

# CHAPTER 1. THE BIG PICTURE: INTRODUCTION TO TELECOMMUNICATIONS REGULATION

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# CHAPTER 1. THE BIG PICTURE: INTRODUCTION TO TELECOMMUNICATIONS REGULATION

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## 1.1. Introduction

The telecommunications sector has undergone considerable change since the publication of the *Telecommunications Regulation Handbook* a decade ago. The long term evolution of new technologies and services has continued, focusing attention on the growing importance of telecommunications for national economies and the growth of international trade in telecommunications services. In turn this has fuelled the transition in recent decades from monopoly structures to competitive ones.

Apart from these general trends, the global telecommunications landscape in 2010 has been particularly shaped by the rapid take-up of the Internet and mobile wireless communications across the world. At the turn of the millennium, these technologies predominantly served the wealthy elite. Now mobile phones are in the hands of the majority of people on the planet. And the Internet has truly become mainstream with Web 2.0 applications such as Facebook making it relevant for so many people in their daily lives.

The past decade has also witnessed two major setbacks. Following a period of growth in the telecommunications industry in the late 1990s, the “dot com bubble” burst at the beginning of the 21st century, resulting in a steep drop in stock market value for major operators. The crash in the telecommunications market affected numerous companies, but did not appear to deter the development of new technologies and the continuing evolution of the information and communications technology (ICT) sector. The end of the decade has been overshadowed by the global economic crisis. It remains to be seen how the sector will withstand the latest economic shock, particularly as the mobile wireless market nears saturation in most industrialized countries. Wireless is, of course, a continuing success story in the developing world and there remains potential for growth, particularly in those countries that have yet to fully embrace competitive markets.

In such a rapidly evolving field, it is necessary to ensure that regulation adapts to new developments. Countries around the world have been reviewing

their existing frameworks, enacting legislation and creating new regulatory authorities to implement their legal and regulatory framework.

This anniversary edition of the *Handbook* must take account of these developments over the past decade. Most of the fundamental principles remain constant, of course, and the *Handbook* reiterates the basic and underlying principles of telecommunications regulation.

Nevertheless, there are also emerging issues arising from particular new technologies that raise new regulatory issues, e.g., Voice over Internet Protocol (VoIP), Internet Protocol Television (IPTV), social networking, etc. This new edition brings the *Handbook* up to date with regard to such matters. In addition, the wider take up and convergence of ICTs also raises new regulatory issues that traditionally would be seen as separate from telecommunications regulation. However, in the digital age, questions such as protection of minors, privacy and intellectual property are increasingly becoming part of the agenda for policy makers and regulators too. Reflecting these changes this edition of the *Handbook* goes beyond the usual definition of telecommunications regulation to address those issues arising from the transition to a more ubiquitous and participatory digital age.

This introductory chapter provides an overview of the main communications regulation issues – the big picture. It begins by highlighting the important role of information and communications technology as both social and economic enabler and the rapidly evolving and converging nature of communications technologies. A key question – why regulate? – is then explored and the principles of regulation expounded. Regulatory organizations and elements for an effective regulator are described as well as international regulatory frameworks. Finally, the chapter looks ahead to the issues that are likely to be of increasing importance over the next decade.

## 1.2. Technology in Context

### 1.2.1. Brave New Words, Brave New Economy

Digital technologies are changing the ways in which the majority of people live, work, play and interact with each other. We can see this reflected in the language we use. Our vocabulary is evolving as existing words assume new meanings – app, burn, text – or appear in new combinations, such as smart

phone, cyber crime, file sharing. Some vocabulary is entirely new: the words blog, podcast and googling have become commonplace. The range of technology acronyms in everyday use continues to expand – P2P, SMS, MP3 – and adds to the sense that what we are witnessing is the dawn of a new information age, in which ICTs become part and parcel of daily life. As a result, we now live in what has been termed the “information society”. The ongoing World Summit on the Information Society (WSIS) process is global recognition of the impact of ICTs on society, and the need to ensure that a global digital divide does not persist.

ICTs, such as the Internet and the mobile phone, have become vital for almost all economic and social activity. The new digital economy runs on the fuel of ICTs, from e-commerce to professional networking.

A key characteristic of ICTs is that they are regulated by national administrative agencies that are keen on ensuring that principles such as fair competition and universal access are upheld in the public interest. Government regulation of ICTs extends into many disparate areas, ranging from pricing regulation, mergers and market entry to content, copyright, and privacy.

Given the speed of technological innovation, it is not surprising that the substance of ICT regulation has had to evolve rapidly. The liberalization of ICT markets has stimulated cumulative interacting innovations in products, services and technologies with a general convergence or blurring of distinctions between platforms, products and services. These developments necessitate some form of regulatory response to keep them in check.

The evolutionary nature of regulation is evident, for instance, in the moving target of European Union (EU) regulation. There have been successive “packages” updating the regulatory framework, most recently in 2009. A growing number of countries have adopted this framework as member of the European Union. The EU regulatory approach is also reaching outside of Europe and influencing the frameworks that other countries are adopting. The 2009 reform followed several years of consultation and the new framework continues the shift to less sector-specific and more *ex post* regulation in the European Union. Significantly, the EU regulatory package has been forcefully linked to broader policy objectives concerning inclusiveness, innovation, job creation, growth, energy and environmental issues in

information society. The EU is not alone in this. Countries around the world and at all stages of economic development are implementing similar ICT strategies. ICTs also enable the participation of individuals, governments and organizations in the global economy.

### 1.2.2. ICT as Social and Economic Enabler

These initiatives reflect the growing acceptance that ICTs offer major transformational opportunities. They can contribute to enhanced productivity, competitiveness, growth, wealth creation, and poverty reduction. They have the potential to catapult us from an information society to the next level – that of a knowledge-based society and economy. ICTs provide the means by which knowledge is developed, stored, aggregated, manipulated and diffused.

These opportunities are well known and are not just a developed country phenomenon. ICTs, particularly access to broadband internet, are vital for developing nations as well. The ITU's Build on Broadband project is dedicated to promoting equitable, affordable broadband access to the Internet for all people, regardless of where they live or their financial circumstances. In a speech in 2009, ITU Secretary-General Dr Hamadoun I. Touré stated:

[I]n the 21st century, affordable broadband access to the Internet is becoming as vital to social and economic development as networks like transport, water and power. Broadband access – and the next generation broadband network infrastructure which underpins it – is a key enabler for economic and social growth... Broadband changes everything. It enables not just great new enabling applications, such as VoIP and IPTV, but also the delivery of essential services – from e-health to e-education to e-commerce to e-government. And broadband is helping us make great progress towards meeting the Millennium Development Goals – and improving the quality of life for countless people around the world.

The importance of ICT was also recognized by World Bank President Robert B. Zoellick in a speech to the African Union Summit in 2010:

ICT is a key enabler of productivity and creator of jobs. It can help farmers, small businesses, and those excluded from traditional banking services. It can extend and speed up government services. In Ghana, the introduction of IT systems and Business Re-engineering resulted in a drop in average customs clearance time from 2-3 weeks to 1-2 days and a 50%

increase in revenue. In Kenya, ICT slashed the number of days it took to register a vehicle from 30 to 1.

A new program focused on bringing ICTs to the developing world was introduced by the World Bank in 2008. This program, called New Economy Skills for Africa Program-Information and Communication Technologies (NESAP-ICT), supports the growth of Information Technology (IT) and IT-Enabled Services (ITES) industry in Sub-Saharan African countries. The NESAP-ICT program noted that ICTs transform the economy and peoples' lives and provided various examples, including:

*New jobs:* In India, the expansion of the IT-ITES industry over the last 15 years has added more than 10 million direct and indirect jobs. In South Africa, the industry has employed 100,000 workers directly and indirectly by 2009. In the Philippines, a projected 900,000 people will be employed directly or indirectly by IT-ITES by 2010.

*Economic growth:* In 2009, the Indian IT-ITES industry contributed an estimated US\$70 billion to the GDP or six percent share of total GDP. In the Philippines, the industry's contribution in 2010 is expected to reach US\$13 billion, or about eight percent of GDP.

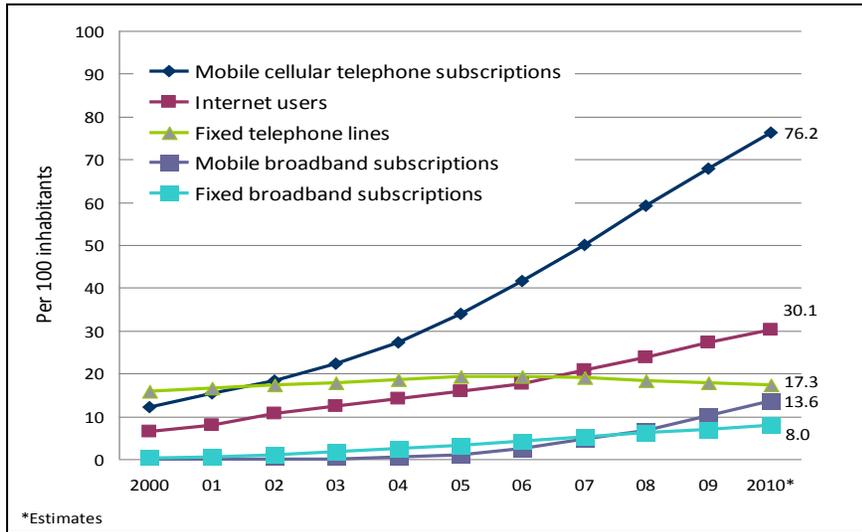
*Increased productivity:* The rapid spread of e-applications and digital tools to such diverse areas as manufacturing, transportation, logistics, finance, banking, governance, health, education and even in traditional sectors like agriculture is transforming the economies of developing countries. IT investments raise worker productivity three to five times that of non-IT capital. U.S. studies have shown that the IT-ITES industry was responsible for two-thirds of total factor productivity growth between 1995 and 2002 and for nearly all of the growth in labor productivity in that period.<sup>1</sup>

Clearly, ICTs can have an important impact on everyday lives and on general economic activity, but the opportunities only materialize fully to the extent that the regulatory framework, as implemented, supports and fosters both investment in and widespread diffusion of ICTs. Absent these conditions, the full promise of ICTs is unrealized. ICTs offer the prospects of rapid advancements, but if appropriate conditions are not in place, the outcome can be a rapid slide down the digital divide. And although the digital divide is narrowing,

particularly due to the rise of Internet-enabled mobile phones and applications, a new broadband divide is growing that governments need to address.

Figure 1.1 gives a snapshot of global ICT growth over the past decade, showing particularly the extraordinary success of mobile services.

**Figure 1.1 Global ICT Developments, 2000-2010**

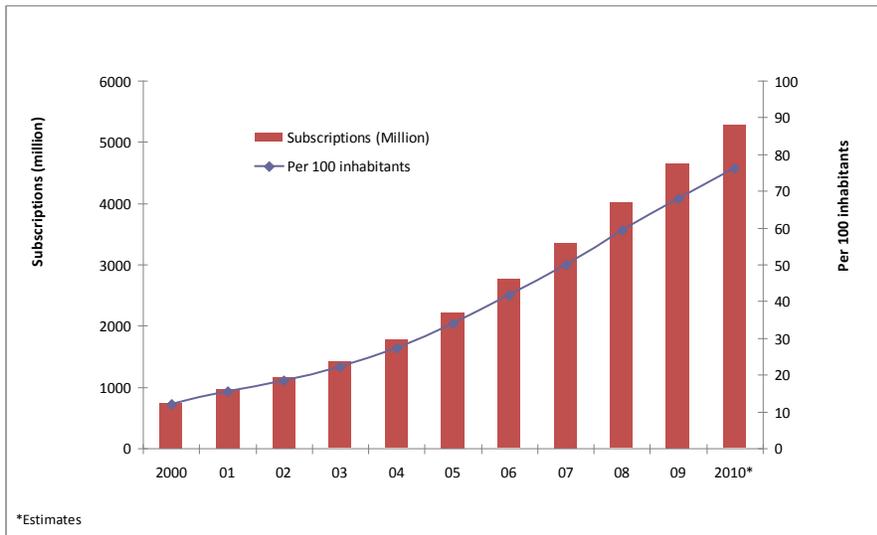


Source: ITU World Telecommunication/ICT Indicators database.

Mobile cellular has been the most rapidly adopted technology in history. In 2002, the total number of mobile subscribers in the world surpassed that of fixed customers. Mobile phone subscriptions worldwide grew from nearly 500 million in 1999 to

an estimated 4.6 billion at the end of 2009, translating into a growth in mobile penetration from 8 percent to 68 percent (See Figure 1.2). Today it is the most popular and widespread personal technology on the planet.

**Figure 1.2 Global Mobile Cellular Subscriptions, Total and per 100 Inhabitants 2000-2010**



Source: ITU World Telecommunication/ICT Indicators database.

The growth in internet users has also been remarkable, with more than a quarter of the world's population now using the internet.

But mobile broadband subscriptions overtook fixed broadband subscribers in 2008, highlighting the huge potential for the mobile internet.

The Asia-Pacific region is the largest mobile market in the world, and by 2013, Asia is expected to have almost three billion mobile subscribers. In 2009, China alone had 747 million mobile subscribers, which far exceeded the combined number of mobile subscribers in Japan and the United States at 115 million and 298 million subscribers, respectively. Sub-Saharan Africa had a mobile penetration rate of 42 subscribers per 100 people in 2009, translating into over 295 million mobile customers.<sup>2</sup>

Mobile phone handsets are now turning into smart-phones equipped with digital cameras, Internet-enabled video, pre-installed social networking applications such as Facebook and music juke box payment terminals. *Billboard* magazine publishes a list of top 20 ring tones, a market that generates billions of dollars in revenue. These new functionalities are transformational. For example, as digital cameras, mobile devices provide benefits such as instant news gathering or create harmful effects like facilitating industrial espionage. Their internet-enabled video, access to social networks and music capability brings them into the realm of media, copyright and internet governance. As a component of the banking system, the mobile network can provide services where the financial network is weak, but there is also the risk of banking fraud and identity theft. These widely used electronic consumer devices now straddle several regulatory jurisdictions, raise new legal issues, and present new challenges to existing regulatory frameworks. From a government standpoint, the challenge becomes how to sustain investment and promote widespread diffusion of technologies, while protecting the legitimate interests of all players, particularly consumers.

ICTs have significantly affected business operations where a large number of new, non-OECD countries have successfully entered the market. This is particularly the case for software and IT-enabled services. Market entry is partly explained by the "death of distance" or the dramatic fall in the costs of international connectivity. The latest manifestation is the proliferation of broadband access networks. Broadband can carry huge quantities of data, at very high speeds. Although

postal and courier services can deliver large quantities of data (e.g., a truckload of CDs), they fail the speed test. To transfer the digital information contained in an average two-hour movie downloaded from Apple's iTunes takes about three days using a 56Kbps dial-up modem; two hours using a 1.5 Mbps connection; two minutes using a 100 Mbps connection; and 15 seconds using a 1000 Mbps (1 Gbps).

In the broadband world, large volumes of data can be moved almost instantaneously to widely dispersed locations at low cost. Through the application of ICTs, many services once considered non-tradable are now tradable, such as back-office functions including the management of employee benefits or dental records. "Out-sourcing" and/or "business process off-shoring" (BPO) have seen massive increases, amounting to a total addressable market estimated at US\$ 300 billion, of which about US\$ 100 billion was off-shored in 2010. In the BPO market, India is a tremendous success story. It has become the dominant player in the BPO market. India's BPO exports grew by 35 percent a year between 2005 and 2008, and employment in the sector increased from 42,000 jobs in 2002 to an estimated 700,000 people in 2008.<sup>3</sup> The global economic downturn of 2009 saw a slowdown in the market but prospects for future growth remain. Other countries like the Philippines, Brazil, Romania and Ireland have also been particularly successful in attracting investment and creating employment from BPO-related activities. These successes have come about due to a commitment from the government to foster and support these activities by implementing necessary policies and developing the supporting regulatory framework. In the case of India, government policies and reforms, including telecommunications reforms implemented in 1999, established the foundations for these new activities.

The use of ICTs in e-government services is also transforming citizens' interactions with the public sector by improving efficiency, effectiveness and accountability of governments. In India, for example, a comparison of manual and e-government services found that computerized services substantially increased cost-savings and access to services. The survey showed that e-services lowered travel costs, made delivery of services more predictable, decreased waiting times, reduced corruption and generally improved overall quality of service.<sup>4</sup>

Although ubiquitous and open networks produce great gains for society as a whole, they also increase our vulnerability. Maximizing the connectivity and openness of networks requires regulators to create new laws in several areas, including privacy and data protection; protection of children online; and prevention of cyber crimes such as identity theft. Regulators must also ensure that law enforcement techniques evolve with technology in order to continue protecting society against those who would take advantage of these vulnerabilities. This requires adequate provisions for emergency services and lawful interception (i.e. “wiretapping”).

### 1.2.3. Innovative Technologies and Services

All ICT organizations have legacy assets, some more than others. The evolving regulatory frameworks have facilitated or even encouraged the introduction of new technologies and services. Ideally, ICT organizations would like to manage the transition to new technologies in a way that allows them to optimize their returns on legacy assets. The reason is that new technologies disrupt (or make obsolete) pre-existing business plans and thereby the value of legacy assets. In economic terms, this is an example of a “Wave of Creative Destruction” in which disruptive technologies can bring wider choices and lower prices for the consumer.

Innovative technologies and NGNs may offer substantial opportunities for incumbents with limited legacy assets, as is the case in many developing economies. But for those with significant legacy assets, innovative technologies and services may be very disruptive if incumbents do not remain competitive and continue to innovate. Chief executive officers in many developed economies may be forced to choose between competing with their own businesses and having another company doing it. The threat of innovation may also cause some strong incumbents to adopt delaying tactics. The extent to which they can adopt such tactics depends largely on the effectiveness of implementing pro-competitive regulatory frameworks. However, innovative technologies and NGNs can benefit incumbent service providers through the lower cost of using more efficient technology. They also allow providers to compete in new service areas in order to offset declines in tradition lines of business.

Incumbents are also facing disruptive elements in cases where, frustrated by existing suppliers, local governments and municipalities are constructing their own networks, sometimes using the “open access” model and the “bottom up” development of applications. For example in Ottawa, Canada, local residents are able to purchase their fiber connections directly from the municipal government, which has built and continues to subsidize fiber network. Such “open access” models are also gaining currency in international networks.<sup>5</sup>

The process of managed transition is becoming more difficult in the current ICT environment for at least two reasons. First, the rate of change in technology is increasing. Second, the organizations introducing the new technologies are not necessarily members of the traditional telecommunications community, but innovators that may not play by the same rules. Established organizations as well as new entrants are arming themselves with different business models like “triple or quad play,” “always on,” “flat charges,” “all you can eat,” or even “free.” These business models differ from the more traditional models where a limited range of services or a single service are offered at prices based on distance and time. In some instances, the provision of voice services is ancillary to the main line of business of the new entrant. For example, the voice version of Yahoo! Instant Message service is not the core business of the company.

Voice over Internet Protocol (VoIP) is an example of an innovative and disruptive technology (see Chapters 5.6). VoIP demonstrates that the basic premise of traditional voice telephony – the network and voice services must be owned and operated by the same firm – is no longer relevant. VoIP is disrupting the pre-existing business plans of traditional telephone service providers and is being introduced by firms outside the traditional community. For instance, Google launched its Google Voice service in March 2009. Rather than own or operate any part of the underlying network, Google simply offers an application that gives users one phone number for all of their phones, provides free long distance within the United States and has low international calling rates. As a result of this and other examples, traditional operators are responding.

Another innovative and disrupting technology is Internet Protocol television (IPTV). By providing video services, such as live television channels and video-on-demand, as well as interactive services,

over an IP platform, IPTV allows traditional telephone service providers to compete with terrestrial over-the-air broadcasters, cable television operators and satellite television providers.

ICTs have transformed many other activities, notably the media and the creative industries (see Chapter 7.2). Traditional broadcast media offer limited “mass fare” to mass audiences, due to the economics of the sector and radio spectrum restrictions. Cable and satellite platforms have expanded choice for television and radio by offering services such as video-on-demand. However, new technologies expand choice even further and are able to cater to targeted audiences. The combination of broadband (wired or wireless), the digitalization of media content, and the falling costs of producing digital content herald an age of abundance. The falling costs of producing media has placed digital content production, including documentaries, entertainment, news, music, blogs, in the hands of many and has created a bottom-up trend.

The introduction of broadband and the switch to digital from analogue broadcasting will increase delivery capacity enormously in comparison to traditional broadcasting. New content producers have a means of distributing their creations instantly and globally (see Chapter 7.3). Content can be customized to the personal tastes of an individual rather than be defined for a mass audience. Many observers are focusing on the “long tail” of digital content in which a large number of unique services, content or applications are sold in relatively small quantities. Although there are still services and items that large numbers of people will wish to purchase, many small providers and developers can become successful by selling their products to niche markets. With broadband, this “long tail” of niche media content has found a highly receptive audience, for example, through the popularity of the video-sharing site “YouTube.” Apple’s iPhone App Store provides another example of how small developers are finding great success by targeting the “long tail.” After a developer completes a relatively simple process for developing and getting approval for a new application, iPhone subscribers are able to search through and download these specialized applications at fees set by the developer. By the end of 2009, there were more than 125,000 developers in Apple’s iPhone Developer Program and subscribers had downloaded over two billion of their applications.<sup>6</sup> This continued abundance of choices in existing and new digital content, produced and

distributed at rapidly falling costs on converged platforms, presents new disruptive challenges to both existing players or “majors” (content producers and distributors) and regulators.

The rapid increase in content choices for consumers and the speed of delivery through broadband connections are also transforming social and cultural landscapes. For example, broadband helps to reduce carbon emissions through environmentally-friendly business practices such as remote management of equipment, telecommuting and live video-conferencing and can result in a reduction of carbon emissions five times greater than the emissions that the ICT industry produces (see Chapter 7.8). The growth of innovative technologies, NGNs and convergence promises to become a disruptive force for the way individuals interact with one another in society.

## 1.3. Why Regulate?

### 1.3.1. Evolution of Regulatory Reforms

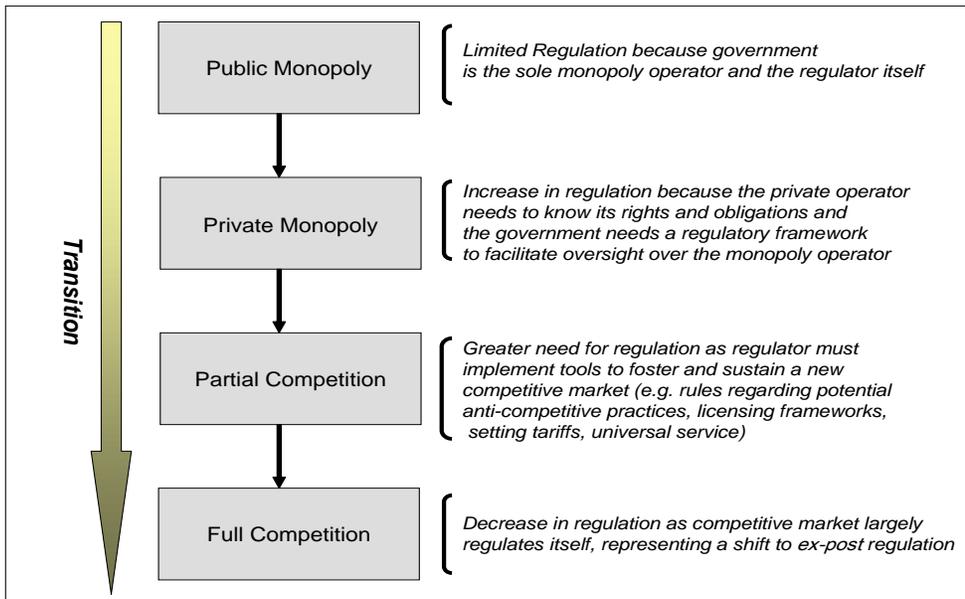
The need for regulation varies depending on the conditions of the marketplace. While the design of the regulatory framework may differ, certain critical elements should be included in an effective regulatory framework, such as the functional aspects of the regulatory authority; decision-making processes; accountability; consumer protection, dispute resolution and enforcement powers. Consideration and proper implementation of these features are key elements for creating an enabling environment for development of the sector and for increased consumer welfare.

In the 1990s, many countries introduced the first wave of reform by privatizing their national operators. Until that time, telecommunications services were largely provided under monopoly conditions and thus limited regulation existed because the government was acting as both operator and regulator. In the very initial stages of liberalization, some countries have created a regulator when introducing a private monopoly. These regulators oversee the sector and ensure that the private operator knows and can comply with the “rules of the game.” In the second wave of liberalization, which sometimes occurs simultaneously with privatization, governments typically authorize the entry of new service providers and new services (e.g., mobile services and value-added services) into the market. Generally, this

involves the modification of the licensing framework in order to allow the entry of the new players, as well as the introduction of complementary rules and

regulations to allow these operators to participate in the marketplace.

**Figure 1.3 Need for Regulation**

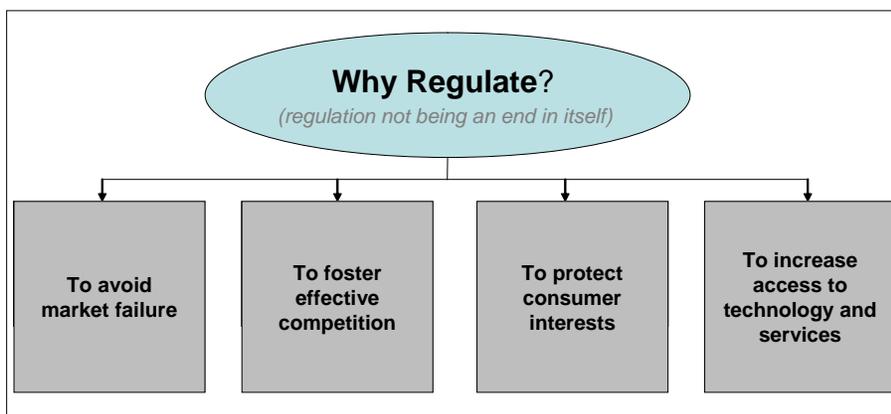


Source: ICT Regulation Toolkit.

The third wave of liberalization occurs when the incumbent operator’s exclusivity period ends and full competition can be introduced. With the introduction of full competition, the role of the regulator actually increases (see Figure 1.3), particularly during the early stages of transition from

the former monopoly to effective competition. As noted in Figure 1.4, regulation is not an end in itself, but rather a vehicle to attain, and subsequently sustain, widespread access, effective competition and consumer protection.

**Figure 1.4 Goals of Regulation**



Source: ICT Regulation Toolkit.

To transition to an effective, competitive environment, regulatory reform must include measures aimed at: (i) creating functional regulators

to oversee the introduction of competition; (ii) preparing the incumbent operator to face competition (e.g., deadlines for market exclusivities);

(iii) allocating and managing scarce resources in a non-discriminatory way; (iv) expanding and enhancing access to telecommunications and ICT networks and services; and (v) promoting and protecting consumer interests, including universal access and privacy.

Once a fully competitive environment is attained, it is generally agreed that a more limited need for regulation exists. In certain areas such as universal access and service, however, market forces often fall short of creating the conditions necessary to satisfy public interest objectives and thus regulatory intervention is required. Similarly, regulatory agencies must ensure that spectrum is properly managed and allocated.

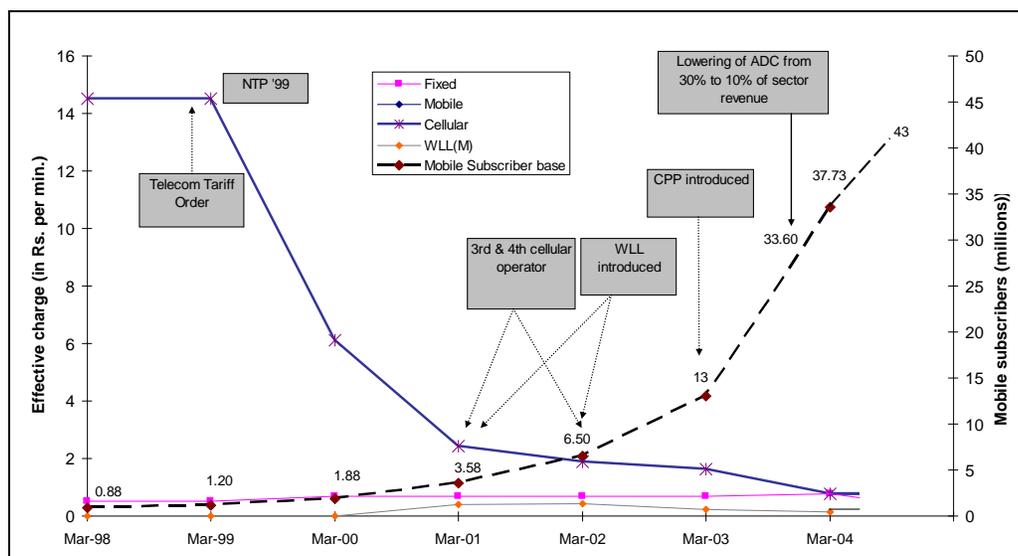
Moreover, despite the benefits of new technologies, regulators also must be attentive and responsive to the regulatory issues that arise from the implementation of these new technologies and their related services. For example, regulators are currently grappling with issues such as spam and consumer concerns regarding privacy, which were not issues of concern to regulators 10 years ago. In addition, governments are reviewing their regulatory structures to determine whether their current

organizational structures are best suited for regulating a converged marketplace with multiple services offered by the same platform.

Likewise, regulators are realizing that their existing regulatory frameworks may impede the ability of operators to make triple or quadruple play offerings to consumers or use low-cost Voice over Internet Protocol (VoIP). Similarly, numerous governments are currently holding consultations regarding digital television in order to assess what standard should be used for such services. In addition, regulators should ensure that consumers are made aware of potential limitations associated with new technologies (e.g., emergency services may not be available through such services, and services offered may be of lower quality).

The implementation of an effective regulatory framework has resulted in greater economic growth, increased investment, lower prices, better quality of service, higher penetration, and more rapid technological innovation in the sector. In fact, investors consider the regulatory environment to be a critical factor in their analysis of whether or not to invest in a country.

**Figure 1.5 The Impact of India's Regulatory Reforms on Mobile Penetration and Price**



Source: Telecom Regulatory Authority of India.

As shown in Figure 1.5, the Telecom Regulatory Authority of India (TRAI) has made a comprehensive reform of the regulatory framework to promote technological neutrality and take advantage of inter-modal competition. These

regulatory efforts have brought economic growth to the sector and produced a marked increase in mobile subscribers and a fall in mobile tariffs. In 1999, when its New Telecommunications Policy was adopted, India had about 1.2 million mobile

subscribers, and effective charges were 14.51 Rs./minute. Pro-competitive and liberalization-oriented policies, such as issuing additional mobile licenses in 2001 and 2002, and awarding Wireless Local Loop (WLL) licenses in 2002, had a positive effect both on penetration and prices. As of December 2009, mobile subscribers had increased to 525 million and prices had dropped to 0.64 Rs./minute.<sup>7</sup>

Similarly, lower prices for international telephone calls, for example, are also highly correlated with the level of competition. Regulators must often intervene to remedy shortcomings in competition and ensure that competition is working effectively. In certain cases, this includes imposing some form of regulation, such as rules related to: interconnection charges requiring incumbent operators to charge competitive operators wholesale cost-oriented rates; liberalizing the international gateway; and eliminating restrictions on resale to

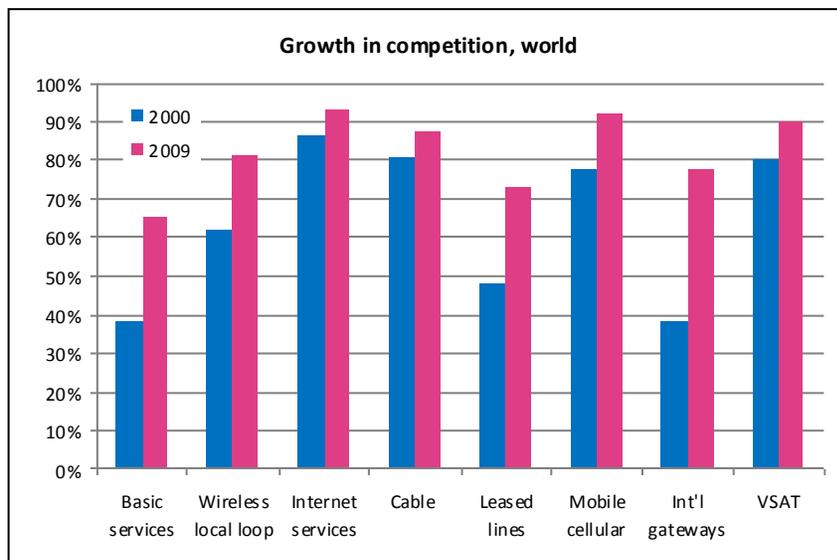
allow entry of multiple operators and greater competition.

### 1.3.2. Benchmarking Competition

As discussed above, liberalization and fostering competition are the best means to ensure efficient and high quality services at low costs, and thus, are key regulatory objectives. This once radical message has become mainstream around the world. This section benchmarks the level of competition in key sectors, worldwide and by region. The analysis compares the level of competition in:

- Local service
- Domestic long distance
- International long distance
- Mobile
- Internet services
- Leased lines

**Figure 1.6 Growth in Competition in Selected Services between 2000 and 2009**



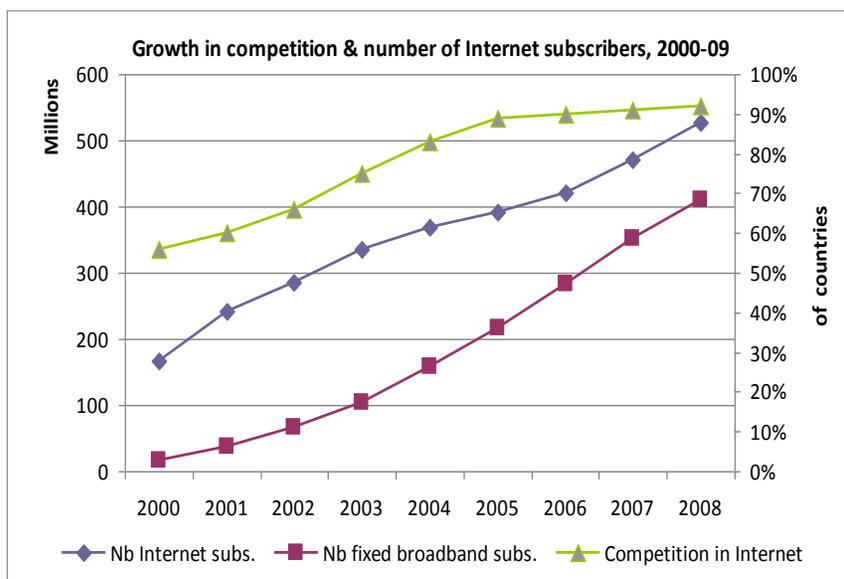
Source: ITU World Telecommunication/ICT Indicators database.

### Worldwide Comparison by Sector

The trend towards liberalization is evident in the data (see Figure 1.6). According to ITU data, as at the end of 2009, over 65 percent of countries worldwide have either full or partial competition in basic services (local, long distance and international services). Competition in mobile and internet

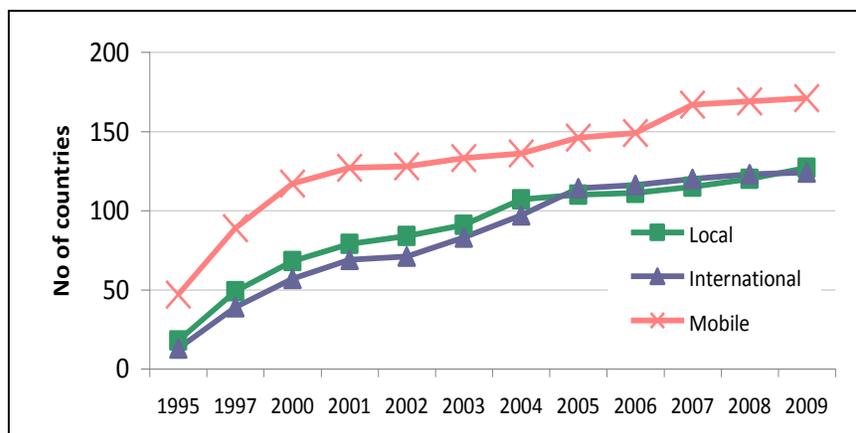
services is extremely common – 90 percent of countries have either partial or full competition in the mobile sector and 93 percent in the internet services sector (see Figures 1.7 and 1.8). Leased lines show a similar pattern to the local, domestic long distance and international sectors discussed below. In most regions, the majority of countries have introduced some degree of competition.

**Figure 1.7. Internet Subscribers and Growth in Competition between 2000 and 2009**



Source: ITU World Telecommunication/ICT Indicators database.

**Figure 1.8 Growth in Competition in Local, International and Mobile, 1995-2009**



Source: ITU World Telecommunication/ICT Indicators database.

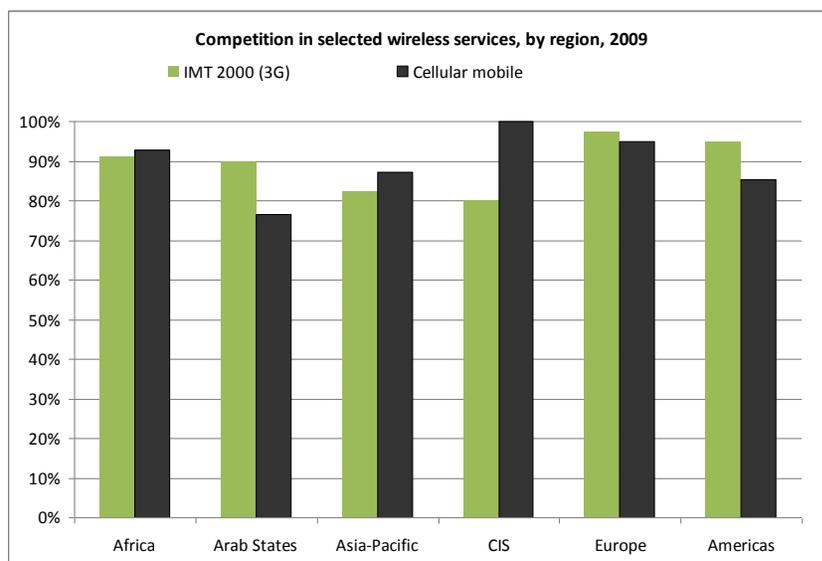
*Local Service*

Monopoly provision of local service is still prevalent, particularly in Africa and the Arab States, where 44 and 57 percent of countries respectively have a monopoly local service provider. The data show significant competition in Europe and the Commonwealth of Independent States (CIS), where 82 percent of countries report full or partial competition in local service. This reflects the significant impact of the European Union’s competition policy and telecommunications requirements.

*Domestic Long Distance*

The picture for domestic long distance is very similar to the local service sector. Approximately 40 percent of African countries and 52 percent of Arab States have a monopoly in the provision of domestic long distance services. Approximately 60 per cent of countries in Asia-Pacific, 83 percent of countries in Europe, 55 per cent in the CIS and 66 per cent of countries in the Americas, report full or partial competition in this sector.

**Figure 1.9 Competition in Selected Wireless Services by Region, 2009**



Source: ITU World Telecommunication/ICT Indicators database.

#### *International Long Distance*

Competition is more widespread in most regions in the international long distance sector than in local and domestic long distance. In Africa and the Asia Pacific region respectively, 55 and 58 percent of countries have introduced full or partial competition for international calls. In the Americas, 71 percent of countries, in Europe 88 per cent and in the CIS 64 per cent, have full or partial competition in this sector. The Arab States show a higher level of monopoly in this sector compared to other regions (57 percent of Arab States report a monopoly).

#### *Mobile*

All regions show a high degree of liberalization in the mobile sector (see also Figure 1.8). 93 per cent of countries worldwide have introduced full or partial competition, with Europe, CIS and Africa leading the way (See Figure 1.9). Competition is accompanied by sector growth, as illustrated by the case of Jamaica (see Box 1.1).

#### *Internet Services*

Unsurprisingly, the Internet services sector is by far the most competitive of the sectors surveyed. Over 90 percent of countries in Africa, the Americas and the Asia Pacific region, and all of Europe and the CIS have either full or partial competition in the

Internet services sector. Over 78 percent of Arab States have introduced competition.

## **1.4. Regulatory Organizations**

### **1.4.1. Elements for an Effective Regulator**

The aim of a regulator is to ensure that the sector is working properly and that consumer and other stakeholder interests are protected in a fair and balanced manner. An effective regulator is the vehicle to ensure credible market entry, as well as compliance with and enforcement of existing regulations. To achieve this, governments must create and maintain an environment conducive to good governance and regulatory success.

Independence is a critical attribute for a regulator to be effective. Effectiveness, however, has additional dimensions (see Figure 1.10). In a broad sense, an effective regulator is structurally and financially independent, but the real effectiveness of the regulator will depend on how it achieves successful functionality, ideally in an independent and autonomous manner. In addition, an effective regulator should demonstrate other characteristics, including accountability, transparency and predictability.

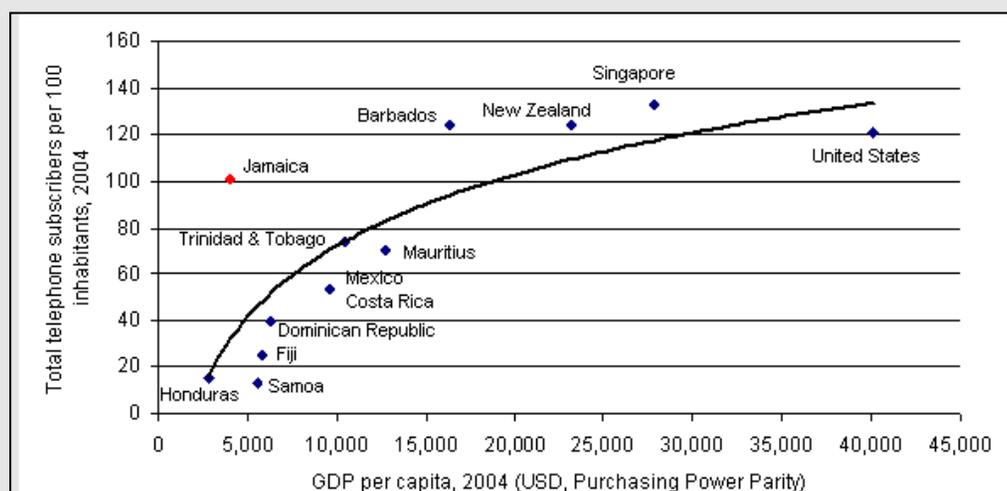
### Box 1.1 Jamaica: The Benefits of Mobile Competition

Jamaica liberalized its telecommunications market in 2000 by licensing two new mobile operators, Digicel and Oceanic Digital Jamaica. Prior to the liberalization Cable & Wireless, Jamaica (renamed LIME in November 2008) was the sole provider of both fixed-line and mobile services.

The impact of the two new players had a tremendous impact on the sector. In particular it led to explosive growth in mobile usage with the total mobile subscriber base jumping from 144,000 in 1999 to over 1.5 million in 2005. This growth underpinned a significant increase in the Jamaica's total teledensity, which leapt from 43.53 telephones per 100 people in 2001 to 100.90 in 2004. By 2009, mobile subscribers had doubled again to nearly 3 million.

In 2004 Jamaica's teledensity exceeded what would be expected based on its GDP per capita, comparing favorably to countries with much higher GDP per capita, such as New Zealand, Singapore and the United States.

#### A 2004 Snapshot: Cross-Country Comparison of Teledensity by Income



The new competing mobile carriers introduced innovations into the Jamaican market, such a pre-paid service, which made it easier for customers to access telephone services. Previously to obtain a telephone service a customer had to fill out various forms, have a formal address and make a substantial deposit. The pre-paid option did not require a deposit, which by its very nature allowed customers the flexibility to have control over their budget. This was particularly attractive to low income customers, and appears to have been a major driver behind the increase in teledensity.

Competition has severely reduced LIME's share in the mobile market. LIME has gone from being the sole provider of mobile service to a market share of 31% in 2005 and about 22% in 2009. Its main competitor, Digicel, captured 62% of the market by 2005 growing further to over 65% by 2009. In fact Digicel's growth has been so tremendous that LIME has approached the regulator requesting that Digicel be declared to have significant market power.

Interestingly, in 2004 Trinidad and Tobago had a teledensity substantially lower than Jamaica's. Although Trinidad and Tobago's per capital GDP was more than twice that of Jamaica, it had not yet liberalized its telecommunications market by 2004. By 2009, the number of mobile subscribers in Jamaica has doubled again to nearly three million (109 subscriptions per inhabitant), an annual growth rate of over 10%. But in newly liberalized Trinidad and Tobago mobile subscribers grew between 2004 and 2009 at nearly 25% pr year, resulting in nearly two million subscribers (147 subscriptions per inhabitant).

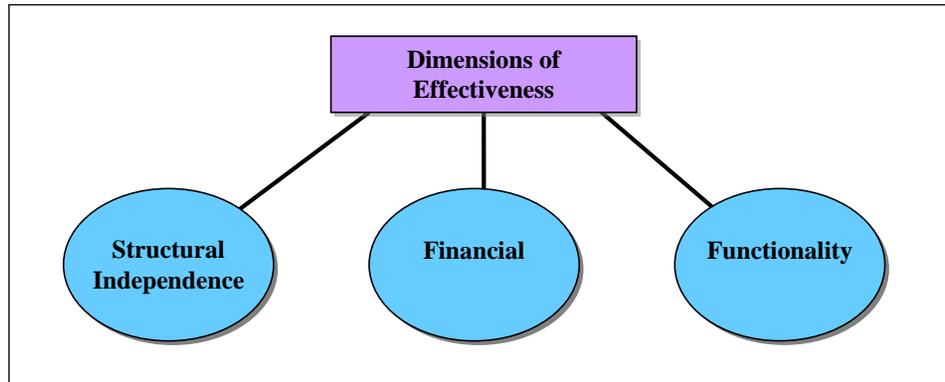
Source: ITU World Telecommunication/ICT Indicators database.

### 1.4.2. Structural Independence

The WTO Reference Paper, which requires countries to establish a regulator separate from the operator, has prompted many countries to establish a structurally independent regulator that separates the function of regulating the telecommunication

market from that of supplying services. Providing a regulator with structural independence reduces the possibility of political or industry capture. When a regulatory body bows to external pressure from operators or other government entities, it often lacks independence and its decisions are neither objective nor transparent.

**Figure 1.10 Dimensions of Regulatory Effectiveness**



Source: ICT Regulation Toolkit.

### 1.4.3. Financial Independence

In addition, the funding sources and budgeting processes of regulatory authorities also can have an important impact on their independence, efficiency and the cost of regulation. The source of a regulatory authority’s funds and the process by which these funds become part of the authority’s actual budget can directly impact the degree of a regulator’s autonomy and competence when carrying out its responsibilities. While a regulator’s budget may come from the government or from the telecommunications sector itself through licensing fees, fines and other administrative charges, the key element is that funding should be free from political and private interest influence.

In certain countries, the regulator’s budget is part of the government appropriations allocated to the ministry under whose authority it resides. In these cases, the government’s authority to determine the budget gives it a degree of direct influence and intervention, or at least the appearance of such, over the policies and regulations the agency may wish to implement. This may reduce the agency’s effectiveness in regulating the telecommunications sector.

On the other hand, relying on multiple sources of funding rather than solely on government appropriations allows regulators to have more financial independence and can make them less subject to outside influences. Regulators, in countries such as Bahrain, Botswana, Brazil, Nigeria, Tanzania and Uganda, have been granted financial independence, coupled with the authority to manage and administer their own funds. This has been found to give regulatory agencies more regulatory

certainty so that they can assert more independence in regulating the sector.

### 1.4.4. Functionality

Despite its best efforts, a government may establish a regulator that is structurally and financially separate from the other branches of government, but yet fails to function in an effective manner. In contrast, a regulator may not be legally separate from the other government agencies, but may have functional effectiveness. Unfortunately, no single feature can ensure functionality. Rather, functionality is predicated on a combination of elements such as well-defined functions and responsibilities; appropriate decision-making authority and enforcement and dispute-resolution powers; clear rules regarding the appointment, removal and mandate of the regulatory authority; incentives to promote professional expertise of the staff; and adequate provisions to address ethical and conflict-of-interest concerns. Functionality is also predicated on regulations that guarantee the consistency, timeliness and accountability of the regulator’s decisions, as well as procedures to ensure transparency and public participation in the regulatory process. Without functional effectiveness, it is difficult, if not impossible, for a regulator to attain the necessary credibility among participants in the sector and potential investors.

### 1.4.5. Organizational and Institutional Approaches to Regulation

#### Separation of Powers and Relationship of Regulators with Other Entities

The mandate and competencies of the regulatory authority as well as its relationship with government and other market players depend on the delegation of powers by the state. The degree of delegation of such powers is determined by the legal tradition of the country and the political will to create an independent and effective regulatory authority. These factors influence the specific responsibilities, authority, and accountability for the performance of the regulator's specific activities.

Although complete "independence" is nearly impossible to attain, the regulator should have sufficient independence to implement regulations and policies without undue interference from interested parties such as politicians or other government agencies (functional independence). The institutional regulations put in place by laws and regulations as well as the administrative structure of the regulatory authority are critical to ensure such independence, as such, the degree of independence differs considerably from country to country.

The most common institutional structure currently used is the establishment of an independent regulatory authority with responsibility for implementing and administering the regulatory framework, leaving policymaking responsibilities to a particular ministry (See Table 1.1).

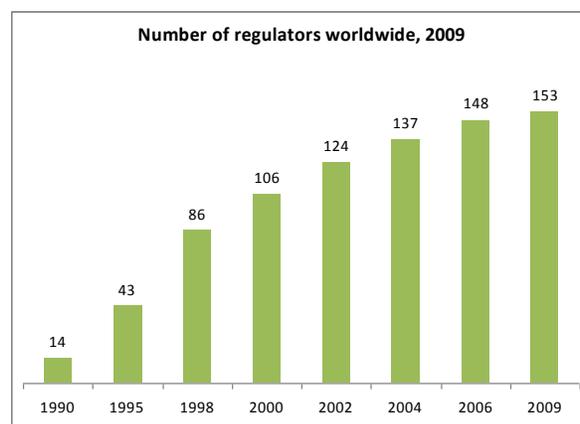
**Table 1.1 Regulatory Institutional Structures**

FUNCTION	RESPONSIBLE ORGANIZATION
Policy development	Government, ministry or executive branch
Regulation	Separate regulatory authority
Network operation/service provision	Privately and/or commercially operated telecommunications operators

However, it should be noted that independence does not mean that regulators should function in a vacuum, particularly in countries where the legal and judiciary infrastructure is weak. Independence must be balanced with clearly identified requirements for

accountability. This involves establishing: (i) detailed policies and laws setting forth explicit objectives governing the regulator; (ii) specific requirements for reporting to the government or parliament; (iii) procedural requirements; and (iv) the possibility of judicial review.

**Figure 1.11 Growth in the Number of Regulators Worldwide**



Source: ITU World Telecommunication/ICT Indicators database.

At the end of 2009, 153 countries and administrative regions had created a national regulatory authority for their ICT and telecommunication sectors (see Figure 1.11). Africa now has the highest percentage of countries with a separate sector regulator (91 per cent) followed by the Americas (89 per cent) and Europe (88 per cent). The Arab States and Asia-Pacific number 70 per cent and 62 per cent, respectively, and CIS countries 50 per cent.

#### Institutional Design Options

Once the regulator's mandate and competencies have been established, it is important to determine the regulator's institutional design, as well as its relationship with the government, industry, and the public. The institutional design of the regulator affects the structure of the regulator, including its leadership and management organization and its organizational and administrative structures.

Countries have considered four main institutional design options when faced with the task of designing and creating telecommunications regulatory entities: (i) single-sector regulator; (ii) "converged" regulator; (iii) multi-sector regulator; and (iv) no specific regulatory authority per se but rather a general competition authority with responsibility for overseeing the telecommunications sector.

No institutional design per se guarantees the successful functioning of the regulator, but when designing the institutional structure, the following important principles should be kept in mind.

- Regulators must be perceived by industry to be independent – thus the importance of transparency and accountability of the regulator.
- Regulators should have the expertise to assess and make sound judgments on both technical and industry-specific issues – thus the importance of appropriate appointment and staffing mechanisms.
- Regulators must take into account various viewpoints and interests, including economic, social, and political objectives. This balance should be reflected in the institutional structure and in the system of checks and balances.
- The institutional design, internal structure, and administration must be sufficiently flexible to allow the regulator to respond to market realities.

### **Single-Sector Regulator**

The single-sector regulator's sole function is to oversee the telecommunications sector. This type of organizational structure focuses mainly on the telecommunications (and sometimes postal) sector, with other government entities responsible for broadcasting and information technology issues.

A key advantage of this option relates to staffing, since the staff is specifically dedicated to telecommunications issues. This establishes a core of specialized professionals with a strong set of legal, policy, engineering, and technical skills focused on sector issues.

Another benefit of single-sector regulators relates to the origin of their staffing. In many cases, single-sector regulators tend to initially inherit staff from the former state-owned post and telecommunications companies (PTT). They therefore have a core of specialized professionals from the start with a thorough understanding of the technical issues and strong engineering skills, which is a key advantage when dealing with complex network issues. Opponents of the single-sector regulatory structure argue that the origin of this specific skill set is, in fact, one of the key

disadvantages of establishing a single-sector regulator. These critics argue that staff could be biased in favor of the incumbent operator, and thus more subject to capture by dominant forces. While this is an issue to be considered, it is not unique to the single-sector regulator as discussed below.

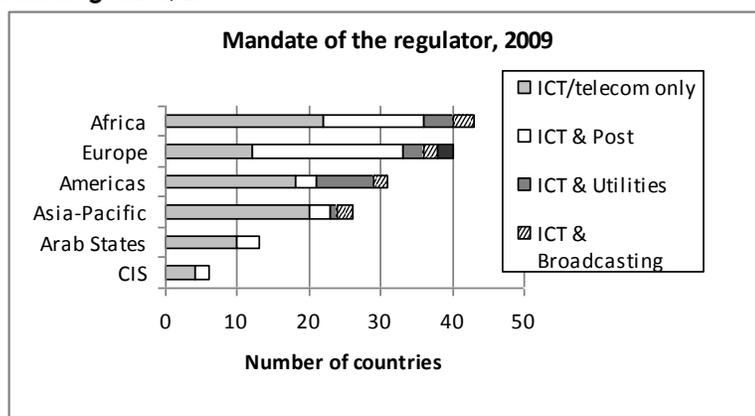
An additional disadvantage of having a regulator focused on the telecommunications sector alone (or for any other single sector) is that too many regulators are created for different sectors, thus leading to a higher cost of regulation. Similarly, and especially with convergence in the ICT sector blurring the boundaries between industries, overlapping responsibilities between sector regulators has also become an issue. This overlap may sometimes lead to duplication of regulations and require authorizations for what are essentially similar services being offered to the public.

The challenges of convergence have led several countries to move away from single-sector regulators and evolve towards a converged regulator, thus merging agencies in charge of the various aspects of the communications sector.

### **Converged Regulator**

With a converged institutional design, all communications services i.e. telecommunications, including radio communications, broadcasting and media (and in some instances postal services), are under the umbrella of one agency. Several countries such as Austria, Italy, Finland, the Netherlands, Saudi Arabia, Singapore, South Africa and the United Kingdom, have followed the route of converging their institutions dealing with the ICT sector, typically combining formerly discrete agencies responsible for telecommunications, broadcasting or information technology into one entity.

The converged regulator, like the single-sector telecommunications regulator, tends to be strong in specialized engineering skills in the communications sector, a critical skill set to deal with complex network issues. In addition, the converged communications regulator also meets the challenges posed by service convergence, overcoming one of the main disadvantages of a single-sector regulator (i.e. a regulator overly focused on the telecommunications sector).

**Figure 1.12 Mandate of the Regulator, 2009**

Source: ITU World Telecommunication/ICT Indicators database.

For internal administrative purposes, this model provides greater flexibility and is administratively simpler, given that all services are within one government agency, and the staff responsible for specific services can work with other offices of the regulator that are dealing with related issues. Moreover, a more consistent approach can be taken within the regulatory authority as it adapts to changing technologies and their effect on legacy regulations. In addition, as the regulatory mandate is broadened to accommodate convergence, fewer individual regulators are deemed necessary, therefore resolving some of the overlap of regulatory functions and bringing down the cost of overall regulation.

### **Multi-sector Regulator**

Despite a growing trend toward establishing converged regulatory agencies, the majority (56 per cent) of regulators worldwide have authority only over telecommunications. In some cases, they also have regulatory functions in traditionally adjacent markets, such as postal and information services (see Figure 1.12). This is true for more than half of European countries and a third of countries in Africa and CIS.

Apart from general global trends, different regions have their own particular characteristics. Notably, no regulator in CIS and Arab States is responsible for regulating either broadcasting or utilities. In Europe, CIS and Africa, regulation of postal services has been part of the core mandate of at least a third of sector regulators. Latin America stands out with the highest concentration of multi-sector regulators

Multi-sector regulators oversee not only the telecommunications sector, but other industry sectors with common economic and legal characteristics (e.g., telecommunications, water, energy, and transportation). Costa Rica, the Gambia, Jamaica, Latvia, Luxembourg, Niger and Panama, as well as state public utility commissions in individual states in the United States, have chosen this type of organizational structure.

One of the main arguments generally raised in favor of a multi-sector regulator is based on the perceived lack of resources and the need for economies of scale to effectively regulate the different infrastructure industries and sectors. It is often argued that with this type of structural organization, one set of staff can be used to oversee a variety of industries. As the cases of Belize and Luxembourg demonstrate, however, staff are generally recruited in terms of the sector it is regulating, and only legal and occasionally economic staff are pooled to deal with specific issues that occur across the sectors. Many issues, such as tariffing or spectrum management, are not transferable between sectors.

In addition, the suitability of a multi-sector regulator to properly address next generation communications technologies and services has been questioned. This is because a risk exists that, where economists and legal experts are shared across the utilities sector, the pool of expertise will become more diluted, thus compromising the capability and ultimately the credibility of the regulator.

Another disadvantage of this model is that often the telecommunications sector is the most liberalized under the auspices of the multi-sector regulator. It therefore can be negatively affected if it is regulated

in an environment with utilities that are progressing at a different pace, where the needs and priorities are different. Moreover, by adding sectors, such as electricity and gas, that do not always produce revenues for the regulator, the telecommunications sector may bear a disproportionate share of the costs of regulation, potentially driving up regulatory costs for telecommunications providers.

Supporters of this model argue that having a multi-sector regulator can reduce political and other influences regarding the decision-making process as opposed to, for example, the single-sector regulator. Despite such claims concerning “capture” (meaning undue influence by politicians and/or dominant players), this does not necessarily seem linked to the institutional design option *per se* but is more a product of whether a clear set of “checks and balances” is incorporated in the design of the regulator.

### **No Specific Telecommunications Regulatory Authority**

An alternative institutional approach is to decide not to create any telecommunications-specific regulator, but instead rely on the application of competition and antitrust rules rather than on detailed sector-specific rules and institutional designs.

This model is inexpensive and simple to implement. Moreover, reliance on economy-wide rules and institutions to regulate the sector promotes a coherent treatment between telecommunications and other sectors. Another advantage is that there is less risk of political capture where the judges are ultimately in charge of enforcing economic regulation in the telecommunications sector.

Among the disadvantages of this option is that non-specialized judges are ill-equipped to deal with complex telecommunications regulatory issues. Indeed, sector-specific issues such as interconnection and number portability may be difficult to resolve in the absence of sector-specific requirements.

Today, there is no actual functioning example of this model in any country. Indeed, until the passage of the Telecommunications Act of 2001, New Zealand was the only country implementing this model, as it had chosen to entrust antitrust authorities with the task of administering all rules controlling market power in telecommunications. Instead of sector-specific regulation, the regulatory regime for

telecommunications in New Zealand relied primarily upon general competition law, the Commerce Act 1986, to prevent anticompetitive behavior. The Telecommunications Act of 2001, however, established the position of a Telecommunications Commissioner, a specialist stand-alone commissioner within the Commerce Commission, to regulate the telecommunications sector. The commissioner resolves disputes over regulated services; reports to the Minister on further designations or specifications of additional services; and monitors and enforces the Kiwi Share obligations.

### **Different Organizational Structures**

Determining the ideal organizational structure for a regulatory authority requires an assessment of various factors, including the country’s needs and objectives; political environment; legal requirements; and available expertise in the labor market. Essentially, there are two models of leadership organization for regulatory authorities: (i) the collegial body (a board or commission composed of multiple members); and (ii) the single regulator (often given the title of chairperson or president). Each has its advantages and disadvantages, and variations of each model are in use around the world.

The collegial body model usually involves a board or commission made up of individuals with different areas of expertise, potentially bringing those varied perspectives to bear on each regulatory issue. In addition, a collegial body could be seen as more independent, as it is less likely that all members would be influenced by the same actors, whether in the government or the private sector. As in any decision-making process involving more than one actor, however, the development of regulatory decisions can be a slower process and more subject to internal struggle.

By comparison, the single regulator model has the potential benefit of a consistent approach to regulation and decision-making, as decision-making authority is vested in a single individual who may have a unified plan for the telecommunications sector. In contrast to the collegial body model, single regulators can make decisions much more quickly, even when constrained by due process regulations. However, the single regulator is also potentially more vulnerable to undue influence exerted by external actors, whether in the

government or in the private sector. In addition, a single individual may not be able to match the expertise of a collegial body made up of individuals from different backgrounds, although experienced staff can provide substantial expertise.

The number of regulators led by collegial bodies and single regulators continues to fluctuate as governments restructure their regulatory frameworks for the telecommunications sector. According to ITU data, approximately 75 percent of the regulators are collegial bodies with the remaining 25 percent constituting single regulators. Significant differences continue to exist between the balance of collegial bodies and single regulators across the various regions.

## 1.5. International Frameworks

Regulatory reform may accelerate in countries that make global and regional commitments to open their telecommunications markets to foreign investment and harmonize local legislation with that of other countries in similar geographic or economic situations. These commitments may also facilitate global or regional best regulatory practices, and provide telecommunications investors with a level of certainty and predictability.

### 1.5.1. Multilateral Commitments

Members of the World Trade Organization (WTO) have undertaken treaty obligations that directly affect the telecommunications sector. WTO obligations and commitments constitute legally binding obligations on members, enforceable through the WTO's binding dispute settlement process. As a result, the impact of WTO commitments on a country's regulatory framework can be seen through voluntary compliance of a member's commitments or as a result of enforcement through the WTO's dispute settlement mechanism. Periodic "rounds" of negotiations are used to progressively improve and extend the obligations and commitments.

The General Agreement on Trade in Services (GATS) is foremost among the WTO instruments relevant to telecommunications. The GATS consists, in part, of a basic text and annexes (the "framework"), which apply to all Members. The GATS Annex on Telecommunications recognizes that access to, and use of, public telecommunications networks are essential to the effective provision of services covered under GATS.

It requires WTO members to ensure that suppliers of scheduled services may access the "public telecommunications transport network and services" on reasonable and non-discriminatory terms. The 2004 panel ruling in the WTO dispute settlement case on Mexican telecom regulations confirmed the importance and legal weight of these guarantees.

In addition, GATS encompasses a set of schedules that contain market access commitments on specified services that are appended by each Member. Each Member may decide when, and to what extent, to commit on market access for telecommunications. In October 2010, a total of 108 Members had telecommunications commitments, the majority of which result from the basic telecom negotiations (1994-1997). Those negotiations established a basis for structural reform of the telecommunications sector by means of its concerted efforts at removing barriers to entry and competition. However, Members' commitments vary greatly from one schedule to the next. Which services are opened to competition and the types of restrictions maintained reflected the type of reforms in place or anticipated by each government at the time of the negotiations.

The negotiations on basic telecommunications also resulted in the Telecommunications Services: Reference Paper (see Appendix A). It was designed as template of a framework for sector regulation adapted to a competitive environment. The aim of the principles, from a trade standpoint, was to ensure the effectiveness and value of the market access commitments undertaken. Negotiated jointly by trade and telecom officials, however, it largely reflected best practice in pro-reform telecom regulation. Of the 108 WTO Members with telecommunications commitments, 82 had agreed to observe the Reference Paper principles by appending them to their schedules. The six principles of the Reference Paper have come to serve as a "checklist of success" of telecommunications reform in many countries. These principles relate to: (i) competitive safeguards; (ii) interconnection guarantees; (iii) transparent and competition-neutral universal service mechanisms; (iv) public availability of licensing criteria; (v) independence of regulators; and (vi) equitable procedures for allocation and use of scarce resources.

Further market opening is the objective in the current Doha Round of negotiations. At the time of

the July 2008 Package, 39 governments had made offers to improve their existing commitments or to commit for the first time in the telecommunications sector.

### 1.5.2. Regional Initiatives and Frameworks

Regional commitments also constitute an important driver of liberalization and harmonization of the telecommunications regulatory frameworks. In various continents, regional organizations have spearheaded regulatory reform efforts, creating enabling environments for development in the sector.

#### Europe

In December 2009, the Council of Ministers and European Parliament adopted a new Telecoms Reform Package, to be transposed into the national laws of the 27 European Member States by May 2011. The adoption followed two years of consultation with national regulators and users and two years of negotiation between the European Commission, the Council and the European Parliament.

The EU telecoms reform package comprises the Better Regulation Directive and the Citizens' Rights Directive. The Better Regulation Directive amends the 2002 Framework Directive and four principal specific directives: (i) the Access Directive; (ii) the Authorization Directive; (iii) the Universal Service Directive; and (iv) the e-Privacy Directive. The package also includes a new Regulation establishing a European Body of Telecoms Regulators (BEREC) to replace the informal European Regulators Group.

The reform package substantially strengthens competition and consumer rights in Europe's telecoms markets, facilitates high-speed internet broadband connections to all Europeans and reaffirms the objective of completing the single market for telecoms networks and services.

#### Americas and the Caribbean

Mercado Común del Sur (Common Market of Southern Cone or MERCOSUR), created in 1995, is the economic block formed by Argentina, Brazil, Paraguay, Uruguay, and República Bolivariana de Venezuela, with Bolivia, Peru, and Chile as associate member states. Although MERCOSUR does not have a single body of telecommunications rules or directives, decisions issued by the Common Market Council on relevant commercial matters governed

under the MERCOSUR treaty are later adopted into the national legislation of the member states. Working Subgroup 1 (SGT1), which is responsible for negotiating matters regarding communications, has issued several recommendations that have been incorporated into the national legislation of the member states in matters such as the provision of basic public telephone services in the bordering areas of MERCOSUR and the harmonization of certain spectrum bands, among others.

The Inter-American Telecommunication Commission (CITEL), an entity of the Organization of American States (OAS), focuses on promoting the development of Telecommunications and ICTs in the Americas. CITEL serves as a permanent forum that brings together government and the private sector for coordinating the Member States' diverse political, economic, social and technical perspectives required to assist in meeting their specific infrastructure needs. CITEL's evaluations include relevant legal, regulatory and technology-related issues such as universal access to ICTs, common standards, network interoperability, and compatible use of the radio spectrum. These CITEL activities uniquely promote country and regional economic development and contribute to consolidated representation of Members' positions at regional, hemisphere and international policy meetings.

The Andean Community (CAN), formed by Bolivia, Colombia, Ecuador, and Peru, with Argentina, Brazil, Chile, Paraguay and Uruguay as associate member states, has been instrumental in promoting liberalization of telecommunications services in the region. In May 1999, it adopted a common and binding decision to remove market entry barriers in the sector (excluding broadcasting). In addition, the Andean Committee of Telecommunications Authorities (CAATEL) advises the various bodies of the Andean Integration System on telecommunications matters at the Community level.

In an effort to introduce competition in the telecommunications sector, the Eastern Caribbean Telecommunications Authority (ECTEL) was established in May 2000 by Treaty signed by the Governments of five Eastern Caribbean States – Commonwealth of Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines. ECTEL is the regulatory body for telecommunications in its Member States, made up of three components – a Council of Ministers, a

regional Directorate and a National Telecommunications Regulatory Commission (NTRC) in each Member State. ECTEL aims to be a model multi-state regulatory system providing quality leadership and advice, by applying fair, transparent and independent processes to promote competition in a fully liberalized telecommunications environment for the creation of socio-economic opportunities within the Eastern Caribbean whilst ensuring global network connectivity.

### **Africa**

The Economic Community of West African States (ECOWAS) is among the various regional economic communities in Africa actively creating initiatives to foster cooperation and integration of their telecommunications and information technology activities. The ECOWAS treaty foresees the harmonization of legislation, including in the telecommunications field, similar to the EU model. For this purpose, ECOWAS, together with The West African Economic and Monetary Union (UEMOA) undertook Telecommunications Regulation Harmonization Project aimed at designing a strategy for the harmonization of telecommunications policies in ECOWAS. ECOWAS Ministers of Telecommunications and Information Technology (ICT) adopted the guidelines in 2006.

The New Partnership for Africa's Development (NEPAD) is a program of the African Union (AU). The NEPAD Agency's work under ICTs is overseen by the NEPAD e-Africa Programme. The vision of the program is to see Africa as a globally competitive digital society. Previously known as the NEPAD e-Africa Commission, the NEPAD e-Africa Programme was endorsed in 2002 by the then Heads of State and Government Implementation Committee (HSGIC) as the NEPAD Task Team responsible for developing policies, strategies and projects at the continental level, as well as managing the structured development of the ICT sector in the context of NEPAD. The aim of the NEPAD e-Africa Programme is to actively pursue cross-sectoral initiatives so that ICT is entrenched in the work of other sectors. The aim is to create synergy with other sectors leading to the realization of relevant e-services to further socio-economic development.

Other African regional initiatives include: the Communications Regulators Association of

Southern Africa (CRASA), and the Association of Regulators of Information and Communication in Central and Eastern Africa (ARICEA).

### **Asia**

Over the past decade, creating an effective framework to promote growth in the telecommunications industry has been a top priority for the Association of Southeast Asian Nations (ASEAN), an intergovernmental organization comprised of the Governments of Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. However, ASEAN regulatory reform proposals (e.g., the development of a uniform regulatory framework among ASEAN countries) have yet to yield concrete results, largely due to the lack of binding authority of ASEAN's decisions on its member countries.

## **1.6. Looking Ahead**

Over the past decade, new communications technologies have become cheaper, more useful and more useable and in becoming cheaper, have been embraced by the majority of people in developed countries, as well as a growing proportion of those in the developing world. This dramatic change is bringing with it a range of new challenges, related, for instance, to privacy, security and digital content regulation. These challenges, even though seemingly outside the normal bounds of telecommunications regulation, are increasingly being seen as part of the new regulatory landscape: such is the revolutionary impact of technological convergence.

The last chapter in this *Handbook* explores some of the most important implications of this transformative and converged digital age. It highlights the challenges that regulators may face in the coming years, with communications ubiquity and the advent of new forms of interaction such as Web 2.0. The chapter includes a discussion of content regulation, intellectual property rights, neutrality of access, VoIP, privacy, cybersecurity, and green ICT.

Some of the topics mentioned above are already pushing their way onto the policy and regulatory agenda of some countries. It is clear that these questions cannot be ignored if regulation is to keep up with social and economic as well as technological developments.