for IT users in Oman,” *Technical Review Middle East* (September/October 1996), p. 42.

³¹⁴ “GTO Plans To Introduce Internet, says Minister,” *The Times of Oman* (3 August 1995).

³¹⁵ “Oman: In Brief...,” *Middle East Economic Digest* 39 (9 June 1995), p. 28.

³¹⁶ “Oman: In Brief...,” *Middle East Economic Digest* 40 (5 April 1996), p. 18; Sarah Callard, “Sprint vs. Omnes in Oman,” *Middle East Communications* 11 (May 1996), p. 7; Pyramid Research, “Oman’s GTO Plans to Join the Internet,” *Africa/Middle East* 3 (6 May 1996), p. 10.

³¹⁷ InterNIC database entry created 11 April 1996 for “om6-dom.” The domain servers listed were both USBR servers, and the Technical Contact was a USBR employee. This entry was changed in February 1997 to reflect the current status of the domain.

³¹⁸ Callard, *op. cit.*

³¹⁹ “Oman: In Brief...,” *Middle East Economic Digest* 40 (16 August 1996), p. 27; “GTO awards Internet deal,” *Middle East Communications* 11 (September 1996), p. 3.

³²⁰ Pyramid Research, “Middle East Asks: Surf’s Up on the Internet?,” *Africa/Middle East* 4 (18 February 1997), p. 7.

GTO remains the only ISP; no competition is contemplated, although discussions regarding the possible privatization of the GTO itself have been on-going for the past two years.³²¹

The GTO is one of the few ISPs in the region that does not offer flat-rate Internet access, but offers instead several packages of prepaid peak and off-peak usage hours. This does, however, lower the barrier to obtaining Internet service by providing an inexpensive, minimal-use option. Table 77 lists the January 1998 rates. Although dial-up service through 33.6 Kbps and 64 Kbps leased-line connections are available, ISDN connections for Internet service are not yet offered.

		Price	Peak Hours	Off-Peak Hours
Plan 1	monthly	RO 5 (\$13)	5	10
Plan 2	monthly	RO 10 (\$26)	12	24
Plan 3	monthly	RO 15 (\$39)	23	46
Plan 4	monthly	RO 25 (\$66)	44	88
Plan 5	monthly	RO 50 (\$132)	105	210
Set-up Fee	one-time	RO 10 (\$26)		
Extra hours	each-Peak	RO 2 (\$5.26)		
	each-Off-Peak	RO 1 (\$2.63)		

A full year before the government had decided to establish Internet service in Oman, the Sultan Qaboos University had registered a domain name (squ.edu) with the InterNIC using a Post Office box address in Florida with assistance from Holonet, a network run by Information Access Technologies, Inc., of Berkeley, California. The nature of the connection is not known, but the University apparently continued to use its Holonet link until after the GTO's network was well-established. The University now has a domain registered in Oman (squ.edu.om), but is connected to the Internet via a satellite link to SATKO, a Sprint affiliate company in Turkey.

Internet Dimensions The Internet dimensions in Oman are summarized in Table 78 and depicted in Figure 44.

Pervasiveness Although the Internet market in Oman was estimated to be only 3,000-4,000 users prior to the commissioning of GTO's Internet service, it appears that the real demand was grossly underestimated. Approximately 2,700 subscribers signed up for service almost as soon as the network was commissioned,³²² and there were a reported 11,425 subscribers as of July 1997, growing to 20,888 by the end of 1997.³²³ (The GTO made a similar order-of-magnitude error in estimating the potential subscriber base for its GSM digital cellular telephone service in 1997. The estimated maximum was reached within the first three months, and today the network has more than ten times as many subscribers as the GTO had expected.) Thus, almost one in ten Omanis has access to the Internet, making the Internet more pervasive in Oman

³²¹ "Oman Considers Privatization Options," *Africa/Middle East* 2 (3 May 1995), pp. 8-9; "GTO to appoint privatisation consultant," *Middle East Economic Digest* 40 (13 December 1996), p. 24; "GTO to be sold," *Middle East Communications* 12 (January 1997), p. 5.

³²² Khalid al-Maskari, *Internet in the Gulf*, unpublished manuscript, University of Arizona (12 May 1997), p. 16.

³²³ <www.nua.ie/surveys...>, *op. cit.*

(Level 3, almost Level 4) than in any of the other countries in the region. As new communications media have become available over the past 15 years, Omanis have aggressively adopted new technology, attempting to gain the maximum leverage from each in their efforts to re-establish Oman as a regional power.

Dimension	Level	Explanation
Pervasiveness	(3) <i>Common</i>	Almost one of every ten Omanis has access to the Internet.
Geographic Dispersion	(1) <i>Single Location</i>	There is a single ISP node in the capital, and international satellite links serving the Internet terminate at one earth station.
Sectoral Absorption	(2) <i>Moderate</i>	There is significant representation by the commercial and government sectors. However, the university is the only academic entity on the Internet and there are no connections to medical sector entities.
Connectivity Infrastructure	(1)	There is neither an IP backbone nor an Internet exchange, and only a single international link.
Organizational Infrastructure	(1) <i>Single</i>	The state-owned telecommunications company is the sole ISP. There is no competition.
Sophistication of Use	(2) <i>Conventional</i>	The Internet is used principally for e-mail and marketing via the Worldwide Web.

Table 78. Internet Dimensions for Oman

Geographic Dispersion Oman is at Level 1 (Single Location) for this dimension. Internet nodes and transmission media have yet to be dispersed in Oman. The equipment is located in the GTO's Control Center Building in Ruwi, a suburb of the capital, and the international satellite links terminate at the al-Amerat earth station, which was up-graded in late 1995 to handle digital transmission formats. The country's size and demography, however, suggest that it will become more efficient for the GTO to add regional nodes, such as in the Salaleh industrial city in the far southwest near Yemen, as subscribership continues to grow, especially as more Omani companies establish a Web presence.

Sectoral Absorption The Internet has been well-accepted by the commercial and government sectors, with a number of government agencies, including the Sultan's cabinet (*Diwan*), and major companies establishing Web sites and leased-line connections during the service's first few months of operation. The country's sole university was using the Internet to at least a limited degree for at least two years prior to the commencement of commercial service, but is apparently the only Omani academic entity connected to the Internet. There does not appear to be any representation on the Internet from the medical sector; GTO links to medical information point to foreign servers. Overall, Oman rates a Level 2 (Moderate) for Sectoral Absorption.

Connectivity Infrastructure Oman is rated at Level 1 for Connectivity Infrastructure. There is at present no IP backbone in the country, although the new fiber optic network installed by the GTO over the past several years will enable the company to establish a high-speed backbone, should they install remote access nodes outside the capital. There is a single international

link and no Internet exchanges within the country. This situation is unlikely to change in the near term. Access to the network is via dial-up lines (modem) or 64 Kbps leased lines.

Organizational Infrastructure Oman is rated at Level 1 (Single) in this dimension. The GTO, the state-owned telecommunications monopoly, is the sole ISP in the country. No competition is allowed in the telecommunications sector. The possibility of privatizing the GTO has been considered for several years, but no decisions have been made.

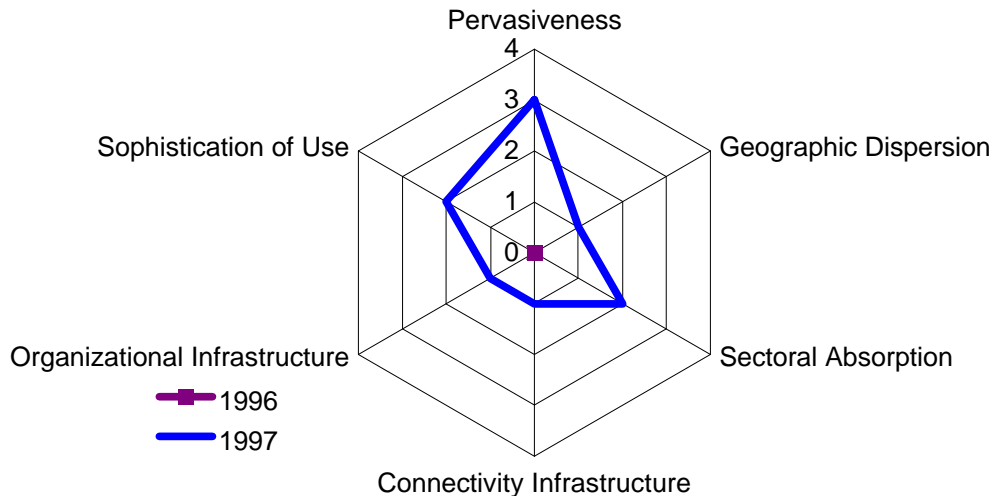


Figure 44. Internet Dimensions for Oman

Sophistication of Use in Oman is conventional (Level 2). The user community in Oman is supported by a technically competent cadre of engineers, but has not developed a great deal of sophistication in use of the Internet. The principal applications are electronic mail and marketing via the Worldwide Web. Some research is being conducted using the Web, although it appears that news reporting and computing and networking information is most popular. Downloading from the Internet has become a popular means of purchasing software in Oman.

Determinants

Although it was reported that the “Internet stalled for approximately one year ... [while] the Omanis pondered security and/or morality issues...”,³²⁴ there was no reflection of this in public. The decision to offer Internet access was pushed by the business community, which was using expensive long-distance telephone calls to CompuServe to transact business over the Internet. The support of the Ministry of Commerce and Industry was enlisted by the business community in their efforts, which were also supported by the PTT minister. The Council of Ministers reportedly formed a committee comprising representatives from the GTO, Ministry of Commerce

³²⁴U.S. Embassy, Muscat, Oman, *Internet and Digital Satellite Services*, 30 July 1996, <[http://infoserv2.ita.doc.gov/ocbe/ ForeignM.nsf](http://infoserv2.ita.doc.gov/ocbe/ForeignM.nsf)> (15 April 1997).

and Industry, and the Central Bank of Oman to enumerate the benefits to the Omani economy from allowing Internet access. Presumably, the GTO has restricted access from Oman to servers and Web sites deemed politically or morally inappropriate, but this has not been publicized. All Internet traffic to and from Oman flows through the GTO's gateway servers and communications links, making central control in this small country feasible. Table 79 summarizes the effects of the determinants on Oman's Internet development.

Table 79. Determinant Impact	
Determinant Quality	Affected Dimension
State monopolization of the telecommunications sector	Pervasiveness—Although early acceptance has been well above expectations, high prices resulting from a lack of competition will limit the penetration of Internet services beyond the top tier of society Geographic Dispersion—Likely to be enhanced due to GTO's policy of extending modern telecommunications services nationwide Sectoral Absorption—May be limited in the commercial sector and among individuals due to high prices Organizational Infrastructure—Limited by government policy
Information controls	Pervasiveness, Sectoral Absorption—May be inhibited by perception, justified or otherwise, of government surveillance of Internet use
Geophysical obstacles to development	Geographic Dispersion, Connectivity Infrastructure—Geography will work against expansion of the infrastructure, as mountains and desert separate main population areas, and the UAE cuts off the Musandam Peninsula, making terrestrial infrastructure installation and maintenance difficult.
Modern telecommunications network	Geographic Dispersion—Extent of existing and planned infrastructure will support Internet expansion to most regions, mitigating geophysical obstacles Connectivity Infrastructure—Enhanced due to the modern, digital backbone and multiple high-bandwidth international links
Shortage of human resources	Sophistication of Use—Inhibited by the current level of education among local nationals, but may be mitigated by on-going initiatives to improve education and technical training

Problems and Prospects

The estimated number of users today is approximately equal to the number of personal computers in the country two years ago, but that number may have doubled by now,³²⁵ suggesting that there remains a large pool of potential Internet users who are not yet connected. Commercial and government networks are also likely to continue to spur Internet growth. Such government controls as may exist do not appear to have had any significant effect on the popularity of the Internet.

If the government's plans to privatize the GTO reach fruition, it is possible that the GTO's monopoly on some or all telecommunications services will be rescinded, allowing additional

³²⁵ "PC sales boom for Arab World," *Middle East Communications* 12 (September 1997), p. 6

ISPs to enter the market. However, the relatively small size of the market, which we estimate to be on the order of 50,000 subscribers, could render competition impractical, given the high fixed costs of connecting to the Internet from Oman (i.e., satellite or undersea cable link).