

by

Bahjat El-Darwiche  
el-darwiche\_bahjat@bah.com

Fady Elias  
elias\_fady@bah.com

Karim Sabbagh  
sabbagh\_karim@bah.com

Chady Smayra  
smayra\_chady@bah.com

# Towards More Effective Regulation

Unlocking the Value of Telecom Markets in the MENA Region

# Towards More Effective Regulation

## Unlocking the Value of Telecom Markets in the MENA Region

A causal relationship has been shown to exist between economic growth and the quality, availability, and cost of telecommunications services.<sup>1</sup> The more successful a country's telecom sector, the more attractive that country will be to investors.<sup>2</sup>

The success or failure of telecom sectors often hinges on the presence of effective regulatory management.<sup>3</sup> Effective regulatory management encourages growth and investment in the telecom sector, promotes technological and service innovation, and is correlated with lower prices and greater consumer choice, leading to greater service penetration. Effective regulatory management helps the telecom industry flourish and make a positive contribution to a country's overall economy.

---

**“For information and communications technology to serve as an engine for development, it is absolutely critical that an effective policy framework is in place.”**  
– Jose Maria Figueres-Olsen, World Economic Forum

---

Conversely, ineffective regulatory management can destroy value in the telecom sector, blocking innovation, hampering competition, and creating underserved consumer markets. The end result is lower revenues in the telecom sector, lower investment, and a lower contribution to a country's economy.

Issues surrounding telecom regulation are particularly important for countries in the Middle East and North Africa (MENA). These countries have made real strides in gradually liberalizing their telecom markets and introducing new technologies, but as a general rule, their approach to policy and regulation could still improve, compared with other regions. This has had a direct impact on levels of investment in the region.

This paper examines the complex factors involved in creating an effective regulatory management framework for the telecom marketplace, with particular emphasis on the MENA region. We identify the major drivers that determine a well-managed telecom sector and articulate the roles that three key stakeholders—government, regulators, and service providers—must play in order for the regulatory management dynamics to work effectively.

In addition, we recommend a set of priorities for each of these stakeholders and outline key policy and regulatory questions they should consider in order to unleash the greatest value possible from the country's telecom sector.

### **Effective Regulatory Management and Value Creation** **Effective Regulation Creates Value**

Effective regulatory management aims to establish adequate regulatory frameworks and mature regulatory practices that drive market development and optimize value creation in the long-term.

---

<sup>1</sup> See, e.g., Fink, Carsten, Aaditya Mattoo and Cristina Ileana Neagu, “Assessing the Role of Communication Costs in International Trade,” 16 World Bank Economic Review 81, World Bank Working Paper #2929 (Washington, D.C. (2002) (a 10 percent drop in telecom costs can increase trade 8 percent).

<sup>2</sup> See, e.g., R. Gholami, Sang-Yong L., and A. Heshmati, *The Causal Relationship between Information and Communication Technology and Foreign Direct Investment*, WORLD INSTITUTE FOR DEVELOPMENT ECONOMICS RESEARCH, Discussion Paper No. 2003/30, at 1, 11 (April 2003) (and authorities cited); Addison T. and A. Heshmati, *Democratization and New Communication Technologies As Determinants of Foreign Direct Investment In Developing Countries*, New Economy in Development Conference, Helsinki (2002).

<sup>3</sup> The key aspects of telecom are its distance insensitivity, ability to facilitate “knowledge sharing” of all types, and tendency to self-generate demand for more information (“network effects”). As a result, modern, affordable, and ubiquitous telecom services promote economic growth by expanding addressable markets, spreading production processes across national or sub-national boundaries, and creating new models for turning inputs into products and/or services. Telecom generates more efficient production technologies that increase labor productivity and lowers the cost of coordinating economic activities within and between organizations and even in downstream industry sectors. See J. Dedrick, V. Gurbaxani, and K.L. Kraemer, *Information Technology and Economic Performance: A Critical Review and Empirical Evidence (Working Paper)*, Center for Research on Information Technology and Organizations, University of California at Irvine (2003). See also C. Morrison and D. Siegel, *External Capital Factors and Increasing Returns In U.S. Manufacturing*, Review of Economics and Statistics, v. 79, n. 4, at 647–54 (1997) and J. Grace, C. Kenny and C. Qiang, et al., *Information and Communication Technologies and Broad-Based Development: A Partial Review of the Evidence (Draft)*, at 4 (February 2001).

It is characterized by:

- Holistic and strategic approach to policy and regulatory issues
- Long-term regulatory planning
- Clear assignment and separation of policy and regulatory responsibilities
- Keen sensitivity to timing, such that regulatory devices—the levers used to implement and execute policy—are calibrated and enacted to meet market conditions.

Telecom sector contribution in fully competitive markets can be 3.38 percent of GDP, in contrast with only 2.33 percent in monopoly markets.<sup>4</sup> In fact, with an effective regulatory environment, telecommunications liberalization in the MENA region holds considerable potential for improving overall economic performance. Countries that are able to develop this type of a regulatory environment can create value for both incumbents in the market and new entrants. For example, regulatory levers enabling greater competition have been associated with a market value increase for incumbents 88 percent of the time and for new entrants 60 percent of the time.<sup>5</sup> Moreover, investment levels in the telecom sector as a percentage of GDP are positively correlated with effective regulatory management (see Exhibit 1).<sup>6</sup>

In the MENA region, the countries with the most advanced regulatory regimes, Jordan and Morocco, can trace back much of the success of their mobile

market to effective regulatory reforms started in 1994 and 1997, respectively.<sup>7</sup> Jordan's mobile penetration went from 2.5 percent in 1999 (when the market was a monopoly), to 23 percent in 2002 (duopoly), to 60 percent in 2006 when a fourth operator entered the market; Morocco's mobile penetration went from 1.3 percent in 1999 (when liberalization first started) to 40 percent in 2005.

### **Ineffective Regulation Destroys Value**

In contrast to the rapid market growth seen in select MENA countries, telecom development in other MENA markets has lagged—partly as a result of constrained regulation and the effect of the resulting uncertainty on the risk calculations of potential investors.

Ineffective regulatory management is characterized by:

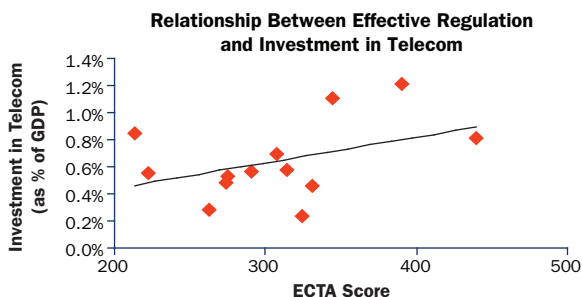
- Tactical, short-term, transactional thinking
- Focus on technical and legal issues to the exclusion of longer-term policy goals
- Poorly timed import of regulatory levers from other regions and markets, without customizing those levers to local realities

These factors create an unpredictable regulatory environment that represents a “regulatory risk” for most telecom operators and potential investors—in other words, inconsistency, delays, uncertainty, and policy confusion that increase the cost of doing business and deter investment.<sup>8</sup>

The reduced market attractiveness associated with this risk leads to under penetrated markets, lower sector revenues, lower investments, a higher cost of capital, and, ultimately, a lower contribution to the overall economy. One case study in an emerging environment showed that mobile investments were 25 percent lower, total cost of ownership 10 percent higher, and mobile market penetration 30 percent lower than they would have been had this market adopted a best practice regulatory framework.<sup>9</sup>

Numerous other examples of tactical or misadapted regulatory management destroying market value can be found around the world.

**Exhibit 1**  
Investment Levels In The Telecom Sector Are Positively Correlated With Effective Regulatory Management



Source: European Competitive Telecommunications Association

<sup>4</sup> See Varoudakis, A., & Rossotto, C. M., *Regulatory Reform and Performance In Telecommunications: Unrealized Potential In The MENA Countries*, 8 Telecommunications Policy 59-78 (2004); and Vershinskaya, O. (2002).

<sup>5</sup> See Pohler, Matthias and Urban, Roman, *An International Analysis of Key Regulatory Decisions and Their Impact on the Stock Exchange*, Technische Universitaet Dresden (2005).

<sup>6</sup> ECTA regulatory scorecards, 2005. ECTA score is a measure of regulatory effectiveness across various regulatory levers.

<sup>7</sup> See Gentzoglani, Sundberg and Schorr, *Effective Regulation, ITU Case Study: Morocco (2001)*. See also, Meschi and Fuss, *The Impact of Telecoms on Economic Growth in Developing Countries*, The Vodafone Policy Paper Series 2 (2005).

<sup>8</sup> For example, mobile telephony investment in 5 countries of the Organization of Eastern Caribbean States went from \$40 million in 2001 to more than \$80 million in 2003 and over \$90 million by 2004 following the end of monopoly. (Source: World Bank and ITU 2004.) On the other hand, a study by the GSM Association (GSMA) finds that unpredictable and short-term approach to regulation can impede mobile penetration growth and development. See, GSMA, *Regulation and the Digital Divide: How Best-Practice Mobile Regulation Can Drive Investment and Penetration In Emerging Markets (2006)*.

<sup>9</sup> Regulation and the digital divide: *How best practice mobile regulation can drive investment and penetration in emerging markets*, GSMA 2006; Waverman, Meschi and Fuss: *The Impact of Telecoms on Economic Growth in Developing Countries. The Vodafone Policy Paper Series 2 (2005)*; Booz Allen Hamilton.

For example:

- From 1999 to 2002, license restrictions enacted in **Austria, Germany, and France** regarding allowed technologies and services (enacted to promote spectrum allocation for broadband services and break the incumbent's access monopoly) blocked service innovation. The result was limited market entry of new operators, little deployment of broadband services, and a reduction of convergence of fixed and mobile market
- In the **Netherlands**, strict wholesale regulation adopted to promote Mobile Virtual Network Operator competition hampered Mobile Network Operator (MNO) competition. The threat of cost-recovery failure given costly infrastructure and license investments forced some MNOs toward network-only business models
- **Canada and Russia** copied Receiving Party Pays (RPP) regulation from the United States into their regulatory framework. No improvements in penetration or usage rates resulted, and Russia recently signed a law to replace RPP with a Calling Party Pays system

In short, the lack of an effective regulatory framework in MENA countries—and its effect on the risk calculations of potential investors—may have been major roadblocks to new investment (see Exhibit 2), limiting a significant opportunity for overall economic growth in the region.<sup>10</sup> In fact, the MENA region received about 3 percent of the overall worldwide Foreign Direct Investment (FDI) flows in telecommunications, reaching US\$5.5 billion in 2004. The average MENA FDI-to-GDP ratio was only 0.07 percent—the same as for East Asia and Pacific countries, and markedly below other parts of the world. Foreign investors respond positively to a stable and predictable regulatory framework and are willing to pay more for a telecommunications company if it operates in a consistent and well-established regulatory environment.<sup>11</sup>

Effective regulatory practices cannot be implemented until they are thoroughly understood. The remainder of this paper discusses the components that make up an effective regulatory structure, and the role of the three key stakeholders—government, regulatory authorities, and operators—in regulatory management.

### Components of Effective Regulatory Management

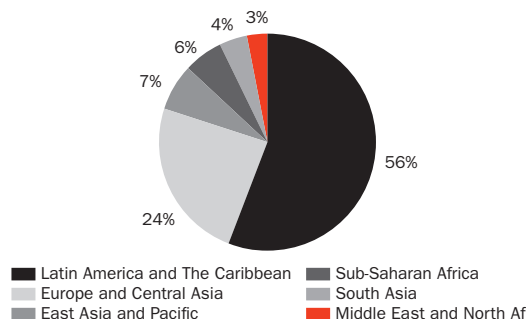
Effective regulatory management comprises mature regulatory practices that optimize market value, and adequate regulatory frameworks that help drive market development (see Exhibit 3).

### Exhibit 2

Telecom Investments In The MENA Region Lag Compared To Investments In Other Parts Of The World (Latest Published Data—2004)

Region	Telecommunications FDI (US\$ billions)	Telecommunications FDI as a Percent of Regional GDP
Latin America and The Caribbean	109.8	0.47
Europe and Central Asia	47.2	0.32
East Asia and Pacific	13.6	0.07
Sub-Saharan Africa	10.8	0.24
South Asia	7.4	0.10
Middle East and North Africa	5.5	0.07

Total Telecommunications FDI By Region



Source: WorldBank

In other words, the effectiveness of regulatory management can be evaluated based on the extent to which it is (1) strategic rather than tactical and (2) customized to market conditions at hand rather than “copied and pasted” from other markets without due adaptation (see Exhibit 4).

### Exhibit 3

Regulatory Practices and Framework Are Main Components Of Effective Regulatory Management

Component	Description
Regulatory Practices	<ul style="list-style-type: none"> <li>▪ Strategic approach to regulatory management is key for addressing the complexity and inter-linkages between various levers</li> <li>▪ Stakeholders must adopt a holistic view of how regulation affects operators' strategies, the overall economy, and society</li> <li>▪ Effective regulatory practice incorporates long-term strategic planning with a consistent and transparent regulatory policy</li> <li>▪ Consultative communication process between all stakeholders is key to promote a cooperative environment</li> </ul>
Regulatory Framework	<ul style="list-style-type: none"> <li>▪ Regulatory frameworks must be developed with a strategic mindset to address the objectives proper to the telecom market under reform</li> <li>▪ Regulatory levers that were used in other regions should be tailored and fine-tuned to local conditions</li> </ul>

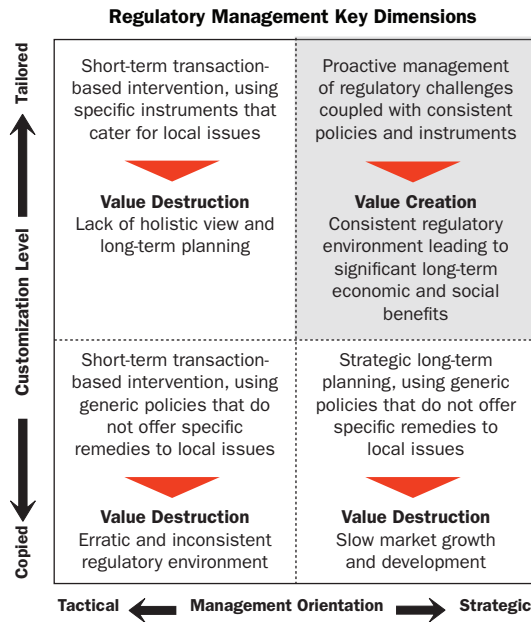
Source: Booz Allen Hamilton

<sup>10</sup> Authors' analysis based on data from the World Bank PPI Project Database and the WDI Database (2004 update).

<sup>11</sup> Kirkpatrick, Parker, and Zhang 2004.

**Exhibit 4**

Strategic, Customized Regulations Enhance Value; Tactical, Off-The-Shelf Regulations Destroy It



Source: Booz Allen Hamilton

In addition, all of the key stakeholders involved in the telecom sector—government, regulators, and operators—have distinct and important roles to play, and must embrace them fully (see Exhibit 5). If any one stakeholder group fails adequately to fulfill its role—like the three-legged stool with one short leg—the balance and stability of the regime will be threatened.

In brief, the role of each of these three players is as follows; they often interact and overlap, and exact roles vary across countries.

▪ **Government.** Government works on the macro level to enable development and advancement of the sector, the national economy, and society as a whole. It sets the main sector objectives, issues legislative levers (e.g., telecom law), and addresses policy issues of national concern to investors and operators. It also harmonizes sector-specific policy concerns with other national policy issues such as trade and the environment. Government utilizes a variety of levers, often set forth as statutory mechanisms, to ensure that sector policies remain in line with national aspirations and objectives.<sup>12</sup>

▪ **Regulatory Authority.** The Regulator acts as a guardian for the sector. It implements national policies, develops regulations, monitors and reports

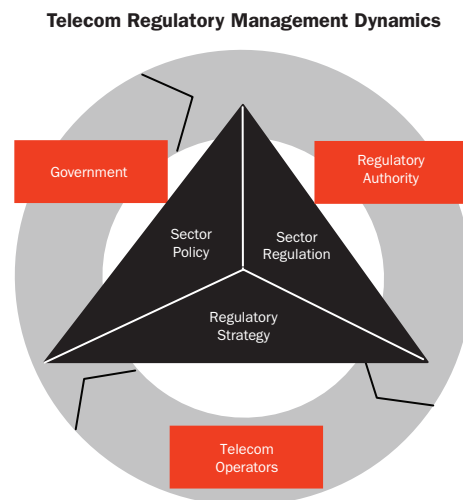
on sector growth, and referees disputes between competing stakeholders, including consumers. Unlike traditional top-down regulated utility environments, the regulator intervenes only when competitive market dynamics fail to yield optimal results. Regulators’ enforcement powers must be used judiciously, but are critical to the development of public confidence in the regulator.

▪ **Telecom Operators.** By actively participating in regulatory processes, operators help shape the development of a well-adapted, market-specific policy and regulatory environment. Telecom operators bring to the table a practical understanding of market operations, development incentives, and enablers. They also provide needed access to resources (i.e., infrastructure and customers) and provide insight into technological capabilities.

Ultimately, it is the end-user who, if not the target of effective regulatory management, is the player most positively impacted by it. It is the customer that benefits from the increased choice of service providers and services, the more developed telecom landscape, and the effective competition between operators. It is this developed competitive landscape that results in lower prices, more advanced technologies, and greater service variety, all of which serve to increase penetration and adoption of telecommunications technologies and services.

**Exhibit 5**

Effective Regulation Depends on the Work of Government, Regulatory Authorities, and Telecom Operators



Source: Booz Allen Hamilton

<sup>12</sup> In many countries, the legislature retains control over budget appropriations for the independent regulator. Government is usually charged with privatization policy for state-owned enterprises. In most countries, the work of the regulator is subject to review and audit on at least an annual basis by a national government body. The executive in multi-branch governments or the ruler in unitary governments usually has specific statutory authority for policy concerns. For telecom issues that implicate broader national issues, i.e., universal service, multiple ministerial level input is often sought through the creation of a joint board.

In examining the roles of these three main players, we have identified nine key levers that government, regulatory authorities, and operators can adopt to help enhance the growth of the telecom sector in the MENA region. These are shown in Exhibit 6.

These nine levers and the critical contribution they make toward unleashing value in the MENA telecom market are discussed in detail in the following sections.

## The Role of Government

### G1: Ensure Regulatory Independence

To fulfill their legal mandate more effectively, governments must empower regulators to achieve structural and financial independence. To achieve this end, government must not only issue a policy decision to create an independent regulatory agency, but also empower the agency to act independently and effectively.

Specifically, government must:

- **Ensure political independence** by providing the regulator with a distinct legal mandate, free of ministerial control; appointing regulators for fixed terms; and protecting them from arbitrary removal
- **Ensure financial independence** by providing the agency with a reliable and adequate source of funding and the legal means to achieve self-financing
- **Ensure institutional independence** by creating a separate regulatory institution

- **Ensure commercial independence** by insisting on a high degree of transparency in the appointment and functions of the regulator and board members, to avoid “regulatory capture”

The MENA region has achieved sensible progress; however, regulators in the region could further advance their political and financial independence, as shown in Exhibit 7.

Countries that successfully establish regulatory independence reap numerous benefits. They increase the credibility, transparency, and long-term sustainability of the regulator. They validate the sector’s management approach, thereby ensuring compliance with international trade commitments. They increase sector attractiveness and investments, thereby increasing revenues from licensing, spectrum, and other regulatory fees. And, they help to reduce government overhead and financial and resource drain.

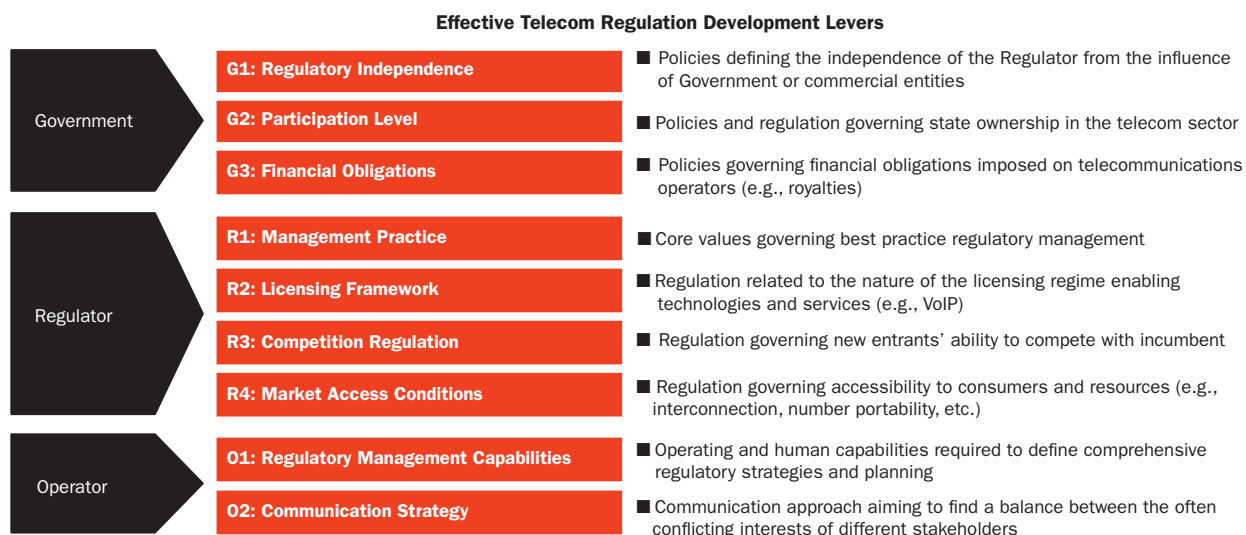
It is important to note that this is an evolutionary process; complete independence may not be achieved from the start, when the rest of the environment is not fully ready. The key message is that the MENA region is heading in the right direction.

### G2: Reduce Government Ownership of Incumbents

To promote telecom sector investments, regional governments should continue reducing their ownership of incumbents. Lower ownership levels create a more attractive telecom sector for more players, as shown in Exhibit 8.<sup>13</sup>

## Exhibit 6

Nine Key Levers That Can Accelerate Telecom Sector Growth In The MENA Region



Source: Booz Allen Hamilton

<sup>13</sup> Countries include Denmark, Italy, South Korea, Spain, UK, Portugal, Australia, Morocco, Bahrain, Greece, Germany, Jordan, and France.

**Exhibit 7**

International Benchmarks Show That Regulators In The MENA Region Could Further Advance Their Political and Financial Independence

**Regulatory Independence Benchmarks—MENA versus Other Countries (2006)**

Country	Regulatory Body	Setup Year	Independent Chairman	Independent Board	Independent From Ministry	Self-Financed
Algeria	ARPT	2001	X	X	√	√
Bahrain	TRA	2002	√	√	√	√
Egypt	NTRA (formerly TRU)	1998	X (minister)	√	√	√
Jordan	TRC	1995	√	√	√	√
Morocco	ANRT	1997	√	√	√	√
Oman	TRA	2002	X (minister)	√	√	Self financed, may use treasury help if in deficit
Saudi Arabia	CITC (formerly SCC)	2001	X (minister)	√	√	Self financed and government appropriation
UAE	TRA	2003	√	√	√	Self financed and government appropriation
Australia	ACMA (formerly ACC)	1997	√	√	√	Fees, government appropriation, operator contributions
France	ARCEP (formerly ART)	1996	√	√	√	Government appropriation
Germany	Bnetza (formerly RegTP)	1998	√	√	√	Fees, government appropriation, operator contributions
Singapore	IDA	1999	√	√	X	√
Switzerland	ComCom	1997	√	√	√	Government appropriation
UK	OFCOM (formerly Oftel)	1984	√	√	√	Fees, government appropriation, operator contributions
USA	FCC	1934	√	√	√	Fees and government appropriation

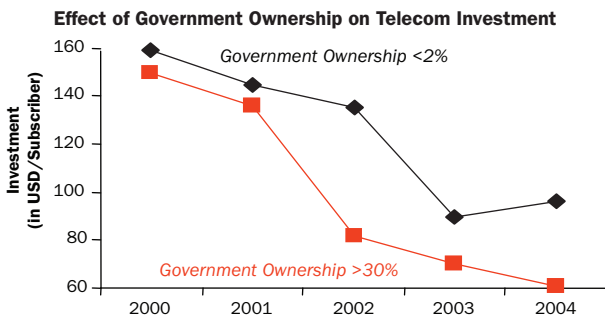
Sources: Regulator websites; Booz Allen Hamilton

Lower ownership does not prevent the government from guiding the sector toward a healthy development path. Working in cooperation with regulators and operators, governments can and should continue to play a pivotal role in shaping the development of the industry.

Although MENA countries began the liberalization of their telecommunications markets in the last decade, most have yet to reduce government ownership levels. Exhibit 9 shows the extent to which MENA countries lag behind their contemporaries with regards to government telecom ownership.

**Exhibit 8**

Reduced Government Ownership Is Correlated With Higher Telecom Investment



Source: ITU; EMC World Cellular Database; Zawya; Arab Advisors Group; Booz Allen Hamilton

**G3: Identify Appropriate Financial Obligations for Operators**

The third key action that the government should take toward setting a favorable environment for telecom

**Exhibit 9**

MENA Countries Have Yet To Reduce Government Ownership In The Telecom Sector

**Government Ownership of Incumbent (Selected Countries) (2006)**

Country	Incumbent	Government Share in Incumbent
Italy	Telecom Italia	0%
Spain	Telefonica	0%
UK	BT	0%
Ireland	Eircom	0%
Portugal	Portugal Telecom	1.80%
Netherlands	KPN	14.20%
Jordan	Jordan Telecom	14.65%
Austria	Telekom Austria	26.00%
France	France Telecom	33.00%
Morocco	Maroc Telecom	34.10%
Bahrain	Batelco	44.33%
UAE	Etisalat	60.00%
Saudi Arabia	Saudi Telecom	70.00%
Oman	Omantel	70.00%
Algeria	Algerie Telecom	100.00%

■ MENA Countries ■ Non-MENA Countries

Note: Excluding public institutional investors

Sources: Government websites; ITU; GlobalInsight; Arab Advisors Group; Booz Allen Hamilton

**Governments should focus on the following key priorities** to contribute to effective regulatory management:

- Establish a telecommunications act based on the principles of fair competition
- Create an effective national regulatory authority empowered to have structural and financial independence as appropriate to the local conditions
- Define long-term policy goals linked to national, social, and economic development targets
- Enact appropriate and enabling policies, complemented by comprehensive government-sponsored initiatives
- Identify optimal state ownership level to promote sector investments and maximize overall returns
- Identify the appropriate level of financial obligations imposed on operators to promote sector attractiveness and increase reinvestment

**Governments should consider the following key questions** as they begin developing policies for their telecom sectors:

- What objectives and incentives need to be set to enhance the national adoption of information and communications technologies?
- What policy changes are required to enhance the attractiveness of the sector and increase investment?
- What initiatives and programs are required to promote service penetration and content creation?
- What is the best approach to enable greater structural and financial independence for the regulator?
- How could best-in-class infrastructure for telecom-dependent economic sectors be promoted?
- How could the telecom sector's contribution (direct or indirect) to government revenues be optimized while addressing government needs and ensuring sector development?
- How could World Trade Organization commitments in telecommunications be fulfilled while ensuring gradual and balanced market liberalization?

sector development is to identify an appropriate level of financial obligations to impose on operators.

Some degree of financial obligations is necessary, for example in the form of corporate taxes; contributions raised are used to finance regulatory oversight activities, research programs, and Universal Service Funds. The key is that financial obligations must be robust enough to fully finance these activities, but modest enough to promote the sector attractiveness and increase reinvestments.

In general, governments should aim to develop and implement policies that gradually reduce financial obligations, often observed in the form of royalties, from their current levels. Doing so enhances the attractiveness of the sector by increasing investment levels and encouraging the entry of new players into the market. It also encourages innovation by allowing operators to invest their increased profits in high-growth projects.

Indeed, the general trend worldwide is toward imposing lower financial obligations on telecom operators. Algeria and Egypt recently announced a reduction of their corporate tax rates from 30 percent to 25 percent and from 42 percent to 20 percent, respectively; and

Saudi Arabia, Germany, Canada, Poland, and Ireland have all reduced their financial obligation levels substantially between 2000 and 2005.

Nonetheless, many MENA countries continue to impose higher financial obligations on corporations than do many of their contemporaries, as shown in Exhibit 10.<sup>14</sup>

#### **Government: Key Priorities, Key Considerations**

In sum, the government's contribution to creating value in the telecom sector is in establishing independent supervision and regulatory authorities and adopting enabling sector development policies.

#### **The Role of Regulators**

##### **R1: Abide by Four Key Driving Values**

To ensure market growth and overall sector development, regulatory authorities must abide by four key driving values: transparency, efficiency, independence, and non-discrimination (see Exhibit 11). These values represent best practices in modern regulation.

Achieving these goals is not always simple, particularly as MENA countries transition from entrenched monopoly-based systems to more liberalized market structures. Common problems include the following:

<sup>14</sup> Saudi Arabia's financial obligations are based on Saudi Telecom's obligations in 2006, in the form of 15 percent revenue share obligations for service provisioning, and *zakat* - charitable alms of 2.5 percent of turnover under Shari'a law.

**Exhibit 10**

MENA Countries Impose Higher Financial Obligations On Telecom Operators Than Do Many Of Their Contemporaries

**Main Financial Obligations On Telecom Operators (2006)**

Country	Corporate Tax / Profit Share	Revenue Share
Algeria	25%	—
Bahrain	—	1%
Canada	22.12%	—
Egypt	20%	6%
France	33.33%	—
Germany	26.38%	—
Hungary	16%	—
Ireland	12.5%	—
Jordan	25%	10%
Morocco	35%	—
Oman	12%	12%
Poland	19%	—
Saudi Arabia	2.5%	15%
Singapore	20%	—
UAE	40%	—
United Kingdom	30%	—

Note: Excludes other financial obligations (e.g., universal service contribution, spectrum fees, etc.)

Sources: Arab Advisors Group; Regulator websites; Operator websites

*In regard to transparency*, information on regulatory consultations and on plans for the sector are not always shared or published, justification for decision not made public, and opportunities for operator or consumer feedback not provided.

*In regard to efficiency*, regulatory authorities can be plagued with unreasonably long time lines for handling basic duties, sometimes giving certain cases disproportionate attention or making unnecessary requests from operators.

*When an agency is not fully independent*, there may be heavy, unnecessary regulatory intervention in the operator's functions, a weak appeals process, and little external accountability.

*And when an agency does not practice non-discrimination*, decisions often favor incumbents and do not seek to curb anti-competitive practice due to limited regulatory resources. Other times, decisions can be overly biased in favor of new entrants to the unfair detriment of the incumbent. In both cases it is the customer that is harmed.

Many of these problems will be addressed over time as markets in the MENA region mature and regulatory practices correspondingly evolve. Exhibit 12 provides a snapshot of where countries in the MENA region currently stand in regard to adopting the four key practice values discussed above.

### **R2: Adopt Service- and Technology-Neutral Licensing and Regulatory Frameworks**

In general, advanced telecom sectors tend to adopt service- and technology-neutral licensing and regulatory frameworks. In 2002, for example, the European Union issued Authorization Directive 2002/20/EC, which created a common legal framework for the provision of telecommunications services. The directive removed barriers to entering the market—licensing of services has been eliminated in favor of a registration process—and allowed for an easier convergence of services. Of course, the use of scarce resources such as frequency spectrum is still subject to regulation.

Jordan has also adopted a neutral licensing regime. Two types of licenses are available (Class and Individual licenses); new entrants apply for one or the other, depending on their need for scarce resources, and there is no limit on the number of class licenses that are granted or on the type and range of non-public mobile wireless services that can be provided. A wide variety of technologies and services can now be deployed immediately in Jordan by licensed operators, without obtaining further approval—WiFi, WiMax, OnePhone, VoIP (both fixed and mobile), Triple

**Exhibit 11**

Four Key Values For Regulators

Value	Description
Transparency	Regulators should conduct business in collaboration with all affected parties (i.e., consulting with stakeholders, integrating their position, and clarifying and substantiating their publicized decisions)
Efficiency	Regulators should perform their duties and responsibilities quickly and efficiently, dependent on the presence of sufficient, relevant expertise, and adequate processes and systems
Independence	Regulators should be able to perform their expected duties without external influences (i.e., political or stakeholder-related); in addition, they should be effectively held accountable for their decisions and behavior
Non-Discrimination	Regulators should operate in an objective, non-discriminatory manner in relation to the different stakeholders while moving from sector-specific regulation to competition law principles

Source: Booz Allen Hamilton

**Exhibit 12**

## Regulatory Practices In Arab Countries Are Still Evolving Toward A “Best Practices” State (2006)

Principle	Proxy Indicators	Algeria	Bahrain	Egypt	Jordan	Morocco	Oman	Saudi Arabia	UAE
Transparency	▪ Frequency of recourse to public consultations to inform major decisions (ideally, a legal obligation)	X	√	X	√	√	√	√	X
	▪ Time given to stakeholders to reply to such consultations (ideally 3 to 6 weeks)	X	√	X	√	X	√	√	X
Efficiency	▪ Time required to obtain reservation of number ranges (less than 20 days)	X	√	√	√	√	√	√	X
	▪ Time required to negotiate new interconnection agreements (less than 100 days)	√	√	√	√	√	√	√	X
Independence	▪ Management’s term (ideally limited to four or more years)	X	√	X	√	√	X	√	√
	▪ Grounds of removal of management (ideally fraud or serious fault)	X	√	√	√	√	X	X	√
	▪ Limited state ownership or control over regulator or its resources	X	√	X	√	X	X	X	X
Non-Discrimination	▪ Reference Interconnection Offer available	√	√	X	√	√	√	√	X
	▪ Symmetric retail tariff regulation	√	√	X	√	√	√	√	√
	▪ Sector-specific dispute management process								
	– Interconnection dispute resolution	√	√	X	√	√	√	√	√
	– Consumer complaint process	X	√	√	√	X	X	√	X

Note: Limited state ownership or control over regulator and resources includes length of terms, number of terms, and financial control of regulator.

Sources: WorldBank; ITU; Arab Advisors Group; Regulator websites; Operator websites; Booz Allen Hamilton

Play, Mobile TV, IPTV, and Blackberry. Deploying these technologies in other countries would require further regulatory authorization, approval, and in some cases, legal amendments.

The benefits of neutrality are numerous. Neutrality removes regulatory preference from competitive technology choices and allows operators to:

- Increase service variety
- Increase revenue streams
- Reduce inefficiencies

The ultimate beneficiaries are consumers, who are able to enjoy a wider range of services and technologies, and operators, who are able to enjoy the resulting increase in service penetration and technology uptake.

Moreover, neutrality allows operators to innovate and keep up with dynamic international technology and service developments, especially those related to network and service convergence. This is particularly important because telecom revenues are expected to evolve toward converged technology and away from traditional revenue streams in coming years.

Neutrality also gives regulators more room to liberalize VoIP. Countries in Europe and Asia that have done so have been able to attract an increased number of entrepreneurs and investors to the sector, and have also increased the attractiveness of broadband, helping drive its penetration and enabling the adoption of multi-play services.

VoIP is expected to cannibalize international voice revenues in the short-term, which may partially explain its slow legalization in the MENA region (see Exhibit 13). However, it is expected to drive greater sector growth in the long-term, as it is proving to be a key application for fast-tracking Broadband penetration. Broadband penetration, in turn, is important to the development of e-commerce and any other industry that leverages information services.

**R3: Identify and Sanction Anti-Competitive Practices**

In addition to embracing the four “best practice” values of telecom regulation, regulatory authorities must have the capacity to identify anti-competitive practices and the power to sanction them when they occur.

Anti-competitive practices come in a variety of forms (see Exhibit 14).

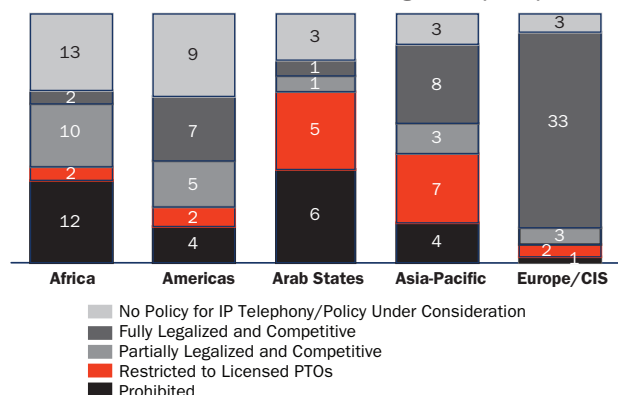
To guard against these practices, regulators should begin by implementing and publishing regulations outlining fair competitive practices and pricing frameworks. This should be done in consultation with key stakeholders to encourage buy-in from all parties affected by the regulations. Regulators should also clearly define the key telecom markets in which competitive regulation will be implemented, define and identify the holders of significant market power in those key markets, and define anti-competitive practices.

**Exhibit 13**

VoIP is Embraced In Some MENA Countries, Prohibited In Others

State of VoIP in a Selection of MENA Countries (2006)	
Algeria	<ul style="list-style-type: none"> <li>Legal for licensed operators</li> <li>Blocking of VoIP applications by some operators</li> </ul>
Bahrain	<ul style="list-style-type: none"> <li>Legal</li> <li>No blocking</li> </ul>
Egypt	<ul style="list-style-type: none"> <li>Legal for licensed operators</li> <li>Blocking of VoIP applications by some operators</li> </ul>
Jordan	<ul style="list-style-type: none"> <li>Legal</li> <li>No blocking</li> </ul>
Morocco	<ul style="list-style-type: none"> <li>Legal for licensed operators</li> </ul>
Oman	<ul style="list-style-type: none"> <li>Legal for licensed operators</li> </ul>
Saudi Arabia	<ul style="list-style-type: none"> <li>Policy for VoIP is under review</li> </ul>
UAE	<ul style="list-style-type: none"> <li>Allowed for existing licensed operators</li> <li>Blocking of VoIP applications</li> </ul>

ITU Member Countries and VoIP Regulation (2005)



Note: VoIP is allowed in the UAE only for the two existing licensed operators (Etisalat and du)  
 Sources: ITU; BroadbandTrends; Booz Allen Hamilton

As further protection, regulators can:

- Apply price squeeze tests and review alleged discriminatory prices for access to wholesale products
- Develop clear price control mechanisms
- Create accounting separation and cost accounting guidelines and obligations
- Create guidelines for cost-oriented interconnection and other access charges
- Create access provisioning guidelines that require services to be enabled in short, reasonable time frames
- Put dispute resolution capabilities and systems in place
- Use their enforcement and sanctioning power capabilities to ensure compliance with decisions
- Review potential mergers and acquisitions

**Exhibit 14**

Anti-Competitive Practices Hurt Telecom Sector Growth

Practice	Description
Unjust Discrimination (Price or Other Terms)	Discriminating between operators within access and other agreements
Vertical Price Squeezing	Attempting to harm a competitor by charging high wholesale prices
Service Bundling	Attempting to force users or competitors to buy service bundles
Predatory Pricing	Pricing below cost in order to harm a competitor
Cross-Subsidization	Subsidizing one service with revenues from another
Lack of Technical Specifications or Lack of Interoperability	Not providing proper specifications to competitors that the operator is sharing infrastructure or interconnecting with
Misuse of Competitor Information	Illegally obtaining and using competitor information
Arrangements that Restrict or Distort Competition	Entering into exclusivity, boycott, or other agreements in order to distort competition
Refusal to Deal or Delay in Supply of Essential Facilities	Preventing competitors from getting essential services or facilities in order to harm their market position

Source: Booz Allen Hamilton

In the end, review, guidelines, and regulations mean little if regulators are not given the legal mandate to enforce them—to penalize operators who they identify as practicing anti-competitive behaviors. Exhibit 15 provides a snapshot of the current sanctioning powers of regulators in selected MENA countries.

**R4: Ensure Access to Resources**

The final key role for regulators is to ensure that all operators in the telecom marketplace have adequate access to necessary resources—both infrastructure and customers.

*Access to Infrastructure*

Regulators need to assess their current environment and decide upon the right approach to managing the country’s telecom infrastructure. Infrastructure models generally fall into one of two camps: a *virtual separation model*, in which the incumbent retains control of its infrastructure, and a *full structural separation model*, in which the incumbent’s infrastructure is managed by a structurally and operationally separate company. The latter model may gain increasing relevance in the future (see Exhibit 16).

- Virtual separation** is an easy-to-implement model that allows new market entrants quick access to infrastructure and ensures a fast rate of unbundling.

**Regulators should focus on the following key priorities** to enable effective market regulation:

- Demonstrate independence, transparency, efficiency, and non-discrimination in regulatory practices
- Develop appropriate resources and skills
- Communicate a clear set of regulatory policy objectives and targets
- Implement consistent and transparent regulatory policies and conduct regular consultation with stakeholders
- Encourage local and foreign investment in telecom infrastructure and services
- Ensure fair competition among telecom sector players
- Ensure the provision of innovative, reliable, and affordable telecom services

**Regulators should consider the following key questions** as they begin developing regulations for their markets:

- How could safeguarding competition and promoting innovation be balanced?
- How could an optimal infrastructure-sharing model be achieved?
- Should content be regulated? If so, by what entities?
- How are markets defined in this era of convergence?
- Should Next Generation Networks be subject to access regulation?
- How could the liberalization of VoIP help achieve greater sector growth?
- How effective is spectrum management in allocating new frequencies on demand?
- What are the key elements for effective dispute resolution?

It does require careful regulatory oversight to ensure that incumbents manage infrastructure sharing appropriately.

However, it has been used successfully worldwide—France, for example, adopted this framework in 2003 as a way of helping new entrants compete fairly with the incumbent. As a result, France now enjoys one of the highest unbundling rates in Europe.

- **Full structural separation** is adopted when an incumbent’s infrastructure-sharing system is found to be inefficient or unfair. Full structural separation is

**Exhibit 15**

Successful Regulation Depends On The Sanctioning Power Of The Regulatory Authority

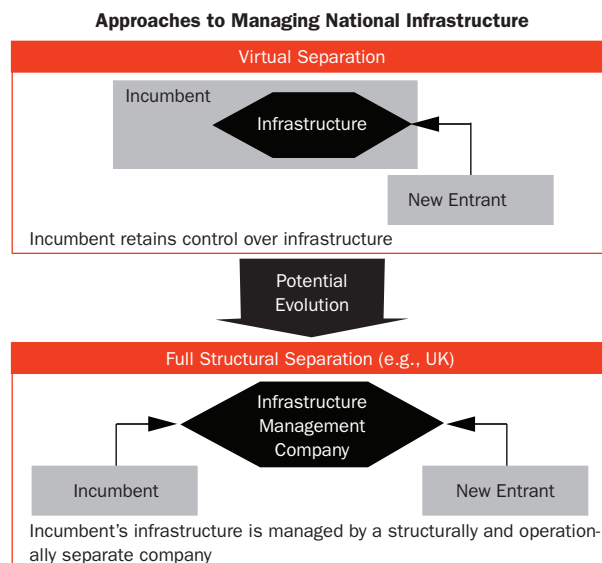
Proxy Indicators	Algeria	Bahrain	Egypt	Jordan	Morocco	Oman	Saudi Arabia	UAE
Regulator’s powers are defined by law	√	√	√	√	√	√	√	√
Regulator has the ability to impose fines with deterrent effects	X	√	X	√	X	√	√	√
Regulator has exercised ability to impose financial penalties	√	√	√	√	X	X	X	√

Sources: Regulator websites; WorldBank; ITU; Booz Allen Hamilton

considerably more complex to implement than virtual separation, and incumbents often resist its adoption. Moreover, the benefits of this type of system cannot be fully realized until after the complete liberalization of the telecom market. In the long run, however, adopting a full structural separation

**Exhibit 16**

Two Approaches To Managing National Infrastructure



Source: Booz Allen Hamilton

will attract investment in the sector and encourage the infrastructure company to keep infrastructure modernize, so as to best attract clients.

Full structural separation was adopted in the UK as its regulator, Ofcom, believed that despite its own best efforts in interconnection and accounting separation, new entrants did not have fair access to the incumbent's local loops. Openreach now manages the last mile of British Telecom's (BT) infrastructure. Although the business unit is still a part of BT, it operates separately and provides equal access to all operators.

#### Access to Customers

For new entrants in the telecom market to succeed, they must be able to access not only infrastructure, but also customers. Effective customer access regulation is subject to four key principles: fair and timely interconnection, number portability, unbundling, and carrier selection (see Exhibit 17).

Exhibit 18 illustrates the extent to which MENA countries practice these four key principles, in comparison with other countries around the world.

#### Regulators: Key Priorities, Key Considerations

In sum, regulators must implement tailored regulatory frameworks and adopt effective management practices to maintain a competitive marketplace and foster long-term sector development.

#### The Role of Operators

Operators need not be passive players in the regulatory environment, patiently waiting for guidelines

#### Exhibit 17

Four Key Principles Ensure Effective Customer Access

Principle	Description
Fair and Timely Interconnection	Users of one communications provider can communicate with users of another. Fair interconnection is provided efficiently, with high service quality and at cost-oriented prices
Number Portability	Users can retain their telephone number when they change their chosen network operator/service provider, location, or service
Unbundling	New entrant is given access to the network components needed to replicate the service offering of the incumbent and serve the subscriber with all requested services
Carrier Selection	Users can select alternative communications providers to complete their calls (with or without dialing additional codes on the telephone)

Source: Booz Allen Hamilton

#### Exhibit 18

MENA Countries Are Still To Implement Regulations That Provide Market Entrants Full Customer Access (2006)

	Fair Interconnection	Number Portability	Local Loop Unbundling	Carrier Selection
Algeria	√	X	P	X
Bahrain	√	P	√	√
Egypt	√	P	X	X
Jordan	√	P	P	√
Morocco	√	P	√	√
Oman	√	√	P	P
Saudi Arabia	√	√	P	P
UAE	√	P	X	P
Austria	√	√	√	√
Belgium	√	√	√	√
France	√	√	√	√
Hungary	√	√	√	√
Ireland	√	√	√	√
Spain	√	√	√	√
UK	√	√	√	√

√: Implemented, X: Not Implemented, P: Planned

Sources: Regulator websites; Operator websites; ITU; Booz Allen Hamilton

and direction to be “handed down” from regulatory authorities. Rather, they can and should take an active role in the development of their national regulatory frameworks. To this end, they should focus on (1) building effective regulatory management capabilities within their organizations, and (2) communicating proactively and intensively with regulatory authorities.

#### 01: Build Effective Regulatory Management Capabilities

Six key factors can help operators build effective regulatory management capabilities within their organizations (see Exhibit 19).

In addition, as their markets develop, operators should increase the scope and impact of their regulatory function. Although most regulatory functions are concentrated around transactional operations, as markets mature, functions are added on top of the transactional regulatory operation, including strategic planning, regulatory analyses and public affairs. This evolution can be seen in Exhibit 20.

#### 02: Communicate Proactively and Intensively with Regulatory Authorities

To successfully drive the development of a fair regulatory environment and a healthy telecom sector,

**Exhibit 19****Key Success Factors For Effective Regulatory Management By Operators**

Factor	Description
Corporate Positioning	<ul style="list-style-type: none"> <li>Position regulatory management on the top management agenda</li> <li>Empower regulatory management and enable agile decision making</li> <li>Enable overarching view of overall business priorities</li> </ul>
Strategic Integration	<ul style="list-style-type: none"> <li>Adopt a strategic, integrated, long-term approach to regulatory management</li> <li>Closely integrate regulatory strategy and business strategy development</li> <li>Eliminate regulatory barriers that could block execution of business strategies</li> </ul>
Robust Analytics	<ul style="list-style-type: none"> <li>Proactively compile and analyze intelligence on regulation stakeholders potential direction</li> <li>Ensure consistency between position on various regulatory topics, in both the short and long term</li> <li>Systematically assess the economic, social, and strategic impact of regulation to support operator direction</li> <li>Ensure that adopted regulations are practical and provide sufficient incentives</li> </ul>
Proactive Lobbying	<ul style="list-style-type: none"> <li>Anticipate and work on influencing regulatory decisions and overcoming incumbent obstacles well in advance</li> <li>Minimize regulatory risks and enable the effective execution of business strategies</li> <li>Counterbalance the influence of incumbent and other potential stakeholders with different interests</li> <li>Contribute to maturing the regulator and incumbent's culture and practices</li> </ul>
Aligned Culture and Capabilities	<ul style="list-style-type: none"> <li>Effectively organize and staff the regulatory and legal affairs function</li> <li>Attract and build qualified and experienced resources in business strategy and administration, law and regulations, economics, telecom engineering, and communication and public relations</li> <li>Develop a mission-oriented, knowledge-based, strategically focused, and cooperative culture</li> </ul>
Enabling Operating Model	<ul style="list-style-type: none"> <li>Appoint a single point of contact for internal and external communication</li> <li>Ensure efficiency and effectiveness of internal regulatory management processes and support with KPIs</li> <li>Ensure complementary contributions between regulatory management and corporate and sector resources</li> </ul>

Source: Booz Allen Hamilton

operators must adopt a proactive, communication-intensive approach to dealing with emerging regulatory challenges and interacting with regulatory authorities.

To this end, they should strive to develop positive, professional relationships with regulatory authorities that are assertive and at the same time receptive to change. Doing so will allow operators to comfortably engage with regulators on a variety of topics, from specific decisions to the overarching strategic vision for the sector (see Exhibit 21).

In doing so, operators have a variety of communication channels open to them (see Exhibit 22). The most successful operators will take advantage of them all.

Of course, operators should not limit their communications effort to regulators alone. Rather, they should develop a strategic communications plan that addresses all of the key stakeholders who play a role, however indirect, in regulatory affairs.

Operators should leverage key shareholders, the board of directors, senior management, regulatory affairs resources, and other employees to effectively implement their strategic communication plan. The audience could include policy makers, regulators, public bodies, opinion leaders, customers, and competitors.

**Exhibit 20****As Markets Mature, Operators Must Be Prepared To Broaden The Scope Of Their Engagement Capabilities****Regulatory Management Functions Evolution**

Key Functions and Activities	Pre-Competitive Market				Mature Competitive Market			
	Telus Canada 1994	Telekom Austria 1998	France Telecom 1998	Deutsche Telekom 1999	Telus Canada 2003	Telekom Austria 2005	France Telecom 2005	Deutsche Telekom 2005
Regulatory Strategic Functions <ul style="list-style-type: none"> <li>Regulatory Planning</li> <li>Regulatory Counseling</li> </ul>								
Regulatory Transactional Operations <ul style="list-style-type: none"> <li>Retail/Wholesale/Technical Regulation</li> <li>Complaints</li> </ul>								
Regulatory Analyses and Studies <ul style="list-style-type: none"> <li>Market Intelligence</li> <li>International Benchmarks</li> </ul>								
Public Affairs <ul style="list-style-type: none"> <li>Lobbying for Regulatory Reform</li> <li>Lobbying for Fair Market Liberalization</li> </ul>								

Source: Booz Allen Hamilton

○ Not Covered    ◐ Partially Covered    ● Fully Covered

**Operators should focus on the following key priorities** to contribute to effective regulatory management:

- Position regulatory management on the top management agenda of their organizations
- Closely integrate the development of regulatory strategies and corporate / business strategies
- Proactively compile and analyze intelligence on regulation stakeholders’ potential direction
- Anticipate and proactively work on influencing regulatory decisions and overcoming incumbent obstacles
- Effectively organize and staff the regulatory function
- Develop a mission-oriented, alert, strategically focused, cooperative culture
- Appoint a single point of contact for internal and external communication and ensure efficiency and effectiveness of internal regulatory management processes and interactions

**Operators should consider the following key questions** as they begin developing their regulatory management capabilities:

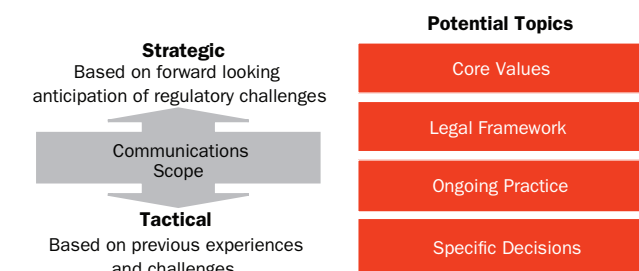
- How could the positioning and visibility of the regulatory affairs function be increased?
- How to develop strategic regulatory and legal management capabilities?
- How could a balanced and effective relationship be maintained with the regulator?
- What policies and regulatory frameworks should be recommended (e.g., licensing framework, competition regulation, market access conditions)?
- What VoIP business strategies are favorable and applicable?
- How to ensure fair and enabling infrastructure management models?
- How could incumbents minimize the impact of asymmetric regulation (e.g., retail regulation, incumbent regulation, and so forth)?

**Operators: Key Priorities, Key Considerations**

In sum, operators should partner with the government and regulator and play an active role in shaping the regulatory environment and safeguarding business and national interests.

**Exhibit 21**

Operators Should Engage With Regulators On Topics Ranging From Strategy to Tactics



Source: Booz Allen Hamilton

**Conclusion: Significant Opportunity Exists in the MENA Region**

The worldwide telecommunications sector has grown considerably over the past several years, reaching estimated revenues of \$1.2 trillion in 2006, or just under 3 percent of the gross world product.<sup>15</sup> Significant potential now exists for fully developing

**Exhibit 22**

Operators Can Use A Variety Of Communication Channels

Channel	Communications Goal
Proactive Communications With The Regulator	<ul style="list-style-type: none"> <li>▪ Push forward cooperative regulatory research</li> <li>▪ Promote dialogue and a consultative approach</li> </ul>
Public Forums and Industry Associations	<ul style="list-style-type: none"> <li>▪ Establish a forum for discussion on the regulatory topics</li> <li>▪ Leverage best practice from other markets and monitor regulatory developments</li> </ul>
Public Consultations	<ul style="list-style-type: none"> <li>▪ Participate in public consultations and provide insights through format channels</li> <li>▪ Provide timely and comprehensive analysis, supported by benchmarks when available</li> </ul>

Source: Booz Allen Hamilton

<sup>15</sup> "Telecom Industry Revenue to Reach \$1.2 trillion in 2006", VoIP Magazine, 2005.

the region's telecom sector, unleashing its full market value and, accordingly, increasing the sector's overall contribution to the regional economy.

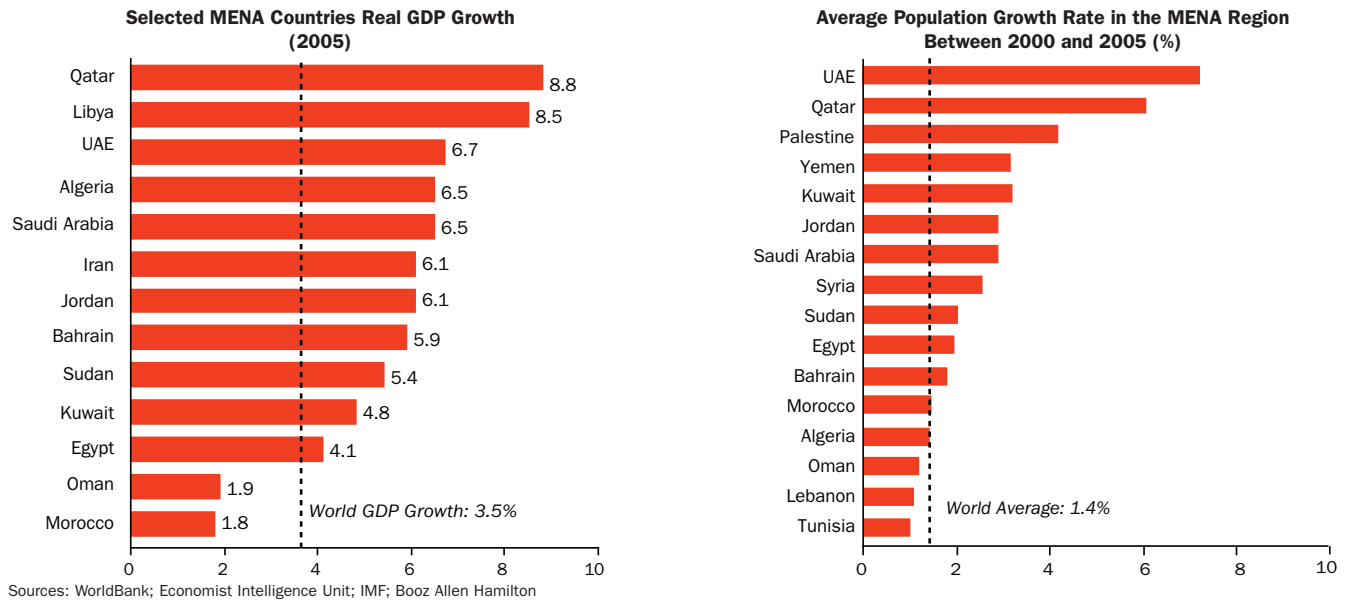
The consumers are there to make this happen. In 2006, real GDP growth in the MENA region surpassed that of the rest of the world by nearly 2 percent. And

from 2000 to 2005, average population growth rates in MENA countries consistently exceeded those of the rest of the world (see Exhibit 23).

Moreover, both connectivity and broadband penetration in the region remain very low; particularly in countries outside of the Gulf region (see Exhibit 24). Countries

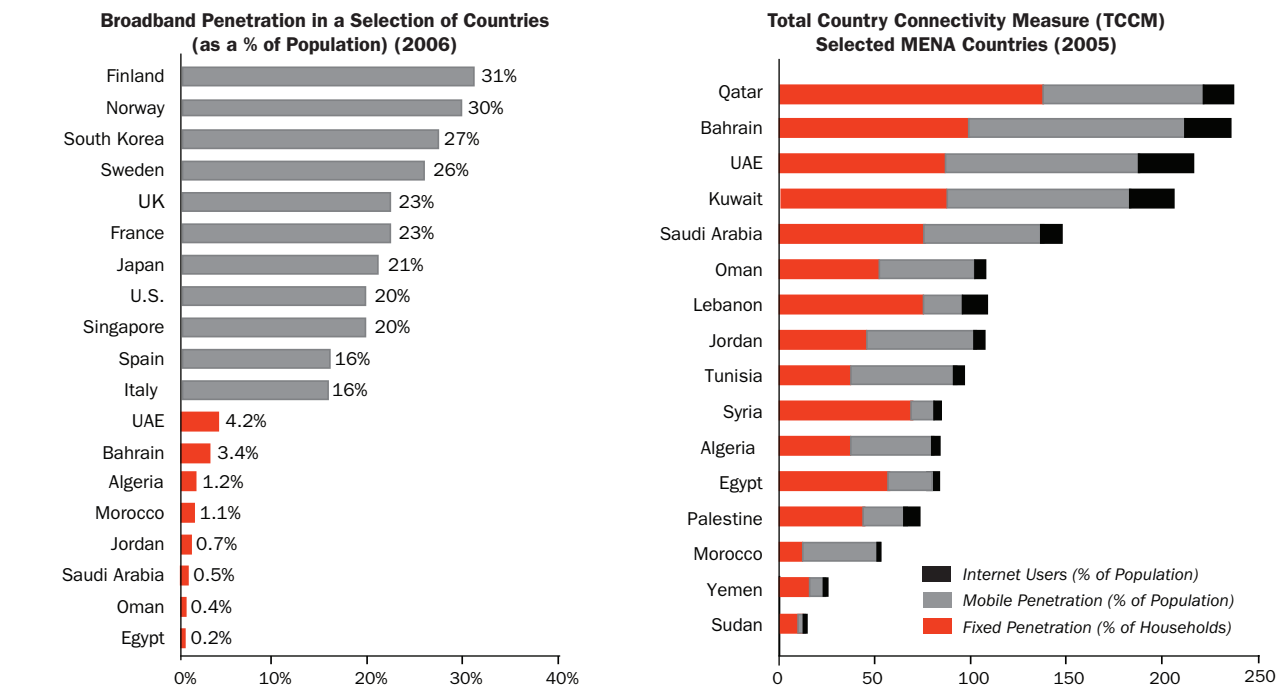
**Exhibit 23**

Real GDP Growth and Population Growth In The MENA Region Exceed Those In The Rest Of The World



**Exhibit 24**

Connectivity and Broadband Penetration In MENA Are Very Low, Leaving Tremendous Room For Growth

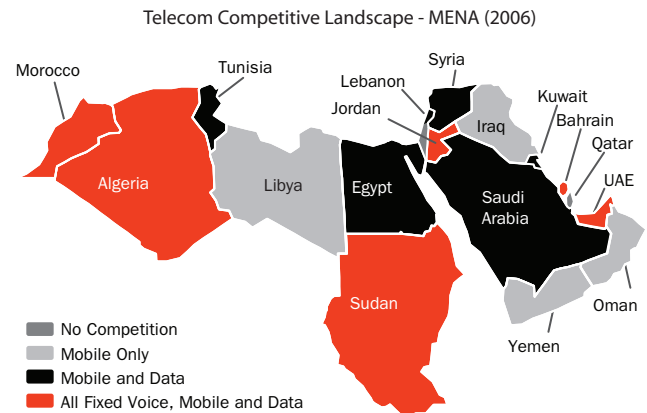


with Total Country Connectivity Measure (TCCM) of less than 200 percent have large gaps in connectivity, which translate into much room for growth. And throughout the MENA region, low internet and broadband penetration rates are observed, which again, translates into significant room for growth. Growth in the broadband sector can also drive the uptake of advanced services and technologies such as VoIP.

In addition, although many MENA countries, particularly those in the Gulf region, have advanced in liberalizing their telecom markets, there is still room for improvement (see Exhibit 25). Algeria, Bahrain, Jordan, Morocco, Sudan, and the UAE have all licensed new fixed operators, Saudi Arabia is planning to license new fixed operators in 2007. With the exception of Qatar, all MENA countries have at least two mobile operators. However, full competition has not been established throughout the region. Jordan and Bahrain remain the only two countries fully open to competition.

On the other hand, overall, private participation in infrastructure in the region is increasing. Investment increased dramatically between 2002 and 2005, jumping from around US\$1.6 billion in 2002 to US\$6.7 billion in 2005. Investment in infrastructure not only brings economic benefit to the region, but also positively influences the availability and quality of telecom services by ensuring the availability of infrastructure, spurring innovation.

### Exhibit 25 Competition In The Telecom Landscape Is Still In Progress



Source: Economist Intelligence Unit; ITU; Arab Advisors Group; World Bank; PPIAF; Booz Allen Hamilton

Encouraging this trend toward private participation and market liberalization will require careful action on the part of governments, regulators, and operators.

All three players in the telecom sector—government, regulators, and operators—can help accelerate market growth in the MENA region by working together to institutionalize effective regulatory frameworks and practices. These frameworks and practices will help increase investments, increase innovation, and drive higher adoption and usage rates. The end result will be a higher contribution to the region’s overall economic and social development.

## What Booz Allen Brings

Booz Allen Hamilton has been at the forefront of management consulting for businesses and governments for more than 90 years. Providing consulting services in strategy, operations, organization and change, and information technology, Booz Allen is the one firm that helps clients solve their toughest problems, working by their side to help them achieve their missions. Booz Allen is committed to delivering results that endure.

With 18,000 employees on six continents, the firm generates annual sales that exceed \$3.7 billion.

Booz Allen has been recognized as a consultant and an employer of choice. In 2005 and in 2006, *Fortune* magazine named Booz Allen one of “The 100 Best Companies to Work For,” and for the past eight years, *Working Mother* has ranked the firm among its “100 Best Companies for Working Mothers.”

To learn more about the firm, visit the Booz Allen Web site at [www.boozallen.com](http://www.boozallen.com). To learn more about the best ideas in business, visit [www.strategy-business.com](http://www.strategy-business.com), the Web site for *strategy+business*, a quarterly journal sponsored by Booz Allen.

**Karim Sabbagh**, is a vice president with the Global Communications and Technology practice at Booz Allen, based in the firm's Riyadh and Dubai offices, and leads the firm's related engagements in the Middle East. Overall, Karim has 20 years of strategy and operation experience acquired through various projects in the Middle East, Europe, and North America. He has managed a number of economic and business development assignments in telecommunications and media, primarily in the context of sector level development strategies, institutional and regulatory reforms, large-scale privatization programs, and strategy-based transformations focused on strategic planning, partnerships and alliances, marketing, and business process re-design. Karim holds a Ph.D. in Strategic Management with Honors from Century New Mexico University, United States. He also earned an MBA, with a concentration in Finance, and a BBA, with a concentration in Marketing, with Distinction, from the American University of Beirut. He can be reached at +971-4-390-0260 or by e-mail [sabbagh\\_karim@bah.com](mailto:sabbagh_karim@bah.com).

**Bahjat El-Darwiche**, is a principal with the Global Communications and Technology practice at Booz Allen, based in the firm's Riyadh and Beirut offices. He has participated in a number of telecom policy and regulatory management assignments, primarily in the context of sector strategy, market liberalization, and corporate development programs. In particular, he worked on telecom sector development strategies in the Middle East, covering enabling policies, regulations, technology, and business models. He also worked with regulators and operators in the region to develop and implement effective regulatory management strategies and capabilities. Overall, Bahjat has 13 years of strategy and operation experience in the telecommunications field acquired through various projects with governments, regulatory authorities, and incumbent operators and new entrants in the Middle East, Europe, North America, and Asia. Bahjat holds an engineering diploma from the Ecole Polytechnique in France and an MS degree in Telecommunications from the Ecole Nationale Supérieure des Télécommunications in Paris. He can be reached at +961-1-336433 or by e-mail [el-darwiche\\_bahjat@bah.com](mailto:el-darwiche_bahjat@bah.com).

**Fady Elias**, is an associate with Booz Allen based in the firm's Beirut office. He has been involved in strategy assignments across various industries and in particular in media and telecom. Fady has participated in several assignments in regulatory management in the telecom sector where he received significant exposure to the issues affecting the regulation of telecom market in the Middle East. He is now focusing on sector reform and organization design in the telecom and media sector. Fady has consulting experience in Europe, the Middle East, and North Africa. Fady holds an MBA from the University of Cambridge and a Bachelor of Electrical Engineering degree with Distinction from the American University of Beirut. He can be reached at +961-1-336433 or by e-mail [elias\\_fady@bah.com](mailto:elias_fady@bah.com).

**Chady Smayra**, is an associate with Booz Allen and is based in the firm's Riyadh and Beirut offices. Chady has extensive experience in the telecommunications industry acquired through various projects in the Middle East and North America. He has participated in a number of strategic regulatory assignments focusing on market liberalization, regulatory reform, wholesale business regulation, and telecom sector policy setting and reform. In particular, Chady worked on regulatory management and sector development strategies with telecom operators and regulatory bodies in the MENA region. Chady also participated in a number of engagements focused on business development, marketing, operations management, strategic communication, and strategic planning in North America, Europe, and the Middle East. Chady holds an MBA degree from McGill University in Canada, with a concentration in Strategy and Finance. He also earned a Bachelor of Computer Engineering in Telecommunications from École Polytechnique in Canada. He can be reached at +961-1-336433 or by e-mail [smayra\\_chady@bah.com](mailto:smayra_chady@bah.com).

## Worldwide Offices

### Asia Australia New Zealand

Bangkok  
Beijing  
Brisbane  
Canberra  
Hong Kong  
Jakarta  
Melbourne  
Seoul\*  
Shanghai  
Sydney  
Taipei  
Tokyo  
Wellington

### Europe

Amsterdam  
Berlin  
Copenhagen  
Dublin  
Düsseldorf  
Frankfurt  
Helsinki  
Istanbul\*  
London  
Madrid  
Milan  
Moscow  
Munich  
Oslo  
Paris  
Rome  
Stockholm  
Vienna  
Warsaw  
Zurich

### North America

Annapolis Junction, MD  
Arlington, VA  
Atlanta  
Boston  
Chantilly, VA  
Charleston, SC  
Chicago  
Cleveland  
Colorado Springs  
Dallas  
Dayton, OH  
Detroit  
Eatontown, NJ  
Falls Church, VA  
Herndon, VA  
Honolulu  
Houston  
Huntsville, AL  
Leavenworth, KS  
Lexington Park, MD  
Linthicum, MD  
Los Angeles  
McLean, VA  
Newark  
New York City  
Norfolk, VA  
Omaha  
Parsippany, NJ  
Philadelphia  
Rockville, MD  
Salt Lake City  
San Antonio  
San Diego  
San Francisco  
Stafford, VA  
Tampa, FL  
Washington, D.C.

### Latin America

Bogotá  
Buenos Aires  
Caracas  
Mexico City  
Rio de Janeiro  
Santiago  
São Paulo

### Middle East

Abu Dhabi  
Beirut  
Cairo  
Dubai  
Riyadh

\* An associated firm

The most recent list of our office addresses and telephone numbers can be found by clicking the **Worldwide Offices** link under **About Booz Allen** on [www.boozallen.com](http://www.boozallen.com).