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Broadband in the MENA Region

Trends, Opportunities, and Challenges

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Since 2003, the broadband environment in the Middle East and North Africa (MENA) has experienced rapid changes. Market liberalization, increased competition, and the introduction of new network technologies are all increasing consumer demand for broadband access. In 2006, most MENA countries experienced double- and even triple-digit growth in the number of broadband subscribers. As a result, there are significant opportunities for telecommunications operators to tap into this potential and increase their revenues and bottom line margins. At the same time, however, operators face difficult marketing, technical, and operational decisions.

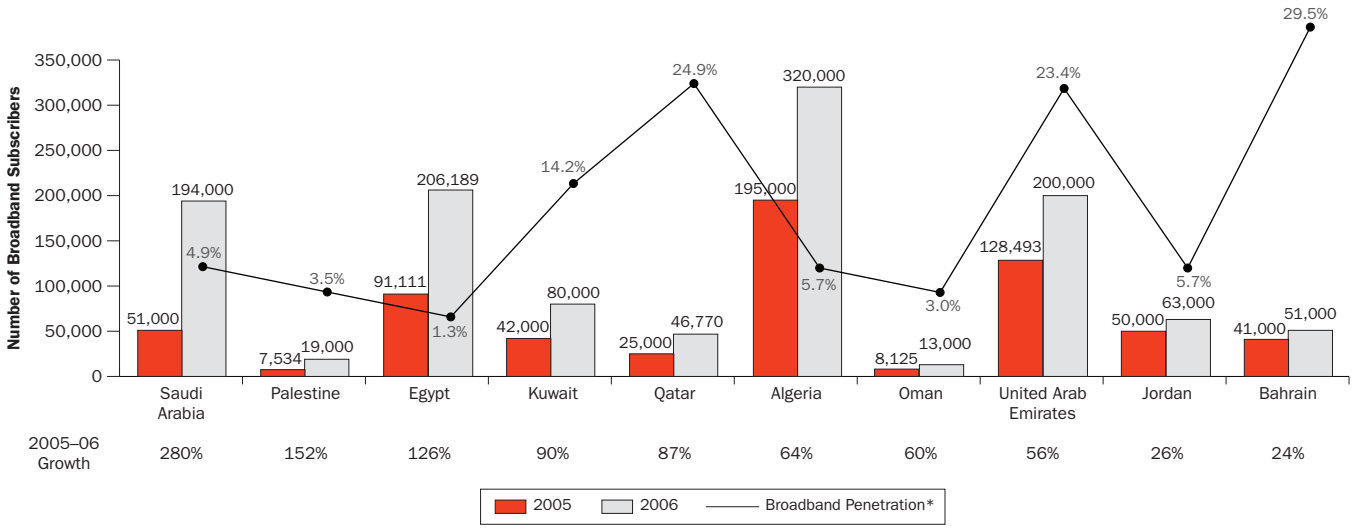
In addition to the factors above, greater availability of and demand for digital content, a burgeoning youth market, and the increase in prosperity in the region are also significant drivers behind the observed boost in demand for broadband. This demand seems set for continued growth as more countries in the region move toward a competitive structure and as advancements in technology make it more possible to provide high-speed broadband in an economic manner. However, the success of regional telecommunications operators in capturing this demand will depend on key marketing, technology, and customer service strategies and decisions that they will need to adopt. The broadband environment is changing, and operators will face challenges in finding the right answers to complex service differentiation questions, in selecting the most favorable network technology options, and in building the optimal customer service model.

Good News for Regional Broadband Players

Telecom operators in the MENA region can look back on unprecedented growth since 2005—and look forward to more of the same. Today, broadband penetration in the MENA region is estimated at 1 percent of total population. This modest penetration rate compares with 26 percent in North America, 25 percent in Western Europe, 8 percent in the overall Asia-Pacific region, and 3 percent each in Latin America, China, and India. Although low broadband penetration in the MENA region was once attributed to sociodemographic and awareness factors, today's broadband potential in the region is mostly hampered by late market liberalization, poor infrastructure, and high prices.

Despite these factors, the region's number of broadband subscribers is expected to more than double over the next three years, largely because of the increasing availability of broadband access channels, reductions in the cost of deployment, and the enormous demand for broadband content. In 2006, the number of broadband subscribers in the region experienced double- and triple-digit growth rates (see Exhibit 1).

Exhibit 1
Broadband Subscribers and Penetration in Selected MENA Countries, 2005 and 2006

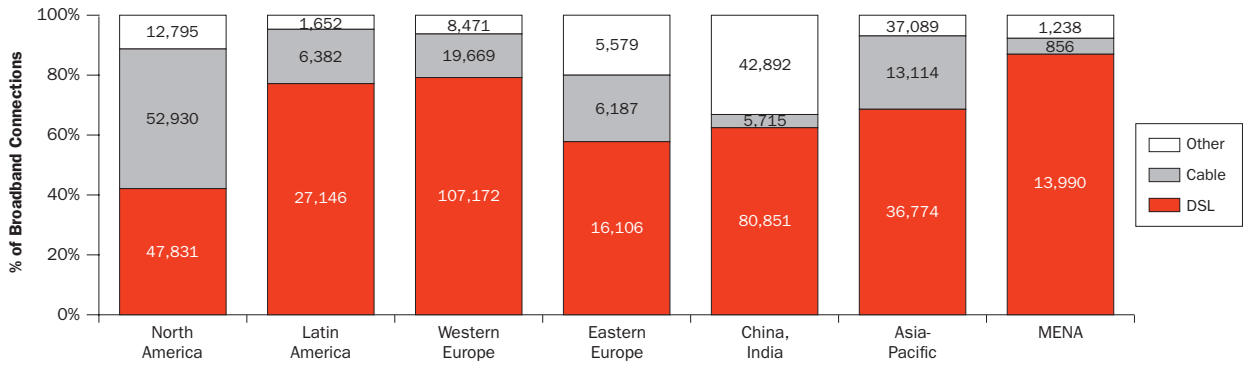


*Broadband penetration as a percent of households
Source: Telegeography (Globalcom); Booz Allen Hamilton

Telecom operators are well positioned to take advantage of this shift. Although broadband access could be provided via different technologies, the vast majority of broadband access in the MENA region is expected to be delivered through DSL—that is, through the wires of local telephone networks—which provides a semimonopolistic opportunity for regional telecom operators. This sets the region in contrast to countries with extensive cable networks, such as the United States and Canada, where broadband is expected to be accessed primarily through cable (see Exhibit 2).

In addition, because access to high-speed broadband in the MENA region is also being hampered by the limited availability of fiber at the "last mile" (to customers' homes), the region is expected to witness the fastest percentage of growth in the world in terms

Exhibit 2
Projections of Broadband Connections by Technology in 2010 (in Thousands)



Source: Ovum, Jonathan Coham & Mark Main, November 2006

of fiber-to-the-premises (FTTP) over the next four years, reaching nearly 270,000 consumer fiber connections by 2010[1].

Solid Growth Drivers for Broadband

A number of factors are driving increased bandwidth demand in the MENA region and facilitating the overall growth in broadband subscribers:

- Greater availability of and demand for digital content
- Burgeoning youth market
- Increasing regional prosperity
- Competition and its effect on broadband penetration
- Network technology advancements.

Greater Availability of and Demand for Digital Content

Historically, consumers in the MENA region have had access only to state-run television and radio stations with limited content offerings. Over the past decade, however, satellite TV services have proliferated in the region. This trend has driven an unprecedented surge in the creation and distribution of various types of content, including entertainment, educational programming, news, and sports.

In 2005, online trading became available in Saudi Arabia, contributing to the increasing participation level by retail investors who had already pushed market valuations up by more that 100 percent in 2005. The interest in online trading yielded an exponential growth in the demand for broadband access in the kingdom. Even after the capital market corrected sharply in 2006, the demand for broadband showed no signs of slowing down.

Innovative applications now available online—particularly social media applications such as Facebook, Second Life, and YouTube—are creating more and more interest in online activity. Although usage of these types of sites in the MENA region is more prevalent with younger males than with other segments of the population, this trend is expected to evolve as social media sites become more established and their audience grows.

In addition, the near-universal adoption of mobile phones in the region has led to the creation of secondary forms of content such as ringtones, wallpapers, themes or skins, videos, screen savers, games, and the like. In addition, the appetite among consumers has grown in parallel with the rapid increase in the availability of such content. This increasing desire for content, in all its forms, drives the need for reliable, high-bandwidth service to every household that can afford it, because these new forms of content simply cannot be delivered economically using current satellite technologies.

Burgeoning Youth Market

In the MENA region, a significant portion of the population is young, with 33 percent under 12 years old. As in other parts of the world, this demographic group tends to be technologically savvy. Most have grown up with the Internet; most have never used a rotary phone; and most have grown accustomed to the high-clarity digital pictures they see on satellite television and the high-quality sound they get from their MP3 players.

In the MENA region, these are the consumers who are driving the adoption of the Internet in the home and who use it the most. Because of their high expectations regarding the performance of new technologies, they will demand the same quality from their broadband connections. If they are going to use the Internet to exchange large files, play online games, or watch videos, they will expect nothing less than reliable, uninterrupted, high-bandwidth access.

Increasing Regional Prosperity

The chasm between the haves and the have-nots in the MENA region is deep. But in general, the region is considered an emerging economy, with many countries liberalizing what were traditionally government-controlled sectors of the economy. In addition, high oil prices, an abundance of natural resources, and an upsurge in direct foreign investment have raised the

[1] Ovum, Jonathan Coham & Mark Main, November 2006

living standards for many in the region. For the well-to-do, services once considered luxuries—such as broadband—are quickly becoming "necessities."

And, as in other regions of the world, even those on the somewhat lower economic tiers represent potential customers for broadband providers. In the United States, for example, the number of low-income households with broadband access doubled between 2005 and 2007, reaching 30 percent. Some of this dramatic increase in subscriptions can be linked to falling prices and rising availability of new technologies, but in large part it is being driven by consumer demand for the ever-richer types of digital content available and consumers' corresponding realization that they must have broadband to access it.

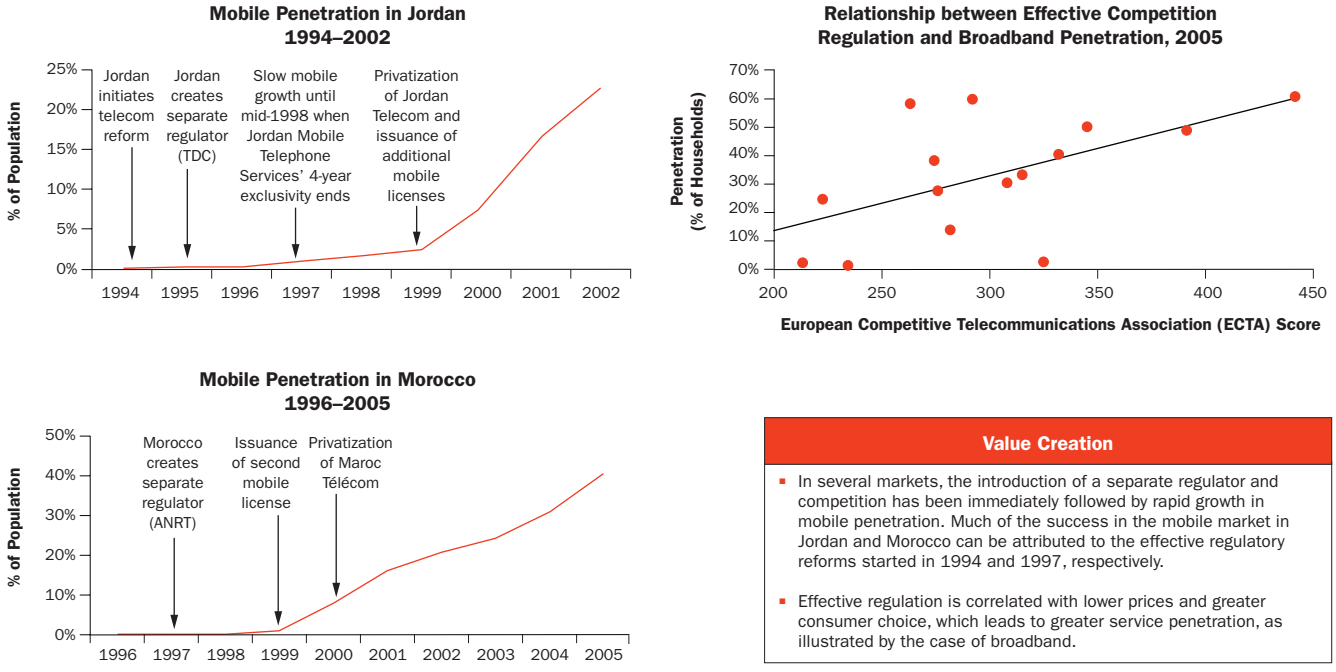
Competition and Its Effect on Broadband Penetration

The liberalization of the telecommunications markets in the MENA region is facilitating increased deployment of broadband. A deregulated telecommunications sector generally ushers in competition, as has been demonstrated in other markets such as the mobile sector (see Exhibit 3). These competitive forces have in turn led to improved services and reduced costs.

In many countries in the MENA region, such as Bahrain, Jordan, Egypt, and Saudi Arabia, even international gateways (telephone switches that form the gateway between a national telephone network and one or more other international gateway exchanges, thus providing cross-border connectivity) are being de-monopolized. This is leading to decreased costs for Internet service providers (ISPs), which are passing these savings on to the consumer and using lower prices to grow the overall market and increase their share of it. Despite this trend, most access networks in the MENA region are still owned exclusively by the incumbent operator[2] (see Exhibit 4, page 5).

As more and more countries in the MENA region move toward a competitive structure, more opportunities will become available for ISPs and operators with global presence to grab a piece of the local broadband market.

Exhibit 3
The Impact of Competition on Service Penetration



Value Creation

- In several markets, the introduction of a separate regulator and competition has been immediately followed by rapid growth in mobile penetration. Much of the success in the mobile market in Jordan and Morocco can be attributed to the effective regulatory reforms started in 1994 and 1997, respectively.
- Effective regulation is correlated with lower prices and greater consumer choice, which leads to greater service penetration, as illustrated by the case of broadband.

Sources: ECTA regulatory scorecards, 2005; Effective Regulation, Case Study: Morocco, Gentzoglanis, Sundberg and Schorr, ITU 2001; Booz Allen Hamilton

2 Arab Advisors Group and ITU

Exhibit 4
Regulatory State of the Internet in Selected Arab Countries, 2007

Country	Public Switched Telephone Network	Internet	Broadband Penetration (% of Population)
Algeria	Duopoly	Competitive	Unknown
Bahrain	Competitive	Competitive	2.75
Egypt	Monopoly	Competitive	0.15
Iraq	Monopoly	Competitive	Unknown
Jordan	Competitive	Competitive	0.49
Kuwait	Monopoly	Competitive	0.93
Lebanon	Monopoly	Competitive	3.63
Morocco	Duopoly	Competitive	Unknown
Oman	Monopoly	Monopoly	0.33
Palestine	Monopoly	Competitive	0.21
Qatar	Monopoly	Monopoly	3.24
Saudi Arabia	Monopoly; fixed licenses awarded in 2007	Competitive	2.2
Sudan	Duopoly	Competitive	Unknown
Syria	Monopoly	Competitive	0.04
Tunisia	Monopoly	Competitive	Unknown
UAE	Monopoly	Monopoly	2.86
Yemen	Monopoly	Duopoly*	0.01

* Both ISPs in Yemen are state owned
Sources: Arab Advisors Group; ITU 2007

Network Technology Advancements

As advancements in technology progress, such as wireless broadband and FTTP, it becomes more and more possible to provide high-speed broadband in an economic manner, using different technologies. This in turn reduces the barrier for entry into the broadband market to new operators and makes the market increasingly profitable for current operators.

Pairing this trend with the possibility of more licenses becoming available as a result of deregulation means significant opportunity for new entrants. Just a few years ago, broadband access was possible only through fixed technologies that required digging and placing copper, fiber, or coaxial cables in the ground to physically reach every home receiving service. Although fixed technologies are still widely used and are expected to continue providing the bulk of broadband services, new wireless nomadic[3] and mobile technologies are showing improved performance and are increasingly being used, especially when fixed technologies show limited economic viability.

Already, regional operators are using wireless data technologies to offer their customers broadband services on the go (see Exhibit 5). In parallel, several new licensees have announced plans to deploy broadband networks—based on new wireless technologies—to directly compete with the traditional copper-based broadband services normally offered by telecom operators. Foremost in these technologies are WiMAX and HSDPA, both of which provide wireless high-speed data and telecommunications services over long distances.

For example, Saudi Telecom, Saudi Arabia's incumbent operator recently launched an HSDPA-enabled 3G network in the kingdom. Zain, the second entrant in Bahrain, launched an HSDPA network in 2006 and a WiMAX network in 2007, effectively providing 100 percent of the country with wireless access.

Exhibit 5
Examples of Wireless Broadband Offerings in the MENA Region

Saudi Telecom's JawalNet in Saudi Arabia	▪ Saudi Telecom's JawalNet service offers mobile broadband internet access with speeds of up to 7.2 Mbps in areas of coverage. ▪ Customers can buy a PCMCI card modem (with speeds of up to 3.6 Mbps) at US$160 or a USB Modem (with speeds of up to 7.2 Mbps) at US$266. Both are bundled with 1GB of usage. ▪ Monthly fees range from USD 120 for unlimited usage to US$2.7 for 30MB usage with US$0.5 for each additional megabyte.
Zain's e-Go and @home in Bahrain	▪ Zain's e-Go service offers true mobility with high-speed broadband connection to be used with a laptop or desktop with speeds reaching up to 7.2 Mbps in specific areas. ▪ Monthly fees are US$40 for a 4GB usage and US$120 for a 15GB usage with each additional megabyte at US$0.0267. ▪ Zain also recently launched @home, a new service that uses WiMAX for nomadic access and offers 'double play'—a fixed-line voice service and high-speed internet access in one package with speeds that could reach up to 2 Mbps in areas of coverage.

Sources: Saudi Telecom and Zain Web sites, October 2007

[3] "Nomadic" or "portable" refers to user operations that lie between fixed and full mobility.

Future Broadband Challenges and Strategies

As broadband subscribers in the region continue to grow, operators are expected to face a set of challenges:

- Marketing and differentiation factors
- Technology choices
- Customer service models.

Marketing and Differentiation Factors

As access to broadband increases in the region, offering high-speed Internet access will become an essential qualifier for any operator in the market, and prices for such services will rapidly decline, as will associated margins. Thus, we expect operators to shift their marketing emphasis away from speed and price, and begin differentiating their services from their competitors' based on other elements. International operators today are adopting three different marketing strategies.

1. Offering Value-Added Services that Fall Outside the Realm of Traditional Internet Services.

Marketing schemes that focus on value-added services emphasize a rich set of features that come packaged with standard broadband service. In doing so, operators are putting themselves in direct competition with traditional media providers, such as cable and satellite operators, in an effort to attract and retain new customers.

Features frequently bundled with broadband service include:

- Multiple e-mail addresses
- Blog-writing and photo-sharing software
- Web site hosting
- Security features such as firewalls, antivirus/antispyware software, spam filters, pop-up blockers, parental controls, and identity theft support
- Partnerships with content providers that offer music, video, news, sport events, educational features, and radio stations
- Voice over Internet protocol (VoIP)
- Video-on-demand and interactive TV
- Internet Protocol television (IPTV), a digital television service delivered over a network infrastructure
- Triple play (that is, bundled phone, television, and Internet).

For example, British Telecom (BT) offers residential broadband subscribers home-based IT support, a variety of security services, and extensive entertainment options, including online gaming, digital music, television, mobile games, and ringtones. Business customers are offered more robust IT support, backup, and security services; e-mail and remote working options; and Web hosting, e-commerce, and networking solutions (including LANs, WANs, and VPNs). Moreover, BT is expanding into the market of traditional IT consultancies and helping its business customers to outsource a wide range of information and communications technology management.

Other operators, such as France Telecom, Verizon, and AT&T, are offering a similar range of services. The key to ongoing success in this arena will be the ability of operators to innovate and consistently offer new, attractive, and robust content, applications, and value-added services.

2. Exploring Pay-As-You-Go Schemes Targeted at Lower-End Users.

Another way operators are segmenting the market is by reaching out to low-end users who in the past either couldn't afford broadband or didn't appreciate its value. Some operators are offering pay-as-you-go plans that mimic those that mobile service providers originally—and quite successfully—marketed to low-end users.

When Telecom Italia, Italy's main operator, offered the service, many customers who signed up for the low-cost but time-limited broadband plans found they used the Internet so much more than they expected that they upgraded quickly. The continued decline in the cost of the network infrastructure that telecom operators use helps to make this service viable

for telecom operators. Notwithstanding the above, operators are challenged to determine the optimal pricing and usage limits for these plans.

3. Offering Guaranteed Quality of Service.
Telecom operators now have the ability to guarantee quality of service for premium customers, as opposed to the "best effort" level of service offered by most providers. This type of guaranteed service is now feasible because recent advances in packet-inspection technology make it possible to analyze data being uploaded and downloaded and give time-sensitive applications, such as voice and video, priority over other traffic. Such service offerings allows operators to promise users that their mission-critical business applications, VoIP conversations, or online gaming sessions would maintain a flawless connection—even if the user simultaneously started to download a large file, for example.

Technology Choices
In addition to marketing and differentiation challenges, regional operators are facing key challenges in terms of broadband technology choices. The richer the services and applications offered by broadband providers, the faster and more reliable their broadband connection must be. The question for many telecommunications operators remains, Which technology is best?

Objectively, there is no one-size-fits-all solution. If customers are located in close proximity to an operator's exchange, and the copper wire connecting the customers to the exchange is in good shape, then some form of DSL may be the best option. But operators serving populations in remote locations may only be able to reach their customers using mobile or nomadic technology solutions. So while different technologies could be better suited for different situations, the complexities of using the most suitable technology are vast, ranging from maintaining multiple networks to working with multiple technology suppliers to ensuring interoperability among different technologies.

In terms of fixed technologies, asymmetric DSL2Plus (ADSL2+) is being championed as the next-generation DSL solution, under which operators hope to achieve speeds of up to 24 megabits per second (Mbps). But when geographic considerations are taken into account, 10 to 20 Mbps seems more realistic. In order to limit the negative effects of factors such as loop length and limited network infrastructure, many operators are considering an xDSL solution—which combines ADSL2+ with "fiber to the node" (also known as fiber to the cabinet).

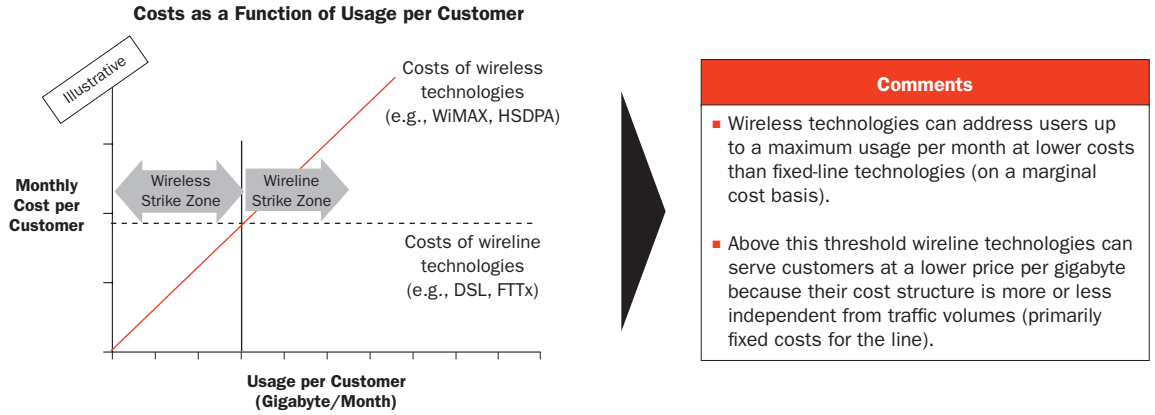
Ultimately, the solution to the bandwidth limitations of current DSL services is to build more fiber into the access network. And some operators—Verizon, in the United States, for example—are pursuing aggressive plans for extending fiber from their central offices directly into users' homes. This addresses the problem of bandwidth limitations by replacing the copper wire that links the user's residence with the operator's central office with optical fiber, which can provide significantly higher bandwidth.

But extending fiber to the home is a considerably expensive, labor-intensive undertaking, and has therefore generally not been widely carried out. Moreover, many incumbent operators are hesitant to invest heavily in a fiber access network because of the uncertainty of how regulators may eventually "unbundle" fiber at the last mile to allow other service providers access to the customer's residence.

However, there is potential for FTTP to reduce operating costs associated with the access network in the long term by simplifying the access network—i.e., reducing multiple cabinets and configurations—and increasing the sophistication of operational support systems.

Any upgrades in the access network will prove costly to operators. In moving forward with these strategies, providers are taking a calculated risk that the availability of attractive digital content will continue to drive customer demand for increased bandwidth—and that their investments will thus ultimately pay off.

Exhibit 6
Cost Comparison between Wireless and Wireline Technologies



Source: Booz Allen Hamilton

In addition to fixed technologies, nomadic and mobile technologies—such as WiMAX and EV-DO—are evolving to the point where they can provide high speeds in an economical manner. Mobile technologies offer "wireless anywhere" broadband connections that are maintained while a subscriber moves from cell to cell through the service area. Operators worldwide are beginning to seriously consider using these technologies to complement, or even potentially replace, their fixed technologies (see Exhibit 6).

Customer Service Models

In the early days of the Internet, installation and maintenance were quite complex. Customers were forced to deal with multiple parties to set up Internet services—phone service providers, ISPs, and modem providers. And needless to say, each provider had its own call center and tech support services—or lack thereof.

As Internet use and broadband use became widespread, installation became more straightforward, with fairly simple self-installation kits and checklists being made available for new subscribers. But this process is about to get complicated once again. Services incorporating triple play, IPTV, and home networking capabilities require both complex customer premise equipment (CPE) and elaborate installation processes.

These new, complex installation and maintenance requirements are outpacing customers' knowledge. In essence, as broadband use reaches beyond tech-savvy early adopters to the mainstream public, fewer and fewer new customers will be technologically adept, and operators will consequently be less able to rely on them to facilitate installation and troubleshoot problems. Higher levels of customer service backed by responsive customer call centers will thus be required.

With this in mind, operators should avoid rolling out services without adequate customer support, as doing so could risk a backlash against the offering and put a stain on the operator's reputation. U.S. operator Comcast realized this all too painfully when a video of one of its technicians sleeping on the job (on a customer's couch, no less) was broadcast on YouTube, instantly branding Comcast as a highly visible public symbol of poor customer service.

It seems likely, then, that end-to-end customer service is the way to go. One positive example is British Telecom's recent introduction of a full-service warranty plan that guarantees that if a customer is having technical problems, a technician will come to his or her residence and troubleshoot any PC- or network-related issues. This type of service could easily be extended to cover set-top boxes, media servers, voice terminals, and other networked devices.

Another way to improve customer service is to adopt remote methods for managing CPEs. One example is TR-069, a remote management technical specification developed by the DSL Forum (a worldwide consortium of companies) that gives broadband service providers visibility into, and control over, home networking services. TR-069 allows customer service agents to remotely troubleshoot, reconfigure, or upgrade CPEs as required. The implementation of standards such as TR-069 greatly reduces operators' support costs, as well as customer downtime and frustration.

Ideally, remote management must be backed by effective customer call centers. A new trend in troubleshooting CPE issues entails directing CPE-related customer calls directly to the vendor's own customer support center. This raises the question as to whether companies should consider outsourcing the entire customer relationship management value chain, including call centers, field operations, technical support, and the like. In the case of small ISPs and some other operators, this may be a viable and cost-effective alternative. Larger and incumbent operators, however, may find it preferable to build a highly effective in-house service as a way of differentiating themselves from the competition.

In short, customer service should be viewed as a core capability for all broadband providers—even those operating in regions that traditionally lack a service-oriented culture, such as the MENA region.

Conclusion and Recommendations

To recap, demand for broadband is growing in the MENA region, and there are undoubtedly numerous opportunities for telecommunications operators to capture a share of the market. In order to successfully do so, operators have to consciously make a set of decisions in a number of areas:

- *Marketing and Differentiation.* Operators need to focus their marketing efforts on differentiating their broadband service offerings by introducing value-added services that fall outside the realm of traditional Internet services, exploring pay-as-you-go schemes targeted at lower-end users and offering higher quality of service for customers who need it.
- *Technology Choices.* Operators must choose from among numerous fixed, nomadic, and mobile technologies, creating appropriate combinations to fulfill their bandwidth, quality, mobility, and return-on-investment requirements. While this is easier said than done, especially with historical investments made by some operators in particular technologies, operators must develop a visionary view of the development of broadband and the competitive landscape in the region and make technology choices that can achieve that vision.
- *Customer Service Models.* Finally, operators should ensure that their customer service capabilities are continuously improved so that they can successfully deliver new services requiring both complex CPE and elaborate installation processes. It is no longer sufficient to provide customer service for only one part of the service—and leave the customer to figure out the rest. Operators that are able to offer true, integrated, end-to-end customer service will be in a strong position to capture market share.

In conclusion, telecommunications operators that address these questions head-on and carefully develop a strategic approach to service delivery have an excellent opportunity to seize a portion of the market by leveraging the growing consumer demand for reliable, high-bandwidth broadband services.

Also contributing to this article was Samir Kassar.

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