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TELECOMMUNICATIONS LAW AND REGULATION

AN INTRODUCTION

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1.1 THE SUBJECT MATTER

This book examines national, regional, and international legal and regulatory frameworks governing the telecommunications sector, particularly the provision of all forms of network infrastructure, communication services, and equipment supplied for the transmission of data and information. The book is entitled 'telecommunications' rather than 'communications', despite the best attempts of European Union law to recast the terminology. Telecommunications remains the preferred term for a number of reasons. First, the change of regulatory terminology

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is still not reflected in industry discourse, let alone among the wider general public. Second, the book is intended as a text for a global audience, not just the UK or Europe, so it does not seem appropriate for EU terminology to be imposed on our readers. Third, the many historical and cross-jurisdictional aspects of the book recommend consistency as an aid to comprehension. The book does, however, use the terms 'telecommunications' and 'communications' interchangeably.

1.2 THE TELECOMMUNICATIONS SECTOR

The World Trade Organization's (WTO) 'Basic Agreement on Telecommunications', in 1997, can be seen as a definitive moment in the international community's commitment to the structural evolution of the sector from a primarily monopolistic environment to a competitive marketplace. Such acceptance has been driven by a recognition that telecommunications is a strategic economic sector, in terms of being both a tradable service in its own right as well as the infrastructure over which other goods and services are traded and, in an age of electronic commerce, delivered. There is no doubting the continuing dynamic nature of the telecommunications sector within the global economy. At the end of the twentieth century, world stock markets rose and fell in large part based on perceptions of the health and wealth of the sector. Indeed such was the dependency that financial regulators expressed concern over the exposure of the banking system to the fortunes of telecommunications companies.[1] At the beginning of the twenty-first century, we saw large-scale bankruptcies, such as Global Crossing, the exposure of fraudulent trading practices, such as WorldCom, and massive sectoral restructuring. Nearing two decades into the new century, it is estimated that the telecommunications sector will be generating revenues of some $1.5 trillion by 2021;[2] although continued growth in the usage of services, especially broadband and mobile, has also seen providers experience a fall in revenues in certain markets, such as wholesale services.[3]

While the financial environment for the telecommunications industry fluctuates with the state of the world economy, the rapid technological developments that underpin the sector and the consequent product and service innovation have continued at the same frantic pace. As in any area of law, telecommunications involves use of a particular set of terminology with which a practitioner or student

[1] See Financial Services Authority Press Release, 'Telecoms lending—firms must remain vigilant', FSA/PN/153/2000, 7 December 2000.

[2] See <https://www.ovum.com/ovum-forecasts-1-5-trillion-in-revenues-from-global-telecoms-media-market-in-2021/>.

[3] Ofcom *Communications Market Report: UK*, 3 August 2017, at 1.3.

needs to become familiar. Such terminology relates, in large part, to the technology being used, the structure of the industry, and the products and services being supplied. These issues are examined briefly in the next section.

1.3 TECHNOLOGY AND TERMINOLOGY[4]

Only a few years ago, the scope of telecommunications technology would have been easy to define: telephony, fax, and mobile. However, now there is a rapidly changing technological environment, which means even systems that we use every day, like the telephone, are now regarded as being 'legacy' technology. The current drivers for change are simple: the ever increasing use of the mobile and the internet. In many countries, 'fixed-mobile substitution' is common; while in developing countries, mobile is by far the most dominant technology. Voice over the internet applications and services has meant very cheap telephone calls from anywhere in the world by connecting over the internet to a service provider in the destination country, who then routes the telephone call locally. Going even further, instant messaging systems (eg Apple's FaceTime and WhatsApp) provide the capability of making voice and video calls directly between devices free of charge. Such 'over-the-top' or OTT services challenge traditional regulatory concepts and practices, which governments and regulators are still struggling to address.[5]

However, while these services and capabilities are evolving rapidly, a lot of the underlying technologies are common. In all systems there are fundamental categories of equipment that the telecommunications network, of whatever type, must use. These are:

- transmission systems;
- switching or routing equipment;
- terminal equipment;
- network management systems;
- billing systems.

In addition, it is important to distinguish between the 'access network' (the connection from the customer to the network) and the 'core network' (connections between network elements).

Transmission systems transfer information from one location to another, with as low probability of error as possible, over wireline (ie physical) or wireless (ie radio) links. Nowadays most transmission systems in the core network use optical fibres,

[4] Professor Laurie Cuthbert, Queen Mary, University of London, helped draft this section originally.
[5] See in particular Chapters 4, 14, and 15.

although some legacy systems using copper cables still exist. Fixed point-to-point radio links, using microwave, are also used where the terrain is difficult or where the network node (particularly a base station in mobile networks) is isolated.

At the level of the 'access network' there is a wide variety of different transmission systems. One of the challenges in getting broadband services to residential customers has been the cost of replacing the old 'twisted metallic pair' telephone cables, and much effort has been spent in improving the technology to allow higher bitrates over these copper cables, since the cost of replacing them is prohibitive. From ISDN to ADSL (Asynchronous Digital Subscriber Line) and G.fast, new techniques allow broadband to be offered to residential customers over their existing telephone lines, at least to those who are close enough to the telephone exchange. Other fixed access transmission systems use co-axial cables (cable TV), optical fibres, or point-to-point radio links.

In mobile networks, the access network is the link between the mobile handset and the network base station (or BTS—Base Transceiver Station). The type of network (GSM, 3, 4, or 5G) defines the type of transmission used over the radio link. Another radio access method that is very common is that for WLANs (Wireless Local Area Networks), often known as 'WiFi'. The common standard for this is IEEE 802.11, with numerous iterations since it was first published in 1997 enabling ever greater capacity to be transmitted over the same radio link. Within organizations the predominant wireline access technique for computer communications is Ethernet, often using Unshielded Twisted Pair (UTP) cables, although WLANs are increasingly being implemented now that the security of such systems is being improved.

While transmission systems get information from A to B, users want to be able to connect to different people, or to different websites—this means that connections have to be 'switched' or 'routed' to the right destination. With telephone networks this was done using switches (called 'exchanges' in the UK) but with internet-type networks (IP networks) the devices performing that function are called routers. The reason for this difference is that telephone networks are traditionally 'circuit-switched', whereas IP networks are 'packet-switched'. Circuit-switched means that a connection is set up for the whole duration of a telephone call; in packet switching, information is broken into units called 'packets' that are independently routed across the network. The important differences between the two techniques are that:

- circuit-switched networks need to have a method of setting up a connection from A to B before any information is sent, and packet networks do not;
- the routing decision for every packet increases the flexibility and reliability of the network as packets can even be re-routed *during* a call;

- the delay in a circuit-switched network is fixed, but in packet networks the nature of the packet routing means that delays between packets can be very variable;
- it can be harder to guarantee 'Quality of Service' (QoS) over packet networks.

Overall this meant that packet-switched networks were generally better suited for data connections and circuit-switched networks for voice (which is particularly sensitive to delay and variations in delay). However, the predominance of packet-based IP (Internet Protocol) for computer communications has led to a major change in how networks are structured, with all communications networks moving to using IP rather than circuit switching.[6] This change has been enabled as a result of intense research effort to get good quality voice communications with IP. The difference between routers and switches is in fact much more complex (and confusing) than the simple explanation above. IP traffic often passes through equipment called 'switches' in the local area network—and these have a different function. To complicate matters even further, new architectures for IP networks introduce the concept of 'switched routers'; such as MPLS (multi-protocol label switching).

In the business world, the local telephone system (PBX—Private Branch Exchange) has evolved from being a traditional telephony switch to a fully IP system with IP phones, or even with 'soft phones' on the PC. Of course, no network would work if the user did not have any equipment to use with it and it is often the capabilities of the terminal equipment that attracts users rather than that of the underlying network.

An important aspect of any communications network is its reliability and availability, particularly when congestion occurs. Ensuring this is a function of network management systems, ie complex software programs that control the operation and performance of the various network elements; this is true of all types of network, whether telephony, mobile, or internet.

Also of crucial importance is the billing system—no network operator could survive in business without one! Modern telephony billing systems are very complicated, recording the details of every transmission and applying a wide range of tariffs based on the type of network user (eg retail or wholesale customer or interconnecting operator) and type of communication services (eg text messaging and voice calls). The internet has utilized very different tariff structures from traditional telephone networks, such as flat rate rather than minute-based tariffs, which has enabled the implementation of much simpler (and cheaper) billing systems. However, there are now signs that volume-based charging (where the user pays for the overall amount of data transferred) are starting to appear for internet

[6] In June 2015, BT announced that it plans to switch off its PSTN and ISDN networks by 2025.

use, so billing systems to capture that information are becoming increasingly important.

1.4 TELECOMMUNICATIONS LAW AND REGULATION

This book is primarily concerned with the rules and regulations governing the provision of telecommunications equipment, network infrastructure, and services (eg the transmission of data), rather than the law governing the content of the traffic being sent across telecommunication networks. The latter is generally perceived as the domain of 'media law'[7] or 'internet law' rather than 'telecommunications law'. However, one recurring issue in telecommunications law is the problem of distinguishing clearly between issues of carriage and issues of content, particularly with the emergence of apps offering communications functionalities and calls for 'net neutrality'. This edition contains a section addressing various content-related aspects, in respect of personal data and privacy (Chapter 13), the impact of broadcasting regulation (Chapter 14), and the position of ISPs regarding liability for, and control over, the content and services they provide (Chapter 15). Even the categorization of carriage as a service has evolved, with the development of commodity markets for trading carriage in terms of telecommunication minutes.[8] Such economic re-categorization can have profound implications for policy makers and regulators.

The various aspects of telecommunications law addressed in this book can be broadly distinguished into competition or economic issues and non-economic public policy issues. Competition law is primarily concerned with establishing and ensuring the sustainability of competitive markets, at a national, regional, and global level. Telecommunications as a sector capable of establishing a comparative advantage in international trade was recognized by the UK Government at the outset of liberalization, in the early 1980s. In the Telecommunications Act 1984, for example, four of the ten general duties imposed upon the regulator addressed trade-related aspects of telecommunications, from encouraging the provision of transit services, traffic being routed through the UK, to the supply of telecommunications apparatus (s 3(2)). For developing countries, the prospect of becoming a regional hub in the emerging information economy is promoted as an opportunity arising from market liberalization.

Non-competition public policy issues have historically focused on the provision of telecommunication services to the population as a whole: the issue of universal

[7] eg Goldberg, Sutter, and Walden, *Media Law and Practice* (Oxford: OUP, 2nd edn, 2019).
[8] eg RouteTrader <http://rtx.routetrader.com>.

service. Concerns about the growth of a 'digital divide' between the information rich and poor is a manifestation of such political imperatives. However, other non-competition issues include consumer protection, environmental concerns, health and safety matters, as well as the protection of personal privacy and the debate over 'network neutrality' (see further Section 1.7 below).

It is inevitable that the seismic shifts in the structure of the telecommunications sector are reflected in a complex and rapidly changing legal framework. The liberalization of the sector has usually required significant legal intervention, the classic exemption to the rule being New Zealand, which initially simply opened up the sector to competition without the imposition of a regulatory framework, but has subsequently had to establish a regulatory authority.[9] In parallel with the pursuance of liberalization, the rapid and dramatic technological developments have compounded the problems faced by policy makers, legislators, and regulators when trying to establish legal clarity and certainty for an industry undergoing convergence with other industries.[10] The internet is the classic example of this technological phenomenon. The existence of a clear legal and regulatory distinction between issues of carriage, the primary focus of the book, and issues of content is therefore dissolving in the face of such technological change.

This chapter introduces some of the key themes present within the field of telecommunications law. These themes are then considered in greater detail in one or more of the following substantive chapters.

1.5 LIBERALIZATION AND REGULATION

The telecommunications industry has undergone a fundamental change in structure, from that of monopoly to one of competition. Many of the laws and regulations examined in this book are concerned with this process of change: regulating for competition. However, the notion of what type of competition is being sought has sometimes distinguished the response of legislators and regulators.

The telecommunications market can be crudely divided into equipment, networks, and services. Liberalization of the market for telecommunications equipment has been subject to the broadest consensus among policy makers, reflecting conditions in the broader IT products market. The provision of telecommunications

[9] All restrictions on the supply of services were removed in 1989. However, by 2001, a Telecommunications Commissioner was appointed within the Commerce Commission, with substantial further enforcement powers being granted to the Commissioner in 2006.

[10] See Standage, T, *The Victorian Internet* (London: Phoenix, 1998), which describes the revolutionary impact of the telegraph and Carr, N, *The Big Switch* (New York: Norton, 2013).

services has experienced a similar general consensus, except in respect of voice telephony.

It is at the level of the network, constructing the physical communications infrastructure, that debate over liberalization continues to be heard. Historically it was argued that telecommunications networks were natural monopolies and replicating the physical infrastructure was inevitably uneconomic. Whilst such arguments seem arcane in most developed economies, there continue to be those that argue that some form of single network platform is a feasible policy alternative, particularly in developing countries and/or driven by environmental concerns. In addition, the natural monopoly position continues to have relevance in the provision of wireless telecommunication services. Although technological developments are continually improving our exploitation of the radio frequency spectrum, the market for wireless services may remain oligopolistic if not monopolistic, with associated competition concerns.

One of the historic myths of telecommunications liberalization was that it would arise through market deregulation; a characteristic of the related and converging markets for IT products and services. The reality has been much more mixed. The telecommunications sector has become a highly regulated sector, initially to ensure the transition to competition, but subsequently to govern persistent market features that militate against competition. The continuing importance of regulation is manifest, in part, by the increasing scope and volume of material covered in this book. Such regulation initially focused primarily on controlling the activities of the incumbent operator in order to facilitate market entry for new providers, but has since broadened out to address a much larger number of market players, such as those providing call termination and roaming services. While public policy concerns in respect of universal service and consumer protection issues continue to persist and evolve.

As markets become fully competitive, deregulation remains a policy objective, often embodied in legislation. The shift towards deregulation has arisen not only because competitive markets are maturing, but also through technological developments, such as the internet, which have disrupted historic market structures. In the US, for example, the Telecommunications Act of 1996 imposes a general obligation upon the Federal Communications Commission to both forbear from the imposition of regulations under certain conditions, as well as engage in biennial reviews of the existing regulatory framework to remove those regulations identified as 'no longer necessary in the public interest as the result of meaningful economic competition between providers of such service' (47 USC §161(a)(2)). Similarly, in the UK, a specific duty has been placed upon Ofcom, the UK regulatory authority, to review the regulatory framework and remove any unnecessary burdens (Communications Act 2003, s 6).

Complementing the move towards deregulation, some jurisdictions have also given explicit statutory recognition to the role of industry self-regulation in certain areas. In Australia, for example, the Telecommunications Act 1997 states,

> The Parliament intends that telecommunications be regulated in a manner that … promotes the greatest practicable use of industry self-regulation. (s 4)

Similarly, in the UK, the Communications Act 2003 requires Ofcom to have regard to the possibility of addressing regulatory matters through 'effective self-regulation' (s 6(2)). The technical complexity of the telecommunications market has always meant that much of the regulatory input on particular issues, such as interconnection, simply consisted of the convening and oversight of particular industry groups, intervening only in the event of impasse. However, as regulators reduce or withdraw from market intervention, then increasingly reliance is likely to be made upon industry to regulate itself.

1.6 LIBERALIZATION AND PRIVATIZATION

A third concept often linked in the past with liberalization and deregulation was that of privatization: the conversion of the incumbent operator from being a state-owned public body to a privately owned entity. As with deregulation, the nature of the relationship with the process of liberalization has been far from straightforward. The policy drivers behind privatization of the incumbent have tended to be based around state revenue concerns rather than the objective of liberalization. The provision of a modern telecommunication infrastructure requires massive capital investment, a funding-burden which governments have not been prepared to shoulder. Attracting private sector finance is generally seen as the only feasible mechanism for meeting the policy objective of modernizing this strategic economic sector.

Concerns that a state-owned incumbent might inhibit market entry have come a clear second to such revenue-raising concerns. Indeed, governments have remained remarkably attached to the 'national champion', with the majority of the OECD countries continuing to have some stake in the incumbent.[11] However, the process of privatization has, itself, sometimes acted as a barrier to the process of liberalization. In the UK, for example, the divestiture of BT occurred in three stages, 1984, 1991, and 1993. However, at the time of the second sale, the government was also undergoing a comprehensive review of the market, the 'Duopoly Review', in order to promote further liberalization (Chapter 3). During

[11] OECD, *Communications Outlook 2013* (11 July 2013), at Table 2.6.

this process, it was generally perceived that BT used the need to maintain share price for the forthcoming sale as an effective tool in its negotiations with the government. Government stake holdings in incumbent operators have also been an international trade issue. In the US, for example, concerns were raised in the US legislature about Deutsche Telekom's proposed merger with Voicestream, on the basis that the German government continued to have a stake in its incumbent.

After privatization, a government may continue to be concerned about the performance of the incumbent, particularly where, as in the UK, a significant proportion of the shares are held by the general public, ie the electorate to which the government is always accountable. In many countries, the need to attract international investment into the telecommunications sector, either through the sale of a strategic stake in the incumbent, through Build–Operate–Transfer schemes or financing new entrants, has actually driven the adoption of a comprehensive legal framework for the provision of telecommunications networks and services. A lack of legal certainty is seen as a significant discouragement to financial investment and therefore to market entry (see Chapter 17).

1.7 POLICY, LAW, AND REGULATION

The shift from monopolistic telecommunications markets to liberalized competitive markets arose primarily from a range of economic policy drivers, from the need to modernize existing infrastructure, to encouraging innovation and improving the nation's communication infrastructure. However, the process of liberalization is also subject to certain non-economic public policy objectives, such as maintenance of universal service, protection of consumer interests, and individual privacy.

Some of these non-economic objectives can perhaps be best understood as being centred on the 'public interest' nature of telecommunications. One 'public interest' factor is the use of public resources, manifest most starkly in the enduring conviction that spectrum is the property of the state, subject to controls to ensure that, as a 'public good that has an important social, cultural and economic value',[12] it is utilized for the maximum welfare of all. Second, telecommunications often resides uneasily and uncertainly between the utilities sector and the IT sector. As a networked utility with substantial infrastructure, it is often viewed as a supplier of an 'essential service' akin to electric, gas, and water companies.[13] 'Universal

[12] Framework Directive, Article 9(1).

[13] eg Ofcom Report, 'Results of research into consumer views on the importance of communications services and their affordability', 22 July 2014.

service' is the embodiment of the 'public interest' in telecommunications, with the desire to ensure that all citizens have access to a certain minimum set of services at an affordable price, which evolve over time.[14] As well as being considered 'utility-like', telecommunications is also recognized as being part of a nation's critical national infrastructure, which engenders its own distinct 'public interest' concerns with service providers being subject to regulatory obligations to ensure the 'integrity' of their service, including the ability to carry state broadcasts in the event of an emergency.[15] A fourth element of the 'public interest' nature of telecommunications is the role of service providers in law enforcement and national security matters. Telecommunication operators are often subject to *ex ante* obligations to build intercept capabilities into their networks and to retain data, as well as *ex post* obligations to disclose communications content, traffic, and subscriber data.[16] The desire to retain control over such matters has sometimes limited the enthusiasm of governments to accept foreign ownership of national champions. A final 'public interest' component is the fact that in many states, the incumbent national operator continues to be wholly or partly owned by the state, positioned as both national incumbent and champion.[17] This relationship has caused the EU regulatory problems, such as Germany's attempt to grant Deutsche Telekom a 'regulatory holiday' and France's offer of loans to France Télécom, which were successfully challenged by the European Commission.[18] Taken together, these 'public interest' factors have significantly interfered with the process of liberalization and the achievement of some of the economic policy objectives.

Governments generally set the broad policy objectives governing the telecommunications market, whether independently, within regional bodies such as the European Union, or through international agreement and institutions. These objectives are then enshrined in national and international legal instruments, conferring rights and obligations upon the various parties. The extent to which a market entrant may rely upon, reference, and enforce such rights and obligations against others, will obviously depend on the legal nature of the instrument. Such legal instruments may impose obligations directly upon operators to address the policy objectives, or lay down principles to which the regulator should have reference when intervening in the market.

[14] See further Chapter 4, at Section 4.8.

[15] eg UK General Conditions of Entitlement, Condition 3 'Proper and effective functioning of the network' (May 2015). See further Chapter 6.

[16] See further Chapter 13, at Section 13.3.

[17] See OECD, *Communications Outlook 2013* (11 July 2013), at Table 2.6.

[18] See Case C-424/07, *Commission v Federal Republic of Germany* [2009] ECR I-11431 and Commission decision (2006/621/EC) on the state-aid implemented by France for France Télécom, OJ L 257/11, 20 September 2006, respectively.

Another aspect of telecommunications law concerns the legal relationships that exist between regulator and regulatees, between market participants (at a wholesale level) and between providers and their customers (at a retail level). An operator's licence, authorization, or approval to supply networks, services, or equipment, as an instrument of public law, may be used to provide for legal certainties absent in the statutory framework, or contain detailed obligations controlling every aspect of an operator's activities (Chapter 6). While private law agreements, such as interconnection agreements and those involving consumers, are often subject to significant regulatory intervention (Chapters 8 and 9). Other commercial agreements, such as capacity and outsourcing contracts, are largely left to the freedom of the parties (Chapters 11 and 12).

The third component of the governing framework is the establishment of a regulatory authority with a specific remit to intervene in the operation of the telecommunications sector and independent from vested interests, whether from operators or the government, when it is a shareholder in the incumbent. Most countries have adopted such an institutional approach to the telecommunications sector.

In the long term, the sustainability of a sector-specific regulator may come under examination. The phenomenon of convergence has already led to a re-assessment of the appropriate regulatory structures for issues of carriage and content. In 1999, the European Commission proposed that there be a single regulatory framework for all forms of communications infrastructure, whether voice telephony, data, or broadcasting.[19] In 2003, the UK Government created the Office of Communications (Ofcom) through a merger of five existing regulatory bodies, with responsibility for both infrastructure and content.[20] At the same time, it continues to be argued that once a fully competitive market matures then the need for intervention may simply rest upon traditional competition law principles, enforced by the national competition authority rather than a telecommunications-specific regulator. To date, however, no country has felt in a position to take such a decisive step.

1.8 REGULATORY FRAMEWORK

The regulatory framework for the telecommunications sector is multifarious, both horizontally and vertically. At a national level, states may divide the regulation of the sector between different authorities. In the UK, for example, the

[19] See Commission Communication, 'Towards a new framework for Electronic Communications infrastructure and associated services: The 1999 Communications Review', COM 1999, 539, 10 November 1999.

[20] A sixth, Postcomm, was subsumed into Ofcom on 1 October 2011, reuniting post and telecommunications at a regulatory level, even though the industries remain distinct, while the incorporation of the BBC Trust's regulatory functions into Ofcom represents a seventh.

Communications Act 2003 places concurrent jurisdiction upon the Competition and Markets Authority and Ofcom for competition matters (Communications Act 2003, ss 370–371). In federal legal systems, such as the United States, such jurisdictional complexities are multiplied, sometime requiring recourse to the courts to establish and clarify the right to regulate (Chapter 5). Regulatory multiplicity, with regulators exercising concurrent as well as exclusive jurisdiction, may in itself constitute a barrier to market entry, as operators try to work their way through the maze of procedures and peculiarities presented by each of the various institutions.[21]

Vertically, an operator may also need to look to regional organizations, whether as a legislative body to whom representations may be made, such as the European Commission, Parliament, and Council; or in terms of standards-making, where participation in the decision-making process may be a commercial imperative, such as the European Telecommunications Standards Institute (ETSI). At an international level, there exists another layer of laws and regulations under the World Trade Organization's (WTO) multi-lateral trade agreements and the regulations, recommendations, and standards of the International Telecommunication Union (ITU) (Chapter 16).

The construction of global communication systems, such as Globalstar's satellite network,[22] requires large-scale regulatory activity at both a national and international level. Applications for appropriate orbital slots will need to be made through the ITU, while operating licences or authorizations may have to be obtained in every jurisdiction into which the services are provided. In contrast, companies may offer voice telephony or instant messaging services over the internet without submitting themselves to any regulatory approval or notification process.

Such a layering of regulatory bodies inevitably raises important questions of legal order: the applicability and enforceability of the rights and obligations arising under various legal instruments, before national and supra-national judicial or dispute settlement bodies; and against either governments or market competitors.

In less developed countries, much developmental assistance from organizations such as the World Bank, the International Finance Corporation (IFC), or the European Bank of Reconstruction and Development (EBRD) is directed towards the telecommunications sector, as a strategic part of a country's economic infrastructure. Usually these lending institutions will impose conditions upon any

[21] See generally Coates, K, 'Regulating the telecommunications sector: Substituting practical cooperation for the risks of competition', in McCrudden (ed), *Regulation and Deregulation* (Oxford: Clarendon Press, 1998), at 249–274.

[22] <http://ca.globalstar.com/en/>.

such financial assistance, which may require the recipient jurisdiction to adopt a pro-competitive legislative and regulatory framework for the telecommunications market (Chapter 17). Indeed, such conditional financial assistance to developing countries has been an extremely influential tool in the international harmonization of telecommunications law.

1.9 REGULATORY POWERS

What powers does a regulatory authority have to intervene in the operation of a telecommunications market? The key authority is that of authorization or licensing: granting the right to build, operate, and supply telecommunications equipment, networks, and/or services. Liberalization is about the entry of competitors into a market, therefore the process by which a new entrant can obtain the necessary authorizations may itself be critical to the liberalization process.

Most jurisdictions distinguish between authorizing those wanting to provide telecommunications services and those wanting to provide the networks or infrastructure for the carriage of such services. The nature of the activities associated with the latter category, such as digging up the streets to lay cables, has tended to mean more substantial legal obligations being placed upon such operators (Chapter 6). In addition, the incumbent will fall in this category. It is also generally the case that barriers to market entry are greater for the provision of networks than services and, therefore, there is often more scope to engage in anti-competitive practices. With regard to telecommunications equipment, regulatory intervention tends to be limited to procedures ensuring that such equipment is unlikely to cause harm to either the user or the networks to which it is connected.

Allied to the issue of authorization is that of access to scarce resources. Where scarce resources are an element of the service provision, then such resources need to be distributed on an appropriate basis that will not unduly restrict or distort competition. The key scarce resource in telecommunications is the electromagnetic spectrum for use in wireless communications. Historically, spectrum was distributed between the incumbent, the military, and various related public service providers, such as broadcasters and the police and emergency services. With liberalization, access to the spectrum available for commercial usage becomes a key regulatory control. As a scarce resource, spectrum is also usually seen as a public asset that should be utilized and managed in the best interests of society as a whole.

One current trend is to auction spectrum on the basis that this is the most economically efficient mechanism for distributing such scarce and public resources. In the UK and Germany, auctions for the 3G mobile spectrum netted their

governments $30 billion and $50 billion respectively. However, as with much economic theory, rational actors often act irrationally, paying sums through fear of market reaction as much as the business rationale. As a result, serious questions have been raised about whether the benefits in terms of public revenue will be achieved at the expense of the development of the market itself: through delayed roll-out and higher charges for services.

Another important scarce resource is telephone numbers. Access to a number and the right to control access to numbers needs to be subject to regulatory control in order to facilitate market liberalization. However, strategic national planning for the use and distribution of telephone numbers into the future can be an extremely difficult task and one which, if mistakes are made, can generate substantial adverse public feeling towards the national regulatory authority. The domain name and IP addressing scheme utilized for internet-based communications has also generated regulatory issues, relating to its governance, scarcity, and impact on other legal regimes, such as trade marks.

The right to access or utilize the private property of another for the provisioning of networks and services is an issue that has sometimes been viewed as similar in nature to the use of a scarce resource. Whilst the granting of rights of way need not be limited, the exercise of a statutory right to interfere with another's property has such potentially significant consequences for the owner and/or occupier of the property that regulatory controls are inevitably necessary. Not least, the exercise of such rights interferes with an individual's right to enjoy their possessions and their right of privacy, as enshrined in national and international law.[23]

As telecommunications networks proliferate in a competitive market, it is possible that people challenging the exercise of statutory rights may increasingly raise such human rights concerns against operators building networks across private land. Recognized limitations to an individual's right of privacy on grounds such as the 'economic well-being of the country' or the 'rights and freedoms of others'[24] may be sustainable as a basis upon which to interfere during the process of liberalization, but may seem less 'necessary' once a market is fully competitive.

The construction of international telecommunications networks raises issues of access to public resources, both state-based, such as the electromagnetic spectrum, as well as resources recognized under public international law as the 'property of all mankind', specifically outer space and the high seas (Chapter 16). Public policy makers and regulators are also giving greater consideration to environmental concerns, such as the siting of transmitters for wireless communications

[23] eg the European Convention for the Protection of Human Rights and Fundamental Freedoms, Art 8(1), and Protocol 1, Art 1.

[24] Ibid, at Art 8(2).

systems. Co-location and facility-sharing obligations are designed to address environmental as well as competition concerns (Chapter 8).

One critically important area of regulatory intervention is that of dispute resolution. As the Competition Appeal Tribunal has noted,

> Dispute resolution is intended to be an additional form of regulation exercised in parallel with SMP regulation and general competition law … dispute resolution is an autonomous regulatory process which forms part and parcel of the overall regulatory framework.[25]

Disputes and complaints may arise between market participants, between the regulator and the regulatees, and between providers and their customers. In the latter case, especially where consumers are involved, sectoral dispute settlement schemes are designed both to redress an inevitable imbalance between the parties, as well as facilitating access to justice for the consumer. Intervening in disputes between market participants has been a critical component of the liberalization process, primarily because of the position of the incumbent. Where markets are fully competitive, however, such regulatory intervention may be seen as an unnecessary use of public money when the parties have equal recourse to alternative legal processes.[26]

The manner in which a regulator exercises its powers is an issue of concern to telecommunication lawyers. As with any public authority, the regulator will be continuously required to exercise its discretion in respect of when, where, and how it intervenes in the operation of the market. The complex nature of regulatory invention in the sector, particularly in respect of cost-related matters such as price controls, may require that regulatees have the right to appeal against regulatory decisions through a *de novo* appeal procedure (Chapter 4). Regulatory decisions will also be subject to judicial review on procedural grounds, challenging a decision on the basis of irregularity, irrationality, illegality, and proportionality.

The frequency and manner in which decisions are challenged will also impact on the operation of the whole regulatory framework. Legal activism by operators, frequently challenging the decisions made by the regulator, may effectively slow down the decision-making process, as regulators become cautious and excessively procedural in order to stem legal challenges and the associated commitment of public resources. Legal interventions in regulatory decision-making are more often of benefit to the incumbent, than new entrants.

[25] *T-Mobile, BT, H3G, C&W, Vodafone & Orange v Ofcom* [2008] CAT 12, at paras 89 and 94.

[26] See, eg, Ofcom, *Dispute Resolution Guidelines*, 7 June 2011.

1.10 REGULATORY MODELS AND METHODS

The importance of the regulatory authority in the telecommunications market requires consideration to be given to the structure and the manner of working of the authority being established. Generally, regulatory authorities can be distinguished into one of four models:

- an autonomous quasi-judicial commission (eg the US Federal Communications Commission (FCC));
- an independent official or office outside a government ministry (eg the Autorité de Régulation des Télécommunications in France);
- an independent official or office inside a government ministry (eg PTS in Sweden); or
- a government ministry (eg Cambodia).

Regulatory authorities often initially experience a number of problems in the telecommunications sector. First, the inevitable lack of expertise amongst the regulator's staff, particularly in the early years, may render the authority excessively dependent on information and even personnel supplied by the incumbent operator. Such dependency obviously raises accusations of 'regulatory capture' from new entrants.

Second, as with any dynamic sector of the economy, the large differential in remuneration rates between public authorities and private sector operators means staff retention can be a significant concern for a regulator trying to build and retain institutional experience.

Personalities are always likely to influence the prevailing regulatory environment and the manner in which policies are pursued. Where the regulatory authority is invested in a single individual, the influence of personality is likely to be greater. Some countries vest authority in a committee, generally representative to varying degrees of relevant interest groups, such as consumers, operators, and general business end-users. In the UK, the background and interests of the Director General of Telecommunications (DGT) were seen as being critically important in setting the overall direction of regulatory policy. Don Cruickshank (DGT 1989–97), for example, came from the airline Virgin Atlantic and was perceived as being pro-new entrant and naturally untrusting towards BT as the incumbent. Conversely in a committee or commission-based structure, inter-personnel rivalries may surface and render the authority ineffective or undermine its credibility in the eyes of the industry, such as the FCC in the US.

The tools of regulation policy are various; however, a feature of a liberalizing market is the need to direct regulatory controls towards the activities of the

incumbent operator and other operators with similar market influence, such as in the mobile sector. Within Europe, such asymmetric regulatory controls are placed on organizations designated as having 'significant market power' (Chapter 4); while at an international level, the equivalent term in the WTO's Reference Paper is 'major supplier' (Chapter 16).

Much of the literature in the field adopts a fundamental distinction between so-called *ex ante* and *ex post* regulatory controls. For the purpose of this book, the phrase *ex ante* is used in respect of regulatory measures that proactively control the structure and/or behaviour of market players going forward; while *ex post* refers to measures that arise in reaction to the decisions and activities of entities.

Establishing the costs associated with the provision of telecommunications networks and services is key to their effective regulation. Interconnection charges can represent from a third to a half of a new entrant's costs; therefore regulatory control over such charges through 'cost-orientation' requirements is critical to enabling competition (Chapter 8). Likewise, universal service policy requires the identification of those service elements that are 'provided at a loss or provided under cost conditions falling outside normal commercial standards',[27] before regulators provide appropriate financial support mechanisms. However, determining and verifying such cost-based obligations is often an extremely controversial regulatory process, in terms of attribution, calculation methodology, eg whether historical or forward-looking, and the establishment of appropriate cost accounting systems by regulated operators (Chapter 2).

Tariff controls are present under most regimes, whether at a retail or wholesale level. Such controls are generally perceived as being the most appropriate mechanism for ensuring that a dominant operator is controlled whilst providing sufficient incentives to encourage economic efficiency. Such controls are, however, notoriously difficult to get right in terms of balancing the interests of customers, competitors, and the dominant operator.

Related to tariff controls are requirements upon operators to disclose information about various aspects of their business activities, either to the regulator, competitors, or consumers: eg tariff filings and technical standards for interconnection. Information asymmetry is an inevitable regulatory problem in a complex sector such as telecommunications. Transparency obligations are designed to remove the likelihood of anti-competitive practices and to provide a certain degree of legal certainty, for example, through obligations to publish standard contractual terms and conditions (eg a Reference Interconnection Offer). The publication

[27] Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, OJ L 108/7, 24 April 2002, at Art 12 and Annex IV, Part A.

of information also helps develop international regulatory best practice in the sector, by enabling regulatory authorities to use benchmarks based on figures made available from comparative jurisdictions (Chapter 2).

1.11 REGULATION AND COMPETITION LAW

> … competition should be the organizing principle of our communications law and policy.[28]

Competition law is inevitably an important component of telecommunications law (Chapter 10). However, a distinction needs to be made between the reactive *ex post* application of traditional competition law principles to activities in the telecommunications sector, and proactive *ex ante* regulatory intervention in the operation of the telecommunications market to achieve a competitive market.[29] Both are of interest to a telecommunications lawyer and are examined in this book; however, it is the latter aspect that comprises much of the unique terrain of telecommunications law.

The only example of a jurisdiction that initially pursued market liberalization through reliance solely on the application of traditional competition law has been New Zealand. It is widely accepted, however, that such an approach simply led to delays in the process of liberalization through the need for the lengthy and ineffective recourse to judicial intervention.[30] Competition law can be effective against blatant anti-competitive practices, such as refusals to supply interconnection; but is less effective against minor but persistent obstructive tactics, such as delaying negotiations, or where ongoing oversight of commercial relationships is required. As noted by the US Supreme Court,

> No court should impose a duty to deal that it cannot explain or adequately and reasonably supervise. The problem should be deemed irremedia[ble] by antitrust law when compulsory access requires the court to assume the day-to-day controls characteristic of a regulatory agency.[31]

In such circumstances, *ex ante* regulatory intervention by a specialist regulatory authority has proved critical. It is interesting to note that in the European Commission's review of the regulatory framework for the telecommunications

[28] FCC Report, 'A New Federal Communications Commission for the 21st Century', 1999.

[29] See *Emtel Ltd v The Information Technology and Communication Technologies Authority & ors* (2017) SCJ 294, at para 253.

[30] See case *Telecom Corporation of NZ Ltd v Clear Communications Ltd* (1992) 4 NZBLC.

[31] The words of Professor Areeda, quoted with approval in *Verizon Communications Inc v Law Offices of Curtis V. Trinko* (02-682) 540 US 398 (2004), at 15.

sector, the '1999 Communications Review', significant emphasis was placed on shifting from the current *ex ante* controls to a more hands-off *ex post* competition law regime. However, during the consultation exercise, new entrants expressed strong reservations that such a move was premature and would enable incumbent operators to entrench their existing positions.[32] As a result, the EU's 2002 regulation framework retained many of the *ex ante* controls (Chapter 4).

The interest of competition authorities in the telecommunications market can be sub-divided into issues of anti-competitive agreements and practices, mergers and joint ventures, abuses of a dominant position, and, to a lesser degree, state aids. A feature of the telecommunications sector is clearly the possibility for an abuse of a dominant position, arising from the position of national incumbent operators. Notification procedures imposed upon certain types of agreements and mergers enable the authorities to exercise prior restraint over players in the market. In addition, the nature of the telecommunications industry as a 'networked' industry, with parallels in industries such as airlines and power, give rise to certain characteristics that raise particular competition concerns, such as issues relating to 'essential facilities', 'network effects', and 'collective dominance'.[33]

Finally, it is important to note that in many jurisdictions, such as the Asian 'tiger' economies, competition law is a relatively underdeveloped discipline. As a consequence, domestic operators, regulators, and the courts have little experience of the application of competition principles and practices. In such jurisdictions, foreign operators will often be more reliant on telecommunications specific regulations, whether statutory or licence-based, for the protection of their commercial rights.

1.12 REGULATION AND STANDARDS

> In our information society, more and more technical standards are used in formulating laws, regulations, decisions etc … standards are becoming more important in drafting contractual obligations and interpreting the meaning thereof, whether or not in the courtroom.[34]

[32] Communication from the Commission, 'The results of the public consultation on the 1999 Communications Review and Orientations for the new Regulatory Framework', COM(2000)239, Brussels, 26 April 2000.

[33] See generally Shapiro, C, and Varian, H, *Information Rules: A Strategic Guide to the Network Economy* (Harvard: Harvard Business School Press, 1999).

[34] Stuurman, C, 'Legal aspects of standardization and certification of information technology and telecommunications: an overview', in *Amongst Friends in Computers and Law* (Netherlands: Computer/Law Series, No 8, 1990), at 75–92.

The nature of the communications process requires that the various parties adhere to a certain agreed standard, whether in terms of language, protocol, numbers, or physical connection. The need for standardization to communicate across national boundaries gave rise to the establishment of the International Telecommunication Union, one of the oldest inter-governmental organizations (Chapter 16). As the quote highlights, there is proliferation of standards within the laws, regulations, and agreements governing the telecommunications market.

Standards are critical to the process of liberalizing a market. New entrants will be as dependent on the technical certainty that arises from the existence of published standards, as they require legal certainty upon which to base their investments. The absence of appropriate standards has been used by incumbents to delay the introduction of competing services. Within the European Union, standards have been critical in the establishment of an Internal Market for telecommunications equipment, networks, and services (Chapter 4).

Numerous standards-making bodies operate in every aspect of the telecommunications market, as well as at a national, regional, and international level. Historically, such bodies have tended to operate in accordance with complex bureaucratic procedural mechanisms, which led to inevitable delays in decision making. With the appearance of new technologies and environments, such as the internet, such institutions have increasingly faced competition from new entities, such as the Internet Engineering Task Force (IETF), operating under more flexible and rapid processes. Participation in the work of such bodies can require operators to devote significant financial and management resource, while failure to participate may effectively hand control over the development of a particular market to your competitors.

One important aspect of standards in the technology field is the possibility that a particular standard may constitute the intellectual property of a company, such as a patented process. In 1999, a dispute arose between Ericsson and Qualcomm over the ownership of certain patents related to Code Division Multiple Access (CDMA) technology, which underpins third generation mobile telephony. In such circumstances, competition law principles may be applicable, particularly the 'essential facilities' doctrine.[35] However, regulators may be concerned to ensure that *ex ante* measures are in place to prohibit such practices (Chapter 10).

[35] eg Cases C-241 and 242/91, *RTE v Magill* [1995] 4 CMLR 718.

1.13 REGULATING IN THE GLOBAL ECONOMY

As discussed, the inherently global nature of telecommunications has meant that the sector has been the subject of international agreements since its beginnings. It is also worth noting, however, that the transnational nature of the industry is also reflected at various levels in national regulatory policy. Mention was made previously of the use of benchmarks as a mechanism for regulating the behaviour of the incumbent in areas such as tariffing, by reference to prices available under prevailing market conditions. Such benchmarks may be based on figures obtained within the national market, but equally regional or international figures may be utilized.[36] Through such mechanisms, the national regulatory framework can come to reflect and embody international 'best practice', particularly where the benchmark reference sites are those markets considered more advanced or liberalized.

Conversely, the imposition of benchmarks on national operators may be used as a tool to encourage further liberalization in other national markets, raising issues relating to the exercise of extraterritorial jurisdiction. The classic example of this is the FCC's 1997 Benchmark Order for International Settlements, which required US-licensed operators to only pay international settlements rates laid down by the FCC, on the basis of country-by-country benchmarks, rather than reached through normal commercial negotiations between operators (Chapter 16). The objective of the Order was to prevent operators from non-liberalized markets leveraging their domestic monopolistic position to the detriment of the US consumer.

Another feature of the telecommunications market is the amount of joint venture and merger activity taking place, as companies try to position themselves to take advantage of the increasingly global economy. Such agreements inevitably give rise to competition concerns at a national and regional level. To address such industry globalization, competition authorities have entered into their own agreements in order to coordinate their response to such developments; for example, between the United States and the European Community.[37]

National concerns about the impact of transnational merger activity on the national incumbent may also be the subject of regulatory intervention. For example,

[36] eg Commission Recommendation 'On Leased lines interconnection pricing in a liberalized telecommunications market', C(1999)3863, 24 November 1999.

[37] See Agreement between the European Communities and the Government of the United States of America on the application of positive comity principles in the enforcement of their competition laws, OJ L 173/28, 18 June 1998.

during BT's abortive attempt to merge with MCI in 1997, the Director General of Telecommunications in the UK expressed concerns that one of the potential consequences were the merger to be successful was that BT may end up with a substantial proportion of its assets residing overseas, as well as its investments, at the expense of the domestic market.[38] To address this concern, BT's licence was modified to include an annual reporting requirement whereby BT would effectively guarantee that sufficient resources were maintained to meet its domestic obligations.

1.14 CONCLUDING REMARKS

For many countries, the pursuance of a policy of market liberalization coupled with the pace of technological development has meant that the telecommunications sector has gone from an environment of scarcity to one of relative or actual abundance. The legal framework governing such abundance should become less complex than that required during the process of transition from a monopolistic environment. Indeed, a number of jurisdictions are currently addressing the problem of scaling down the regulatory framework for telecommunications. Competition law provides the core principles upon which this 'second generation' of telecommunications law is based, although the pace of change in some sectors of the market has proven more stubborn to competition than anticipated, which has required renewed regulatory intervention (Chapter 8). Oligopolistic markets also seem a defining feature of a mature telecommunications industry, whether through spectrum limitations imposed on mobile telephony or the impact of globalization on merger activity, which may require traditional competition law principles to be reconsidered. At the same time, the unique 'public interest' nature of telecommunications continues to constrain the sector from becoming a 'normal' competitive marketplace.

Governments are also examining the implications of convergence, which raises important issues of content regulation, for which little international consensus has been reached. Regulating content may become an increasingly prominent aspect of a telecommunications lawyers' work, compared to issues of establishment and operation.

Telecommunications law is evolving rapidly in parallel with the market it purports to govern. Any book is therefore destined to date quickly in respect of some

[38] See Oftel publication 'Domestic Obligations in a Global Market', July 1997.

details. However, the process of liberalization in Europe and the US, as well as in many other countries, is sufficiently well advanced to provide us with a clear outline of some of the key aspects of international best practice in law and regulation for the telecommunications or communications sector over the next five to ten years.